Dossier BV Labs: C4E1206
Date du rapport: 05/17/2024

Bureau Veritas Laboratories
Votre # du projet: C420306
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	MX6180-GALA-240325-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ZDG787	Sample Media:	
Date d'échantillonnage:	03/25/2024		

ANALYTE	Mass ug	concentration mg/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	05/17/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	05/17/2024
Total (Quartz and Cristobalite)	<10	N/A	10	NIOSH 7500	05/17/2024
Tridymite	<10	N/A	10	NIOSH 7500	05/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

REMARQUES GÉNÉRALES

Unless otherwise noted below the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and /or do not adversely affect the reported results and 3) the industrial hygiene results have not been blank corrected.

The client provided their pertinent field sampling data on the analysis request paperwork submitted with the samples. Results apply to the sample as received.

Les résultats s'appliquent seulement pour les paramètres analysés.

Sent to: **Bureau Veritas North America In**
22345 Roethel Drive
Novi, MI, 48375
Tel: (248) 344-1770

BV LABS INTERLAB CHAIN OF CUSTODY RECORD

COC # C420306-BVMI-01-01

C4E806

REPORT INFORMATION	
Company:	Bureau Veritas Laboratories
Address:	889, Montée de Liesse, Saint-Laurent, Quebec, H4T 1P5
Contact Name:	Sarah Beaudry
Email:	Sarah.Beaudry@bureauveritas.com, SoustraitanceQue-YUL@bureauveritas.com
Phone:	(438) 355-7268
BV Labs Project #:	C420306
Client Invoice To:	WSP Canada Inc. (4934)
Client Report To:	WSP Canada Inc. - Montréal (4040) **Incl. on Report? Yes / No**

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	ANALYSIS REQUESTED: Silica by XR (NIOSH 7500)-PVC filter	ADDITIONAL SAMPLE INFORMATION
1	MX6174-GALA-240113-WIL-PM4-1	FILT	2024/01/13	00:00		1	X	(P: 01)
2	MX6175-GALA-240125-WIL-PM4-1	FILT	2024/01/25	00:00		1	X	(P: 01)
3	MX6176-GALA-240206-WIL-PM4-1	FILT	2024/02/06	00:00		1	X	(P: 01)
4	MX6177-GALA-240218-WIL-PM4-1	FILT	2024/02/18	00:00		1	X	(P: 01)
5	MX6178-GALA-240301-WIL-PM4-1	FILT	2024/03/01	00:00		1	X	(P: 01)
6	MX6179-GALA-240318-WIL-PM4-1	FILT	2024/03/18	00:00		1	X	(P: 01)
7	MX6180-GALA-240325-WIL-PM4-1	FILT	2024/03/25	00:00		1	X	(P: 01)
8								
9								
10								

Job Barcode Label

SITE LOCATION: Galaxy

SITE #:

PROJECT #: CA0012054.2069 phase 123

PO/AFE, TASK ORDER/SERVICE ORDER, LINE ITEM:

REGULATORY CRITERIA: Guide 2021 Basses-Terres

SPECIAL INSTRUCTIONS: Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching.
Please return a copy of this form with the report.

REQUIRED EDDs: National Excel (N001) Golder (Q001) Dessau Soprin Excel (Q004)

TURNAROUND TIME

☐ Rush Required

2024/05/21
Date Required

Please inform us if rush charges will be incurred.

COOLER ID:	YES	NO	Temp: (°C)			
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)			
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)			
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

RECEIVING LAB USE ONLY

BV Labs Job #

RELINQUISHED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	Samples Labelled By:	Labels Verified By:
1. Izadora Bacher	2024/05/07	12:48	1. Luke Powell	2024/05/10	1249		
2.			2.				

Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy
Votre # Bordereau: 143493

Attention: Francis Charbonneau

WSP Canada Inc. - Montréal
René-Lévesque
1600 René-Lévesque O
local B110
Montréal, QC
CANADA H3H 1P9

Date du rapport: 2024/09/17
Rapport: R2978800
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BUREAU VERITAS: C446794
Reçu: 2024/08/20, 14:30

Matrice: Filtre
Nombre d'échantillons reçus: 55

Analyses	Quantité	Date de l' extraction	Date Analysé	Méthode de laboratoire	Méthode d'analyse
Particules totales	7	2024/08/23	2024/08/23	STL SOP-00045	MA100– Part 1.0 R4 m
Particules totales	16	2024/08/26	2024/08/26	STL SOP-00045	MA100– Part 1.0 R4 m
Particules totales	1	2024/08/29	2024/08/29	STL SOP-00045	MA100– Part 1.0 R4 m
Particules totales (Hi-VOL)	30	2024/08/23	2024/08/23	STL SOP-00045	MA100–Part. 1.0 R4 m
Particules totales (Hi-VOL)	1	2024/08/29	2024/08/29	STL SOP-00045	MA100–Part. 1.0 R4 m
Métaux extractibles (Filtre 37-47mm)	9	2024/08/31	2024/09/03	STL SOP-00075	MA.200–Mét. 1.2 R7
Métaux extractibles totaux (Hi-vol)	8	2024/08/27	2024/08/28	STL SOP-00062	MA.200–Mét. 1.2 R7 m
Métaux extractibles totaux (Hi-vol)	15	2024/08/28	2024/08/28	STL SOP-00062	MA.200–Mét. 1.2 R7 m
Métaux extractibles totaux (Hi-vol)	7	2024/08/29	2024/08/30	STL SOP-00062	MA.200–Mét. 1.2 R7 m
Métaux extractibles totaux (Hi-vol)	1	2024/09/06	2024/09/07	STL SOP-00062	MA.200–Mét. 1.2 R7 m
Silice par RX (NIOSH 7500)-Filtre PVC (1)	15	N/A	N/A	Crystalline Silica by NIOSH 7500	NIOSH 7500

Remarques:

Bureau Veritas est certifié ISO/IEC 17025 pour certains paramètres précis des portées d'accréditation. Sauf indication contraire, les méthodes d'analyses utilisées par Bureau Veritas s'inspirent des méthodes de référence d'organismes provinciaux, fédéraux et américains, tels que le CCME, l'EPA, l'APHA ou le ministère de l'environnement du Québec.

Toutes les analyses présentées ont été réalisées conformément aux procédures et aux pratiques relatives à la méthodologie, à l'assurance qualité et au contrôle de la qualité généralement appliqués par les employés de Bureau Veritas (sauf s'il en a été convenu autrement par écrit entre le client et Bureau Veritas). Toutes les données de laboratoire rencontrent les contrôles statistiques et respectent tous les critères de CQ et les critères de performance des méthodes, sauf s'il en a été signalé autrement. Tous les blancs de méthode sont rapportés, toutefois, les données des échantillons correspondants ne sont pas corrigées pour la valeur du blanc, sauf indication contraire. Le cas échéant, sauf indication contraire, l'incertitude de mesure n'a pas été prise en considération lors de la déclaration de la conformité à la norme de référence.

Les responsabilités de Bureau Veritas sont restreintes au coût réel de l'analyse, sauf s'il en a été convenu autrement par écrit. Il n'existe aucune autre garantie, explicite ou implicite. Le client a fait appel à Bureau Veritas pour l'analyse de ses échantillons conformément aux méthodes de référence mentionnées dans ce rapport. L'interprétation et l'utilisation des résultats sont sous l'entière responsabilité du client et ne font pas partie des services offerts par Bureau Veritas, sauf si convenu autrement par écrit. Bureau Veritas ne peut pas garantir l'exactitude des résultats qui dépendent des renseignements fournis par le client ou son représentant.

Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy
Votre # Bordereau: 143493

Attention: Francis Charbonneau

WSP Canada Inc. - Montréal
René-Lévesque
1600 René-Lévesque O
local B110
Montréal, QC
CANADA H3H 1P9

Date du rapport: 2024/09/17
Rapport: R2978800
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BUREAU VERITAS: C446794

Reçu: 2024/08/20, 14:30

Les résultats des échantillons solides, sauf les biotes, sont rapportés en fonction de la masse sèche, sauf indication contraire. Les analyses organiques ne sont pas corrigées en fonction de la récupération, sauf pour les méthodes de dilution isotopique.

Les résultats s'appliquent seulement aux échantillons analysés. Si l'échantillonnage n'est pas effectué par Bureau Veritas, les résultats se rapportent aux échantillons fournis pour analyse.

Le présent rapport ne doit pas être reproduit, sinon dans son intégralité, sans le consentement écrit du laboratoire.

Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.

Notez: Les données brutes sont utilisées pour le calcul du RPD (% d'écart relatif). L'arrondissement des résultats finaux peut expliquer la variation apparente.

(1) Cette analyse a été effectuée par Bureau Veritas North America Inc.(Michigan), 22345 Roethel Drive , Novi, MI, 48375

Note : Les paramètres inclus dans le présent certificat sont accrédités par le ministère de l'environnement du Québec, à moins d'indication contraire.

clé de cryptage



Bureau Veritas
17 Sep 2024 15:32:34

Veuillez adresser toute question concernant ce certificat d' analyse à:
Sarah Beaudry, Chargée de projets
Courriel: Sarah.Beaudry@bureauveritas.com
Téléphone (438)355-7268

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Ce rapport a été produit et distribué en utilisant une procédure automatisée sécuritaire.
Bureau Veritas a mis en place des procédures qui protègent contre l'utilisation non autorisée de la signature électronique et emploie les «signataires» requis, conformément à l'ISO/CEI17025. Pour la validation spécifique à un groupe de services, veuillez vous référer à la page des Signatures de validation si elle est incluse, sinon disponible sur demande. Pour les noms de validation des analystes/superviseurs spécifiques à un service, veuillez vous référer à la section Résumé de l'analyse si elle est incluse, sinon disponible sur demande. Ce rapport est autorisé par Aglaia Yannakis, Directrice générale, responsable des opérations du laboratoire Environnementale - Québec.

Dossier Bureau Veritas: C446794
Date du rapport: 2024/09/17

WSP Canada Inc. - Montréal
Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy

MÉTAUX (FILTRE)

ID Bureau Veritas		NK0347	NK0348	NK0349	NK0350		
Date d'échantillonnage		2024/03/31 00:00	2024/03/25 00:00	2024/04/12 00:00	2024/04/06 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	GALA-240331-HV-1	GALA-240325-HV-1	GALA-240412-HV-1	GALA-240406-HV-1	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	0.50	<0.20	0.59	<0.20	0.20	2560446
Argent (Ag) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2560446
Arsenic (As) Air	ug	0.42	0.59	<0.40	<0.40	0.40	2560446
Baryum (Ba) Air	ug	4.6	3.9	1.4	4.3	0.40	2560446
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2560446
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2560446
Chrome (Cr) Air	ug	8.7	5.9	9.9	8.8	0.90	2560446
Cobalt (Co) Air †	ug	<0.30	<0.30	<0.30	<0.30	0.30	2560446
Cuivre (Cu) Air	ug	32	31	15	34	0.90	2560446
Manganèse (Mn) Air †	ug	3.2	2.6	2.7	2.2	0.90	2560446
Nickel (Ni) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2560446
Plomb (Pb) Air	ug	1.2	1.2	0.88	<0.40	0.40	2560446
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2560446
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	<0.050	0.050	2560446
Vanadium (V) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2560446
Zinc (Zn) Air	ug	15	<9.0	<9.0	<9.0	9.0	2560446

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

MÉTAUX (FILTRE)

ID Bureau Veritas		NK0351	NK0352	NK0353		NK0354		
Date d'échantillonnage		2024/04/18 00:00	2024/04/24 00:00	2024/04/30 00:00		2024/05/06 00:00		
# Bordereau		143493	143493	143493		143493		
	Unités	GALA-240418-HV-1	GALA-240424-HV-1	GALA-240430-HV-1	Lot CQ	GALA-240506-HV-1	LDR	Lot CQ
MÉTAUX								
Antimoine (Sb) Air	ug	0.43	0.30	<0.20	2560446	0.23	0.20	2560916
Argent (Ag) Air	ug	<0.30	<0.30	<0.30	2560446	<0.30	0.30	2560916
Arsenic (As) Air	ug	<0.40	<0.40	<0.40	2560446	<0.40	0.40	2560916
Baryum (Ba) Air	ug	1.7	1.8	1.4	2560446	1.1	0.40	2560916
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	2560446	<0.30	0.30	2560916
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	2560446	<0.20	0.20	2560916
Chrome (Cr) Air	ug	10	58	24	2560446	5.0	0.90	2560916
Cobalt (Co) Air †	ug	<0.30	<0.30	<0.30	2560446	<0.30	0.30	2560916
Cuivre (Cu) Air	ug	41	31	24	2560446	23	0.90	2560916
Manganèse (Mn) Air †	ug	2.4	4.1	3.5	2560446	1.9	0.90	2560916
Nickel (Ni) Air	ug	<2.0	<2.0	<2.0	2560446	<2.0	2.0	2560916
Plomb (Pb) Air	ug	<0.40	0.50	<0.40	2560446	<0.40	0.40	2560916
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	2560446	<0.50	0.50	2560916
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	2560446	<0.050	0.050	2560916
Vanadium (V) Air	ug	<2.0	<2.0	<2.0	2560446	<2.0	2.0	2560916
Zinc (Zn) Air	ug	<9.0	<9.0	<9.0	2560446	<9.0	9.0	2560916

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

MÉTAUX (FILTRE)

ID Bureau Veritas		NK0355		NK0356	NK0357	NK0358		
Date d'échantillonnage		2024/05/14 00:00		2024/05/18 00:00	2024/05/30 00:00	2024/06/05 00:00		
# Bordereau		143493		143493	143493	143493		
	Unités	GALA-240514-HV-1	Lot CQ	GALA-240518-HV-1	GALA-240530-HV-1	GALA-240605-HV-1	LDR	Lot CQ
MÉTAUX								
Antimoine (Sb) Air	ug	0.55	2560446	0.57	0.49	0.52	0.20	2560916
Argent (Ag) Air	ug	<0.30	2560446	<0.30	<0.30	<0.30	0.30	2560916
Arsenic (As) Air	ug	<0.40	2560446	<0.40	<0.40	0.79	0.40	2560916
Baryum (Ba) Air	ug	2.0	2560446	2.4	3.0	2.2	0.40	2560916
Béryllium (Be) Air	ug	<0.30	2560446	<0.30	<0.30	<0.30	0.30	2560916
Cadmium (Cd) Air	ug	<0.20	2560446	<0.20	<0.20	<0.20	0.20	2560916
Chrome (Cr) Air	ug	19	2560446	7.0	8.1	6.8	0.90	2560916
Cobalt (Co) Air †	ug	<0.30	2560446	<0.30	<0.30	<0.30	0.30	2560916
Cuivre (Cu) Air	ug	14	2560446	81	28	25	0.90	2560916
Manganèse (Mn) Air †	ug	3.7	2560446	6.3	5.4	6.1	0.90	2560916
Nickel (Ni) Air	ug	<2.0	2560446	<2.0	<2.0	<2.0	2.0	2560916
Plomb (Pb) Air	ug	<0.40	2560446	0.80	<0.40	1.4	0.40	2560916
Sélénium (Se) Air †	ug	<0.50	2560446	<0.50	<0.50	0.51	0.50	2560916
Thallium (Tl) Air	ug	<0.050	2560446	<0.050	<0.050	<0.050	0.050	2560916
Vanadium (V) Air	ug	<2.0	2560446	<2.0	<2.0	<2.0	2.0	2560916
Zinc (Zn) Air	ug	<9.0	2560446	9.3	<9.0	<9.0	9.0	2560916

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

MÉTAUX (FILTRE)

ID Bureau Veritas		NK0359		NK0360	NK0361		
Date d'échantillonnage		2024/06/23 00:00		2024/06/29 00:00	2024/07/05 00:00		
# Bordereau		143493		143493	143493		
	Unités	**GALA-240623-HV-1**	**Lot CQ**	**GALA-240629-HV-1**	**GALA-240705-HV-1**	**LDR**	**Lot CQ**
MÉTAUX							
Antimoine (Sb) Air	ug	0.35	2560916	0.66	0.63	0.20	2561440
Argent (Ag) Air	ug	<0.30	2560916	<0.30	<0.30	0.30	2561440
Arsenic (As) Air	ug	<0.40	2560916	<0.40	<0.40	0.40	2561440
Baryum (Ba) Air	ug	1.7	2560916	0.83	4.5	0.40	2561440
Béryllium (Be) Air	ug	<0.30	2560916	<0.30	<0.30	0.30	2561440
Cadmium (Cd) Air	ug	<0.20	2560916	<0.20	<0.20	0.20	2561440
Chrome (Cr) Air	ug	12	2560916	14	31	0.90	2561440
Cobalt (Co) Air †	ug	<0.30	2560916	<0.30	<0.30	0.30	2561440
Cuivre (Cu) Air	ug	37	2560916	33	42	0.90	2561440
Manganèse (Mn) Air †	ug	5.7	2560916	8.8	7.2	0.90	2561440
Nickel (Ni) Air	ug	<2.0	2560916	<2.0	3.3	2.0	2561440
Plomb (Pb) Air	ug	<0.40	2560916	<0.40	<0.40	0.40	2561440
Sélénium (Se) Air †	ug	<0.50	2560916	<0.50	<0.50	0.50	2561440
Thallium (Tl) Air	ug	<0.050	2560916	<0.050	<0.050	0.050	2561440
Vanadium (V) Air	ug	<2.0	2560916	<2.0	<2.0	2.0	2561440
Zinc (Zn) Air	ug	<9.0	2560916	<9.0	<9.0	9.0	2561440

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

MÉTAUX (FILTRE)

ID Bureau Veritas		NK0362	NK0370	NK0371	NK0372		
Date d'échantillonnage		2024/07/06 00:00	2024/03/25 00:00	2024/03/31 00:00	2024/04/06 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	GALA-240706-HV-1-FB	GALA-240325-HV-2	GALA-240331-HV-2	GALA-240406-HV-2	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	0.58	<0.20	0.35	0.51	0.20	2561440
Argent (Ag) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2561440
Arsenic (As) Air	ug	<0.40	<0.40	<0.40	<0.40	0.40	2561440
Baryum (Ba) Air	ug	0.53	5.9	5.2	1.2	0.40	2561440
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2561440
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2561440
Chrome (Cr) Air	ug	30	15	12	10	0.90	2561440
Cobalt (Co) Air †	ug	<0.30	<0.30	<0.30	<0.30	0.30	2561440
Cuivre (Cu) Air	ug	<0.90	26	120	97	0.90	2561440
Manganèse (Mn) Air †	ug	1.8	4.3	4.7	4.3	0.90	2561440
Nickel (Ni) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2561440
Plomb (Pb) Air	ug	<0.40	0.83	0.93	<0.40	0.40	2561440
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2561440
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	<0.050	0.050	2561440
Vanadium (V) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2561440
Zinc (Zn) Air	ug	<9.0	<9.0	<9.0	<9.0	9.0	2561440

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MÉTAUX (FILTRE)

ID Bureau Veritas		NK0373		NK0374	NK0375	NK0376		
Date d'échantillonnage		2024/04/12 00:00		2024/04/18 00:00	2024/04/24 00:00	2024/04/30 00:00		
# Bordereau		143493		143493	143493	143493		
	Unités	GALA-240412-HV-2	Lot CQ	GALA-240418-HV-2	GALA-240424-HV-2	GALA-240430-HV-2	LDR	Lot CQ
MÉTAUX								
Antimoine (Sb) Air	ug	0.49	2561440	0.48	0.37	<0.20	0.20	2560916
Argent (Ag) Air	ug	<0.30	2561440	<0.30	<0.30	<0.30	0.30	2560916
Arsenic (As) Air	ug	<0.40	2561440	<0.40	<0.40	<0.40	0.40	2560916
Baryum (Ba) Air	ug	0.69	2561440	1.7	0.89	1.7	0.40	2560916
Béryllium (Be) Air	ug	<0.30	2561440	<0.30	<0.30	<0.30	0.30	2560916
Cadmium (Cd) Air	ug	<0.20	2561440	<0.20	<0.20	<0.20	0.20	2560916
Chrome (Cr) Air	ug	12	2561440	5.9	19	5.6	0.90	2560916
Cobalt (Co) Air †	ug	<0.30	2561440	<0.30	<0.30	<0.30	0.30	2560916
Cuivre (Cu) Air	ug	2.6	2561440	12	33	4.5	0.90	2560916
Manganèse (Mn) Air †	ug	1.3	2561440	2.8	1.8	2.9	0.90	2560916
Nickel (Ni) Air	ug	<2.0	2561440	<2.0	<2.0	<2.0	2.0	2560916
Plomb (Pb) Air	ug	<0.40	2561440	<0.40	<0.40	<0.40	0.40	2560916
Sélénium (Se) Air †	ug	<0.50	2561440	<0.50	<0.50	<0.50	0.50	2560916
Thallium (Tl) Air	ug	<0.050	2561440	<0.050	<0.050	<0.050	0.050	2560916
Vanadium (V) Air	ug	<2.0	2561440	<2.0	<2.0	<2.0	2.0	2560916
Zinc (Zn) Air	ug	<9.0	2561440	<9.0	<9.0	<9.0	9.0	2560916

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MÉTAUX (FILTRE)

ID Bureau Veritas		NK0377	NK0378	NK0379	NK0380		
Date d'échantillonnage		2024/05/06 00:00	2024/05/14 00:00	2024/05/18 00:00	2024/05/30 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	GALA-240506-HV-2	GALA-240514-HV-2	GALA-240518-HV-2	GALA-240530-HV-2	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	0.53	0.48	0.48	0.41	0.20	2560916
Argent (Ag) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2560916
Arsenic (As) Air	ug	<0.40	<0.40	<0.40	<0.40	0.40	2560916
Baryum (Ba) Air	ug	0.70	0.42	1.1	0.74	0.40	2560916
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2560916
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2560916
Chrome (Cr) Air	ug	11	15	9.4	9.3	0.90	2560916
Cobalt (Co) Air †	ug	<0.30	<0.30	<0.30	<0.30	0.30	2560916
Cuivre (Cu) Air	ug	40	54	6.3	70	0.90	2560916
Manganèse (Mn) Air †	ug	1.2	1.1	2.8	1.7	0.90	2560916
Nickel (Ni) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2560916
Plomb (Pb) Air	ug	<0.40	<0.40	0.42	<0.40	0.40	2560916
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2560916
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	<0.050	0.050	2560916
Vanadium (V) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2560916
Zinc (Zn) Air	ug	<9.0	<9.0	<9.0	<9.0	9.0	2560916

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MÉTAUX (FILTRE)

ID Bureau Veritas		NK0381	NK0382	NK0383	NK0391		
Date d'échantillonnage		2024/06/23 00:00	2024/06/30 00:00	2024/07/05 00:00	2024/03/25 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	GALA-240623-HV-2	GALA-240630-HV-2	GALA-240705-HV-2-FB	GALA-240325-WIL-PM2.5-2	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	0.51	0.47	0.52	N/A	0.20	2560916
Antimoine (Sb) Filtre	ug	N/A	N/A	N/A	<0.050	0.050	2562502
Argent (Ag) Air	ug	<0.30	<0.30	<0.30	N/A	0.30	2560916
Arsenic (As) Air	ug	<0.40	<0.40	<0.40	N/A	0.40	2560916
Arsenic (As) Filtre	ug	N/A	N/A	N/A	<0.040	0.040	2562502
Baryum (Ba) Air	ug	2.3	0.72	0.55	N/A	0.40	2560916
Baryum (Ba) Filtre	ug	N/A	N/A	N/A	<0.050	0.050	2562502
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	N/A	0.30	2560916
Béryllium (Be) Filtre	ug	N/A	N/A	N/A	<0.030	0.030	2562502
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	N/A	0.20	2560916
Cadmium (Cd) Filtre	ug	N/A	N/A	N/A	<0.050	0.050	2562502
Chrome (Cr) Air	ug	12	20	20	N/A	0.90	2560916
Chrome (Cr) Filtre	ug	N/A	N/A	N/A	0.40	0.10	2562502
Cobalt (Co) Air †	ug	<0.30	<0.30	<0.30	N/A	0.30	2560916
Cobalt (Co) Filtre †	ug	N/A	N/A	N/A	0.048	0.030	2562502
Cuivre (Cu) Air	ug	57	50	3.9	N/A	0.90	2560916
Cuivre (Cu) Filtre	ug	N/A	N/A	N/A	<0.10	0.10	2562502
Manganèse (Mn) Air †	ug	5.0	3.4	1.4	N/A	0.90	2560916
Manganèse (Mn) Filtre †	ug	N/A	N/A	N/A	<0.10	0.10	2562502
Nickel (Ni) Air	ug	<2.0	<2.0	<2.0	N/A	2.0	2560916
Nickel (Ni) Filtre	ug	N/A	N/A	N/A	<0.30	0.30	2562502
Plomb (Pb) Air	ug	<0.40	<0.40	<0.40	N/A	0.40	2560916
Plomb (Pb) Filtre	ug	N/A	N/A	N/A	<0.040	0.040	2562502
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	N/A	0.50	2560916
Sélénium (Se) Filtre †	ug	N/A	N/A	N/A	<0.50	0.50	2562502
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	N/A	0.050	2560916
Thallium (Tl) Filtre	ug	N/A	N/A	N/A	<0.010	0.010	2562502
Vanadium (V) Air	ug	<2.0	<2.0	<2.0	N/A	2.0	2560916
Vanadium (V) Filtre	ug	N/A	N/A	N/A	<0.20	0.20	2562502
Zinc (Zn) Air	ug	<9.0	<9.0	<9.0	N/A	9.0	2560916
Zinc (Zn) Filtre	ug	N/A	N/A	N/A	<1.0	1.0	2562502

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N/A = Non Applicable
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MÉTAUX (FILTRE)

ID Bureau Veritas		NK0392	NK0393	NK0394	NK0395		
Date d'échantillonnage		2024/03/31 00:00	2024/04/06 00:00	2024/04/18 00:00	2024/04/30 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	GALA-240331-WIL-PM2.5-2-FB	GALA-240406-WIL-PM2.5-2	GALA-240418-WIL-PM2.5-2	GALA-240430-WIL-PM2.5-2	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Filtre	ug	<0.050	<0.050	<0.050	<0.050	0.050	2562502
Arsenic (As) Filtre	ug	<0.040	<0.040	<0.040	<0.040	0.040	2562502
Baryum (Ba) Filtre	ug	<0.050	<0.050	<0.050	0.063	0.050	2562502
Béryllium (Be) Filtre	ug	<0.030	<0.030	<0.030	<0.030	0.030	2562502
Cadmium (Cd) Filtre	ug	<0.050	<0.050	<0.050	<0.050	0.050	2562502
Chrome (Cr) Filtre	ug	<0.10	0.30	0.32	0.24	0.10	2562502
Cobalt (Co) Filtre †	ug	<0.030	<0.030	0.041	<0.030	0.030	2562502
Cuivre (Cu) Filtre	ug	<0.10	<0.10	<0.10	<0.10	0.10	2562502
Manganèse (Mn) Filtre †	ug	<0.10	<0.10	<0.10	0.26	0.10	2562502
Nickel (Ni) Filtre	ug	<0.30	<0.30	<0.30	<0.30	0.30	2562502
Plomb (Pb) Filtre	ug	<0.040	<0.040	<0.040	<0.040	0.040	2562502
Sélénium (Se) Filtre †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2562502
Thallium (Tl) Filtre	ug	<0.010	<0.010	<0.010	<0.010	0.010	2562502
Vanadium (V) Filtre	ug	<0.20	<0.20	<0.20	<0.20	0.20	2562502
Zinc (Zn) Filtre	ug	<1.0	<1.0	<1.0	<1.0	1.0	2562502

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Dossier Bureau Veritas: C446794
Date du rapport: 2024/09/17

WSP Canada Inc. - Montréal
Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy

MÉTAUX (FILTRE)

ID Bureau Veritas		NK0396	NK0397	NK0398	NK0399		
Date d'échantillonnage		2024/05/30 00:00	2024/06/05 00:00	2024/06/29 00:00	2024/07/06 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	GALA-240530-WIL-PM2.5-2	GALA-240605-WIL-PM2.5-2	GALA-240629-WIL-PM2.5-2	GALA-240706-WIL-PM2.5-2-FB	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Filtre	ug	<0.050	<0.050	<0.050	<0.050	0.050	2562502
Arsenic (As) Filtre	ug	<0.040	<0.040	<0.040	<0.040	0.040	2562502
Baryum (Ba) Filtre	ug	0.086	0.18	<0.050	0.14	0.050	2562502
Béryllium (Be) Filtre	ug	<0.030	<0.030	<0.030	<0.030	0.030	2562502
Cadmium (Cd) Filtre	ug	<0.050	<0.050	<0.050	<0.050	0.050	2562502
Chrome (Cr) Filtre	ug	0.32	0.22	0.48	0.39	0.10	2562502
Cobalt (Co) Filtre †	ug	<0.030	<0.030	<0.030	<0.030	0.030	2562502
Cuivre (Cu) Filtre	ug	<0.10	0.13	<0.10	<0.10	0.10	2562502
Manganèse (Mn) Filtre †	ug	0.16	0.13	<0.10	<0.10	0.10	2562502
Nickel (Ni) Filtre	ug	<0.30	<0.30	<0.30	<0.30	0.30	2562502
Plomb (Pb) Filtre	ug	<0.040	0.049	<0.040	<0.040	0.040	2562502
Sélénium (Se) Filtre †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2562502
Thallium (Tl) Filtre	ug	<0.010	<0.010	<0.010	<0.010	0.010	2562502
Vanadium (V) Filtre	ug	<0.20	<0.20	<0.20	<0.20	0.20	2562502
Zinc (Zn) Filtre	ug	<1.0	<1.0	<1.0	<1.0	1.0	2562502

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MÉTAUX (FILTRE)

ID Bureau Veritas		NK0571		
Date d'échantillonnage		2024/07/05		
# Bordereau		143493		
	Unités	**GALA-240705-HV-2**	**LDR**	**Lot CQ**
MÉTAUX				
Antimoine (Sb) Air	ug	0.60	0.20	2564238
Argent (Ag) Air	ug	<0.30	0.30	2564238
Arsenic (As) Air	ug	<0.40	0.40	2564238
Baryum (Ba) Air	ug	0.67	0.40	2564238
Béryllium (Be) Air	ug	<0.30	0.30	2564238
Cadmium (Cd) Air	ug	<0.20	0.20	2564238
Chrome (Cr) Air	ug	10	0.90	2564238
Cobalt (Co) Air †	ug	<0.30	0.30	2564238
Cuivre (Cu) Air	ug	84	0.90	2564238
Manganèse (Mn) Air †	ug	1.7	0.90	2564238
Nickel (Ni) Air	ug	<2.0	2.0	2564238
Plomb (Pb) Air	ug	<0.40	0.40	2564238
Sélénium (Se) Air †	ug	<0.50	0.50	2564238
Thallium (Tl) Air	ug	<0.050	0.050	2564238
Vanadium (V) Air	ug	<2.0	2.0	2564238
Zinc (Zn) Air	ug	<9.0	9.0	2564238

LDR = Limite de détection rapportée
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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NK0347	NK0348	NK0349	NK0350		
Date d'échantillonnage		2024/03/31 00:00	2024/03/25 00:00	2024/04/12 00:00	2024/04/06 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	**GALA-240331-HV-1**	**GALA-240325-HV-1**	**GALA-240412-HV-1**	**GALA-240406-HV-1**	**LDR**	**Lot CQ**
CONVENTIONNELS							
Poids du filtre	g	3.292	3.305	3.478	3.278	0.001	2559399
Poids du filtre avec poussières	g	3.315	3.320	3.503	3.293	0.001	2559399
Particules totales	g	0.024	0.015	0.025	0.014	0.001	2559399

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NK0351	NK0352	NK0353	NK0354		
Date d'échantillonnage		2024/04/18 00:00	2024/04/24 00:00	2024/04/30 00:00	2024/05/06 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	**GALA-240418-HV-1**	**GALA-240424-HV-1**	**GALA-240430-HV-1**	**GALA-240506-HV-1**	**LDR**	**Lot CQ**
CONVENTIONNELS							
Poids du filtre	g	3.475	3.478	3.338	3.319	0.001	2559399
Poids du filtre avec poussières	g	3.493	3.510	3.352	3.337	0.001	2559399
Particules totales	g	0.018	0.032	0.015	0.018	0.001	2559399

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ID Bureau Veritas		NK0355	NK0356	NK0357	NK0358		
Date d'échantillonnage		2024/05/14 00:00	2024/05/18 00:00	2024/05/30 00:00	2024/06/05 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	**GALA-240514-HV-1**	**GALA-240518-HV-1**	**GALA-240530-HV-1**	**GALA-240605-HV-1**	**LDR**	**Lot CQ**
CONVENTIONNELS							
Poids du filtre	g	3.382	3.475	3.482	3.477	0.001	2559399
Poids du filtre avec poussières	g	3.404	3.524	3.519	3.570	0.001	2559399
Particules totales	g	0.022	0.049	0.037	0.093	0.001	2559399

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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NK0359	NK0360	NK0361	NK0362		
Date d'échantillonnage		2024/06/23 00:00	2024/06/29 00:00	2024/07/05 00:00	2024/07/06 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	GALA-240623-HV-1	GALA-240629-HV-1	GALA-240705-HV-1	GALA-240706-HV-1-FB	LDR	Lot CQ
CONVENTIONNELS							
Poids du filtre	g	3.476	3.383	3.371	3.380	0.001	2559399
Poids du filtre avec poussières	g	3.514	3.442	3.405	3.390	0.001	2559399
Particules totales	g	0.037	0.059	0.034	0.010	0.001	2559399

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NK0363	NK0364	NK0365		
Date d'échantillonnage		2024/03/31 00:00	2024/04/06 00:00	2024/04/18 00:00		
# Bordereau		143493	143493	143493		
	Unités	GALA-240331-WIL-PM4-1-FB	GALA-240406-WIL-PM4-1	GALA-240418-WIL-PM4-1	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0216	0.0215	0.0186	0.0002	2559317
Poids du filtre avec poussières	g	0.0218	0.0216	0.0190	0.0002	2559317
Particules totales	g	0.0002	<0.0002	0.0004	0.0002	2559317

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NK0366	NK0367	NK0368		
Date d'échantillonnage		2024/04/30 00:00	2024/05/30 00:00	2024/06/29 00:00		
# Bordereau		143493	143493	143493		
	Unités	GALA-240430-WIL-PM4-1	GALA-240530-WIL-PM4-1	GALA-240629-WIL-PM4-1	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0247	0.0192	0.0219	0.0002	2559317
Poids du filtre avec poussières	g	0.0250	0.0192	0.0220	0.0002	2559317
Particules totales	g	0.0003	<0.0002	<0.0002	0.0002	2559317

LDR = Limite de détection rapportée
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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NK0369			NK0370	NK0371		
Date d'échantillonnage		2024/07/06 00:00			2024/03/25 00:00	2024/03/31 00:00		
# Bordereau		143493			143493	143493		
	Unités	**GALA-240706-WIL-PM4-1-FB**	**LDR**	**Lot CQ**	**GALA-240325-HV-2**	**GALA-240331-HV-2**	**LDR**	**Lot CQ**
CONVENTIONNELS								
Poids du filtre	g	0.0195	0.0002	2559317	3.274	3.281	0.001	2559399
Poids du filtre avec poussières	g	0.0196	0.0002	2559317	3.292	3.308	0.001	2559399
Particules totales	g	<0.0002	0.0002	2559317	0.018	0.028	0.001	2559399

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NK0372	NK0373		NK0374	NK0375		
Date d'échantillonnage		2024/04/06 00:00	2024/04/12 00:00		2024/04/18 00:00	2024/04/24 00:00		
# Bordereau		143493	143493		143493	143493		
	Unités	**GALA-240406-HV-2**	**GALA-240412-HV-2**	**Lot CQ**	**GALA-240418-HV-2**	**GALA-240424-HV-2**	**LDR**	**Lot CQ**
CONVENTIONNELS								
Poids du filtre	g	3.477	3.478	2559399	3.481	3.479	0.001	2559491
Poids du filtre avec poussières	g	3.503	3.492	2559399	3.502	3.504	0.001	2559491
Particules totales	g	0.026	0.015	2559399	0.021	0.026	0.001	2559491

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NK0376	NK0377	NK0378	NK0379		
Date d'échantillonnage		2024/04/30 00:00	2024/05/06 00:00	2024/05/14 00:00	2024/05/18 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	**GALA-240430-HV-2**	**GALA-240506-HV-2**	**GALA-240514-HV-2**	**GALA-240518-HV-2**	**LDR**	**Lot CQ**
CONVENTIONNELS							
Poids du filtre	g	3.330	3.377	3.485	3.478	0.001	2559491
Poids du filtre avec poussières	g	3.348	3.393	3.501	3.505	0.001	2559491
Particules totales	g	0.017	0.015	0.016	0.028	0.001	2559491

LDR = Limite de détection rapportée
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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NK0380	NK0381	NK0382	NK0383		
Date d'échantillonnage		2024/05/30 00:00	2024/06/23 00:00	2024/06/30 00:00	2024/07/05 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	GALA-240530-HV-2	GALA-240623-HV-2	GALA-240630-HV-2	GALA-240705-HV-2-FB	LDR	Lot CQ
CONVENTIONNELS							
Poids du filtre	g	3.478	3.385	3.373	3.376	0.001	2559491
Poids du filtre avec poussières	g	3.499	3.418	3.398	3.389	0.001	2559491
Particules totales	g	0.022	0.033	0.025	0.014	0.001	2559491

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NK0384	NK0385	NK0386		
Date d'échantillonnage		2024/03/31 00:00	2024/03/25 00:00	2024/04/06 00:00		
# Bordereau		143493	143493	143493		
	Unités	GALA-240331-WIL-PM4-2-FB	GALA-240325-WIL-PM4-2	GALA-240406-WIL-PM4-2	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0178	0.0231	0.0234	0.0002	2559993
Poids du filtre avec poussières	g	0.0179	0.0236	0.0187	0.0002	2559993
Particules totales	g	<0.0002	0.0005	<0.0002	0.0002	2559993

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NK0387	NK0388	NK0389		
Date d'échantillonnage		2024/04/18 00:00	2024/05/31 00:00	2024/06/05 00:00		
# Bordereau		143493	143493	143493		
	Unités	GALA-240418-WIL-PM4-2	GALA-240531-WIL-PM4-2	GALA-240605-WIL-PM4-2	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0220	0.0250	0.0210	0.0002	2559993
Poids du filtre avec poussières	g	0.0225	0.0255	0.0216	0.0002	2559993
Particules totales	g	0.0005	0.0005	0.0006	0.0002	2559993

LDR = Limite de détection rapportée
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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NK0390	NK0391	NK0392	NK0393		
Date d'échantillonnage		2024/07/06 00:00	2024/03/25 00:00	2024/03/31 00:00	2024/04/06 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	GALA-240706-WIL-PM4-2-FB	GALA-240325-WIL-PM2.5-2	GALA-240331-WIL-PM2.5-2-FB	GALA-240406-WIL-PM2.5-2	LDR	Lot CQ
CONVENTIONNELS							
Poids du filtre	g	0.0207	0.0211	0.0181	0.0183	0.0002	2559993
Poids du filtre avec poussières	g	0.0208	0.0213	0.0183	0.0237	0.0002	2559993
Particules totales	g	<0.0002	0.0002	0.0002	0.0054	0.0002	2559993

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NK0394	NK0395	NK0396	NK0397		
Date d'échantillonnage		2024/04/18 00:00	2024/04/30 00:00	2024/05/30 00:00	2024/06/05 00:00		
# Bordereau		143493	143493	143493	143493		
	Unités	GALA-240418-WIL-PM2.5-2	GALA-240430-WIL-PM2.5-2	GALA-240530-WIL-PM2.5-2	GALA-240605-WIL-PM2.5-2	LDR	Lot CQ
CONVENTIONNELS							
Poids du filtre	g	0.0169	0.0207	0.0242	0.0206	0.0002	2559993
Poids du filtre avec poussières	g	0.0177	0.0207	0.0248	0.0210	0.0002	2559993
Particules totales	g	0.0008	<0.0002	0.0006	0.0004	0.0002	2559993

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NK0398	NK0399			NK0571		
Date d'échantillonnage		2024/06/29 00:00	2024/07/06 00:00			2024/07/05		
# Bordereau		143493	143493			143493		
	Unités	GALA-240629-WIL-PM2.5-2	GALA-240706-WIL-PM2.5-2-FB	LDR	Lot CQ	GALA-240705-HV-2	LDR	Lot CQ
CONVENTIONNELS								
Poids du filtre	g	0.0221	0.0198	0.0002	2559993	3.375	0.001	2561494
Poids du filtre avec poussières	g	0.0222	0.0202	0.0002	2559993	3.395	0.001	2561494
Particules totales	g	<0.0002	0.0004	0.0002	2559993	0.021	0.001	2561494

LDR = Limite de détection rapportée
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WSP Canada Inc. - Montréal
Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy

PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NK0572		
Date d'échantillonnage		2024/06/29		
# Bordereau		143493		
	Unités	GALA-240629-PM4-2	LDR	Lot CQ
CONVENTIONNELS				
Poids du filtre	g	0.0203	0.0002	2561437
Poids du filtre avec poussières	g	0.0203	0.0002	2561437
Particules totales	g	<0.0002	0.0002	2561437

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

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REMARQUES GÉNÉRALES

Révision : L'analyse supplémentaire a été ajoutée selon la requète M7834 le 2024/08/28.

PARAMÈTRES CONVENTIONNELS (FILTRE)

Particules Totales: Les résultats bruts non-arrondis sont utilisés dans le calcul des particules totales. Ce résultat total est alors arrondi à trois chiffres significatifs.

Particules Totales : Veuillez noter que les filtres des NK0347, NK0372, NK0386 et NK0572 ont été endommagés. Possibilité de sous-estimation des résultats.

Particules Totales: Filtres blancs:NK0383, pesé 2 fois, confirmation du poids de particules à chacune des pesées. Les poids de particules sont plus grand que LDR (0.001g).

Les résultats ne se rapportent qu'aux échantillons soumis pour analyse

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RAPPORT ASSURANCE QUALITÉ

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
2560446	DPA	Blanc fortifié	Antimoine (Sb) Air	2024/08/28		108	%
			Argent (Ag) Air	2024/08/28		100	%
			Arsenic (As) Air	2024/08/28		102	%
			Baryum (Ba) Air	2024/08/28		103	%
			Béryllium (Be) Air	2024/08/28		104	%
			Cadmium (Cd) Air	2024/08/28		99	%
			Chrome (Cr) Air	2024/08/28		100	%
			Cobalt (Co) Air	2024/08/28		102	%
			Cuivre (Cu) Air	2024/08/28		101	%
			Manganèse (Mn) Air	2024/08/28		101	%
			Nickel (Ni) Air	2024/08/28		100	%
			Plomb (Pb) Air	2024/08/28		99	%
			Sélénium (Se) Air	2024/08/28		105	%
			Thallium (Tl) Air	2024/08/28		101	%
			Vanadium (V) Air	2024/08/28		100	%
			Zinc (Zn) Air	2024/08/28		99	%
2560446	DPA	Blanc fortifié DUP	Antimoine (Sb) Air	2024/08/28		109	%
			Argent (Ag) Air	2024/08/28		101	%
			Arsenic (As) Air	2024/08/28		102	%
			Baryum (Ba) Air	2024/08/28		102	%
			Béryllium (Be) Air	2024/08/28		103	%
			Cadmium (Cd) Air	2024/08/28		100	%
			Chrome (Cr) Air	2024/08/28		100	%
			Cobalt (Co) Air	2024/08/28		102	%
			Cuivre (Cu) Air	2024/08/28		101	%
			Manganèse (Mn) Air	2024/08/28		102	%
			Nickel (Ni) Air	2024/08/28		101	%
			Plomb (Pb) Air	2024/08/28		99	%
			Sélénium (Se) Air	2024/08/28		104	%
			Thallium (Tl) Air	2024/08/28		100	%
			Vanadium (V) Air	2024/08/28		100	%
			Zinc (Zn) Air	2024/08/28		100	%
2560446	DPA	Blanc de méthode	Antimoine (Sb) Air	2024/08/28	<0.20		ug
			Argent (Ag) Air	2024/08/28	<0.30		ug
			Arsenic (As) Air	2024/08/28	<0.40		ug
			Baryum (Ba) Air	2024/08/28	<0.40		ug
			Béryllium (Be) Air	2024/08/28	<0.30		ug
			Cadmium (Cd) Air	2024/08/28	<0.20		ug
			Chrome (Cr) Air	2024/08/28	<0.90		ug
			Cobalt (Co) Air	2024/08/28	<0.30		ug
			Cuivre (Cu) Air	2024/08/28	<0.90		ug
			Manganèse (Mn) Air	2024/08/28	<0.90		ug
			Nickel (Ni) Air	2024/08/28	<2.0		ug
			Plomb (Pb) Air	2024/08/28	<0.40		ug
			Sélénium (Se) Air	2024/08/28	<0.50		ug
			Thallium (Tl) Air	2024/08/28	<0.050		ug
			Vanadium (V) Air	2024/08/28	<2.0		ug
			Zinc (Zn) Air	2024/08/28	<9.0		ug
2560916	DPA	Blanc fortifié	Antimoine (Sb) Air	2024/08/28		109	%
			Argent (Ag) Air	2024/08/28		103	%
			Arsenic (As) Air	2024/08/28		105	%
			Baryum (Ba) Air	2024/08/28		87	%

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RAPPORT ASSURANCE QUALITÉ (SUITE)

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Béryllium (Be) Air	2024/08/28		89	%
			Cadmium (Cd) Air	2024/08/28		100	%
			Chrome (Cr) Air	2024/08/28		104	%
			Cobalt (Co) Air	2024/08/28		106	%
			Cuivre (Cu) Air	2024/08/28		106	%
			Manganèse (Mn) Air	2024/08/28		105	%
			Nickel (Ni) Air	2024/08/28		106	%
			Plomb (Pb) Air	2024/08/28		101	%
			Sélénium (Se) Air	2024/08/28		107	%
			Thallium (Tl) Air	2024/08/28		99	%
			Vanadium (V) Air	2024/08/28		104	%
			Zinc (Zn) Air	2024/08/28		104	%
2560916	DPA	Blanc fortifié DUP	Antimoine (Sb) Air	2024/08/28		109	%
			Argent (Ag) Air	2024/08/28		104	%
			Arsenic (As) Air	2024/08/28		105	%
			Baryum (Ba) Air	2024/08/28		89	%
			Béryllium (Be) Air	2024/08/28		89	%
			Cadmium (Cd) Air	2024/08/28		100	%
			Chrome (Cr) Air	2024/08/28		104	%
			Cobalt (Co) Air	2024/08/28		107	%
			Cuivre (Cu) Air	2024/08/28		106	%
			Manganèse (Mn) Air	2024/08/28		106	%
			Nickel (Ni) Air	2024/08/28		106	%
			Plomb (Pb) Air	2024/08/28		103	%
			Sélénium (Se) Air	2024/08/28		108	%
			Thallium (Tl) Air	2024/08/28		101	%
			Vanadium (V) Air	2024/08/28		105	%
			Zinc (Zn) Air	2024/08/28		105	%
2560916	DPA	Blanc de méthode	Antimoine (Sb) Air	2024/08/28	<0.20		ug
			Argent (Ag) Air	2024/08/28	<0.30		ug
			Arsenic (As) Air	2024/08/28	<0.40		ug
			Baryum (Ba) Air	2024/08/28	<0.40		ug
			Béryllium (Be) Air	2024/08/28	<0.30		ug
			Cadmium (Cd) Air	2024/08/28	<0.20		ug
			Chrome (Cr) Air	2024/08/28	<0.90		ug
			Cobalt (Co) Air	2024/08/28	<0.30		ug
			Cuivre (Cu) Air	2024/08/28	<0.90		ug
			Manganèse (Mn) Air	2024/08/28	<0.90		ug
			Nickel (Ni) Air	2024/08/28	<2.0		ug
			Plomb (Pb) Air	2024/08/28	<0.40		ug
			Sélénium (Se) Air	2024/08/28	<0.50		ug
			Thallium (Tl) Air	2024/08/28	<0.050		ug
			Vanadium (V) Air	2024/08/28	<2.0		ug
			Zinc (Zn) Air	2024/08/28	<9.0		ug
2561440	M2K	Blanc fortifié	Antimoine (Sb) Air	2024/08/30		107	%
			Argent (Ag) Air	2024/08/30		104	%
			Arsenic (As) Air	2024/08/30		105	%
			Baryum (Ba) Air	2024/08/30		96	%
			Béryllium (Be) Air	2024/08/30		99	%
			Cadmium (Cd) Air	2024/08/30		103	%
			Chrome (Cr) Air	2024/08/30		105	%
			Cobalt (Co) Air	2024/08/30		106	%

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RAPPORT ASSURANCE QUALITÉ (SUITE)

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Cuivre (Cu) Air	2024/08/30		104	%
			Manganèse (Mn) Air	2024/08/30		106	%
			Nickel (Ni) Air	2024/08/30		103	%
			Plomb (Pb) Air	2024/08/30		104	%
			Sélénium (Se) Air	2024/08/30		104	%
			Thallium (Tl) Air	2024/08/30		93	%
			Vanadium (V) Air	2024/08/30		104	%
			Zinc (Zn) Air	2024/08/30		101	%
2561440	M2K	Blanc fortifié DUP	Antimoine (Sb) Air	2024/08/30		113	%
			Argent (Ag) Air	2024/08/30		109	%
			Arsenic (As) Air	2024/08/30		108	%
			Baryum (Ba) Air	2024/08/30		101	%
			Béryllium (Be) Air	2024/08/30		102	%
			Cadmium (Cd) Air	2024/08/30		106	%
			Chrome (Cr) Air	2024/08/30		106	%
			Cobalt (Co) Air	2024/08/30		108	%
			Cuivre (Cu) Air	2024/08/30		107	%
			Manganèse (Mn) Air	2024/08/30		108	%
			Nickel (Ni) Air	2024/08/30		106	%
			Plomb (Pb) Air	2024/08/30		109	%
			Sélénium (Se) Air	2024/08/30		110	%
			Thallium (Tl) Air	2024/08/30		93	%
			Vanadium (V) Air	2024/08/30		109	%
			Zinc (Zn) Air	2024/08/30		103	%
2561440	M2K	Blanc de méthode	Antimoine (Sb) Air	2024/08/30	<0.20		ug
			Argent (Ag) Air	2024/08/30	<0.30		ug
			Arsenic (As) Air	2024/08/30	<0.40		ug
			Baryum (Ba) Air	2024/08/30	<0.40		ug
			Béryllium (Be) Air	2024/08/30	<0.30		ug
			Cadmium (Cd) Air	2024/08/30	<0.20		ug
			Chrome (Cr) Air	2024/08/30	<0.90		ug
			Cobalt (Co) Air	2024/08/30	<0.30		ug
			Cuivre (Cu) Air	2024/08/30	<0.90		ug
			Manganèse (Mn) Air	2024/08/30	<0.90		ug
			Nickel (Ni) Air	2024/08/30	<2.0		ug
			Plomb (Pb) Air	2024/08/30	<0.40		ug
			Sélénium (Se) Air	2024/08/30	<0.50		ug
			Thallium (Tl) Air	2024/08/30	<0.050		ug
			Vanadium (V) Air	2024/08/30	<2.0		ug
			Zinc (Zn) Air	2024/08/30	<9.0		ug
2562502	DPA	Blanc fortifié	Antimoine (Sb) Filtre	2024/09/03		107	%
			Arsenic (As) Filtre	2024/09/03		104	%
			Baryum (Ba) Filtre	2024/09/03		102	%
			Béryllium (Be) Filtre	2024/09/03		104	%
			Cadmium (Cd) Filtre	2024/09/03		102	%
			Chrome (Cr) Filtre	2024/09/03		104	%
			Cobalt (Co) Filtre	2024/09/03		103	%
			Cuivre (Cu) Filtre	2024/09/03		102	%
			Manganèse (Mn) Filtre	2024/09/03		103	%
			Nickel (Ni) Filtre	2024/09/03		102	%
			Plomb (Pb) Filtre	2024/09/03		103	%
			Sélénium (Se) Filtre	2024/09/03		103	%

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RAPPORT ASSURANCE QUALITÉ (SUITE)

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Thallium (Tl) Filtre	2024/09/03		104	%
			Vanadium (V) Filtre	2024/09/03		101	%
			Zinc (Zn) Filtre	2024/09/03		103	%
2562502	DPA	Blanc fortifié DUP	Antimoine (Sb) Filtre	2024/09/03		108	%
			Arsenic (As) Filtre	2024/09/03		104	%
			Baryum (Ba) Filtre	2024/09/03		103	%
			Béryllium (Be) Filtre	2024/09/03		106	%
			Cadmium (Cd) Filtre	2024/09/03		102	%
			Chrome (Cr) Filtre	2024/09/03		105	%
			Cobalt (Co) Filtre	2024/09/03		104	%
			Cuivre (Cu) Filtre	2024/09/03		102	%
			Manganèse (Mn) Filtre	2024/09/03		104	%
			Nickel (Ni) Filtre	2024/09/03		102	%
			Plomb (Pb) Filtre	2024/09/03		104	%
			Sélénium (Se) Filtre	2024/09/03		105	%
			Thallium (Tl) Filtre	2024/09/03		106	%
			Vanadium (V) Filtre	2024/09/03		102	%
			Zinc (Zn) Filtre	2024/09/03		102	%
2562502	DPA	Blanc de méthode	Antimoine (Sb) Filtre	2024/09/03	<0.050		ug
			Arsenic (As) Filtre	2024/09/03	<0.040		ug
			Baryum (Ba) Filtre	2024/09/03	<0.050		ug
			Béryllium (Be) Filtre	2024/09/03	<0.030		ug
			Cadmium (Cd) Filtre	2024/09/03	<0.050		ug
			Chrome (Cr) Filtre	2024/09/03	0.33, LDR=0.10		ug
			Cobalt (Co) Filtre	2024/09/03	<0.030		ug
			Cuivre (Cu) Filtre	2024/09/03	<0.10		ug
			Manganèse (Mn) Filtre	2024/09/03	<0.10		ug
			Nickel (Ni) Filtre	2024/09/03	<0.30		ug
			Plomb (Pb) Filtre	2024/09/03	<0.040		ug
			Sélénium (Se) Filtre	2024/09/03	<0.50		ug
			Thallium (Tl) Filtre	2024/09/03	<0.010		ug
			Vanadium (V) Filtre	2024/09/03	<0.20		ug
			Zinc (Zn) Filtre	2024/09/03	<1.0		ug
2564238	DMI	Blanc fortifié	Antimoine (Sb) Air	2024/09/07		108	%
			Argent (Ag) Air	2024/09/07		99	%
			Arsenic (As) Air	2024/09/07		98	%
			Baryum (Ba) Air	2024/09/07		92	%
			Béryllium (Be) Air	2024/09/07		93	%
			Cadmium (Cd) Air	2024/09/07		97	%
			Chrome (Cr) Air	2024/09/07		94	%
			Cobalt (Co) Air	2024/09/07		97	%
			Cuivre (Cu) Air	2024/09/07		98	%
			Manganèse (Mn) Air	2024/09/07		97	%
			Nickel (Ni) Air	2024/09/07		97	%
			Plomb (Pb) Air	2024/09/07		106	%
			Sélénium (Se) Air	2024/09/07		100	%
			Thallium (Tl) Air	2024/09/07		106	%
			Vanadium (V) Air	2024/09/07		94	%
			Zinc (Zn) Air	2024/09/07		94	%
2564238	DMI	Blanc de méthode	Antimoine (Sb) Air	2024/09/07	<0.20		ug
			Argent (Ag) Air	2024/09/07	<0.30		ug

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

RAPPORT ASSURANCE QUALITÉ (SUITE)

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Arsenic (As) Air	2024/09/07	<0.40		ug
			Baryum (Ba) Air	2024/09/07	<0.40		ug
			Béryllium (Be) Air	2024/09/07	<0.30		ug
			Cadmium (Cd) Air	2024/09/07	<0.20		ug
			Chrome (Cr) Air	2024/09/07	<0.90		ug
			Cobalt (Co) Air	2024/09/07	<0.30		ug
			Cuivre (Cu) Air	2024/09/07	<0.90		ug
			Manganèse (Mn) Air	2024/09/07	<0.90		ug
			Nickel (Ni) Air	2024/09/07	<2.0		ug
			Plomb (Pb) Air	2024/09/07	<0.40		ug
			Sélénium (Se) Air	2024/09/07	<0.50		ug
			Thallium (Tl) Air	2024/09/07	<0.050		ug
			Vanadium (V) Air	2024/09/07	<2.0		ug
			Zinc (Zn) Air	2024/09/07	<9.0		ug

LDR = Limite de détection rapportée

Blanc fortifié: Un blanc, d'une matrice exempte de contaminants, auquel a été ajouté une quantité connue d'analyte provenant généralement d'une deuxième source. Utilisé pour évaluer la précision de la méthode.

Blanc de méthode: Une partie aliquote de matrice pure soumise au même processus analytique que les échantillons, du prétraitement au dosage. Sert à évaluer toutes contaminations du laboratoire.

Réc = Récupération

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

PAGE DES SIGNATURES DE VALIDATION

Les résultats analytiques ainsi que les données de contrôle-qualité contenus dans ce rapport ont été vérifiés et validés par:

Jonathan Fauvel, B.Sc., Chimiste, Montréal, Spécialiste Scientifique

Simran Kaur LNU, B.Sc. Biochimiste, Montreal, Analyste 2

Shu Yang, B.Sc. Chimiste, Montréal, Analyste II

Bureau Veritas a mis en place des procédures qui protègent contre l'utilisation non autorisée de la signature électronique et emploie les «signataires» requis, conformément à l'ISO/CEI17025. Pour la validation spécifique à un groupe de services, veuillez vous référer à la page des Signatures de validation si elle est incluse, sinon disponible sur demande. Pour les noms de validation des analystes/superviseurs spécifiques à un service, veuillez vous référer à la section Résumé de l'analyse si elle est incluse, sinon disponible sur demande. Ce rapport est autorisé par Aglaia Yannakis, Directrice générale, responsable des opérations du laboratoire Environnementale - Québec.

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

eCOC: Q143493

Expected TAT: Standard TAT
Expected Arrival: 2024/08/22 17:00
Submitted By: Yvan Quenum
Submitted To: Montréal (Env. Lab)

Invoice Information

Attn: COMPTES PAYABLE
WSP Canada Inc.
1600 René-Lévesque O
16e Étage
Montréal , QC , H3H 1P9
Email to:
capayablesinvoice@wsp.com

Report Information

Attn: Francis Charbonneau
WSP Canada Inc. - Montréal
1600 René-Lévesque O
16e Étage
Montréal , QC , H3H 1P9
Email to:
francis.charbonneau@wsp.com
yvan.quenum@wsp.com
sylvain.marcoux@wsp.com

Project Information

Quote #: C30388
PO/AFE#:
Project #: CA0012054.2069 phase 123
Site Location: Galaxy

20-Aug-24 14:30
Sarah Beaudry
C446794
MMY

C446794_COC

NOVA-2024-08-2704

Analytical Summary

A: Standard TAT

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Silica by XR (NIOSH 7500)-PVC Filter	Total Extractable Metals (Hi-vol)	Total Particulate	Total Particulate (Hi-VOL)	Set Number
GALA-240331-HV-1	1	2024/03/31 00:00	FILTER	1		A		A	1
GALA-240325-HV-1	2	2024/03/25 00:00	FILTER	1		A		A	1
GALA-240412-HV-1	3	2024/04/12 00:00	FILTER	1		A		A	1
GALA-240406-HV-1	4	2024/04/06 00:00	FILTER	1		A		A	1
GALA-240418-HV-1	5	2024/04/18 00:00	FILTER	1		A		A	1
GALA-240424-HV-1	6	2024/04/24 00:00	FILTER	1		A		A	1
GALA-240430-HV-1	7	2024/04/30 00:00	FILTER	1		A		A	1
GALA-240506-HV-1	8	2024/05/06 00:00	FILTER	1		A		A	1
GALA-240514-HV-1	9	2024/05/14 00:00	FILTER	1		A		A	1
GALA-240518-HV-1	10	2024/05/18 00:00	FILTER	1		A		A	1
GALA-240530-HV-1	11	2024/05/30 00:00	FILTER	1		A		A	1
GALA-240605-HV-1	12	2024/06/05 00:00	FILTER	1		A		A	1
GALA-240623-HV-1	13	2024/06/23 00:00	FILTER	1		A		A	1
GALA-240629-HV-1	14	2024/06/29 00:00	FILTER	1		A		A	1
GALA-240705-HV-1	15	2024/07/05 00:00	FILTER	1		A		A	1
GALA-240706-HV-1-FB	16	2024/07/06 00:00	FILTER	1		A		A	1
GALA-240331-WIL-PM4-1-FB	17	2024/03/31 00:00	FILTER	1	A		A		2
GALA-240406-WIL-PM4-1	18	2024/04/06 00:00	FILTER	1	A		A		2

Sandblast
2024 08 20
1430
Ice no
Seals
WI505
Cooler

20.20.20

eCOC: Q143493

Expected TAT: Standard TAT
Expected Arrival: 2024/08/22 17:00
Submitted By: Yvan Quenum
Submitted To: Montréal (Env. Lab)

A: Standard TAT

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Silica by XR (NIOSH 7500)-PVC Filter	Total Extractable Metals (Hi-vol)	Total Particulate	Total Particulate (Hi-VOL)	Set Number
GALA-240418-WIL-PM4-1	19	2024/04/18 00:00	FILTER	1	A		A		2
GALA-240430-WIL-PM4-1	20	2024/04/30 00:00	FILTER	1	A		A		2
GALA-240530-WIL-PM4-1	21	2024/05/30 00:00	FILTER	1	A		A		2
GALA-240629-WIL-PM4-1	22	2024/06/29 00:00	FILTER	1	A		A		2
GALA-240706-WIL-PM4-1-FB	23	2024/07/06 00:00	FILTER	1	A		A		2
GALA-240325-HV-2	24	2024/03/25 00:00	FILTER	1		A		A	1
GALA-240331-HV-2	25	2024/03/31 00:00	FILTER	1		A		A	1
GALA-240406-HV-2	26	2024/04/06 00:00	FILTER	1		A		A	1
GALA-240412-HV-2	27	2024/04/12 00:00	FILTER	1		A		A	1
GALA-240418-HV-2	28	2024/04/18 00:00	FILTER	1		A		A	1
GALA-240424-HV-2	29	2024/04/24 00:00	FILTER	1		A		A	1
GALA-240430-HV-2	30	2024/04/30 00:00	FILTER	1		A		A	1
GALA-240506-HV-2	31	2024/05/06 00:00	FILTER	1		A		A	1
GALA-240514-HV-2	32	2024/05/14 00:00	FILTER	1		A		A	1
GALA-240518-HV-2	33	2024/05/18 00:00	FILTER	1		A		A	1
GALA-240530-HV-2	34	2024/05/30 00:00	FILTER	1		A		A	1
GALA-240623-HV-2	35	2024/06/23 00:00	FILTER	1		A		A	1
GALA-240630-HV-2	36	2024/06/30 00:00	FILTER	1		A		A	1
GALA-240705-HV-2-FB	37	2024/07/05 00:00	FILTER	1		A		A	1
GALA-240331-WIL-PM4-2-FB	38	2024/03/31 00:00	FILTER	1	A		A		2
GALA-240325-WIL-PM4-2	39	2024/03/25 00:00	FILTER	1	A		A		2
GALA-240406-WIL-PM4-2	40	2024/04/06 00:00	FILTER	1	A		A		2
GALA-240418-WIL-PM4-2	41	2024/04/18 00:00	FILTER	1	A		A		2
GALA-240531-WIL-PM4-2	42	2024/05/31 00:00	FILTER	1	A		A		2

eCOC: Q143493

Expected TAT: Standard TAT
Expected Arrival: 2024/08/22 17:00
Submitted By: Yvan Quenum
Submitted To: Montréal (Env. Lab)

A: Standard TAT

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Silica by XR (NIOSH 7500)-PVC Filter	Total Extractable Metals (Hi-vol)	Total Particulate	Total Particulate (Hi-VOL)	Set Number
GALA-240605-WIL-PM4-2	43	2024/06/05 00:00	FILTER	1	A		A		2
GALA-240706-WIL-PM4-2-FB	44	2024/07/06 00:00	FILTER	1	A		A		2
GALA-240325-WIL-PM2.5-2	45	2024/03/25 00:00	FILTER	1			A		3
GALA-240331-WIL-PM2.5-2-FB	46	2024/03/31 00:00	FILTER	1			A		3
GALA-240406-WIL-PM2.5-2	47	2024/04/06 00:00	FILTER	1			A		3
GALA-240418-WIL-PM2.5-2	48	2024/04/18 00:00	FILTER	1			A		3
GALA-240430-WIL-PM2.5-2	49	2024/04/30 00:00	FILTER	1			A		3
GALA-240530-WIL-PM2.5-2	50	2024/05/30 00:00	FILTER	1			A		3
GALA-240605-WIL-PM2.5-2	51	2024/06/05 00:00	FILTER	1			A		3
GALA-240629-WIL-PM2.5-2	52	2024/06/29 00:00	FILTER	1			A		3
GALA-240706-WIL-PM2.5-2-FB	53	2024/07/06 00:00	FILTER	1			A		3

Deadlines are estimates only and are subject to change. Please refer to your Job Confirmation report for final due dates.

Submission Information

# of Samples: 53

Sample Set Listing

Set 1 (30 samples)
GALA-240331-HV-1
GALA-240325-HV-1
GALA-240412-HV-1
GALA-240406-HV-1
GALA-240418-HV-1
GALA-240424-HV-1
GALA-240430-HV-1
GALA-240506-HV-1
GALA-240514-HV-1
GALA-240518-HV-1
GALA-240530-HV-1
GALA-240605-HV-1
GALA-240623-HV-1
GALA-240629-HV-1
GALA-240705-HV-1
GALA-240706-HV-1-FB
GALA-240325-HV-2
GALA-240331-HV-2
GALA-240406-HV-2
GALA-240412-HV-2
GALA-240418-HV-2
GALA-240424-HV-2
GALA-240430-HV-2
GALA-240506-HV-2
GALA-240514-HV-2
GALA-240518-HV-2
GALA-240530-HV-2
GALA-240623-HV-2
GALA-240630-HV-2
GALA-240705-HV-2-FB

Set 2 (14 samples)
GALA-240331-WIL-PM4-1-FB
GALA-240406-WIL-PM4-1
GALA-240418-WIL-PM4-1
GALA-240430-WIL-PM4-1
GALA-240530-WIL-PM4-1
GALA-240629-WIL-PM4-1
GALA-240706-WIL-PM4-1-FB
GALA-240331-WIL-PM4-2-FB
GALA-240325-WIL-PM4-2
GALA-240406-WIL-PM4-2
GALA-240418-WIL-PM4-2
GALA-240531-WIL-PM4-2
GALA-240605-WIL-PM4-2
GALA-240706-WIL-PM4-2-FB

Set 3 (9 samples)
GALA-240325-WIL-PM2.5-2
GALA-240331-WIL-PM2.5-2-FB
GALA-240406-WIL-PM2.5-2
GALA-240418-WIL-PM2.5-2
GALA-240430-WIL-PM2.5-2
GALA-240530-WIL-PM2.5-2
GALA-240605-WIL-PM2.5-2
GALA-240629-WIL-PM2.5-2
GALA-240706-WIL-PM2.5-2-FB

Parameter Summary

Package/Test	Parameter	RDL	Unit	Set 1	Set 2	Set
Silica by XR (NIOSH 7500)-PVC Filter	Total (Quartz and Cristobalite)	10	ug		X	
Total Extractable Metals (Hi-vol)	Air Antimony (Sb)	0.2	ug	X		
	Air Arsenic (As)	0.4	ug	X		
	Air Barium (Ba)	0.4	ug	X		
	Air Beryllium (Be)	0.3	ug	X		
	Air Cadmium (Cd)	0.2	ug	X		
	Air Chromium (Cr)	0.9	ug	X		
	Air Cobalt (Co)	0.3	ug	X		
	Air Copper (Cu)	0.9	ug	X		
	Air Manganese (Mn)	0.9	ug	X		
	Air Nickel (Ni)	2	ug	X		
	Air Lead (Pb)	0.4	ug	X		
	Air Selenium (Se)	0.5	ug	X		
	Air Thallium (Tl)	0.05	ug	X		
	Air Vanadium (V)	2	ug	X		

Parameter Summary

Package/Test	Parameter	RDL	Unit	Set 1	Set 2	Set
Total Extractable Metals (Hi-vol)	Air Zinc (Zn)	9	ug	X		
	Weight of filter	0.0002	g		X	X
Total Particulate	Weight of filter and sample	0.0002	g		X	X
	Total particles	0.0002	g		X	X
	Weight of filter	0.001	g	X		
Total Particulate (Hi-VOL)	Weight of filter and sample	0.001	g	X		
	Total particles	0.001	g	X		

**RDLs are subject to change based on interferences present at the time of analysis.*

Votre # du projet: C446794
Adresse du site: WSP CANADA INC.

Attention: Sarah Beaudry

Bureau Veritas Laboratories
889, Montee de Liesse
Saint-Laurent, QC
Canada H4T 1P5

Date du rapport: 09/17/2024
Rapport: R8323307
Version: 1 - Finale

CERTIFICAT D'ANALYSE

 # DE DOSSIER BV LABS: C4S8780
Reçu: 09/16/2024, 00:00

Matrice: Air
Nombre d'échantillons reçus: 15

Analyses	Quantité	Date Analysé	Méthode de laboratoire	Méthode d'analyse
Silica on a PVC filter by N7500	15	09/16/2024	NOV5SOP-00001	NIOSH 7500
Total Quartz and Cristobalite	15	09/17/2024		

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Results relate only to the items tested.

Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.

clé de cryptage 

COVERPAGECOMMENT1_IH
Megan Stupar,
Courriel: megan.stupar@bureauveritas.com
Téléphone (248) 344-1770
==========

Bureau Veritas a mis en place des procédures qui protègent contre l'utilisation non autorisée de la signature électronique et emploie les «signataires» requis, conformément à l'ISO/CEI17025. Ce rapport est autorisé par Jason Forbes, Directeur des Opérations, responsable des opérations du laboratoire de MichiganHygiène industrielle.

Total Cover Pages : 1

Dossier BV Labs: C4S8780
Date du rapport: 09/17/2024

Bureau Veritas Laboratories
Votre # du projet: C446794
Adresse du site: WSP CANADA INC.

RÉSULTATS D'ANALYSE

Client ID:	NK0363-GALA-240331-WIL-PM4-1-FB	Matrice:	Air
Identification BV Labs:	ACYA93	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	03/31/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NK0364-GALA-240406-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ACYA94	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	04/06/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	5.3	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NK0365-GALA-240418-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ACYA95	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	04/18/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C4S8780
Date du rapport: 09/17/2024

Bureau Veritas Laboratories
Votre # du projet: C446794
Adresse du site: WSP CANADA INC.

RÉSULTATS D'ANALYSE

Client ID:	NK0366-GALA-240430-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ACYA96	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	04/30/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NK0367-GALA-240530-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ACYA97	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	05/30/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NK0368-GALA-240629-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ACYA98	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	06/29/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C4S8780
Date du rapport: 09/17/2024

Bureau Veritas Laboratories
Votre # du projet: C446794
Adresse du site: WSP CANADA INC.

RÉSULTATS D'ANALYSE

Client ID:	NK0369-GALA-240706-WIL-PM4-1-FB	Matrice:	Air
Identification BV Labs:	ACYA99	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	07/06/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NK0384-GALA-240331-WIL-PM4-2-FB	Matrice:	Air
Identification BV Labs:	ACYB00	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	03/31/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NK0385-GALA-240325-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ACYB01	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	03/25/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C4S8780
Date du rapport: 09/17/2024

Bureau Veritas Laboratories
Votre # du projet: C446794
Adresse du site: WSP CANADA INC.

RÉSULTATS D'ANALYSE

Client ID:	NK0386-GALA-240406-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ACYB02	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	04/06/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	16	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	16	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NK0387-GALA-240418-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ACYB03	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	04/18/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NK0388-GALA-240531-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ACYB04	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	05/31/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C4S8780
Date du rapport: 09/17/2024

Bureau Veritas Laboratories
Votre # du projet: C446794
Adresse du site: WSP CANADA INC.

RÉSULTATS D'ANALYSE

Client ID:	NK0389-GALA-240605-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ACYB05	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	06/05/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NK0390-GALA-240706-WIL-PM4-2-FB	Matrice:	Air
Identification BV Labs:	ACYB06	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	07/06/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NK0572-GALA-240629-PM4-2	Matrice:	Air
Identification BV Labs:	ACYB07	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	06/29/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	09/16/2024
Tridymite	<10	N/A	10	NIOSH 7500	09/16/2024
Total (Quartz and Cristobalite)	<10	N/A	10		09/17/2024

LDR = limite de détection rapportée
RL = Seuil de détection

REMARQUES GÉNÉRALES

Unless otherwise noted below the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and /or do not adversely affect the reported results and 3) the industrial hygiene results have not been blank corrected.

The client provided their pertinent field sampling data on the analysis request paperwork submitted with the samples. Results apply to the sample as received.

Les résultats s'appliquent seulement pour les paramètres analysés.

Sent to: **Bureau Veritas North America In**
22345 Roethel Drive
Novi, MI, 48375
Tel: (248) 344-1770

BV LABS INTERLAB CHAIN OF CUSTODY RECORD

COC # C446794-BVMI-01-01

REPORT INFORMATION	
Company:	Bureau Veritas Laboratories
Address:	889, Montée de Liesse, Saint-Laurent, Quebec, H4T 1P5
Contact Name:	Sarah Beaudry
Email:	Sarah.Beaudry@bureauveritas.com, SoustraitanceQue-YUL@bureauveritas.com
Phone:	(438) 355-7268
BV Labs Project #:	C446794
Client Invoice To:	WSP Canada Inc. (4934)
Client Report To:	WSP Canada Inc. - Montréal (4040)

Incl. on Report? Yes / No

ANALYSIS REQUESTED

Job Barcode Label

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	Silica by XR (NIOSH 7500)-PVC Filter	ADDITIONAL SAMPLE INFORMATION
1	NK0363-GALA-240331-WIL-PM4-1-FB	FILT	2024/03/31	00:00		1	X	(P: 01)
2	NK0364-GALA-240406-WIL-PM4-1	FILT	2024/04/06	00:00		1	X	(P: 01)
3	NK0365-GALA-240418-WIL-PM4-1	FILT	2024/04/18	00:00		1	X	(P: 01)
4	NK0366-GALA-240430-WIL-PM4-1	FILT	2024/04/30	00:00		1	X	(P: 01)
5	NK0367-GALA-240530-WIL-PM4-1	FILT	2024/05/30	00:00		1	X	(P: 01)
6	NK0368-GALA-240629-WIL-PM4-1	FILT	2024/06/29	00:00		1	X	(P: 01)
7	NK0369-GALA-240706-WIL-PM4-1-FB	FILT	2024/07/06	00:00		1	X	(P: 01)
8	NK0384-GALA-240331-WIL-PM4-2-FB	FILT	2024/03/31	00:00		1	X	(P: 01)
9	NK0385-GALA-240325-WIL-PM4-2	FILT	2024/03/25	00:00		1	X	(P: 01)
10	NK0386-GALA-240406-WIL-PM4-2	FILT	2024/04/06	00:00		1	X	(P: 01)

SITE LOCATION:
Galaxy

SITE #:

PROJECT #:
CA0012054.2069 phase 123

PO/AFE, TASK ORDER/SERVICE ORDER, LINE ITEM:

REGULATORY CRITERIA
Guide 2021 Basses-Terres

SPECIAL INSTRUCTIONS
Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching.
Please return a copy of this form with the report.

REQUIRED EDDs
National Excel (N001)
Golder (Q001)
Dessau Soprin Excel (Q004)

TURNAROUND TIME
☐ Rush Required
2024/09/05
Date Required
Please inform us if rush charges will be incurred.

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

RECEIVING LAB USE ONLY
BV Labs Job #
C458780

RELINQUISHED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	Samples Labelled By:	Labels Verified By:
1. VAF	2024-09-10	15-03	1. Dillon Sharp	2024/09/11	11 42		
2.			2.				

Sent to: **Bureau Veritas North America In**
22345 Roethel Drive
Novi, MI, 48375
Tel: (248) 344-1770

BV LABS INTERLAB CHAIN OF CUSTODY RECORD

COC # C446794-BVMI-02-01

REPORT INFORMATION	
Company:	Bureau Veritas Laboratories
Address:	889, Montée de Liesse, Saint-Laurent, Quebec, H4T 1P5
Contact Name:	Sarah Beaudry
Email:	Sarah.Beaudry@bureauveritas.com, SoustraitanceQue-YUL@bureauveritas.com
Phone:	(438) 355-7268
BV Labs Project #:	C446794
Client Invoice To:	WSP Canada Inc. (4934)
Client Report To:	WSP Canada Inc. - Montréal (4040) **Incl. on Report? Yes / No**

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	ANALYSIS REQUESTED: Silica by XR (NIOSH 7500)-PVC Filter	ADDITIONAL SAMPLE INFORMATION
1	NK0387-GALA-240418-WIL-PM4-2	FILT	2024/04/18	00:00		1	X	(P: 01)
2	NK0388-GALA-240531-WIL-PM4-2	FILT	2024/05/31	00:00		1	X	(P: 01)
3	NK0389-GALA-240605-WIL-PM4-2	FILT	2024/06/05	00:00		1	X	(P: 01)
4	NK0390-GALA-240706-WIL-PM4-2-FB	FILT	2024/07/06	00:00		1	X	(P: 01)
5	NK0572-GALA-240629-PM4-2	FILT	2024/06/29			1	X	(P: 01)
6								
7								
8								
9								
10								

Job Barcode Label

SITE LOCATION: Galaxy
SITE #:
PROJECT #: CA0012054.2069 phase 123
PO/AFE, TASK ORDER/SERVICE ORDER, LINE ITEM:

REGULATORY CRITERIA: Guide 2021 Basses-Terres

SPECIAL INSTRUCTIONS: Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching.
Please return a copy of this form with the report.

REQUIRED EDDs: National Excel (N001) Golder (Q001) Dessau Soprin Excel (Q004)

TURNAROUND TIME
☐ Rush Required
2024/09/05
Date Required
Please inform us if rush charges will be incurred.

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

RECEIVING LAB USE ONLY
BV Labs Job #: C458780

RELINQUISHED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	Samples Labelled By:	Labels Verified By:
1. VAT	2024-09-10	15:03	1. Dillon Shmit	2024/09/16	11:42		
2.			2.				

Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy
Votre # Bordereau: 154405

Attention: Francis Charbonneau

WSP Canada Inc. - Montréal
René-Lévesque
1600 René-Lévesque O
local B110
Montréal, QC
CANADA H3H 1P9

Date du rapport: 2024/11/27
Rapport: R3003383
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BUREAU VERITAS: C467288
Reçu: 2024/11/08, 09:00

Matrice: Filtre
Nombre d'échantillons reçus: 40

Analyses	Quantité	Date de l' extraction	Date Analysé	Méthode de laboratoire	Méthode d'analyse
Particules totales	16	2024/11/15	2024/11/15	STL SOP-00045	MA100– Part 1.0 R4 m
Particules totales (Hi-VOL)	19	2024/11/14	2024/11/14	STL SOP-00045	MA100–Part. 1.0 R4 m
Particules totales (Hi-VOL)	5	2024/11/15	2024/11/15	STL SOP-00045	MA100–Part. 1.0 R4 m
Métaux extractibles (Filtre 37-47mm)	4	2024/11/21	2024/11/21	STL SOP-00075	MA.200–Mét. 1.2 R9 m
Métaux extractibles totaux (Hi-vol)	4	2024/11/19	2024/11/20	STL SOP-00062	MA.200–Mét. 1.2 R9 m
Métaux extractibles totaux (Hi-vol)	20	2024/11/19	2024/11/21	STL SOP-00062	MA.200–Mét. 1.2 R9 m
Silice par RX (NIOSH 7500)-Filtre PVC (1)	12	N/A	N/A	Crystalline Silica by NIOSH 7500	NIOSH 7500

Remarques:

Bureau Veritas est certifié ISO/IEC 17025 pour certains paramètres précis des portées d'accréditation. Sauf indication contraire, les méthodes d'analyses utilisées par Bureau Veritas s'inspirent des méthodes de référence d'organismes provinciaux, fédéraux et américains, tels que le CCME, l'EPA, l'APHA ou le ministère de l'environnement du Québec.

Toutes les analyses présentées ont été réalisées conformément aux procédures et aux pratiques relatives à la méthodologie, à l'assurance qualité et au contrôle de la qualité généralement appliqués par les employés de Bureau Veritas (sauf s'il en a été convenu autrement par écrit entre le client et Bureau Veritas). Toutes les données de laboratoire rencontrent les contrôles statistiques et respectent tous les critères de CQ et les critères de performance des méthodes, sauf s'il en a été signalé autrement. Tous les blancs de méthode sont rapportés, toutefois, les données des échantillons correspondants ne sont pas corrigées pour la valeur du blanc, sauf indication contraire. Le cas échéant, sauf indication contraire, l'incertitude de mesure n'a pas été prise en considération lors de la déclaration de la conformité à la norme de référence.

Les responsabilités de Bureau Veritas sont restreintes au coût réel de l'analyse, sauf s'il en a été convenu autrement par écrit. Il n'existe aucune autre garantie, explicite ou implicite. Le client a fait appel à Bureau Veritas pour l'analyse de ses échantillons conformément aux méthodes de référence mentionnées dans ce rapport. L'interprétation et l'utilisation des résultats sont sous l'entière responsabilité du client et ne font pas partie des services offerts par Bureau Veritas, sauf si convenu autrement par écrit. Bureau Veritas ne peut pas garantir l'exactitude des résultats qui dépendent des renseignements fournis par le client ou son représentant.

Les résultats des échantillons solides, sauf les biotes, sont rapportés en fonction de la masse sèche, sauf indication contraire. Les analyses organiques ne sont pas corrigées en fonction de la récupération, sauf pour les méthodes de dilution isotopique.
Les résultats s'appliquent seulement aux échantillons analysés. Si l'échantillonnage n'est pas effectué par Bureau Veritas, les résultats se rapportent aux échantillons fournis pour analyse.
Le présent rapport ne doit pas être reproduit, sinon dans son intégralité, sans le consentement écrit du laboratoire.

Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy
Votre # Bordereau: 154405

Attention: Francis Charbonneau

WSP Canada Inc. - Montréal
René-Lévesque
1600 René-Lévesque O
local B110
Montréal, QC
CANADA H3H 1P9

Date du rapport: 2024/11/27
Rapport: R3003383
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BUREAU VERITAS: C467288

Reçu: 2024/11/08, 09:00

Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.

Notez: Les données brutes sont utilisées pour le calcul du RPD (% d'écart relatif). L'arrondissement des résultats finaux peut expliquer la variation apparente.

(1) Cette analyse a été effectuée par Bureau Veritas North America Inc.(Michigan), 22345 Roethel Drive , Novi, MI, 48375

Note : Les paramètres inclus dans le présent certificat sont accrédités par le ministère de l'environnement du Québec, à moins d'indication contraire.

clé de cryptage

AUTHORIZED REPORT
RAPPORT AUTORISÉ

Bureau Veritas
27 Nov 2024 17:02:10

Veuillez adresser toute question concernant ce certificat d' analyse à:
Sarah Beaudry, Chargée de projets
Courriel: Sarah.Beaudry@bureauveritas.com
Téléphone (438)355-7268

==========

Ce rapport a été produit et distribué en utilisant une procédure automatisée sécuritaire.
Bureau Veritas a mis en place des procédures qui protègent contre l'utilisation non autorisée de la signature électronique et emploie les «signataires» requis, conformément à l'ISO/CEI17025. Pour la validation spécifique à un groupe de services, veuillez vous référer à la page des Signatures de validation si elle est incluse, sinon disponible sur demande. Pour les noms de validation des analystes/superviseurs spécifiques à un service, veuillez vous référer à la section Résumé de l'analyse si elle est incluse, sinon disponible sur demande. Ce rapport est autorisé par Aglaia Yannakis, Directrice générale, responsable des opérations du laboratoire Environnementale - Québec.

Dossier Bureau Veritas: C467288
Date du rapport: 2024/11/27

WSP Canada Inc. - Montréal
Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy

MÉTAUX (FILTRE)

ID Bureau Veritas		NU3224	NU3225	NU3226	NU3227		
Date d'échantillonnage		2024/07/11 00:00	2024/07/17 00:00	2024/07/23 00:00	2024/07/29 00:00		
# Bordereau		154405	154405	154405	154405		
	Unités	GALA-240711-HV-1	GALA-240717-HV-1	GALA-240723-HV-1	GALA-240729-HV-1	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	0.81	0.70	0.63	0.80	0.20	2594999
Argent (Ag) Air	ug	<0.30	N/A	N/A	N/A	0.30	2594999
Arsenic (As) Air	ug	0.82	0.51	0.61	0.74	0.40	2594999
Baryum (Ba) Air	ug	12	5.3	7.7	5.7	0.40	2594999
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2594999
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2594999
Chrome (Cr) Air	ug	9.2	11	6.5	7.2	0.90	2594999
Cobalt (Co) Air †	ug	0.94	0.40	0.74	0.56	0.30	2594999
Cuivre (Cu) Air	ug	44	35	43	36	0.90	2594999
Manganèse (Mn) Air †	ug	22	12	16	15	0.90	2594999
Nickel (Ni) Air	ug	3.0	<2.0	2.3	<2.0	2.0	2594999
Plomb (Pb) Air	ug	1.2	0.46	0.80	0.98	0.40	2594999
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2594999
Thallium (Tl) Air	ug	0.097	<0.050	<0.050	<0.050	0.050	2594999
Vanadium (V) Air	ug	4.0	<2.0	3.0	2.2	2.0	2594999
Zinc (Zn) Air	ug	12	<9.0	<9.0	<9.0	9.0	2594999

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
N/A = Non Applicable
† Accréditation non existante pour ce paramètre

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

Dossier Bureau Veritas: C467288
Date du rapport: 2024/11/27

WSP Canada Inc. - Montréal
Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy

MÉTAUX (FILTRE)

ID Bureau Veritas		NU3228	NU3229	NU3230	NU3231		
Date d'échantillonnage		2024/08/04 00:00	2024/08/10 00:00	2024/08/10 00:00	2024/08/16 00:00		
# Bordereau		154405	154405	154405	154405		
	Unités	GALA-240804-HV-1	GALA-240810-HV-1-LB	GALA-240810-HV-1	GALA-240816-HV-1	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	0.56	0.54	0.67	0.32	0.20	2594999
Arsenic (As) Air	ug	1.1	<0.40	<0.40	0.72	0.40	2594999
Baryum (Ba) Air	ug	13	0.51	2.1	8.3	0.40	2594999
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2594999
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2594999
Chrome (Cr) Air	ug	13	8.4	4.9	8.6	0.90	2594999
Cobalt (Co) Air †	ug	1.1	<0.30	<0.30	0.56	0.30	2594999
Cuivre (Cu) Air	ug	26	<0.90	120	100	0.90	2594999
Manganèse (Mn) Air †	ug	28	1.3	6.3	20	0.90	2594999
Nickel (Ni) Air	ug	3.5	<2.0	<2.0	<2.0	2.0	2594999
Plomb (Pb) Air	ug	1.0	<0.40	0.66	0.83	0.40	2594999
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2594999
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	<0.050	0.050	2594999
Vanadium (V) Air	ug	5.4	<2.0	<2.0	2.6	2.0	2594999
Zinc (Zn) Air	ug	<9.0	<9.0	<9.0	16	9.0	2594999

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Dossier Bureau Veritas: C467288
Date du rapport: 2024/11/27

WSP Canada Inc. - Montréal
Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy

MÉTAUX (FILTRE)

ID Bureau Veritas		NU3232	NU3233	NU3234	NU3235		
Date d'échantillonnage		2024/08/22 00:00	2024/08/28 00:00	2024/09/03 00:00	2024/09/09 00:00		
# Bordereau		154405	154405	154405	154405		
	Unités	GALA-240822-HV-1	GALA-240828-HV-1	GALA-240903-HV-1	GALA-240909-HV-1	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	0.28	0.35	0.31	0.27	0.20	2594999
Argent (Ag) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2594999
Arsenic (As) Air	ug	0.41	<0.40	<0.40	<0.40	0.40	2594999
Baryum (Ba) Air	ug	4.4	2.4	2.9	1.3	0.40	2594999
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2594999
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2594999
Chrome (Cr) Air	ug	2.7	4.6	9.1	2.3	0.90	2594999
Cobalt (Co) Air †	ug	<0.30	<0.30	<0.30	<0.30	0.30	2594999
Cuivre (Cu) Air	ug	110	33	34	30	0.90	2594999
Manganèse (Mn) Air †	ug	7.4	5.7	5.2	2.7	0.90	2594999
Nickel (Ni) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2594999
Plomb (Pb) Air	ug	0.43	<0.40	<0.40	<0.40	0.40	2594999
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2594999
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	<0.050	0.050	2594999
Vanadium (V) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2594999
Zinc (Zn) Air	ug	<9.0	<9.0	<9.0	<9.0	9.0	2594999

LDR = Limite de détection rapportée
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Dossier Bureau Veritas: C467288
Date du rapport: 2024/11/27

WSP Canada Inc. - Montréal
Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy

MÉTAUX (FILTRE)

ID Bureau Veritas		NU3236	NU3237		NU3238	NU3239		
Date d'échantillonnage		2024/09/15 00:00	2024/07/11 00:00		2024/07/17 00:00	2024/07/23 00:00		
# Bordereau		154405	154405		154405	154405		
	Unités	GALA-240915-HV-1	GALA-240711-HV-2	Lot CQ	GALA-240717-HV-2	GALA-240723-HV-2	LDR	Lot CQ
MÉTAUX								
Antimoine (Sb) Air	ug	1.2	0.66	2594999	0.54	0.54	0.20	2595003
Argent (Ag) Air	ug	<0.30	<0.30	2594999	<0.30	<0.30	0.30	2595003
Arsenic (As) Air	ug	1.2	<0.40	2594999	<0.40	0.58	0.40	2595003
Baryum (Ba) Air	ug	8.9	2.2	2594999	3.3	13	0.40	2595003
Béryllium (Be) Air	ug	<0.30	<0.30	2594999	<0.30	<0.30	0.30	2595003
Cadmium (Cd) Air	ug	<0.20	<0.20	2594999	<0.20	<0.20	0.20	2595003
Chrome (Cr) Air	ug	3.8	11	2594999	12	24	0.90	2595003
Cobalt (Co) Air †	ug	0.35	<0.30	2594999	0.35	1.4	0.30	2595003
Cuivre (Cu) Air	ug	30	99	2594999	60	65	0.90	2595003
Manganèse (Mn) Air †	ug	14	5.4	2594999	9.4	31	0.90	2595003
Nickel (Ni) Air	ug	<2.0	4.2	2594999	<2.0	4.9	2.0	2595003
Plomb (Pb) Air	ug	2.9	<0.40	2594999	<0.40	1.3	0.40	2595003
Sélénium (Se) Air †	ug	0.74	<0.50	2594999	<0.50	<0.50	0.50	2595003
Thallium (Tl) Air	ug	<0.050	<0.050	2594999	<0.050	<0.050	0.050	2595003
Vanadium (V) Air	ug	<2.0	<2.0	2594999	<2.0	7.4	2.0	2595003
Zinc (Zn) Air	ug	18	<9.0	2594999	<9.0	9.4	9.0	2595003

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MÉTAUX (FILTRE)

ID Bureau Veritas		NU3240	NU3241		NU3242		
Date d'échantillonnage		2024/07/29 00:00	2024/08/04 00:00		2024/08/10 00:00		
# Bordereau		154405	154405		154405		
	Unités	**GALA-240729-HV-2**	**GALA-240804-HV-2**	**Lot CQ**	**GALA-240810-HV-2-LB**	**LDR**	**Lot CQ**
MÉTAUX							
Antimoine (Sb) Air	ug	0.72	0.56	2595003	0.29	0.20	2594999
Argent (Ag) Air	ug	<0.30	<0.30	2595003	<0.30	0.30	2594999
Arsenic (As) Air	ug	1.4	1.5	2595003	<0.40	0.40	2594999
Baryum (Ba) Air	ug	20	21	2595003	1.0	0.40	2594999
Béryllium (Be) Air	ug	<0.30	<0.30	2595003	<0.30	0.30	2594999
Cadmium (Cd) Air	ug	<0.20	<0.20	2595003	<0.20	0.20	2594999
Chrome (Cr) Air	ug	25	50	2595003	8.8	0.90	2594999
Cobalt (Co) Air †	ug	2.6	2.4	2595003	<0.30	0.30	2594999
Cuivre (Cu) Air	ug	31	43	2595003	<0.90	0.90	2594999
Manganèse (Mn) Air †	ug	54	55	2595003	2.1	0.90	2594999
Nickel (Ni) Air	ug	8.8	7.9	2595003	<2.0	2.0	2594999
Plomb (Pb) Air	ug	2.8	3.5	2595003	<0.40	0.40	2594999
Sélénium (Se) Air †	ug	0.62	<0.50	2595003	<0.50	0.50	2594999
Thallium (Tl) Air	ug	<0.050	<0.050	2595003	<0.050	0.050	2594999
Vanadium (V) Air	ug	14	15	2595003	<2.0	2.0	2594999
Zinc (Zn) Air	ug	16	14	2595003	<9.0	9.0	2594999

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MÉTAUX (FILTRE)

ID Bureau Veritas		NU3243	NU3244	NU3245	NU3246		
Date d'échantillonnage		2024/08/22 00:00	2024/08/28 00:00	2024/09/03 00:00	2024/09/09 00:00		
# Bordereau		154405	154405	154405	154405		
	Unités	GALA-240822-HV-2	GALA-240828-HV-2	GALA-240903-HV-2	GALA-240909-HV-2	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	0.31	0.26	0.45	0.41	0.20	2594999
Argent (Ag) Air	ug	<0.30	<0.30	<0.30	N/A	0.30	2594999
Arsenic (As) Air	ug	0.92	1.4	0.57	0.63	0.40	2594999
Baryum (Ba) Air	ug	15	20	6.5	5.9	0.40	2594999
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2594999
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2594999
Chrome (Cr) Air	ug	18	17	11	6.7	0.90	2594999
Cobalt (Co) Air †	ug	1.5	2.4	0.50	0.66	0.30	2594999
Cuivre (Cu) Air	ug	100	90	81	50	0.90	2594999
Manganèse (Mn) Air †	ug	32	50	15	16	0.90	2594999
Nickel (Ni) Air	ug	4.6	7.2	<2.0	2.4	2.0	2594999
Plomb (Pb) Air	ug	1.2	1.9	1.0	0.86	0.40	2594999
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2594999
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	<0.050	0.050	2594999
Vanadium (V) Air	ug	6.4	10	2.1	3.1	2.0	2594999
Zinc (Zn) Air	ug	9.6	15	9.4	<9.0	9.0	2594999

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MÉTAUX (FILTRE)

ID Bureau Veritas		NU3247	NU3255	NU3256	NU3257		
Date d'échantillonnage		2024/09/15 00:00	2024/07/11 00:00	2024/07/23 00:00	2024/08/10 00:00		
# Bordereau		154405	154405	154405	154405		
	Unités	GALA-240915-HV-2	GALA-240711-WIL-PM2.5-2	GALA-240723-WIL-PM2.5-2	GALA-240810-WIL-PM2.5-2-LB	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	1.1	N/A	N/A	N/A	0.20	2594999
Antimoine (Sb) Filtre	ug	N/A	<0.050	<0.050	<0.050	0.050	2596111
Argent (Ag) Filtre	ug	N/A	<0.050	<0.050	<0.050	0.050	2596111
Arsenic (As) Air	ug	2.5	N/A	N/A	N/A	0.40	2594999
Arsenic (As) Filtre	ug	N/A	<0.040	<0.040	<0.040	0.040	2596111
Baryum (Ba) Air	ug	18	N/A	N/A	N/A	0.40	2594999
Baryum (Ba) Filtre	ug	N/A	<0.050	<0.050	<0.050	0.050	2596111
Béryllium (Be) Air	ug	<0.30	N/A	N/A	N/A	0.30	2594999
Béryllium (Be) Filtre	ug	N/A	<0.030	<0.030	<0.030	0.030	2596111
Cadmium (Cd) Air	ug	<0.20	N/A	N/A	N/A	0.20	2594999
Cadmium (Cd) Filtre	ug	N/A	<0.050	<0.050	<0.050	0.050	2596111
Chrome (Cr) Air	ug	12	N/A	N/A	N/A	0.90	2594999
Chrome (Cr) Filtre	ug	N/A	0.30	0.39	0.35	0.10	2596111
Cobalt (Co) Air †	ug	1.8	N/A	N/A	N/A	0.30	2594999
Cobalt (Co) Filtre †	ug	N/A	<0.030	<0.030	<0.030	0.030	2596111
Cuivre (Cu) Air	ug	55	N/A	N/A	N/A	0.90	2594999
Cuivre (Cu) Filtre	ug	N/A	<0.10	<0.10	<0.10	0.10	2596111
Manganèse (Mn) Air †	ug	39	N/A	N/A	N/A	0.90	2594999
Manganèse (Mn) Filtre †	ug	N/A	<0.10	<0.10	<0.10	0.10	2596111
Nickel (Ni) Air	ug	5.4	N/A	N/A	N/A	2.0	2594999
Nickel (Ni) Filtre	ug	N/A	<0.30	<0.30	<0.30	0.30	2596111
Plomb (Pb) Air	ug	3.8	N/A	N/A	N/A	0.40	2594999
Plomb (Pb) Filtre	ug	N/A	<0.040	<0.040	<0.040	0.040	2596111
Sélénium (Se) Air †	ug	0.82	N/A	N/A	N/A	0.50	2594999
Sélénium (Se) Filtre †	ug	N/A	<0.50	<0.50	<0.50	0.50	2596111
Thallium (Tl) Air	ug	<0.050	N/A	N/A	N/A	0.050	2594999
Thallium (Tl) Filtre	ug	N/A	0.016	<0.010	<0.010	0.010	2596111
Vanadium (V) Air	ug	6.9	N/A	N/A	N/A	2.0	2594999
Vanadium (V) Filtre	ug	N/A	<0.20	<0.20	<0.20	0.20	2596111
Zinc (Zn) Air	ug	19	N/A	N/A	N/A	9.0	2594999
Zinc (Zn) Filtre	ug	N/A	<1.0	<1.0	<1.0	1.0	2596111

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MÉTAUX (FILTRE)

ID Bureau Veritas		NU3258		
Date d'échantillonnage		2024/08/16 00:00		
# Bordereau		154405		
	Unités	GALA-240816-WIL-PM2.5-2	LDR	Lot CQ
MÉTAUX				
Antimoine (Sb) Filtre	ug	<0.050	0.050	2596111
Argent (Ag) Filtre	ug	<0.050	0.050	2596111
Arsenic (As) Filtre	ug	<0.040	0.040	2596111
Baryum (Ba) Filtre	ug	0.12	0.050	2596111
Béryllium (Be) Filtre	ug	<0.030	0.030	2596111
Cadmium (Cd) Filtre	ug	<0.050	0.050	2596111
Chrome (Cr) Filtre	ug	0.42	0.10	2596111
Cobalt (Co) Filtre †	ug	<0.030	0.030	2596111
Cuivre (Cu) Filtre	ug	0.20	0.10	2596111
Manganèse (Mn) Filtre †	ug	0.40	0.10	2596111
Nickel (Ni) Filtre	ug	<0.30	0.30	2596111
Plomb (Pb) Filtre	ug	<0.040	0.040	2596111
Sélénium (Se) Filtre †	ug	<0.50	0.50	2596111
Thallium (Tl) Filtre	ug	<0.010	0.010	2596111
Vanadium (V) Filtre	ug	<0.20	0.20	2596111
Zinc (Zn) Filtre	ug	<1.0	1.0	2596111

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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NU3224	NU3225	NU3226	NU3227		
Date d'échantillonnage		2024/07/11 00:00	2024/07/17 00:00	2024/07/23 00:00	2024/07/29 00:00		
# Bordereau		154405	154405	154405	154405		
	Unités	GALA-240711-HV-1	GALA-240717-HV-1	GALA-240723-HV-1	GALA-240729-HV-1	LDR	Lot CQ
CONVENTIONNELS							
Poids du filtre	g	3.380	3.380	3.395	3.394	0.001	2593512
Poids du filtre avec poussières	g	3.463	3.437	3.462	3.459	0.001	2593512
Particules totales	g	0.084	0.057	0.066	0.064	0.001	2593512

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NU3228	NU3229	NU3230	NU3231		
Date d'échantillonnage		2024/08/04 00:00	2024/08/10 00:00	2024/08/10 00:00	2024/08/16 00:00		
# Bordereau		154405	154405	154405	154405		
	Unités	GALA-240804-HV-1	GALA-240810-HV-1-LB	GALA-240810-HV-1	GALA-240816-HV-1	LDR	Lot CQ
CONVENTIONNELS							
Poids du filtre	g	3.390	3.392	3.387	3.316	0.001	2593512
Poids du filtre avec poussières	g	3.492	3.401	3.422	3.406	0.001	2593512
Particules totales	g	0.103	0.009	0.035	0.091	0.001	2593512

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NU3232	NU3233	NU3234	NU3235		
Date d'échantillonnage		2024/08/22 00:00	2024/08/28 00:00	2024/09/03 00:00	2024/09/09 00:00		
# Bordereau		154405	154405	154405	154405		
	Unités	GALA-240822-HV-1	GALA-240828-HV-1	GALA-240903-HV-1	GALA-240909-HV-1	LDR	Lot CQ
CONVENTIONNELS							
Poids du filtre	g	3.325	3.324	3.330	3.325	0.001	2593512
Poids du filtre avec poussières	g	3.371	3.370	3.362	3.343	0.001	2593512
Particules totales	g	0.046	0.046	0.032	0.018	0.001	2593512

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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NU3236	NU3237	NU3238	NU3239		
Date d'échantillonnage		2024/09/15 00:00	2024/07/11 00:00	2024/07/17 00:00	2024/07/23 00:00		
# Bordereau		154405	154405	154405	154405		
	Unités	**GALA-240915-HV-1**	**GALA-240711-HV-2**	**GALA-240717-HV-2**	**GALA-240723-HV-2**	**LDR**	**Lot CQ**
CONVENTIONNELS							
Poids du filtre	g	3.325	3.378	3.388	3.406	0.001	2593512
Poids du filtre avec poussières	g	3.383	3.407	3.443	3.612	0.001	2593512
Particules totales	g	0.058	0.029	0.055	0.206	0.001	2593512

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ID Bureau Veritas		NU3240	NU3241	NU3242		
Date d'échantillonnage		2024/07/29 00:00	2024/08/04 00:00	2024/08/10 00:00		
# Bordereau		154405	154405	154405		
	Unités	**GALA-240729-HV-2**	**GALA-240804-HV-2**	**GALA-240810-HV-2-LB**	**LDR**	**Lot CQ**
CONVENTIONNELS						
Poids du filtre	g	3.388	3.391	3.330	0.001	2593512
Poids du filtre avec poussières	g	3.745	3.838	3.338	0.001	2593512
Particules totales	g	0.356	0.446	0.008	0.001	2593512

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NU3243	NU3244	NU3245	NU3246		
Date d'échantillonnage		2024/08/22 00:00	2024/08/28 00:00	2024/09/03 00:00	2024/09/09 00:00		
# Bordereau		154405	154405	154405	154405		
	Unités	**GALA-240822-HV-2**	**GALA-240828-HV-2**	**GALA-240903-HV-2**	**GALA-240909-HV-2**	**LDR**	**Lot CQ**
CONVENTIONNELS							
Poids du filtre	g	3.324	3.308	3.317	3.313	0.001	2593740
Poids du filtre avec poussières	g	3.581	3.652	3.394	3.405	0.001	2593740
Particules totales	g	0.257	0.345	0.077	0.092	0.001	2593740

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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NU3247			NU3248	NU3249		
Date d'échantillonnage		2024/09/15 00:00			2024/07/11 00:00	2024/07/23 00:00		
# Bordereau		154405			154405	154405		
	Unités	GALA-240915-HV-2	LDR	Lot CQ	GALA-240711-WIL-PM4-1	GALA-240723-WIL-PM4-1	LDR	Lot CQ
CONVENTIONNELS								
Poids du filtre	g	3.335	0.001	2593740	0.0238	0.0234	0.0002	2593847
Poids du filtre avec poussières	g	3.591	0.001	2593740	0.0247	0.0241	0.0002	2593847
Particules totales	g	0.256	0.001	2593740	0.0009	0.0007	0.0002	2593847

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NU3250	NU3251	NU3252		
Date d'échantillonnage		2024/08/04 00:00	2024/08/10 00:00	2024/08/16 00:00		
# Bordereau		154405	154405	154405		
	Unités	GALA-240804-WIL-PM4-1	GALA-240810-WIL-PM4-1-LB	GALA-240816-WIL-PM4-1	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0199	0.0225	0.0238	0.0002	2593847
Poids du filtre avec poussières	g	0.0204	0.0226	0.0247	0.0002	2593847
Particules totales	g	0.0005	<0.0002	0.0009	0.0002	2593847

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NU3253	NU3254	NU3255		
Date d'échantillonnage		2024/08/19 00:00	2024/09/09 00:00	2024/07/11 00:00		
# Bordereau		154405	154405	154405		
	Unités	GALA-240819-WIL-PM4-1	GALA-240909-WIL-PM4-1	GALA-240711-WIL-PM2.5-2	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0194	0.0237	0.0240	0.0002	2593847
Poids du filtre avec poussières	g	0.0200	0.0239	0.0240	0.0002	2593847
Particules totales	g	0.0006	0.0002	<0.0002	0.0002	2593847

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NU3256	NU3257	NU3258		
Date d'échantillonnage		2024/07/23 00:00	2024/08/10 00:00	2024/08/16 00:00		
# Bordereau		154405	154405	154405		
	Unités	GALA-240723-WIL-PM2.5-2	GALA-240810-WIL-PM2.5-2-LB	GALA-240816-WIL-PM2.5-2	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0237	0.0205	0.0181	0.0002	2593847
Poids du filtre avec poussières	g	0.0220	0.0206	0.0194	0.0002	2593847
Particules totales	g	<0.0002	<0.0002	0.0013	0.0002	2593847

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NU3259	NU3260	NU3261		
Date d'échantillonnage		2024/09/09 00:00	2024/08/16 00:00	2024/08/10 00:00		
# Bordereau		154405	154405	154405		
	Unités	GALA-240909-WIL-PM4-2	GALA-240816-WIL-PM4-2	GALA-240810-WIL-PM4-2-LB	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0196	0.0196	0.0211	0.0002	2593847
Poids du filtre avec poussières	g	0.0198	0.0200	0.0211	0.0002	2593847
Particules totales	g	0.0002	0.0004	<0.0002	0.0002	2593847

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NU3262	NU3263		
Date d'échantillonnage		2024/07/23 00:00	2024/07/11 00:00		
# Bordereau		154405	154405		
	Unités	GALA-240723-WIL-PM4-2	GALA-240711-WIL-PM4-2	LDR	Lot CQ
CONVENTIONNELS					
Poids du filtre	g	0.0212	0.0199	0.0002	2593847
Poids du filtre avec poussières	g	0.0214	0.0204	0.0002	2593847
Particules totales	g	0.0002	0.0005	0.0002	2593847

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

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REMARQUES GÉNÉRALES

PARAMÈTRES CONVENTIONNELS (FILTRE)

Particules Totales: Les résultats bruts non-arrondis sont utilisés dans le calcul des particules totales. Ce résultat total est alors arrondi à trois chiffres significatifs.

Particules Totales : Veuillez noter que les filtres des NU3226, NU3230, NU3231, NU3235, NU3242, NU3256, NU3258, NU3259 et NU3260 ont été endommagés. Possibilité de sous-estimation des résultats.

Les résultats ne se rapportent qu'aux échantillons soumis pour analyse

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RAPPORT ASSURANCE QUALITÉ

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
2594999	M2K	Blanc fortifié	Antimoine (Sb) Air	2024/11/21		107	%
			Argent (Ag) Air	2024/11/21		98	%
			Arsenic (As) Air	2024/11/21		100	%
			Baryum (Ba) Air	2024/11/21		100	%
			Béryllium (Be) Air	2024/11/21		103	%
			Cadmium (Cd) Air	2024/11/21		100	%
			Chrome (Cr) Air	2024/11/21		99	%
			Cobalt (Co) Air	2024/11/21		100	%
			Cuivre (Cu) Air	2024/11/21		101	%
			Manganèse (Mn) Air	2024/11/21		99	%
			Nickel (Ni) Air	2024/11/21		99	%
			Plomb (Pb) Air	2024/11/21		103	%
			Sélénium (Se) Air	2024/11/21		97	%
			Thallium (Tl) Air	2024/11/21		103	%
			Vanadium (V) Air	2024/11/21		100	%
			Zinc (Zn) Air	2024/11/21		99	%
2594999	M2K	Blanc fortifié DUP	Antimoine (Sb) Air	2024/11/21		106	%
			Argent (Ag) Air	2024/11/21		98	%
			Arsenic (As) Air	2024/11/21		98	%
			Baryum (Ba) Air	2024/11/21		98	%
			Béryllium (Be) Air	2024/11/21		102	%
			Cadmium (Cd) Air	2024/11/21		97	%
			Chrome (Cr) Air	2024/11/21		97	%
			Cobalt (Co) Air	2024/11/21		98	%
			Cuivre (Cu) Air	2024/11/21		99	%
			Manganèse (Mn) Air	2024/11/21		97	%
			Nickel (Ni) Air	2024/11/21		97	%
			Plomb (Pb) Air	2024/11/21		100	%
			Sélénium (Se) Air	2024/11/21		95	%
			Thallium (Tl) Air	2024/11/21		100	%
			Vanadium (V) Air	2024/11/21		98	%
			Zinc (Zn) Air	2024/11/21		97	%
2594999	M2K	Blanc de méthode	Antimoine (Sb) Air	2024/11/21	<0.20		ug
			Argent (Ag) Air	2024/11/21	<0.30		ug
			Arsenic (As) Air	2024/11/21	<0.40		ug
			Baryum (Ba) Air	2024/11/21	<0.40		ug
			Béryllium (Be) Air	2024/11/21	<0.30		ug
			Cadmium (Cd) Air	2024/11/21	<0.20		ug
			Chrome (Cr) Air	2024/11/21	<0.90		ug
			Cobalt (Co) Air	2024/11/21	<0.30		ug
			Cuivre (Cu) Air	2024/11/21	<0.90		ug
			Manganèse (Mn) Air	2024/11/21	<0.90		ug
			Nickel (Ni) Air	2024/11/21	<2.0		ug
			Plomb (Pb) Air	2024/11/21	<0.40		ug
			Sélénium (Se) Air	2024/11/21	<0.50		ug
			Thallium (Tl) Air	2024/11/21	<0.050		ug
			Vanadium (V) Air	2024/11/21	<2.0		ug
			Zinc (Zn) Air	2024/11/21	<9.0		ug
2595003	CYU	Blanc fortifié	Antimoine (Sb) Air	2024/11/20		108	%
			Argent (Ag) Air	2024/11/20		104	%
			Arsenic (As) Air	2024/11/20		101	%
			Baryum (Ba) Air	2024/11/20		101	%

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RAPPORT ASSURANCE QUALITÉ (SUITE)

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Béryllium (Be) Air	2024/11/20		105	%
			Cadmium (Cd) Air	2024/11/20		103	%
			Chrome (Cr) Air	2024/11/20		101	%
			Cobalt (Co) Air	2024/11/20		101	%
			Cuivre (Cu) Air	2024/11/20		101	%
			Manganèse (Mn) Air	2024/11/20		102	%
			Nickel (Ni) Air	2024/11/20		101	%
			Plomb (Pb) Air	2024/11/20		103	%
			Sélénium (Se) Air	2024/11/20		103	%
			Thallium (Tl) Air	2024/11/20		92	%
			Vanadium (V) Air	2024/11/20		100	%
			Zinc (Zn) Air	2024/11/20		100	%
2595003	CYU	Blanc fortifié DUP	Antimoine (Sb) Air	2024/11/20		107	%
			Argent (Ag) Air	2024/11/20		104	%
			Arsenic (As) Air	2024/11/20		101	%
			Baryum (Ba) Air	2024/11/20		101	%
			Béryllium (Be) Air	2024/11/20		106	%
			Cadmium (Cd) Air	2024/11/20		104	%
			Chrome (Cr) Air	2024/11/20		101	%
			Cobalt (Co) Air	2024/11/20		102	%
			Cuivre (Cu) Air	2024/11/20		101	%
			Manganèse (Mn) Air	2024/11/20		103	%
			Nickel (Ni) Air	2024/11/20		102	%
			Plomb (Pb) Air	2024/11/20		105	%
			Sélénium (Se) Air	2024/11/20		104	%
			Thallium (Tl) Air	2024/11/20		94	%
			Vanadium (V) Air	2024/11/20		100	%
			Zinc (Zn) Air	2024/11/20		100	%
2595003	CYU	Blanc de méthode	Antimoine (Sb) Air	2024/11/20	<0.20		ug
			Argent (Ag) Air	2024/11/20	<0.30		ug
			Arsenic (As) Air	2024/11/20	<0.40		ug
			Baryum (Ba) Air	2024/11/20	<0.40		ug
			Béryllium (Be) Air	2024/11/20	<0.30		ug
			Cadmium (Cd) Air	2024/11/20	<0.20		ug
			Chrome (Cr) Air	2024/11/20	<0.90		ug
			Cobalt (Co) Air	2024/11/20	<0.30		ug
			Cuivre (Cu) Air	2024/11/20	<0.90		ug
			Manganèse (Mn) Air	2024/11/20	<0.90		ug
			Nickel (Ni) Air	2024/11/20	<2.0		ug
			Plomb (Pb) Air	2024/11/20	<0.40		ug
			Sélénium (Se) Air	2024/11/20	<0.50		ug
			Thallium (Tl) Air	2024/11/20	<0.050		ug
			Vanadium (V) Air	2024/11/20	<2.0		ug
			Zinc (Zn) Air	2024/11/20	<9.0		ug
2596111	ANB	Blanc fortifié	Antimoine (Sb) Filtre	2024/11/21		108	%
			Argent (Ag) Filtre	2024/11/21		101	%
			Arsenic (As) Filtre	2024/11/21		103	%
			Baryum (Ba) Filtre	2024/11/21		101	%
			Béryllium (Be) Filtre	2024/11/21		108	%
			Cadmium (Cd) Filtre	2024/11/21		102	%
			Chrome (Cr) Filtre	2024/11/21		103	%
			Cobalt (Co) Filtre	2024/11/21		102	%

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RAPPORT ASSURANCE QUALITÉ (SUITE)

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Cuivre (Cu) Filtre	2024/11/21		104	%
			Manganèse (Mn) Filtre	2024/11/21		102	%
			Nickel (Ni) Filtre	2024/11/21		102	%
			Plomb (Pb) Filtre	2024/11/21		102	%
			Sélénium (Se) Filtre	2024/11/21		105	%
			Thallium (Tl) Filtre	2024/11/21		91	%
			Vanadium (V) Filtre	2024/11/21		101	%
			Zinc (Zn) Filtre	2024/11/21		101	%
2596111	ANB	Blanc fortifié DUP	Antimoine (Sb) Filtre	2024/11/21		106	%
			Argent (Ag) Filtre	2024/11/21		100	%
			Arsenic (As) Filtre	2024/11/21		103	%
			Baryum (Ba) Filtre	2024/11/21		101	%
			Béryllium (Be) Filtre	2024/11/21		108	%
			Cadmium (Cd) Filtre	2024/11/21		102	%
			Chrome (Cr) Filtre	2024/11/21		103	%
			Cobalt (Co) Filtre	2024/11/21		101	%
			Cuivre (Cu) Filtre	2024/11/21		103	%
			Manganèse (Mn) Filtre	2024/11/21		101	%
			Nickel (Ni) Filtre	2024/11/21		101	%
			Plomb (Pb) Filtre	2024/11/21		102	%
			Sélénium (Se) Filtre	2024/11/21		102	%
			Thallium (Tl) Filtre	2024/11/21		91	%
			Vanadium (V) Filtre	2024/11/21		100	%
			Zinc (Zn) Filtre	2024/11/21		102	%
2596111	ANB	Blanc de méthode	Antimoine (Sb) Filtre	2024/11/21	<0.050		ug
			Argent (Ag) Filtre	2024/11/21	<0.050		ug
			Arsenic (As) Filtre	2024/11/21	<0.040		ug
			Baryum (Ba) Filtre	2024/11/21	<0.050		ug
			Béryllium (Be) Filtre	2024/11/21	<0.030		ug
			Cadmium (Cd) Filtre	2024/11/21	<0.050		ug
			Chrome (Cr) Filtre	2024/11/21	0.30, LDR=0.10		ug
			Cobalt (Co) Filtre	2024/11/21	<0.030		ug
			Cuivre (Cu) Filtre	2024/11/21	<0.10		ug
			Manganèse (Mn) Filtre	2024/11/21	<0.10		ug
			Nickel (Ni) Filtre	2024/11/21	<0.30		ug
			Plomb (Pb) Filtre	2024/11/21	<0.040		ug
			Sélénium (Se) Filtre	2024/11/21	<0.50		ug
			Thallium (Tl) Filtre	2024/11/21	<0.010		ug
			Vanadium (V) Filtre	2024/11/21	<0.20		ug
			Zinc (Zn) Filtre	2024/11/21	<1.0		ug

LDR = Limite de détection rapportée

Blanc fortifié: Un blanc, d'une matrice exempte de contaminants, auquel a été ajouté une quantité connue d'analyte provenant généralement d'une deuxième source. Utilisé pour évaluer la précision de la méthode.

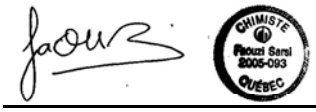
Blanc de méthode: Une partie aliquote de matrice pure soumise au même processus analytique que les échantillons, du prétraitement au dosage. Sert à évaluer toutes contaminations du laboratoire.

Réc = Récupération

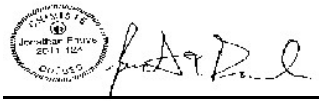
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PAGE DES SIGNATURES DE VALIDATION

Les résultats analytiques ainsi que les données de contrôle-qualité contenus dans ce rapport ont été vérifiés et validés par:



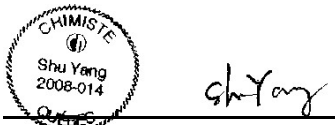
Faouzi Sarsi, B.Sc. Chimiste, Montréal, Analyste SR



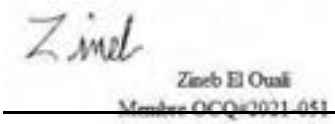
Jonathan Fauvel, B.Sc., Chimiste, Montréal, Spécialiste Scientifique



Mira El Masri, M.Sc. Chimiste, Montréal, Analyste II



Shu Yang, B.Sc. Chimiste, Montréal, Analyste II



Zineb El Ouali, M.Sc.,Chimiste, Montréal, Analyste II

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eCOC: Q154405

Expected TAT: Standard TAT
Expected Arrival: 2024/11/08 17:00
Submitted By:
Submitted To: Montréal (Env. Lab)

Invoice Information

Attn: COMPTES PAYABLE
WSP Canada Inc.
1600 René-Lévesque O
16e Étage
Montréal , QC , H3H 1P9
Email to:
capayablesinvoice@wsp.com

Report Information

Attn: Francis Charbonneau
WSP Canada Inc. - Montréal
1600 René-Lévesque O
local B110
Montréal , QC , H3H 1P9
Email to:
francis.charbonneau@wsp.com
yvan.quenum@wsp.com
sylvain.marcoux@wsp.com

Project Information

Quote #: C30388
PO/AFE#:
Project #: CA0012054.2069 phase 123
Site Location: Galaxy

C467288_COC

08-Nov-24 09:00
Sarah Beaudry
C467288

FVE

NOVA-2024-11-1118

Analytical Summary

A: Standard TAT

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Silica by XR (NIOSH 7500)-PVC Filter	Total Extractable Metals (Hi-vol)	Total Particulate	Total Particulate (Hi-VOL)	Set Number
GALA-240711-HV-1	1	2024/07/11 00:00	FILTER	1		A		A	1
GALA-240717-HV-1	2	2024/07/17 00:00	FILTER	1		A		A	2
GALA-240723-HV-1	3	2024/07/23 00:00	FILTER	1		A		A	2
GALA-240729-HV-1	4	2024/07/29 00:00	FILTER	1		A		A	2
GALA-240804-HV-1	5	2024/08/04 00:00	FILTER	1		A		A	2
GALA-240810-HV-1	6	2024/08/10 00:00	FILTER	1		A		A	2
GALA-240810-HV-1-LB	7	2024/08/10 00:00	FILTER	1		A		A	2
GALA-240816-HV-1	8	2024/08/16 00:00	FILTER	1		A		A	2
GALA-240822-HV-1	9	2024/08/22 00:00	FILTER	1		A		A	1
GALA-240828-HV-1	10	2024/08/28 00:00	FILTER	1		A		A	1
GALA-240903-HV-1	11	2024/09/03 00:00	FILTER	1		A		A	1
GALA-240909-HV-1	12	2024/09/09 00:00	FILTER	1		A		A	1
GALA-240915-HV-1	13	2024/09/15 00:00	FILTER	1		A		A	1
GALA-240711-HV-2	14	2024/07/11 00:00	FILTER	1		A		A	1
GALA-240717-HV-2	15	2024/07/17 00:00	FILTER	1		A		A	1
GALA-240723-HV-2	16	2024/07/23 00:00	FILTER	1		A		A	1
GALA-240729-HV-2	17	2024/07/29 00:00	FILTER	1		A		A	1
GALA-240804-HV-2	18	2024/08/04 00:00	FILTER	1		A		A	1

Sandi Lock
2024 11 08
09:00
Ice no
Seal no
W508
Courier
20.20.20

eCOC: Q154405

Expected TAT: Standard TAT
Expected Arrival: 2024/11/08 17:00
Submitted By:
Submitted To: Montréal (Env. Lab)

A: Standard TAT

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Silica by XR (NIOSH 7500)-PVC Filter	Total Extractable Metals (Hi-vol)	Total Particulate	Total Particulate (Hi-VOL)	Set Number
GALA-240810-HV-2-LB	19	2024/08/10 00:00	FILTER	1		A		A	1
GALA-240822-HV-2	20	2024/08/22 00:00	FILTER	1		A		A	1
GALA-240828-HV-2	21	2024/08/28 00:00	FILTER	1		A		A	1
GALA-240903-HV-2	22	2024/09/03 00:00	FILTER	1		A		A	1
GALA-240909-HV-2	23	2024/09/09 00:00	FILTER	1		A		A	2
GALA-240915-HV-2	24	2024/09/15 00:00	FILTER	1		A		A	2
GALA-240711-WIL-PM4-1	25	2024/07/11 00:00	FILTER	1	A		A		3
GALA-240723-WIL-PM4-1	26	2024/07/23 00:00	FILTER	1	A		A		3
GALA-240804-WIL-PM4-1	27	2024/08/04 00:00	FILTER	1	A		A		3
GALA-240810-WIL-PM4-1-LB	28	2024/08/10 00:00	FILTER	1	A		A		3
GALA-240816-WIL-PM4-1	29	2024/08/16 00:00	FILTER	1	A		A		3
GALA-240819-WIL-PM4-1	30	2024/08/19 00:00	FILTER	1	A		A		3
GALA-240909-WIL-PM4-1	31	2024/09/09 00:00	FILTER	1	A		A		3
GALA-240711-WIL-PM2.5-2	32	2024/07/11 00:00	FILTER	1			A		4
GALA-240723-WIL-PM2.5-2	33	2024/07/23 00:00	FILTER	1			A		4
GALA-240810-WIL-PM2.5-2-LB	34	2024/08/10 00:00	FILTER	1			A		4
GALA-240816-WIL-PM2.5-2	35	2024/08/16 00:00	FILTER	1			A		4
GALA-240909-WIL-PM4-2	36	2024/09/09 00:00	FILTER	1	A		A		3
GALA-240816-WIL-PM4-2	37	2024/08/16 00:00	FILTER	1	A		A		3
GALA-240810-WIL-PM4-2-LB	38	2024/08/10 00:00	FILTER	1	A		A		3
GALA-240723-WIL-PM4-2	39	2024/07/23 00:00	FILTER	1	A		A		3
GALA-240711-WIL-PM4-2	40	2024/07/11 00:00	FILTER	1	A		A		3

Deadlines are estimates only and are subject to change. Please refer to your Job Confirmation report for final due dates.

BUREAU VERITAS

eCOC: Q154405

Expected TAT:	Standard TAT
Expected Arrival:	2024/11/08 17:00
Submitted By:	
Submitted To:	Montréal (Env. Lab)

Submission Information

# of Samples: 40

Sample Set Listing

Set 1 (15 samples)	Set 2 (9 samples)	Set 3 (12 samples)	Set 4 (4 samples)
GALA-240711-HV-1	GALA-240717-HV-1	GALA-240711-WIL-PM4-1	GALA-240711-WIL-PM2.5-2
GALA-240822-HV-1	GALA-240723-HV-1	GALA-240723-WIL-PM4-1	GALA-240723-WIL-PM2.5-2
GALA-240828-HV-1	GALA-240729-HV-1	GALA-240804-WIL-PM4-1	GALA-240810-WIL-PM2.5-2-LB
GALA-240903-HV-1	GALA-240804-HV-1	GALA-240810-WIL-PM4-1-LB	GALA-240816-WIL-PM2.5-2
GALA-240909-HV-1	GALA-240810-HV-1	GALA-240816-WIL-PM4-1	
GALA-240915-HV-1	GALA-240810-HV-1-LB	GALA-240819-WIL-PM4-1	
GALA-240711-HV-2	GALA-240816-HV-1	GALA-240909-WIL-PM4-1	
GALA-240717-HV-2	GALA-240909-HV-2	GALA-240909-WIL-PM4-2	
GALA-240723-HV-2	GALA-240915-HV-2	GALA-240816-WIL-PM4-2	
GALA-240729-HV-2		GALA-240810-WIL-PM4-2-LB	
GALA-240804-HV-2		GALA-240723-WIL-PM4-2	
GALA-240810-HV-2-LB		GALA-240711-WIL-PM4-2	
GALA-240822-HV-2			
GALA-240828-HV-2			
GALA-240903-HV-2			

Votre # du projet: C467288
Adresse du site: WSP CANADA INC. (4934)

Attention: Sarah Beaudry

Bureau Veritas Laboratories
889, Montee de Liesse
Saint-Laurent, QC
Canada H4T 1P5

Date du rapport: 11/27/2024
Rapport: R8422292
Version: 1 - Finale

CERTIFICAT D'ANALYSE

 # DE DOSSIER BV LABS: C4AI852
Reçu: 11/22/2024, 00:00

Matrice: Air
Nombre d'échantillons reçus: 12

Analyses	Quantité	Date Analysé	Méthode de laboratoire	Méthode d'analyse
Silica on a PVC filter by N7500	12	11/26/2024	NOV5SOP-00001	NIOSH 7500
Total Quartz and Cristobalite	12	11/27/2024		

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.

clé de cryptage 

COVERPAGECOMMENT1_IH
Megan Stupar,
Courriel: megan.stupar@bureauveritas.com
Téléphone (248) 344-1770
==========
Bureau Veritas a mis en place des procédures qui protègent contre l'utilisation non autorisée de la signature électronique et emploie les «signataires» requis, conformément à l'ISO/CEI17025. Ce rapport est autorisé par Jason Forbes, Directeur des Opérations, responsable des opérations du laboratoire de MichiganHygiène industrielle.

Total Cover Pages : 1

Dossier BV Labs: C4AI852
Date du rapport: 11/27/2024

Bureau Veritas Laboratories
Votre # du projet: C467288
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	NU3248-GALA-240711-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	AJSB14	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	07/11/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	9.0	N/A	5.0	NIOSH 7500	11/26/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Tridymite	<10	N/A	10	NIOSH 7500	11/26/2024
Total (Quartz and Cristobalite)	<10	N/A	10		11/27/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NU3249-GALA-240723-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	AJSB15	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	07/23/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	14	N/A	5.0	NIOSH 7500	11/26/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Tridymite	<10	N/A	10	NIOSH 7500	11/26/2024
Total (Quartz and Cristobalite)	14	N/A	10		11/27/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NU3250-GALA-240804-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	AJSB16	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	08/04/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	7.9	N/A	5.0	NIOSH 7500	11/26/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Tridymite	<10	N/A	10	NIOSH 7500	11/26/2024
Total (Quartz and Cristobalite)	<10	N/A	10		11/27/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C4AI852
Date du rapport: 11/27/2024

Bureau Veritas Laboratories
Votre # du projet: C467288
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	NU3251-GALA-240810-WIL-PM4-1-LB	Matrice:	Air
Identification BV Labs:	AJSB17	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	08/10/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Tridymite	<10	N/A	10	NIOSH 7500	11/26/2024
Total (Quartz and Cristobalite)	<10	N/A	10		11/27/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NU3252-GALA-240816-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	AJSB18	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	08/16/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	25	N/A	5.0	NIOSH 7500	11/26/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Tridymite	<10	N/A	10	NIOSH 7500	11/26/2024
Total (Quartz and Cristobalite)	25	N/A	10		11/27/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NU3253-GALA-240819-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	AJSB19	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	08/19/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	6.6	N/A	5.0	NIOSH 7500	11/26/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Tridymite	<10	N/A	10	NIOSH 7500	11/26/2024
Total (Quartz and Cristobalite)	<10	N/A	10		11/27/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C4AI852
Date du rapport: 11/27/2024

Bureau Veritas Laboratories
Votre # du projet: C467288
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	NU3254-GALA-240909-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	AJSB20	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	09/09/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Tridymite	<10	N/A	10	NIOSH 7500	11/26/2024
Total (Quartz and Cristobalite)	<10	N/A	10		11/27/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NU3259-GALA-240909-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	AJSB21	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	09/09/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	6.7	N/A	5.0	NIOSH 7500	11/26/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Tridymite	<10	N/A	10	NIOSH 7500	11/26/2024
Total (Quartz and Cristobalite)	<10	N/A	10		11/27/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NU3260-GALA-240816-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	AJSB22	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	08/16/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	6.4	N/A	5.0	NIOSH 7500	11/26/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Tridymite	<10	N/A	10	NIOSH 7500	11/26/2024
Total (Quartz and Cristobalite)	<10	N/A	10		11/27/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C4AI852
Date du rapport: 11/27/2024

Bureau Veritas Laboratories
Votre # du projet: C467288
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	NU3261-GALA-240810-WIL-PM4-2-LB	Matrice:	Air
Identification BV Labs:	AJSB23	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	08/10/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	29	N/A	5.0	NIOSH 7500	11/26/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Tridymite	<10	N/A	10	NIOSH 7500	11/26/2024
Total (Quartz and Cristobalite)	29	N/A	10		11/27/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NU3262-GALA-240723-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	AJSB24	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	07/23/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	7.1	N/A	5.0	NIOSH 7500	11/26/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Tridymite	<10	N/A	10	NIOSH 7500	11/26/2024
Total (Quartz and Cristobalite)	<10	N/A	10		11/27/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NU3263-GALA-240711-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	AJSB25	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	07/11/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	7.1	N/A	5.0	NIOSH 7500	11/26/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	11/26/2024
Tridymite	<10	N/A	10	NIOSH 7500	11/26/2024
Total (Quartz and Cristobalite)	<10	N/A	10		11/27/2024

LDR = limite de détection rapportée
RL = Seuil de détection

REMARQUES GÉNÉRALES

Unless otherwise noted below the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and /or do not adversely affect the reported results and 3) the industrial hygiene results have not been blank corrected.

The client provided their pertinent field sampling data on the analysis request paperwork submitted with the samples. Results apply to the sample as received.

Échantillon AJSB18 [NU3252-GALA-240816-WIL-PM4-1] : The quartz result reported should be considered a maximum value, the quartz primary angle may include unresolved interferences.

Échantillon AJSB23 [NU3261-GALA-240810-WIL-PM4-2-LB] : The quartz result reported should be considered a maximum value, the quartz primary angle may include unresolved interferences.

Les résultats s'appliquent seulement pour les paramètres analysés.

Sent to: **Bureau Veritas North America In**
22345 Roethel Drive
Novi, MI, 48375
Tel: (248) 344-1770

BUREAU VERITAS INTERLAB CHAIN OF CUSTODY RECORD

COC # C467288-BVMI-01-01

C4AI852

REPORT INFORMATION	
Company:	Bureau Veritas
Address:	889, Montée de Liesse, Saint-Laurent, Quebec, H4T 1P5
Contact Name:	Sarah Beaudry
Email:	Sarah.Beaudry@bureauveritas.com, SoustraitanceQue-YUL@bureauveritas.com
Phone:	(438) 355-7268
BV Project #:	C467288
Client Invoice To:	WSP Canada Inc. (4934)
Client Report To:	WSP Canada Inc. - Montréal (4040) **Incl. on Report? Yes / No**

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	ANALYSIS REQUESTED: Silica by XR (NIOSH 7500)-PVC Filter	ADDITIONAL SAMPLE INFORMATION
1	NU3248-GALA-240711-WIL-PM4-1	FILT	2024/07/11	00:00		1	X	(P: 01)
2	NU3249-GALA-240723-WIL-PM4-1	FILT	2024/07/23	00:00		1	X	(P: 01)
3	NU3250-GALA-240804-WIL-PM4-1	FILT	2024/08/04	00:00		1	X	(P: 01)
4	NU3251-GALA-240810-WIL-PM4-1-LB	FILT	2024/08/10	00:00		1	X	(P: 01)
5	NU3252-GALA-240816-WIL-PM4-1	FILT	2024/08/16	00:00		1	X	(P: 01)
6	NU3253-GALA-240819-WIL-PM4-1	FILT	2024/08/19	00:00		1	X	(P: 01)
7	NU3254-GALA-240909-WIL-PM4-1	FILT	2024/09/09	00:00		1	X	(P: 01)
8	NU3259-GALA-240909-WIL-PM4-2	FILT	2024/09/09	00:00		1	X	(P: 01)
9	NU3260-GALA-240816-WIL-PM4-2	FILT	2024/08/16	00:00		1	X	(P: 01)
10	NU3261-GALA-240810-WIL-PM4-2-LB	FILT	2024/08/10	00:00		1	X	(P: 01)

Job Barcode Label

SITE LOCATION: Galaxy

SITE #:

PROJECT #: CA0012054.2069 phase 123

PO/AFE, TASK ORDER/SERVICE ORDER, LINE ITEM:

REGULATORY CRITERIA: Guide 2021 Basses-Terres

SPECIAL INSTRUCTIONS: Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching.
Please return a copy of this form with the report.

REQUIRED EDDs: National Excel (N001) Golder (Q001) Dessau Soprin Excel (Q004)

TURNAROUND TIME

☐ Rush Required

2024/12/02
Date Required

Please inform us if rush charges will be incurred.

COOLER ID:	YES	NO	Temp: (°C)			
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)			
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)			
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

RECEIVING LAB USE ONLY

Bureau Veritas Job #

RELINQUISHED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	Samples Labelled By:	Labels Verified By:
1. KPS	2024/11/19	16:19	1. Luke Powell	2024/11/22	1111		
2.			2.				

Sent to: **Bureau Veritas North America In**
22345 Roethel Drive
Novi, MI, 48375
Tel: (248) 344-1770

BUREAU VERITAS INTERLAB CHAIN OF CUSTODY RECORD

COC # C467288-BVMI-02-01

REPORT INFORMATION	
Company:	Bureau Veritas
Address:	889, Montée de Liesse, Saint-Laurent, Quebec, H4T 1P5
Contact Name:	Sarah Beaudry
Email:	Sarah.Beaudry@bureauveritas.com, SoustraitanceQue-YUL@bureauveritas.com
Phone:	(438) 355-7268
BV Project #:	C467288
Client Invoice To:	WSP Canada Inc. (4934)
Client Report To:	WSP Canada Inc. - Montréal (4040)

Incl. on Report? Yes / No

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	ANALYSIS REQUESTED: Silica by XR (NIOSH 7500)-PVC Filter	ADDITIONAL SAMPLE INFORMATION
1	NU3262-GALA-240723-WIL-PM4-2	FILT	2024/07/23	00:00		1	X	(P: 01)
2	NU3263-GALA-240711-WIL-PM4-2	FILT	2024/07/11	00:00		1	X	(P: 01)
3								
4								
5								
6								
7								
8								
9								
10								

Job Barcode Label

SITE LOCATION:
Galaxy
SITE #:

PROJECT #:
CA0012054.2069 phase 123
PO/AFE, TASK ORDER/SERVICE ORDER, LINE ITEM:

REGULATORY CRITERIA
Guide 2021 Basses-Terres

SPECIAL INSTRUCTIONS
Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching.
Please return a copy of this form with the report.

REQUIRED EDDs
National Excel (N001)
Golder (Q001)
Dessau Soprin Excel (Q004)

TURNAROUND TIME
☐ Rush Required
2024/12/02
Date Required
Please inform us if rush charges will be incurred.

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

RECEIVING LAB USE ONLY
Bureau Veritas Job #

RELINQUISHED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
1. KPS	2024/11/19	16:19	1. Mike Powell	2024/11/22	1111
2.			2.		

Samples Labelled By:	Labels Verified By:

Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy
Votre # Bordereau: 155443

Attention: Francis Charbonneau

WSP Canada Inc. - Montréal
René-Lévesque
1600 René-Lévesque O
local B110
Montréal, QC
CANADA H3H 1P9

Date du rapport: 2024/12/23
Rapport: R3010968
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BUREAU VERITAS: C468935
Reçu: 2024/11/18, 13:30

Matrice: Filtre
Nombre d'échantillons reçus: 25

Analyses	Quantité	Date de l' extraction	Date Analysé	Méthode de laboratoire	Méthode d'analyse
Particules totales	15	2024/11/21	2024/11/21	STL SOP-00045	MA100– Part 1.0 R4 m
Particules totales (Hi-VOL)	10	2024/11/21	2024/11/21	STL SOP-00045	MA100–Part. 1.0 R4 m
Métaux extractibles (Filtre 37-47mm)	5	2024/11/26	2024/11/27	STL SOP-00075	MA.200–Mét. 1.2 R9 m
Métaux extractibles totaux (Hi-vol)	10	2024/11/26	2024/11/27	STL SOP-00062	MA.200–Mét. 1.2 R9 m
Silice par RX (NIOSH 7500)-Filtre PVC (1)	10	N/A	N/A	Crystalline Silica by NIOSH 7500	NIOSH 7500

Remarques:

Bureau Veritas est certifié ISO/IEC 17025 pour certains paramètres précis des portées d'accréditation. Sauf indication contraire, les méthodes d'analyses utilisées par Bureau Veritas s'inspirent des méthodes de référence d'organismes provinciaux, fédéraux et américains, tels que le CCME, l'EPA, l'APHA ou le ministère de l'environnement du Québec.

Toutes les analyses présentées ont été réalisées conformément aux procédures et aux pratiques relatives à la méthodologie, à l'assurance qualité et au contrôle de la qualité généralement appliqués par les employés de Bureau Veritas (sauf s'il en a été convenu autrement par écrit entre le client et Bureau Veritas). Toutes les données de laboratoire rencontrent les contrôles statistiques et respectent tous les critères de CQ et les critères de performance des méthodes, sauf s'il en a été signalé autrement. Tous les blancs de méthode sont rapportés, toutefois, les données des échantillons correspondants ne sont pas corrigées pour la valeur du blanc, sauf indication contraire. Le cas échéant, sauf indication contraire, l'incertitude de mesure n'a pas été prise en considération lors de la déclaration de la conformité à la norme de référence.

Les responsabilités de Bureau Veritas sont restreintes au coût réel de l'analyse, sauf s'il en a été convenu autrement par écrit. Il n'existe aucune autre garantie, explicite ou implicite. Le client a fait appel à Bureau Veritas pour l'analyse de ses échantillons conformément aux méthodes de référence mentionnées dans ce rapport. L'interprétation et l'utilisation des résultats sont sous l'entière responsabilité du client et ne font pas partie des services offerts par Bureau Veritas, sauf si convenu autrement par écrit. Bureau Veritas ne peut pas garantir l'exactitude des résultats qui dépendent des renseignements fournis par le client ou son représentant.

Les résultats des échantillons solides, sauf les biotes, sont rapportés en fonction de la masse sèche, sauf indication contraire. Les analyses organiques ne sont pas corrigées en fonction de la récupération, sauf pour les méthodes de dilution isotopique.
Les résultats s'appliquent seulement aux échantillons analysés. Si l'échantillonnage n'est pas effectué par Bureau Veritas, les résultats se rapportent aux échantillons fournis pour analyse.
Le présent rapport ne doit pas être reproduit, sinon dans son intégralité, sans le consentement écrit du laboratoire.
Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.

Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy
Votre # Bordereau: 155443

Attention: Francis Charbonneau

WSP Canada Inc. - Montréal
René-Lévesque
1600 René-Lévesque O
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Montréal, QC
CANADA H3H 1P9

Date du rapport: 2024/12/23
Rapport: R3010968
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BUREAU VERITAS: C468935

Reçu: 2024/11/18, 13:30

Notez: Les données brutes sont utilisées pour le calcul du RPD (% d'écart relatif). L'arrondissement des résultats finaux peut expliquer la variation apparente.
(1) Cette analyse a été effectuée par Bureau Veritas North America Inc.(Michigan), 22345 Roethel Drive , Novi, MI, 48375

Note : Les paramètres inclus dans le présent certificat sont accrédités par le ministère de l'environnement du Québec, à moins d'indication contraire.

clé de cryptage

AUTHORIZED REPORT
RAPPORT AUTORISÉ

Bureau Veritas
23 Dec 2024 15:39:27

Veuillez adresser toute question concernant ce certificat d' analyse à:
Sarah Beaudry, Chargée de projets
Courriel: Sarah.Beaudry@bureauveritas.com
Téléphone (438)355-7268

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Ce rapport a été produit et distribué en utilisant une procédure automatisée sécuritaire.
Bureau Veritas a mis en place des procédures qui protègent contre l'utilisation non autorisée de la signature électronique et emploie les «signataires» requis, conformément à l'ISO/CEI17025. Pour la validation spécifique à un groupe de services, veuillez vous référer à la page des Signatures de validation si elle est incluse, sinon disponible sur demande. Pour les noms de validation des analystes/superviseurs spécifiques à un service, veuillez vous référer à la section Résumé de l'analyse si elle est incluse, sinon disponible sur demande. Ce rapport est autorisé par Aglaia Yannakis, Directrice générale, responsable des opérations du laboratoire Environnementale - Québec.

MÉTAUX (FILTRE)

ID Bureau Veritas		NV1616	NV1617	NV1618	NV1619		
Date d'échantillonnage		2024/09/27 00:00	2024/09/21 00:00	2024/09/21 00:00	2024/10/15 00:00		
# Bordereau		155443	155443	155443	155443		
	Unités	GALA-240927-HV-2	GALA-240921-HV-1	GALA-240921-HV-2	GALA-241015-HV-2	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	<0.20	0.48	<0.20	<0.20	0.20	2597814
Argent (Ag) Air	ug	<0.30	N/A	N/A	N/A	0.30	2597814
Arsenic (As) Air	ug	<0.40	0.59	<0.40	<0.40	0.40	2597814
Baryum (Ba) Air	ug	1.2	3.2	1.1	3.3	0.40	2597814
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2597814
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2597814
Chrome (Cr) Air	ug	3.5	2.1	2.7	6.2	0.90	2597814
Cobalt (Co) Air †	ug	<0.30	<0.30	<0.30	<0.30	0.30	2597814
Cuivre (Cu) Air	ug	87	48	1.7	56	0.90	2597814
Manganèse (Mn) Air †	ug	1.8	6.3	1.9	5.4	0.90	2597814
Nickel (Ni) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2597814
Plomb (Pb) Air	ug	<0.40	1.5	<0.40	<0.40	0.40	2597814
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2597814
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	<0.050	0.050	2597814
Vanadium (V) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2597814
Zinc (Zn) Air	ug	<9.0	<9.0	<9.0	<9.0	9.0	2597814

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
N/A = Non Applicable
† Accréditation non existante pour ce paramètre

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

Dossier Bureau Veritas: C468935
Date du rapport: 2024/12/23

WSP Canada Inc. - Montréal
Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy

MÉTAUX (FILTRE)

ID Bureau Veritas		NV1620	NV1621	NV1622	NV1623		
Date d'échantillonnage		2024/10/15 00:00	2024/10/09 00:00	2024/10/09 00:00	2024/10/03 00:00		
# Bordereau		155443	155443	155443	155443		
	Unités	GALA-241015-HV-1	GALA-241009-HV-2	GALA-241009-HV-1	GALA-241003-HV-1	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	<0.20	0.90	<0.20	0.27	0.20	2597814
Arsenic (As) Air	ug	<0.40	<0.40	<0.40	<0.40	0.40	2597814
Baryum (Ba) Air	ug	1.7	1.8	1.2	3.3	0.40	2597814
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2597814
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2597814
Chrome (Cr) Air	ug	8.7	17	9.3	15	0.90	2597814
Cobalt (Co) Air †	ug	<0.30	<0.30	<0.30	<0.30	0.30	2597814
Cuivre (Cu) Air	ug	15	73	53	24	0.90	2597814
Manganèse (Mn) Air †	ug	2.7	4.1	1.9	6.0	0.90	2597814
Nickel (Ni) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2597814
Plomb (Pb) Air	ug	0.53	0.82	<0.40	0.60	0.40	2597814
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2597814
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	<0.050	0.050	2597814
Vanadium (V) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2597814
Zinc (Zn) Air	ug	<9.0	<9.0	<9.0	<9.0	9.0	2597814

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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Dossier Bureau Veritas: C468935
Date du rapport: 2024/12/23

WSP Canada Inc. - Montréal
Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy

MÉTAUX (FILTRE)

ID Bureau Veritas		NV1624	NV1625	NV1626	NV1627		
Date d'échantillonnage		2024/10/03 00:00	2024/09/27 00:00	2024/10/04 00:00	2024/09/27 00:00		
# Bordereau		155443	155443	155443	155443		
	Unités	GALA-241003-HV-2	GALA-240927-HV-1	GALA-241004-WILPM2.5-2	GALA-240927-WIL-PM2.5-2	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	<0.20	<0.20	N/A	N/A	0.20	2597814
Antimoine (Sb) Filtre	ug	N/A	N/A	<0.050	<0.050	0.050	2597777
Argent (Ag) Air	ug	<0.30	<0.30	N/A	N/A	0.30	2597814
Argent (Ag) Filtre	ug	N/A	N/A	<0.050	<0.050	0.050	2597777
Arsenic (As) Air	ug	<0.40	<0.40	N/A	N/A	0.40	2597814
Arsenic (As) Filtre	ug	N/A	N/A	<0.040	<0.040	0.040	2597777
Baryum (Ba) Air	ug	1.5	0.67	N/A	N/A	0.40	2597814
Baryum (Ba) Filtre	ug	N/A	N/A	0.13	<0.050	0.050	2597777
Béryllium (Be) Air	ug	<0.30	<0.30	N/A	N/A	0.30	2597814
Béryllium (Be) Filtre	ug	N/A	N/A	<0.030	<0.030	0.030	2597777
Cadmium (Cd) Air	ug	<0.20	<0.20	N/A	N/A	0.20	2597814
Cadmium (Cd) Filtre	ug	N/A	N/A	<0.050	<0.050	0.050	2597777
Chrome (Cr) Air	ug	28	3.6	N/A	N/A	0.90	2597814
Chrome (Cr) Filtre	ug	N/A	N/A	0.38	0.32	0.10	2597777
Cobalt (Co) Air †	ug	<0.30	<0.30	N/A	N/A	0.30	2597814
Cobalt (Co) Filtre †	ug	N/A	N/A	<0.030	<0.030	0.030	2597777
Cuivre (Cu) Air	ug	81	6.1	N/A	N/A	0.90	2597814
Cuivre (Cu) Filtre	ug	N/A	N/A	0.16	0.30	0.10	2597777
Manganèse (Mn) Air †	ug	4.6	<0.90	N/A	N/A	0.90	2597814
Manganèse (Mn) Filtre †	ug	N/A	N/A	<0.10	<0.10	0.10	2597777
Nickel (Ni) Air	ug	<2.0	<2.0	N/A	N/A	2.0	2597814
Nickel (Ni) Filtre	ug	N/A	N/A	<0.30	<0.30	0.30	2597777
Plomb (Pb) Air	ug	<0.40	<0.40	N/A	N/A	0.40	2597814
Plomb (Pb) Filtre	ug	N/A	N/A	<0.040	<0.040	0.040	2597777
Sélénium (Se) Air †	ug	<0.50	<0.50	N/A	N/A	0.50	2597814
Sélénium (Se) Filtre †	ug	N/A	N/A	<0.50	<0.50	0.50	2597777
Thallium (Tl) Air	ug	<0.050	<0.050	N/A	N/A	0.050	2597814
Thallium (Tl) Filtre	ug	N/A	N/A	<0.010	<0.010	0.010	2597777
Vanadium (V) Air	ug	<2.0	<2.0	N/A	N/A	2.0	2597814
Vanadium (V) Filtre	ug	N/A	N/A	<0.20	<0.20	0.20	2597777
Zinc (Zn) Air	ug	<9.0	<9.0	N/A	N/A	9.0	2597814
Zinc (Zn) Filtre	ug	N/A	N/A	<1.0	<1.0	1.0	2597777

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Lot CQ = Lot contrôle qualité
N/A = Non Applicable
† Accréditation non existante pour ce paramètre

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MÉTAUX (FILTRE)

ID Bureau Veritas		NV1628	NV1629	NV1630		
Date d'échantillonnage		2024/10/09 00:00	2024/10/15 00:00	2024/09/21 00:00		
# Bordereau		155443	155443	155443		
	Unités	GALA-241009-WIL-PM2.5-2	GALA-241015-WIL-PM2.5-2	GALA-240921-WIL-PM2.5-2	LDR	Lot CQ
MÉTAUX						
Antimoine (Sb) Filtre	ug	<0.050	<0.050	<0.050	0.050	2597777
Argent (Ag) Filtre	ug	<0.050	<0.050	<0.050	0.050	2597777
Arsenic (As) Filtre	ug	<0.040	<0.040	<0.040	0.040	2597777
Baryum (Ba) Filtre	ug	<0.050	<0.050	0.17	0.050	2597777
Béryllium (Be) Filtre	ug	<0.030	<0.030	<0.030	0.030	2597777
Cadmium (Cd) Filtre	ug	<0.050	<0.050	<0.050	0.050	2597777
Chrome (Cr) Filtre	ug	0.47	0.48	0.39	0.10	2597777
Cobalt (Co) Filtre †	ug	<0.030	<0.030	<0.030	0.030	2597777
Cuivre (Cu) Filtre	ug	0.14	<0.10	<0.10	0.10	2597777
Manganèse (Mn) Filtre †	ug	<0.10	<0.10	<0.10	0.10	2597777
Nickel (Ni) Filtre	ug	<0.30	<0.30	<0.30	0.30	2597777
Plomb (Pb) Filtre	ug	<0.040	<0.040	<0.040	0.040	2597777
Sélénium (Se) Filtre †	ug	<0.50	<0.50	<0.50	0.50	2597777
Thallium (Tl) Filtre	ug	<0.010	<0.010	<0.010	0.010	2597777
Vanadium (V) Filtre	ug	<0.20	<0.20	<0.20	0.20	2597777
Zinc (Zn) Filtre	ug	<1.0	<1.0	<1.0	1.0	2597777

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NV1616	NV1617	NV1618	NV1619		
Date d'échantillonnage		2024/09/27 00:00	2024/09/21 00:00	2024/09/21 00:00	2024/10/15 00:00		
# Bordereau		155443	155443	155443	155443		
	Unités	**GALA-240927-HV-2**	**GALA-240921-HV-1**	**GALA-240921-HV-2**	**GALA-241015-HV-2**	**LDR**	**Lot CQ**
CONVENTIONNELS							
Poids du filtre	g	3.333	3.318	3.319	3.319	0.001	2596051
Poids du filtre avec poussières	g	3.352	3.358	3.340	3.348	0.001	2596051
Particules totales	g	0.019	0.039	0.021	0.029	0.001	2596051

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NV1620	NV1621	NV1622	NV1623		
Date d'échantillonnage		2024/10/15 00:00	2024/10/09 00:00	2024/10/09 00:00	2024/10/03 00:00		
# Bordereau		155443	155443	155443	155443		
	Unités	**GALA-241015-HV-1**	**GALA-241009-HV-2**	**GALA-241009-HV-1**	**GALA-241003-HV-1**	**LDR**	**Lot CQ**
CONVENTIONNELS							
Poids du filtre	g	3.313	3.313	3.310	3.322	0.001	2596051
Poids du filtre avec poussières	g	3.331	3.349	3.323	3.354	0.001	2596051
Particules totales	g	0.018	0.037	0.014	0.032	0.001	2596051

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NV1624	NV1625			NV1626		
Date d'échantillonnage		2024/10/03 00:00	2024/09/27 00:00			2024/10/04 00:00		
# Bordereau		155443	155443			155443		
	Unités	**GALA-241003-HV-2**	**GALA-240927-HV-1**	**LDR**	**Lot CQ**	**GALA-241004-WILPM2.5-2**	**LDR**	**Lot CQ**
CONVENTIONNELS								
Poids du filtre	g	3.322	3.325	0.001	2596051	0.0237	0.0002	2596315
Poids du filtre avec poussières	g	3.347	3.332	0.001	2596051	0.0241	0.0002	2596315
Particules totales	g	0.026	0.007	0.001	2596051	0.0004	0.0002	2596315

LDR = Limite de détection rapportée
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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NV1627	NV1628	NV1629	NV1630		
Date d'échantillonnage		2024/09/27 00:00	2024/10/09 00:00	2024/10/15 00:00	2024/09/21 00:00		
# Bordereau		155443	155443	155443	155443		
	Unités	GALA-240927-WIL-PM2.5-2	GALA-241009-WIL-PM2.5-2	GALA-241015-WIL-PM2.5-2	GALA-240921-WIL-PM2.5-2	LDR	Lot CQ
CONVENTIONNELS							
Poids du filtre	g	0.0190	0.0202	0.0231	0.0210	0.0002	2596315
Poids du filtre avec poussières	g	0.0193	0.0207	0.0233	0.0207	0.0002	2596315
Particules totales	g	0.0003	0.0005	0.0002	<0.0002	0.0002	2596315

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NV1631	NV1632	NV1633		
Date d'échantillonnage		2024/09/27 00:00	2024/10/15 00:00	2024/10/09 00:00		
# Bordereau		155443	155443	155443		
	Unités	GALA-240927-WIL-PM4-1	GALA-241015-WIL-PM4-1	GALA-241009-WIL-PM4-1	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0202	0.0199	0.0178	0.0002	2596315
Poids du filtre avec poussières	g	0.0204	0.0201	0.0177	0.0002	2596315
Particules totales	g	0.0002	0.0002	<0.0002	0.0002	2596315

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NV1634	NV1635	NV1636		
Date d'échantillonnage		2024/10/09 00:00	2024/09/21 00:00	2024/10/15 00:00		
# Bordereau		155443	155443	155443		
	Unités	GALA-241009-WIL-PM4-2	GALA-240921-WIL-PM4-1	GALA-241015-WIL-PM4-2	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0189	0.0221	0.0197	0.0002	2596315
Poids du filtre avec poussières	g	0.0188	0.0218	0.0216	0.0002	2596315
Particules totales	g	<0.0002	<0.0002	0.0019	0.0002	2596315

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		NV1637	NV1638	NV1639		
Date d'échantillonnage		2024/10/04 00:00	2024/09/21 00:00	2024/10/04 00:00		
# Bordereau		155443	155443	155443		
	Unités	GALA-241004-WIL-PM4-2	GALA-240921-WIL-PM4-2	GALA-241004-WIL-PM4-1	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0225	0.0210	0.0223	0.0002	2596315
Poids du filtre avec poussières	g	0.0226	0.0208	0.0224	0.0002	2596315
Particules totales	g	<0.0002	<0.0002	<0.0002	0.0002	2596315

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		NV1640		
Date d'échantillonnage		2024/09/27 00:00		
# Bordereau		155443		
	Unités	GALA-240927-WIL-PM4-2	LDR	Lot CQ
CONVENTIONNELS				
Poids du filtre	g	0.0222	0.0002	2596315
Poids du filtre avec poussières	g	0.0224	0.0002	2596315
Particules totales	g	0.0002	0.0002	2596315

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

REMARQUES GÉNÉRALES

PARAMÈTRES CONVENTIONNELS (FILTRE)

Particules Totales : Veuillez noter que les filtres des NV1617, NV1619, NV1623, NV1626, NV1630, NV1632, NV1633, NV1636, NV1638 et NV1640 ont été recus endommagés. Possibilité de sous-estimation des résultats.

Les résultats ne se rapportent qu'aux échantillons soumis pour analyse

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RAPPORT ASSURANCE QUALITÉ

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
2597777	CYU	Blanc fortifié	Antimoine (Sb) Filtre	2024/11/27		110	%
			Argent (Ag) Filtre	2024/11/27		100	%
			Arsenic (As) Filtre	2024/11/27		103	%
			Baryum (Ba) Filtre	2024/11/27		109	%
			Béryllium (Be) Filtre	2024/11/27		110	%
			Cadmium (Cd) Filtre	2024/11/27		105	%
			Chrome (Cr) Filtre	2024/11/27		98	%
			Cobalt (Co) Filtre	2024/11/27		98	%
			Cuivre (Cu) Filtre	2024/11/27		96	%
			Manganèse (Mn) Filtre	2024/11/27		102	%
			Nickel (Ni) Filtre	2024/11/27		97	%
			Plomb (Pb) Filtre	2024/11/27		101	%
			Sélénium (Se) Filtre	2024/11/27		106	%
			Thallium (Tl) Filtre	2024/11/27		90	%
			Vanadium (V) Filtre	2024/11/27		100	%
			Zinc (Zn) Filtre	2024/11/27		98	%
2597777	CYU	Blanc de méthode	Antimoine (Sb) Filtre	2024/11/27	<0.050		ug
			Argent (Ag) Filtre	2024/11/27	<0.050		ug
			Arsenic (As) Filtre	2024/11/27	<0.040		ug
			Baryum (Ba) Filtre	2024/11/27	<0.050		ug
			Béryllium (Be) Filtre	2024/11/27	<0.030		ug
			Cadmium (Cd) Filtre	2024/11/27	<0.050		ug
			Chrome (Cr) Filtre	2024/11/27	0.40, LDR=0.10		ug
			Cobalt (Co) Filtre	2024/11/27	<0.030		ug
			Cuivre (Cu) Filtre	2024/11/27	<0.10		ug
			Manganèse (Mn) Filtre	2024/11/27	<0.10		ug
			Nickel (Ni) Filtre	2024/11/27	<0.30		ug
			Plomb (Pb) Filtre	2024/11/27	<0.040		ug
			Sélénium (Se) Filtre	2024/11/27	<0.50		ug
			Thallium (Tl) Filtre	2024/11/27	<0.010		ug
			Vanadium (V) Filtre	2024/11/27	<0.20		ug
			Zinc (Zn) Filtre	2024/11/27	<1.0		ug
2597814	ADI	Blanc fortifié	Antimoine (Sb) Air	2024/11/27		102	%
			Argent (Ag) Air	2024/11/27		97	%
			Arsenic (As) Air	2024/11/27		98	%
			Baryum (Ba) Air	2024/11/27		93	%
			Béryllium (Be) Air	2024/11/27		98	%
			Cadmium (Cd) Air	2024/11/27		98	%
			Chrome (Cr) Air	2024/11/27		97	%
			Cobalt (Co) Air	2024/11/27		101	%
			Cuivre (Cu) Air	2024/11/27		96	%
			Manganèse (Mn) Air	2024/11/27		95	%
			Nickel (Ni) Air	2024/11/27		95	%
			Plomb (Pb) Air	2024/11/27		100	%
			Sélénium (Se) Air	2024/11/27		98	%
			Thallium (Tl) Air	2024/11/27		95	%
			Vanadium (V) Air	2024/11/27		95	%
			Zinc (Zn) Air	2024/11/27		94	%
2597814	ADI	Blanc fortifié DUP	Antimoine (Sb) Air	2024/11/27		103	%
			Argent (Ag) Air	2024/11/27		98	%
			Arsenic (As) Air	2024/11/27		98	%

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RAPPORT ASSURANCE QUALITÉ (SUITE)

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Baryum (Ba) Air	2024/11/27		92	%
			Béryllium (Be) Air	2024/11/27		97	%
			Cadmium (Cd) Air	2024/11/27		98	%
			Chrome (Cr) Air	2024/11/27		96	%
			Cobalt (Co) Air	2024/11/27		99	%
			Cuivre (Cu) Air	2024/11/27		95	%
			Manganèse (Mn) Air	2024/11/27		95	%
			Nickel (Ni) Air	2024/11/27		94	%
			Plomb (Pb) Air	2024/11/27		100	%
			Sélénium (Se) Air	2024/11/27		100	%
			Thallium (Tl) Air	2024/11/27		96	%
			Vanadium (V) Air	2024/11/27		94	%
			Zinc (Zn) Air	2024/11/27		93	%
2597814	ADI	Blanc de méthode	Antimoine (Sb) Air	2024/11/27	<0.20		ug
			Argent (Ag) Air	2024/11/27	<0.30		ug
			Arsenic (As) Air	2024/11/27	<0.40		ug
			Baryum (Ba) Air	2024/11/27	<0.40		ug
			Béryllium (Be) Air	2024/11/27	<0.30		ug
			Cadmium (Cd) Air	2024/11/27	<0.20		ug
			Chrome (Cr) Air	2024/11/27	<0.90		ug
			Cobalt (Co) Air	2024/11/27	<0.30		ug
			Cuivre (Cu) Air	2024/11/27	<0.90		ug
			Manganèse (Mn) Air	2024/11/27	<0.90		ug
			Nickel (Ni) Air	2024/11/27	<2.0		ug
			Plomb (Pb) Air	2024/11/27	<0.40		ug
			Sélénium (Se) Air	2024/11/27	<0.50		ug
			Thallium (Tl) Air	2024/11/27	<0.050		ug
			Vanadium (V) Air	2024/11/27	<2.0		ug
			Zinc (Zn) Air	2024/11/27	<9.0		ug

LDR = Limite de détection rapportée

Blanc fortifié: Un blanc, d'une matrice exempte de contaminants, auquel a été ajouté une quantité connue d'analyte provenant généralement d'une deuxième source. Utilisé pour évaluer la précision de la méthode.

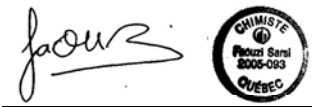
Blanc de méthode: Une partie aliquote de matrice pure soumise au même processus analytique que les échantillons, du prétraitement au dosage. Sert à évaluer toutes contaminations du laboratoire.

Réc = Récupération

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

PAGE DES SIGNATURES DE VALIDATION

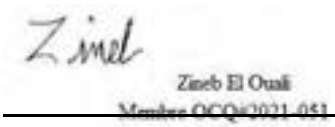
Les résultats analytiques ainsi que les données de contrôle-qualité contenus dans ce rapport ont été vérifiés et validés par:



Faouzi Sarsi, B.Sc. Chimiste, Montréal, Analyste SR



Shu Yang, B.Sc. Chimiste, Montréal, Analyste II



Zineb El Ouali, M.Sc.,Chimiste, Montréal, Analyste II

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Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

eCOC: Q155443

Expected TAT: Standard TAT
Expected Arrival: 2024/11/20 17:00
Submitted By: Yvan Quenum
Submitted To: Montréal (Env. Lab)

Invoice Information

Attn: COMPTES PAYABLE
WSP Canada Inc.
1600 René-Lévesque O
16e Étage
Montréal , QC , H3H 1P9
Email to:
capayablesinvoice@wsp.com

Report Information

Attn: Francis Charbonneau
WSP Canada Inc. - Montréal
1600 René-Lévesque O
local B110
Montréal , QC , H3H 1P9
Email to:
francis.charbonneau@wsp.com
yvan.quenum@wsp.com
sylvain.marcoux@wsp.com

Project Information

Quote #: C30388
PO/AFE#:
Project #: CA0012054.2069 phase 123
Site Location: Galaxy

Analytical Summary

A: Standard TAT

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Silica by XR (NIOSH 7500)-PVC Filter	Total Extractable Metals (Hi-vol)	Total Particulate	Total Particulate (Hi-VOL)	Set Number
GALA-240927-HV-2	1	2024/09/27 00:00	FILTER	1		A		A	1
GALA-240921-HV-1	2	2024/09/21 00:00	FILTER	1		A		A	2
GALA-240921-HV-2	3	2024/09/21 00:00	FILTER	1		A		A	2
GALA-241015-HV-2	4	2024/10/15 00:00	FILTER	1		A		A	2
GALA-241015-HV-1	5	2024/10/15 00:00	FILTER	1		A		A	2
GALA-241009-HV-2	6	2024/10/09 00:00	FILTER	1		A		A	2
GALA-241009-HV-1	7	2024/10/09 00:00	FILTER	1		A		A	2
GALA-241003-HV-1	8	2024/10/03 00:00	FILTER	1		A		A	2
GALA-241003-HV-2	9	2024/10/03 00:00	FILTER	1		A		A	2
GALA-240927-HV-1	10	2024/09/27 00:00	FILTER	1		A		A	1
GALA-241004-WILPM2.5-2	11	2024/10/04 00:00	FILTER	1			A		3
GALA-240927-WIL-PM2.5-2	12	2024/09/27 00:00	FILTER	1			A		3
GALA-241009-WIL-PM2.5-2	13	2024/10/09 00:00	FILTER	1			A		3
GALA-241015-WIL-PM2.5-2	14	2024/10/15 00:00	FILTER	1			A		3
GALA-240921-WIL-PM2.5-2	15	2024/09/21 00:00	FILTER	1			A		3
GALA-240927-WIL-PM4-1	16	2024/09/27 00:00	FILTER	1	A		A		4
GALA-241015-WIL-PM4-1	17	2024/10/15 00:00	FILTER	1	A		A		4
GALA-241009-WIL-PM4-1	18	2024/10/09 00:00	FILTER	1	A		A		4

C468935_COC

18-Nov-24 13:30

Sarah Beaudry

C468935

FVE

NOVA-2024-11-2337

Sandblast
2024 1118 1330
Iceno
Sealko
WT508
Cooler
20.20.20

eCOC: Q155443

Expected TAT: Standard TAT
Expected Arrival: 2024/11/20 17:00
Submitted By: Yvan Quenum
Submitted To: Montréal (Env. Lab)

A: Standard TAT

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Silica by XR (NIOSH 7500)-PVC Filter	Total Extractable Metals (Hi-vol)	Total Particulate	Total Particulate (Hi-VOL)	Set Number
GALA-241009-WIL-PM4-2	19	2024/10/09 00:00	FILTER	1	A		A		4
GALA-240921-WIL-PM4-1	20	2024/09/21 00:00	FILTER	1	A		A		4
GALA-241015-WIL-PM4-2	21	2024/10/15 00:00	FILTER	1	A		A		4
GALA-241004-WIL-PM4-2	22	2024/10/04 00:00	FILTER	1	A		A		4
GALA-240921-WIL-PM4-2	23	2024/09/21 00:00	FILTER	1	A		A		4
GALA-241004-WIL-PM4-1	24	2024/10/04 00:00	FILTER	1	A		A		4
GALA-240927-WIL-PM4-2	25	2024/09/27 00:00	FILTER	1	A		A		4

Deadlines are estimates only and are subject to change. Please refer to your Job Confirmation report for final due dates.

Submission Information

# of Samples: 25

Sample Set Listing

Set 1 (3 samples)	Set 2 (7 samples)	Set 3 (5 samples)	Set 4 (10 samples)
GALA-240927-HV-2	GALA-240921-HV-1	GALA-241004-WILPM2.5-2	GALA-240927-WIL-PM4-1
GALA-241003-HV-2	GALA-240921-HV-2	GALA-240927-WIL-PM2.5-2	GALA-241015-WIL-PM4-1
GALA-240927-HV-1	GALA-241015-HV-2	GALA-241009-WIL-PM2.5-2	GALA-241009-WIL-PM4-1
	GALA-241015-HV-1	GALA-241015-WIL-PM2.5-2	GALA-241009-WIL-PM4-2
	GALA-241009-HV-2	GALA-240921-WIL-PM2.5-2	GALA-240921-WIL-PM4-1
	GALA-241009-HV-1		GALA-241015-WIL-PM4-2
	GALA-241003-HV-1		GALA-241004-WIL-PM4-2
			GALA-240921-WIL-PM4-2
			GALA-241004-WIL-PM4-1
			GALA-240927-WIL-PM4-2

Parameter Summary

Package/Test	Parameter	RDL	Unit	Set 1	Set 2	Set 3	Set
Silica by XR (NIOSH 7500)-PVC Filter	Total (Quartz and Cristobalite)	10	ug				X
Total Extractable Metals (Hi-vol)	Air Antimony (Sb)	0.2	ug	X	X		
	Air Silver (Ag)	0.3	ug	X			
	Air Arsenic (As)	0.4	ug	X	X		
	Air Barium (Ba)	0.4	ug	X	X		
	Air Beryllium (Be)	0.3	ug	X	X		
	Air Cadmium (Cd)	0.2	ug	X	X		
	Air Chromium (Cr)	0.9	ug	X	X		
	Air Cobalt (Co)	0.3	ug	X	X		
	Air Copper (Cu)	0.9	ug	X	X		
	Air Manganese (Mn)	0.9	ug	X	X		
	Air Nickel (Ni)	2	ug	X	X		
	Air Lead (Pb)	0.4	ug	X	X		
	Air Selenium (Se)	0.5	ug	X	X		
	Air Thallium (Tl)	0.05	ug	X	X		
	Air Vanadium (V)	2	ug	X	X		
	Air Zinc (Zn)	9	ug	X	X		
Total Particulate	Weight of filter	0.0002	g			X	X
	Weight of filter and sample	0.0002	g			X	X
	Total particles	0.0002	g			X	X
Total Particulate (Hi-VOL)	Weight of filter	0.001	g	X	X		
	Weight of filter and sample	0.001	g	X	X		
	Total particles	0.001	g	X	X		

**RDLs are subject to change based on interferences present at the time of analysis.*

Votre # du projet: C468935
Adresse du site: WSP CANADA INC. (4934)

Attention: Sarah Beaudry

Bureau Veritas Laboratories
889, Montee de Liesse
Saint-Laurent, QC
Canada H4T 1P5

Date du rapport: 12/23/2024
Rapport: R8457926
Version: 1 - Finale

CERTIFICAT D'ANALYSE

 # DE DOSSIER BV LABS: C4BH248
Reçu: 12/13/2024, 00:00

Matrice: Air
Nombre d'échantillons reçus: 10

Analyses	Quantité	Date Analysé	Méthode de laboratoire	Méthode d'analyse
Silica on a PVC filter by N7500	10	12/20/2024	NOV5SOP-00001	NIOSH 7500
Total Quartz and Cristobalite	10	12/23/2024		

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Results relate only to the items tested.

Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.

clé de cryptage 

COVERPAGECOMMENT1_IH
Megan Stupar,
Courriel: megan.stupar@bureauveritas.com
Téléphone (248) 344-1770
==========

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Total Cover Pages : 1

Dossier BV Labs: C4BH248
Date du rapport: 12/23/2024

Bureau Veritas Laboratories
Votre # du projet: C468935
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	NV1631-GALA-240927-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ALSM59	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	09/27/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Tridymite	<10	N/A	10	NIOSH 7500	12/20/2024
Total (Quartz and Cristobalite)	<10	N/A	10		12/23/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NV1632-GALA-241015-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ALSM60	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	10/15/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<30	N/A	30	NIOSH 7500	12/20/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Tridymite	<10	N/A	10	NIOSH 7500	12/20/2024
Total (Quartz and Cristobalite)	<35	N/A	35		12/23/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NV1633-GALA-241009-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ALSM61	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	10/09/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Tridymite	<10	N/A	10	NIOSH 7500	12/20/2024
Total (Quartz and Cristobalite)	<10	N/A	10		12/23/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C4BH248
Date du rapport: 12/23/2024

Bureau Veritas Laboratories
Votre # du projet: C468935
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	NV1634-GALA-241009-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ALSM62	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	10/09/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Tridymite	<10	N/A	10	NIOSH 7500	12/20/2024
Total (Quartz and Cristobalite)	<10	N/A	10		12/23/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NV1635-GALA-240921-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ALSM63	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	09/21/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Tridymite	<10	N/A	10	NIOSH 7500	12/20/2024
Total (Quartz and Cristobalite)	<10	N/A	10		12/23/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NV1636-GALA-241015-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ALSM64	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	10/15/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	10	N/A	5.0	NIOSH 7500	12/20/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Tridymite	<10	N/A	10	NIOSH 7500	12/20/2024
Total (Quartz and Cristobalite)	<10	N/A	10		12/23/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C4BH248
Date du rapport: 12/23/2024

Bureau Veritas Laboratories
Votre # du projet: C468935
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	NV1637-GALA-241004-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ALSM65	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	10/04/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Tridymite	<10	N/A	10	NIOSH 7500	12/20/2024
Total (Quartz and Cristobalite)	<10	N/A	10		12/23/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NV1638-GALA-240921-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ALSM66	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	09/21/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Tridymite	<10	N/A	10	NIOSH 7500	12/20/2024
Total (Quartz and Cristobalite)	<10	N/A	10		12/23/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	NV1639-GALA-241004-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ALSM67	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	10/04/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Tridymite	<10	N/A	10	NIOSH 7500	12/20/2024
Total (Quartz and Cristobalite)	<10	N/A	10		12/23/2024

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C4BH248
Date du rapport: 12/23/2024

Bureau Veritas Laboratories
Votre # du projet: C468935
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	NV1640-GALA-240927-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ALSM68	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	09/27/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	6.8	N/A	5.0	NIOSH 7500	12/20/2024
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	12/20/2024
Tridymite	<10	N/A	10	NIOSH 7500	12/20/2024
Total (Quartz and Cristobalite)	<10	N/A	10		12/23/2024

LDR = limite de détection rapportée
RL = Seuil de détection

REMARQUES GÉNÉRALES

Unless otherwise noted below the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and /or do not adversely affect the reported results and 3) the industrial hygiene results have not been blank corrected.

The client provided their pertinent field sampling data on the analysis request paperwork submitted with the samples. Results apply to the sample as received.

Échantillon ALSM60 [NV1632-GALA-241015-WIL-PM4-1] : The reporting limit for quartz was raised due to interferences at the primary angle. The result was calculated on the secondary diffraction angle.

Les résultats s'appliquent seulement pour les paramètres analysés.

Sent to: **Bureau Veritas North America In**
22345 Roethel Drive
Novi, MI, 48375
Tel: (248) 344-1770

BUREAU VERITAS INTERLAB CHAIN OF CUSTODY RECORD

COC # C468935-BVMI-01-01

C4BH248

REPORT INFORMATION	
Company:	Bureau Veritas
Address:	889, Montée de Liesse, Saint-Laurent, Quebec, H4T 1P5
Contact Name:	Sarah Beaudry
Email:	Sarah.Beaudry@bureauveritas.com, SoustraitanceQue-YUL@bureauveritas.com
Phone:	(438) 355-7268
BV Project #:	C468935
Client Invoice To:	WSP Canada Inc. (4934)
Client Report To:	WSP Canada Inc. - Montréal (4040) Incl. on Report? Yes / No

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	ANALYSIS REQUESTED: Silica by XR (NIOSH 7500)-PVC Filter	ADDITIONAL SAMPLE INFORMATION
1	NV1631-GALA-240927-WIL-PM4-1	FILT	2024/09/27	00:00		1	X	(P: 01)
2	NV1632-GALA-241015-WIL-PM4-1	FILT	2024/10/15	00:00		1	X	(P: 01)
3	NV1633-GALA-241009-WIL-PM4-1	FILT	2024/10/09	00:00		1	X	(P: 01)
4	NV1634-GALA-241009-WIL-PM4-2	FILT	2024/10/09	00:00		1	X	(P: 01)
5	NV1635-GALA-240921-WIL-PM4-1	FILT	2024/09/21	00:00		1	X	(P: 01)
6	NV1636-GALA-241015-WIL-PM4-2	FILT	2024/10/15	00:00		1	X	(P: 01)
7	NV1637-GALA-241004-WIL-PM4-2	FILT	2024/10/04	00:00		1	X	(P: 01)
8	NV1638-GALA-240921-WIL-PM4-2	FILT	2024/09/21	00:00		1	X	(P: 01)
9	NV1639-GALA-241004-WIL-PM4-1	FILT	2024/10/04	00:00		1	X	(P: 01)
10	NV1640-GALA-240927-WIL-PM4-2	FILT	2024/09/27	00:00		1	X	(P: 01)

Job Barcode Label

SITE LOCATION: Galaxy

SITE #:

PROJECT #: CA0012054.2069 phase 123

PO/AFE, TASK ORDER/SERVICE ORDER, LINE ITEM:

REGULATORY CRITERIA: Guide 2021 Basses-Terres

SPECIAL INSTRUCTIONS: Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching.
Please return a copy of this form with the report.

REQUIRED EDDs: National Excel (N001) Golder (Q001) Dessau Soprin Excel (Q004)

TURNAROUND TIME

☐ Rush Required

2024/12/09
Date Required

Please inform us if rush charges will be incurred.

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

RECEIVING LAB USE ONLY

Bureau Veritas Job #

RELINQUISHED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	Samples Labelled By:	Labels Verified By:
1. EPS	2024/11/28	12:33	1. [signature]	2024/12/13	12:16		
2.			2.				

Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy
Votre # Bordereau: 161927

Attention: Francis Charbonneau

WSP Canada Inc. - Montréal
René-Lévesque
1600 René-Lévesque O
local B110
Montréal, QC
CANADA H3H 1P9

Date du rapport: 2025/02/14
Rapport: R3019492
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BUREAU VERITAS: C504114
Reçu: 2025/01/29, 08:48

Matrice: Filtre
Nombre d'échantillons reçus: 45

Analyses	Quantité	Date de l' extraction	Date Analysé	Méthode de laboratoire	Méthode d'analyse
Particules totales	16	2025/01/30	2025/01/30	STL SOP-00045	MA100– Part 1.0 R8 m
Particules totales	4	2025/01/30	2025/01/31	STL SOP-00045	MA100– Part 1.0 R8 m
Particules totales	7	2025/01/31	2025/01/31	STL SOP-00045	MA100– Part 1.0 R8 m
Particules totales (Hi-VOL)	17	2025/01/30	2025/01/30	STL SOP-00045	MA100–Part. 1.0 R8 m
Particules totales (Hi-VOL)	1	2025/02/03	2025/02/03	STL SOP-00045	MA100–Part. 1.0 R8 m
Métaux extractibles totaux (Hi-vol)	18	2025/02/04	2025/02/05	STL SOP-00062	MA.200–Mét. 1.2 R9 m
Silice par RX (NIOSH 7500)-Filtre PVC (1)	18	N/A	N/A	Crystalline Silica by NIOSH 7500	NIOSH 7500

Remarques:

Bureau Veritas est certifié ISO/IEC 17025 pour certains paramètres précis des portées d'accréditation. Sauf indication contraire, les méthodes d'analyses utilisées par Bureau Veritas s'inspirent des méthodes de référence d'organismes provinciaux, fédéraux et américains, tels que le CCME, l'EPA, l'APHA ou le ministère de l'environnement du Québec.

Toutes les analyses présentées ont été réalisées conformément aux procédures et aux pratiques relatives à la méthodologie, à l'assurance qualité et au contrôle de la qualité généralement appliqués par les employés de Bureau Veritas (sauf s'il en a été convenu autrement par écrit entre le client et Bureau Veritas). Toutes les données de laboratoire rencontrent les contrôles statistiques et respectent tous les critères de CQ et les critères de performance des méthodes, sauf s'il en a été signalé autrement. Tous les blancs de méthode sont rapportés, toutefois, les données des échantillons correspondants ne sont pas corrigées pour la valeur du blanc, sauf indication contraire. Le cas échéant, sauf indication contraire, l'incertitude de mesure n'a pas été prise en considération lors de la déclaration de la conformité à la norme de référence.

Les responsabilités de Bureau Veritas sont restreintes au coût réel de l'analyse, sauf s'il en a été convenu autrement par écrit. Il n'existe aucune autre garantie, explicite ou implicite. Le client a fait appel à Bureau Veritas pour l'analyse de ses échantillons conformément aux méthodes de référence mentionnées dans ce rapport. L'interprétation et l'utilisation des résultats sont sous l'entière responsabilité du client et ne font pas partie des services offerts par Bureau Veritas, sauf si convenu autrement par écrit. Bureau Veritas ne peut pas garantir l'exactitude des résultats qui dépendent des renseignements fournis par le client ou son représentant.

Les résultats des échantillons solides, sauf les biotes, sont rapportés en fonction de la masse sèche, sauf indication contraire. Les analyses organiques ne sont pas corrigées en fonction de la récupération, sauf pour les méthodes de dilution isotopique.
Les résultats s'appliquent seulement aux échantillons analysés. Si l'échantillonnage n'est pas effectué par Bureau Veritas, les résultats se rapportent aux échantillons fournis pour analyse.
Le présent rapport ne doit pas être reproduit, sinon dans son intégralité, sans le consentement écrit du laboratoire.

Votre # du projet: CA0012054.2069 phase 123
Adresse du site: Galaxy
Votre # Bordereau: 161927

Attention: Francis Charbonneau

WSP Canada Inc. - Montréal
René-Lévesque
1600 René-Lévesque O
local B110
Montréal, QC
CANADA H3H 1P9

Date du rapport: 2025/02/14
Rapport: R3019492
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BUREAU VERITAS: C504114

Reçu: 2025/01/29, 08:48

Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.

Notez: Les données brutes sont utilisées pour le calcul du RPD (% d'écart relatif). L'arrondissement des résultats finaux peut expliquer la variation apparente.

(1) Cette analyse a été effectuée par Bureau Veritas North America Inc.(Michigan), 22345 Roethel Drive , Novi, MI, 48375

Note : Les paramètres inclus dans le présent certificat sont accrédités par le ministère de l'environnement du Québec, à moins d'indication contraire.

clé de cryptage

AUTHORIZED REPORT
RAPPORT AUTORISÉ

Bureau Veritas
14 Feb 2025 13:01:29

Veuillez adresser toute question concernant ce certificat d' analyse à:
Sarah Beaudry, Chargée de projets
Courriel: Sarah.Beaudry@bureauveritas.com
Téléphone (438)355-7268

==========

Ce rapport a été produit et distribué en utilisant une procédure automatisée sécuritaire.
Bureau Veritas a mis en place des procédures qui protègent contre l'utilisation non autorisée de la signature électronique et emploie les «signataires» requis, conformément à l'ISO/CEI17025. Pour la validation spécifique à un groupe de services, veuillez vous référer à la page des Signatures de validation si elle est incluse, sinon disponible sur demande. Pour les noms de validation des analystes/superviseurs spécifiques à un service, veuillez vous référer à la section Résumé de l'analyse si elle est incluse, sinon disponible sur demande. Ce rapport est autorisé par Aglaia Yannakis, Directrice générale, responsable des opérations du laboratoire Environnementale - Québec.

MÉTAUX (FILTRE)

ID Bureau Veritas		OB0681	OB0682	OB0683	OB0684		
Date d'échantillonnage		2024/10/21 00:00	2024/10/21 00:00	2024/11/08 00:00	2024/11/11 00:00		
# Bordereau		161927	161927	161927	161927		
	Unités	GALA-241021-HV-1	GALA-241021-HV-2	GALA-241108-HV-1	GALA-241111-HV-2	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	0.30	<0.20	0.22	0.21	0.20	2616066
Argent (Ag) Air	ug	<0.30	N/A	N/A	N/A	0.30	2616066
Arsenic (As) Air	ug	0.78	<0.40	<0.40	<0.40	0.40	2616066
Baryum (Ba) Air	ug	2.6	0.85	1.5	2.9	0.40	2616066
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2616066
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2616066
Chrome (Cr) Air	ug	9.3	6.2	3.4	11	0.90	2616066
Cobalt (Co) Air †	ug	<0.30	<0.30	<0.30	<0.30	0.30	2616066
Cuivre (Cu) Air	ug	170	7.9	98	26	0.90	2616066
Manganèse (Mn) Air †	ug	4.4	<0.90	1.2	3.9	0.90	2616066
Nickel (Ni) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2616066
Plomb (Pb) Air	ug	2.2	<0.40	<0.40	<0.40	0.40	2616066
Sélénium (Se) Air †	ug	0.89	<0.50	<0.50	<0.50	0.50	2616066
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	<0.050	0.050	2616066
Vanadium (V) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2616066
Zinc (Zn) Air	ug	<9.0	<9.0	<9.0	<9.0	9.0	2616066

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
N/A = Non Applicable
† Accréditation non existante pour ce paramètre

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

MÉTAUX (FILTRE)

ID Bureau Veritas		OB0685	OB0686	OB0687	OB0688		
Date d'échantillonnage		2024/11/14 00:00	2024/11/21 00:00	2024/11/26 00:00	2024/11/26 00:00		
# Bordereau		161927	161927	161927	161927		
	Unités	GALA-241114-HV-1	GALA-241121-HV-1	GALA-241126-HV-1	GALA-241126-HV-2	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	0.48	<0.20	<0.20	0.37	0.20	2616066
Arsenic (As) Air	ug	<0.40	<0.40	<0.40	<0.40	0.40	2616066
Baryum (Ba) Air	ug	1.0	0.88	1.0	5.0	0.40	2616066
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2616066
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2616066
Chrome (Cr) Air	ug	12	3.1	21	20	0.90	2616066
Cobalt (Co) Air †	ug	<0.30	<0.30	<0.30	0.44	0.30	2616066
Cuivre (Cu) Air	ug	66	25	38	150	0.90	2616066
Manganèse (Mn) Air †	ug	1.4	<0.90	2.1	10	0.90	2616066
Nickel (Ni) Air	ug	<2.0	<2.0	<2.0	2.4	2.0	2616066
Plomb (Pb) Air	ug	<0.40	<0.40	<0.40	0.64	0.40	2616066
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2616066
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	<0.050	0.050	2616066
Vanadium (V) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2616066
Zinc (Zn) Air	ug	<9.0	<9.0	<9.0	27	9.0	2616066

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

MÉTAUX (FILTRE)

ID Bureau Veritas		OB0689	OB0690	OB0707	OB0708		
Date d'échantillonnage		2024/12/02 00:00	2024/12/08 00:00	2024/12/14 00:00	2024/12/14 00:00		
# Bordereau		161927	161927	161927	161927		
	Unités	GALA-241202-HV-1	GALA-241208-HV-1	GALA-241214-HV-1	GALA-241214-HV-2	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	0.28	0.31	0.26	0.27	0.20	2616066
Argent (Ag) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2616066
Arsenic (As) Air	ug	<0.40	<0.40	<0.40	<0.40	0.40	2616066
Baryum (Ba) Air	ug	1.4	1.3	1.1	2.3	0.40	2616066
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2616066
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2616066
Chrome (Cr) Air	ug	12	12	8.1	14	0.90	2616066
Cobalt (Co) Air †	ug	<0.30	<0.30	<0.30	<0.30	0.30	2616066
Cuivre (Cu) Air	ug	76	12	14	63	0.90	2616066
Manganèse (Mn) Air †	ug	1.6	1.3	1.2	3.8	0.90	2616066
Nickel (Ni) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2616066
Plomb (Pb) Air	ug	<0.40	<0.40	0.77	0.69	0.40	2616066
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2616066
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	<0.050	0.050	2616066
Vanadium (V) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2616066
Zinc (Zn) Air	ug	<9.0	<9.0	<9.0	<9.0	9.0	2616066

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

MÉTAUX (FILTRE)

ID Bureau Veritas		OB0709	OB0710	OB0711	OB0712		
Date d'échantillonnage		2024/12/20 00:00	2024/12/20 00:00	2024/12/28 00:00	2024/12/28 00:00		
# Bordereau		161927	161927	161927	161927		
	Unités	GALA-241220-HV-1	GALA-241220-HV-2	GALA-241228-HV-1	GALA-241228-HV-2	LDR	Lot CQ
MÉTAUX							
Antimoine (Sb) Air	ug	0.43	0.39	0.39	0.31	0.20	2616066
Argent (Ag) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2616066
Arsenic (As) Air	ug	0.51	<0.40	<0.40	<0.40	0.40	2616066
Baryum (Ba) Air	ug	1.4	3.0	1.5	3.6	0.40	2616066
Béryllium (Be) Air	ug	<0.30	<0.30	<0.30	<0.30	0.30	2616066
Cadmium (Cd) Air	ug	<0.20	<0.20	<0.20	<0.20	0.20	2616066
Chrome (Cr) Air	ug	14	19	8.3	8.3	0.90	2616066
Cobalt (Co) Air †	ug	<0.30	<0.30	<0.30	<0.30	0.30	2616066
Cuivre (Cu) Air	ug	27	110	12	160	0.90	2616066
Manganèse (Mn) Air †	ug	1.6	4.7	<0.90	2.4	0.90	2616066
Nickel (Ni) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2616066
Plomb (Pb) Air	ug	0.46	0.68	<0.40	<0.40	0.40	2616066
Sélénium (Se) Air †	ug	<0.50	<0.50	<0.50	<0.50	0.50	2616066
Thallium (Tl) Air	ug	<0.050	<0.050	<0.050	<0.050	0.050	2616066
Vanadium (V) Air	ug	<2.0	<2.0	<2.0	<2.0	2.0	2616066
Zinc (Zn) Air	ug	<9.0	12	<9.0	<9.0	9.0	2616066

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

MÉTAUX (FILTRE)

ID Bureau Veritas		OB0724	OB0725		
Date d'échantillonnage		2024/12/08 00:00	2024/11/21 00:00		
# Bordereau		161927	161927		
	Unités	GALA-241208-HV-2	GALA-241121-HV-2	LDR	Lot CQ
MÉTAUX					
Antimoine (Sb) Air	ug	0.45	<0.20	0.20	2616066
Argent (Ag) Air	ug	<0.30	<0.30	0.30	2616066
Arsenic (As) Air	ug	0.51	<0.40	0.40	2616066
Baryum (Ba) Air	ug	5.6	1.4	0.40	2616066
Béryllium (Be) Air	ug	<0.30	<0.30	0.30	2616066
Cadmium (Cd) Air	ug	0.58	<0.20	0.20	2616066
Chrome (Cr) Air	ug	4.9	2.3	0.90	2616066
Cobalt (Co) Air †	ug	0.48	<0.30	0.30	2616066
Cuivre (Cu) Air	ug	240	15	0.90	2616066
Manganèse (Mn) Air †	ug	9.7	<0.90	0.90	2616066
Nickel (Ni) Air	ug	3.5	<2.0	2.0	2616066
Plomb (Pb) Air	ug	1.9	<0.40	0.40	2616066
Sélénium (Se) Air †	ug	<0.50	<0.50	0.50	2616066
Thallium (Tl) Air	ug	<0.050	<0.050	0.050	2616066
Vanadium (V) Air	ug	<2.0	<2.0	2.0	2616066
Zinc (Zn) Air	ug	24	<9.0	9.0	2616066

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		OB0681	OB0682	OB0683	OB0684		
Date d'échantillonnage		2024/10/21 00:00	2024/10/21 00:00	2024/11/08 00:00	2024/11/11 00:00		
# Bordereau		161927	161927	161927	161927		
	Unités	GALA-241021-HV-1	GALA-241021-HV-2	GALA-241108-HV-1	GALA-241111-HV-2	LDR	Lot CQ
CONVENTIONNELS							
Poids du filtre	g	3.332	3.328	3.340	3.330	0.001	2615028
Poids du filtre avec poussières	g	3.368	3.337	3.358	3.377	0.001	2615028
Particules totales	g	0.036	0.009	0.018	0.047	0.001	2615028

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		OB0685	OB0686	OB0687	OB0688		
Date d'échantillonnage		2024/11/14 00:00	2024/11/21 00:00	2024/11/26 00:00	2024/11/26 00:00		
# Bordereau		161927	161927	161927	161927		
	Unités	GALA-241114-HV-1	GALA-241121-HV-1	GALA-241126-HV-1	GALA-241126-HV-2	LDR	Lot CQ
CONVENTIONNELS							
Poids du filtre	g	3.355	3.337	3.334	3.320	0.001	2615028
Poids du filtre avec poussières	g	3.366	3.341	3.340	3.381	0.001	2615028
Particules totales	g	0.011	0.004	0.006	0.060	0.001	2615028

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		OB0689	OB0690			OB0691		
Date d'échantillonnage		2024/12/02 00:00	2024/12/08 00:00			2024/10/27 00:00		
# Bordereau		161927	161927			161927		
	Unités	GALA-241202-HV-1	GALA-241208-HV-1	LDR	Lot CQ	GALA-241027-WILPM2.5-2	LDR	Lot CQ
CONVENTIONNELS								
Poids du filtre	g	3.323	3.334	0.001	2615028	0.0210	0.0002	2615224
Poids du filtre avec poussières	g	3.339	3.340	0.001	2615028	0.0212	0.0002	2615224
Particules totales	g	0.016	0.006	0.001	2615028	0.0002	0.0002	2615224

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		OB0692	OB0693	OB0694		
Date d'échantillonnage		2024/11/08 00:00	2024/11/11 00:00	2024/11/21 00:00		
# Bordereau		161927	161927	161927		
	Unités	GALA-241108-WILPM2.5-2	GALA-241111-WILPM2.5-2	GALA-241121-WILPM2.5-2	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0234	0.0235	0.0238	0.0002	2615224
Poids du filtre avec poussières	g	0.0240	0.0202	0.0239	0.0002	2615224
Particules totales	g	0.0006	<0.0002	<0.0002	0.0002	2615224

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		OB0695	OB0696	OB0697		
Date d'échantillonnage		2024/12/02 00:00	2024/12/08 00:00	2024/12/14 00:00		
# Bordereau		161927	161927	161927		
	Unités	GALA-241202-WILPM2.5-2	GALA-241208-WILPM2.5-2	GALA-241214-WILPM2.5-2	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0209	0.0236	0.0201	0.0002	2615224
Poids du filtre avec poussières	g	0.0212	0.0239	0.0205	0.0002	2615224
Particules totales	g	0.0003	0.0003	0.0004	0.0002	2615224

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		OB0698	OB0699	OB0700		
Date d'échantillonnage		2024/12/20 00:00	2024/12/28 00:00	2024/10/21 00:00		
# Bordereau		161927	161927	161927		
	Unités	GALA-241220-WILPM2.5-2	GALA-241228-WILPM2.5-2	GALA-241021-WIL-PM4-1	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.1428	0.1439	0.0172	0.0002	2615224
Poids du filtre avec poussières	g	0.1428	0.1440	0.0173	0.0002	2615224
Particules totales	g	<0.0002	<0.0002	<0.0002	0.0002	2615224

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		OB0701	OB0702	OB0703		
Date d'échantillonnage		2024/10/27 00:00	2024/11/08 00:00	2024/11/09 00:00		
# Bordereau		161927	161927	161927		
	Unités	**GALA-241027-WIL-PM4-1**	**GALA-241108-WIL-PM4-2**	**GALA-241109-WIL-PM4-1**	**LDR**	**Lot CQ**
CONVENTIONNELS						
Poids du filtre	g	0.0218	0.0201	0.0208	0.0002	2615224
Poids du filtre avec poussières	g	0.0201	0.0193	0.0209	0.0002	2615224
Particules totales	g	<0.0002	<0.0002	<0.0002	0.0002	2615224

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		OB0704	OB0705	OB0706		
Date d'échantillonnage		2024/11/11 00:00	2024/11/14 00:00	2024/11/21 00:00		
# Bordereau		161927	161927	161927		
	Unités	**GALA-241111-WIL-PM4-2**	**GALA-241114-WIL-PM4-1**	**GALA-241121-WIL-PM4-1**	**LDR**	**Lot CQ**
CONVENTIONNELS						
Poids du filtre	g	0.0194	0.0197	0.0206	0.0002	2615224
Poids du filtre avec poussières	g	0.0235	0.0200	0.0206	0.0002	2615224
Particules totales	g	0.0041	0.0003	<0.0002	0.0002	2615224

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		OB0707	OB0708	OB0709	OB0710		
Date d'échantillonnage		2024/12/14 00:00	2024/12/14 00:00	2024/12/20 00:00	2024/12/20 00:00		
# Bordereau		161927	161927	161927	161927		
	Unités	**GALA-241214-HV-1**	**GALA-241214-HV-2**	**GALA-241220-HV-1**	**GALA-241220-HV-2**	**LDR**	**Lot CQ**
CONVENTIONNELS							
Poids du filtre	g	3.322	3.317	3.411	3.408	0.001	2615028
Poids du filtre avec poussières	g	3.340	3.353	3.435	3.453	0.001	2615028
Particules totales	g	0.018	0.036	0.023	0.045	0.001	2615028

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		OB0711	OB0712			OB0713		
Date d'échantillonnage		2024/12/28 00:00	2024/12/28 00:00			2024/11/21 00:00		
# Bordereau		161927	161927			161927		
	Unités	**GALA-241228-HV-1**	**GALA-241228-HV-2**	**LDR**	**Lot CQ**	**GALA-241121-WIL-PM4-2**	**LDR**	**Lot CQ**
CONVENTIONNELS								
Poids du filtre	g	3.393	3.416	0.001	2615028	0.0210	0.0002	2615224
Poids du filtre avec poussières	g	3.412	3.451	0.001	2615028	0.0210	0.0002	2615224
Particules totales	g	0.019	0.035	0.001	2615028	<0.0002	0.0002	2615224

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		OB0714	OB0715	OB0716		
Date d'échantillonnage		2024/12/02 00:00	2024/12/02 00:00	2024/12/08 00:00		
# Bordereau		161927	161927	161927		
	Unités	**GALA-241202-WIL-PM4-1**	**GALA-241202-WIL-PM4-2**	**GALA-241208-WIL-PM4-1**	**LDR**	**Lot CQ**
CONVENTIONNELS						
Poids du filtre	g	0.0216	0.0207	0.0209	0.0002	2615224
Poids du filtre avec poussières	g	0.0217	0.0218	0.0211	0.0002	2615224
Particules totales	g	<0.0002	0.0011	0.0002	0.0002	2615224

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		OB0717	OB0718	OB0719		
Date d'échantillonnage		2024/12/08 00:00	2024/12/14 00:00	2024/12/14 00:00		
# Bordereau		161927	161927	161927		
	Unités	**GALA-241208-WIL-PM4-2**	**GALA-241214-WIL-PM4-1**	**GALA-241214-WIL-PM4-2**	**LDR**	**Lot CQ**
CONVENTIONNELS						
Poids du filtre	g	0.0197	0.0205	0.0218	0.0002	2615422
Poids du filtre avec poussières	g	0.0199	0.0206	0.0216	0.0002	2615422
Particules totales	g	0.0002	<0.0002	<0.0002	0.0002	2615422

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

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PARAMÈTRES CONVENTIONNELS (FILTRE)

ID Bureau Veritas		OB0720	OB0721	OB0722		
Date d'échantillonnage		2024/12/20 00:00	2024/12/20 00:00	2024/12/28 00:00		
# Bordereau		161927	161927	161927		
	Unités	GALA-241220-WIL-PM4-1	GALA-241220-WIL-PM4-2	GALA-241228-WIL-PM4-1	LDR	Lot CQ
CONVENTIONNELS						
Poids du filtre	g	0.0206	0.0187	0.0221	0.0002	2615422
Poids du filtre avec poussières	g	0.0209	0.0189	0.0222	0.0002	2615422
Particules totales	g	0.0003	0.0002	<0.0002	0.0002	2615422

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		OB0723			OB0724		
Date d'échantillonnage		2024/12/28 00:00			2024/12/08 00:00		
# Bordereau		161927			161927		
	Unités	GALA-241228-WIL-PM4-2	LDR	Lot CQ	GALA-241208-HV-2	LDR	Lot CQ
CONVENTIONNELS							
Poids du filtre	g	0.0207	0.0002	2615422	3.334	0.001	2615028
Poids du filtre avec poussières	g	0.0209	0.0002	2615422	3.419	0.001	2615028
Particules totales	g	0.0002	0.0002	2615422	0.085	0.001	2615028

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

ID Bureau Veritas		OB0725		
Date d'échantillonnage		2024/11/21 00:00		
# Bordereau		161927		
	Unités	GALA-241121-HV-2	LDR	Lot CQ
CONVENTIONNELS				
Poids du filtre	g	3.338	0.001	2615737
Poids du filtre avec poussières	g	3.347	0.001	2615737
Particules totales	g	0.009	0.001	2615737

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité

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REMARQUES GÉNÉRALES

PARAMÈTRES CONVENTIONNELS (FILTRE)

Particules Totales: Les résultats bruts non-arrondis sont utilisés dans le calcul des particules totales. Ce résultat total est alors arrondi à trois chiffres significatifs.

Particules Totales : Veuillez noter que les filtres des OB0682, OB0684, OB0688, OB0689, OB0690, OB0694, OB0708, OB0709 et OB0725 ont été endommagés. Possibilité de sous-estimation des résultats.

Particules Totales: pour OB0693, OB0701 and OB0702. Bien que les filtres ne soient pas endommagés, les valeurs calculées de "Particules Totales" sont en-deçà de l'acceptabilité négative et montrent <0.0002g. Possibilité de sous-estimation des résultats.

Les résultats ne se rapportent qu'aux échantillons soumis pour analyse

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RAPPORT ASSURANCE QUALITÉ

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
2616066	ST5	Blanc fortifié	Antimoine (Sb) Air	2025/02/05		104	%
			Argent (Ag) Air	2025/02/05		99	%
			Arsenic (As) Air	2025/02/05		96	%
			Baryum (Ba) Air	2025/02/05		103	%
			Béryllium (Be) Air	2025/02/05		94	%
			Cadmium (Cd) Air	2025/02/05		93	%
			Chrome (Cr) Air	2025/02/05		102	%
			Cobalt (Co) Air	2025/02/05		103	%
			Cuivre (Cu) Air	2025/02/05		101	%
			Manganèse (Mn) Air	2025/02/05		99	%
			Nickel (Ni) Air	2025/02/05		102	%
			Plomb (Pb) Air	2025/02/05		102	%
			Sélénium (Se) Air	2025/02/05		97	%
			Thallium (Tl) Air	2025/02/05		90	%
			Vanadium (V) Air	2025/02/05		101	%
			Zinc (Zn) Air	2025/02/05		95	%
2616066	ST5	Blanc fortifié DUP	Antimoine (Sb) Air	2025/02/05		103	%
			Argent (Ag) Air	2025/02/05		97	%
			Arsenic (As) Air	2025/02/05		96	%
			Baryum (Ba) Air	2025/02/05		101	%
			Béryllium (Be) Air	2025/02/05		92	%
			Cadmium (Cd) Air	2025/02/05		93	%
			Chrome (Cr) Air	2025/02/05		103	%
			Cobalt (Co) Air	2025/02/05		103	%
			Cuivre (Cu) Air	2025/02/05		102	%
			Manganèse (Mn) Air	2025/02/05		99	%
			Nickel (Ni) Air	2025/02/05		103	%
			Plomb (Pb) Air	2025/02/05		100	%
			Sélénium (Se) Air	2025/02/05		99	%
			Thallium (Tl) Air	2025/02/05		88	%
			Vanadium (V) Air	2025/02/05		101	%
			Zinc (Zn) Air	2025/02/05		96	%
2616066	ST5	Blanc de méthode	Antimoine (Sb) Air	2025/02/05	<0.20		ug
			Argent (Ag) Air	2025/02/05	<0.30		ug
			Arsenic (As) Air	2025/02/05	<0.40		ug
			Baryum (Ba) Air	2025/02/05	<0.40		ug
			Béryllium (Be) Air	2025/02/05	<0.30		ug
			Cadmium (Cd) Air	2025/02/05	<0.20		ug
			Chrome (Cr) Air	2025/02/05	<0.90		ug
			Cobalt (Co) Air	2025/02/05	<0.30		ug
			Cuivre (Cu) Air	2025/02/05	<0.90		ug
			Manganèse (Mn) Air	2025/02/05	<0.90		ug
			Nickel (Ni) Air	2025/02/05	<2.0		ug
			Plomb (Pb) Air	2025/02/05	<0.40		ug
			Sélénium (Se) Air	2025/02/05	<0.50		ug
			Thallium (Tl) Air	2025/02/05	<0.050		ug
			Vanadium (V) Air	2025/02/05	<2.0		ug

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RAPPORT ASSURANCE QUALITÉ (SUITE)

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Zinc (Zn) Air	2025/02/05	<9.0		ug

Blanc fortifié: Un blanc, d'une matrice exempte de contaminants, auquel a été ajouté une quantité connue d'analyte provenant généralement d'une deuxième source. Utilisé pour évaluer la précision de la méthode.

Blanc de méthode: Une partie aliquote de matrice pure soumise au même processus analytique que les échantillons, du prétraitement au dosage. Sert à évaluer toutes contaminations du laboratoire.

Réc = Récupération

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PAGE DES SIGNATURES DE VALIDATION

Les résultats analytiques ainsi que les données de contrôle-qualité contenus dans ce rapport ont été vérifiés et validés par:

Cansu Bolukbas
Membre OCQ#2324-095

Cansu Bolukbas, B.Sc., Chimiste, Montréal, Analyste II

Simran Kaur LNU, B.Sc. Biochimiste, Montreal, Analyste 2

CHIMISTE
Shu Yang
2008-014
Québec

Shu Yang, B.Sc. Chimiste, Montréal, Analyste II

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eCOC: Q161927

Expected TAT: 1 Day(s) - Rush
Expected Arrival: ~~2025/01/29 17:00~~
Submitted By: Yvan Quenum
Submitted To: Montréal

Invoice Information

Attn: COMPTES PAYABLE
WSP Canada Inc.
1600 René-Lévesque O
16e Étage
Montréal , QC , H3H 1P9
Email to:
capayablesinvoice@wsp.com

Report Information

Attn: Francis Charbonneau
WSP Canada Inc. - Montréal
1600 René-Lévesque O
local B110
Montréal , QC , H3H 1P9
Email to:
francis.charbonneau@wsp.com
yvan.quenum@wsp.com
sylvain.marcoux@wsp.com

Project Information

Quote #: C40244
PO/AFE#:
Project #: CA0012054.2069 phase 123
Site Location: Galaxy

C504114_COC

29-Jan-25 08:48
Sarah Beaudry
C504114

GGA

NOVA-2025-01-2275

Analytical Summary

A: 1 Day(s) - Rush

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Silica by XR (NIOSH 7500)-PWC Filter	Total Extractable Metals (Hi-vol)	Total Particulate	Total Particulate (Hi-VOL)	Set Number
GALA-241021-HV-1	1	2024/10/21 00:00	FILTER	1		A		A	1
GALA-241021-HV-2	2	2024/10/21 00:00	FILTER	1		A		A	2
GALA-241108-HV-1	3	2024/11/08 00:00	FILTER	1		A		A	2
GALA-241111-HV-2	4	2024/11/11 00:00	FILTER	1		A		A	2
GALA-241114-HV-1	5	2024/11/14 00:00	FILTER	1		A		A	2
GALA-241121-HV-1	6	2024/11/21 00:00	FILTER	1		A		A	2
GALA-241126-HV-1	7	2024/11/26 00:00	FILTER	1		A		A	2
GALA-241126-HV-2	8	2024/11/26 00:00	FILTER	1		A		A	2
GALA-241202-HV-1	9	2024/12/02 00:00	FILTER	1		A		A	1
GALA-241208-HV-1	10	2024/12/08 00:00	FILTER	1		A		A	1
GALA-241027-WILPM2.5-2	11	2024/10/27 00:00	FILTER	1			A		3
GALA-241108-WILPM2.5-2	12	2024/11/08 00:00	FILTER	1			A		3
GALA-241111-WILPM2.5-2	13	2024/11/11 00:00	FILTER	1			A		3
GALA-241121-WILPM2.5-2	14	2024/11/21 00:00	FILTER	1			A		3
GALA-241202-WILPM2.5-2	15	2024/12/02 00:00	FILTER	1			A		3
GALA-241208-WILPM2.5-2	16	2024/12/08 00:00	FILTER	1			A		3
GALA-241214-WILPM2.5-2	17	2024/12/14 00:00	FILTER	1			A		3
GALA-241220-WILPM2.5-2	18	2024/12/20 00:00	FILTER	1			A		3

Sandwood
20250129
0845
Ice no
Seal no
WT604
20.20.20

eCOC: Q161927

Expected TAT: 1 Day(s) - Rush
Expected Arrival: 2025/01/29 17:00
Submitted By: Yvan Quenum
Submitted To: Montréal

A: 1 Day(s) - Rush

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Silica by XR (NIOSH 7500)-PVC Filter	Total Extractable Metals (Hi-vol)	Total Particulate	Total Particulate (Hi-VOL)	Set Number
GALA-241228-WILPM2.5-2	19	2024/12/28 00:00	FILTER	1			A		3
GALA-241021-WIL-PM4-1	20	2024/10/21 00:00	FILTER	1	A		A		4
GALA-241027-WIL-PM4-1	21	2024/10/27 00:00	FILTER	1	A		A		4
GALA-241108-WIL-PM4-2	22	2024/11/08 00:00	FILTER	1	A		A		4
GALA-241109-WIL-PM4-1	23	2024/11/09 00:00	FILTER	1	A		A		4
GALA-241111-WIL-PM4-2	24	2024/11/11 00:00	FILTER	1	A		A		4
GALA-241114-WIL-PM4-1	25	2024/11/14 00:00	FILTER	1	A		A		4
GALA-241121-WIL-PM4-1	26	2024/11/21 00:00	FILTER	1	A		A		4
GALA-241214-HV-1	27	2024/12/14 00:00	FILTER	1		A		A	1
GALA-241214-HV-2	28	2024/12/14 00:00	FILTER	1		A		A	1
GALA-241220-HV-1	29	2024/12/20 00:00	FILTER	1		A		A	1
GALA-241220-HV-2	30	2024/12/20 00:00	FILTER	1		A		A	1
GALA-241228-HV-1	31	2024/12/28 00:00	FILTER	1		A		A	1
GALA-241228-HV-2	32	2024/12/28 00:00	FILTER	1		A		A	1
GALA-241121-WIL-PM4-2	33	2024/11/21 00:00	FILTER	1	A		A		4
GALA-241202-WIL-PM4-1	34	2024/12/02 00:00	FILTER	1	A		A		4
GALA-241202-WIL-PM4-2	35	2024/12/02 00:00	FILTER	1	A		A		4
GALA-241208-WIL-PM4-1	36	2024/12/08 00:00	FILTER	1	A		A		4
GALA-241208-WIL-PM4-2	37	2024/12/08 00:00	FILTER	1	A		A		4
GALA-241214-WIL-PM4-1	38	2024/12/14 00:00	FILTER	1	A		A		4
GALA-241214-WIL-PM4-2	39	2024/12/14 00:00	FILTER	1	A		A		4
GALA-241220-WIL-PM4-1	40	2024/12/20 00:00	FILTER	1	A		A		4
GALA-241220-WIL-PM4-2	41	2024/12/20 00:00	FILTER	1	A		A		4
GALA-241228-WIL-PM4-1	42	2024/12/28 00:00	FILTER	1	A		A		4

eCOC: Q161927

Expected TAT: 1 Day(s) - Rush
Expected Arrival: 2025/01/29 17:00
Submitted By: Yvan Quenum
Submitted To: Montréal

A: 1 Day(s) - Rush

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Silica by XR (NIOSH 7500)-PVC Filter	Total Extractable Metals (Hi-vol)	Total Particulate	Total Particulate (Hi-VOL)	Set Number
GALA-241228-WIL-PM4-2	43	2024/12/28 00:00	FILTER	1	A		A		4
GALA-241208-HV-2	44	2024/12/08 00:00	FILTER	1		A		A	1

Deadlines are estimates only and are subject to change. Please refer to your Job Confirmation report for final due dates.

Submission Information

# of Samples: 44

Sample Set Listing

Set 1 (10 samples)
GALA-241021-HV-1
GALA-241202-HV-1
GALA-241208-HV-1
GALA-241214-HV-1
GALA-241214-HV-2
GALA-241220-HV-1
GALA-241220-HV-2
GALA-241228-HV-1
GALA-241228-HV-2
GALA-241208-HV-2

Set 2 (7 samples)
GALA-241021-HV-2
GALA-241108-HV-1
GALA-241111-HV-2
GALA-241114-HV-1
GALA-241121-HV-1
GALA-241126-HV-1
GALA-241126-HV-2

Set 3 (9 samples)
GALA-241027-WILPM2.5-2
GALA-241108-WILPM2.5-2
GALA-241111-WILPM2.5-2
GALA-241121-WILPM2.5-2
GALA-241202-WILPM2.5-2
GALA-241208-WILPM2.5-2
GALA-241214-WILPM2.5-2
GALA-241220-WILPM2.5-2
GALA-241228-WILPM2.5-2

Set 4 (18 samples)
GALA-241021-WIL-PM4-1
GALA-241027-WIL-PM4-1
GALA-241108-WIL-PM4-2
GALA-241109-WIL-PM4-1
GALA-241111-WIL-PM4-2
GALA-241114-WIL-PM4-1
GALA-241121-WIL-PM4-1
GALA-241121-WIL-PM4-2
GALA-241202-WIL-PM4-1
GALA-241202-WIL-PM4-2
GALA-241208-WIL-PM4-1
GALA-241208-WIL-PM4-2
GALA-241214-WIL-PM4-1
GALA-241214-WIL-PM4-2
GALA-241220-WIL-PM4-1
GALA-241220-WIL-PM4-2
GALA-241228-WIL-PM4-1
GALA-241228-WIL-PM4-2

Votre # du projet: C504114
Adresse du site: WSP CANADA INC. (4934)

Attention: Sarah Beaudry

Bureau Veritas Laboratories
889, Montee de Liesse
Saint-Laurent, QC
Canada H4T 1P5

Date du rapport: 02/13/2025
Rapport: R8487478
Version: 1 - Finale

CERTIFICAT D'ANALYSE

 # DE DOSSIER BV LABS: C513091
Reçu: 02/06/2025, 00:00

Matrice: Air
Nombre d'échantillons reçus: 18

Analyses	Quantité	Date Analysé	Méthode de laboratoire	Méthode d'analyse
Silica on a PVC filter by N7500	18	02/10/2025	NOV5SOP-00001	NIOSH 7500
Total Quartz and Cristobalite	18	02/11/2025		

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.

clé de cryptage 

COVERPAGECOMMENT1_IH
Megan Stupar,
Courriel: megan.stupar@bureauveritas.com
Téléphone (248) 344-1770
==========

Bureau Veritas a mis en place des procédures qui protègent contre l'utilisation non autorisée de la signature électronique et emploie les «signataires» requis, conformément à l'ISO/CEI17025. Ce rapport est autorisé par Jason Forbes, Directeur des Opérations, responsable des opérations du laboratoire de MichiganHygiène industrielle.

Total Cover Pages : 1

Dossier BV Labs: C513091
Date du rapport: 02/13/2025

Bureau Veritas Laboratories
Votre # du projet: C504114
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	OB0700-GALA-241021-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ANVY91	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	10/21/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	OB0701-GALA-241027-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ANVY92	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	10/27/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	6.7	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	OB0702-GALA-241108-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ANVY93	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	11/08/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C513091
Date du rapport: 02/13/2025

Bureau Veritas Laboratories
Votre # du projet: C504114
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	OB0703-GALA-241109-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ANVY94	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	11/09/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	OB0704-GALA-241111-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ANVY95	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	11/11/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	OB0705-GALA-241114-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ANVY96	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	11/14/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C513091
Date du rapport: 02/13/2025

Bureau Veritas Laboratories
Votre # du projet: C504114
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	OB0706-GALA-241121-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ANVY97	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	11/21/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	OB0713-GALA-241121-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ANVY98	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	11/21/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	OB0714-GALA-241202-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ANVY99	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	12/02/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C513091
Date du rapport: 02/13/2025

Bureau Veritas Laboratories
Votre # du projet: C504114
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	OB0715-GALA-241202-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ANVZ00	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	12/02/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	OB0716-GALA-241208-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ANVZ01	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	12/08/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	OB0717-GALA-241208-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ANVZ02	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	12/08/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C513091
Date du rapport: 02/13/2025

Bureau Veritas Laboratories
Votre # du projet: C504114
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	OB0718-GALA-241214-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ANVZ03	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	12/14/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	OB0719-GALA-241214-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ANVZ04	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	12/14/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	OB0720-GALA-241220-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ANVZ05	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	12/20/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Dossier BV Labs: C513091
Date du rapport: 02/13/2025

Bureau Veritas Laboratories
Votre # du projet: C504114
Adresse du site: WSP CANADA INC. (4934)

RÉSULTATS D'ANALYSE

Client ID:	OB0721-GALA-241220-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ANVZ06	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	12/20/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	OB0722-GALA-241228-WIL-PM4-1	Matrice:	Air
Identification BV Labs:	ANVZ07	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	12/28/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

Client ID:	OB0723-GALA-241228-WIL-PM4-2	Matrice:	Air
Identification BV Labs:	ANVZ08	Sample Media:	PVC 47 mm Untared
Date d'échantillonnage:	12/28/2024		

ANALYTE	Mass ug	concentration ug/m3	RL ug	Test Method	Date Analysé
Quartz	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Cristobalite	<5.0	N/A	5.0	NIOSH 7500	02/10/2025
Tridymite	<10	N/A	10	NIOSH 7500	02/10/2025
Total (Quartz and Cristobalite)	<10	N/A	10		02/11/2025

LDR = limite de détection rapportée
RL = Seuil de détection

REMARQUES GÉNÉRALES

Unless otherwise noted below the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and /or do not adversely affect the reported results and 3) the industrial hygiene results have not been blank corrected.

The client provided their pertinent field sampling data on the analysis request paperwork submitted with the samples. Results apply to the sample as received.

Les résultats s'appliquent seulement pour les paramètres analysés.

Sent to: **Bureau Veritas North America In**
22345 Roethel Drive
Novi, MI, 48375
Tel: (248) 344-1770

BUREAU VERITAS INTERLAB CHAIN OF CUSTODY RECORD

COC # C504114-BVMI-01-01

C513091

REPORT INFORMATION	
Company:	Bureau Veritas
Address:	889, Montée de Liesse, Saint-Laurent, Quebec, H4T 1P5
Contact Name:	Sarah Beaudry
Email:	Sarah.Beaudry@bureauveritas.com, SoustraitanceQue-YUL@bureauveritas.com
Phone:	(438) 355-7268
BV Project #:	C504114
Client Invoice To:	WSP Canada Inc. (4934)
Client Report To:	WSP Canada Inc. - Montréal (4040)

Incl. on Report? Yes / No

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	ANALYSIS REQUESTED: Silica by XR (NIOSH 7500)-PVC Filter	ADDITIONAL SAMPLE INFORMATION
1	OB0700-GALA-241021-WIL-PM4-1	FILT	2024/10/21	00:00		1	X	(P: 01)
2	OB0701-GALA-241027-WIL-PM4-1	FILT	2024/10/27	00:00		1	X	(P: 01)
3	OB0702-GALA-241108-WIL-PM4-2	FILT	2024/11/08	00:00		1	X	(P: 01)
4	OB0703-GALA-241109-WIL-PM4-1	FILT	2024/11/09	00:00		1	X	(P: 01)
5	OB0704-GALA-241111-WIL-PM4-2	FILT	2024/11/11	00:00		1	X	(P: 01)
6	OB0705-GALA-241114-WIL-PM4-1	FILT	2024/11/14	00:00		1	X	(P: 01)
7	OB0706-GALA-241121-WIL-PM4-1	FILT	2024/11/21	00:00		1	X	(P: 01)
8	OB0713-GALA-241121-WIL-PM4-2	FILT	2024/11/21	00:00		1	X	(P: 01)
9	OB0714-GALA-241202-WIL-PM4-1	FILT	2024/12/02	00:00		1	X	(P: 01)
10	OB0715-GALA-241202-WIL-PM4-2	FILT	2024/12/02	00:00		1	X	(P: 01)

Job Barcode Label

SITE LOCATION: Galaxy

SITE #:

PROJECT #: CA0012054.2069 phase 123

PO/AFE, TASK ORDER/SERVICE ORDER, LINE ITEM:

REGULATORY CRITERIA: Guide 2021 Basses-Terres

SPECIAL INSTRUCTIONS: Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching.
Please return a copy of this form with the report.

REQUIRED EDDs: National Excel (N001) Golder (Q001) Dessau Soprin Excel (Q004)

TURNAROUND TIME

☐ Rush Required

2025/02/21
Date Required

Please inform us if rush charges will be incurred.

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

RECEIVING LAB USE ONLY

Bureau Veritas Job #

RELINQUISHED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	Samples Labelled By:	Labels Verified By:
1. Maryline Munet	2025/02/05	15:30	1. Dilan Shah	2025/02/06	11:50		
2.			2.				

Sent to: **Bureau Veritas North America In**
22345 Roethel Drive
Novi, MI, 48375
Tel: (248) 344-1770

BUREAU VERITAS INTERLAB CHAIN OF CUSTODY RECORD

COC # C504114-BVMI-02-01

REPORT INFORMATION	
Company:	Bureau Veritas
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Contact Name:	Sarah Beaudry
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BV Project #:	C504114
Client Invoice To:	WSP Canada Inc. (4934)
Client Report To:	WSP Canada Inc. - Montréal (4040)

Incl. on Report? Yes / No

ANALYSIS REQUESTED

Job Barcode Label

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	Silica by XR (NIOSH 7500)-PVC filter	ADDITIONAL SAMPLE INFORMATION
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2	OB0717-GALA-241208-WIL-PM4-2	FILT	2024/12/08	00:00		1	X	(P: 01)
3	OB0718-GALA-241214-WIL-PM4-1	FILT	2024/12/14	00:00		1	X	(P: 01)
4	OB0719-GALA-241214-WIL-PM4-2	FILT	2024/12/14	00:00		1	X	(P: 01)
5	OB0720-GALA-241220-WIL-PM4-1	FILT	2024/12/20	00:00		1	X	(P: 01)
6	OB0721-GALA-241220-WIL-PM4-2	FILT	2024/12/20	00:00		1	X	(P: 01)
7	OB0722-GALA-241228-WIL-PM4-1	FILT	2024/12/28	00:00		1	X	(P: 01)
8	OB0723-GALA-241228-WIL-PM4-2	FILT	2024/12/28	00:00		1	X	(P: 01)
9								
10								

SITE LOCATION:
Galaxy
SITE #:

PROJECT #:
CA0012054.2069 phase 123
PO/AFE, TASK ORDER/SERVICE ORDER, LINE ITEM:

REGULATORY CRITERIA
Guide 2021 Basses-Terres

SPECIAL INSTRUCTIONS
Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching.
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REQUIRED EDDs
National Excel (N001)
Golder (Q001)
Dessau Soprin Excel (Q004)

TURNAROUND TIME
☐ Rush Required
2025/02/21
Date Required
Please inform us if rush charges will be incurred.

COOLER ID:

	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:

	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:

	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

RECEIVING LAB USE ONLY
Bureau Veritas Job #

RELINQUISHED BY: (SIGN & PRINT)	**DATE:** (YYYY/MM/DD)	**TIME:** (HH:MM)	**RECEIVED BY:** (SIGN & PRINT)	**DATE:** (YYYY/MM/DD)	**TIME:** (HH:MM)	**Samples Labelled By:**	**Labels Verified By:**
1. Marylou Mead	2025/02/05	15:30	1. Dillon Shapp	2025/02/06	1149		
2.			2.				

APPENDIX R – ENVIRONMENTAL MONITORING - NOISE MEASUREMENTS TAKEN AT KM 381 TRUCK STOP (WSP, 2024)

GALAXY LITHIUM (CANADA) INC.

GALAXY PROJECT

ENVIRONMENTAL MONITORING
NOISE MEASUREMENTS TAKEN AT THE KM 381 TRUCK STOP

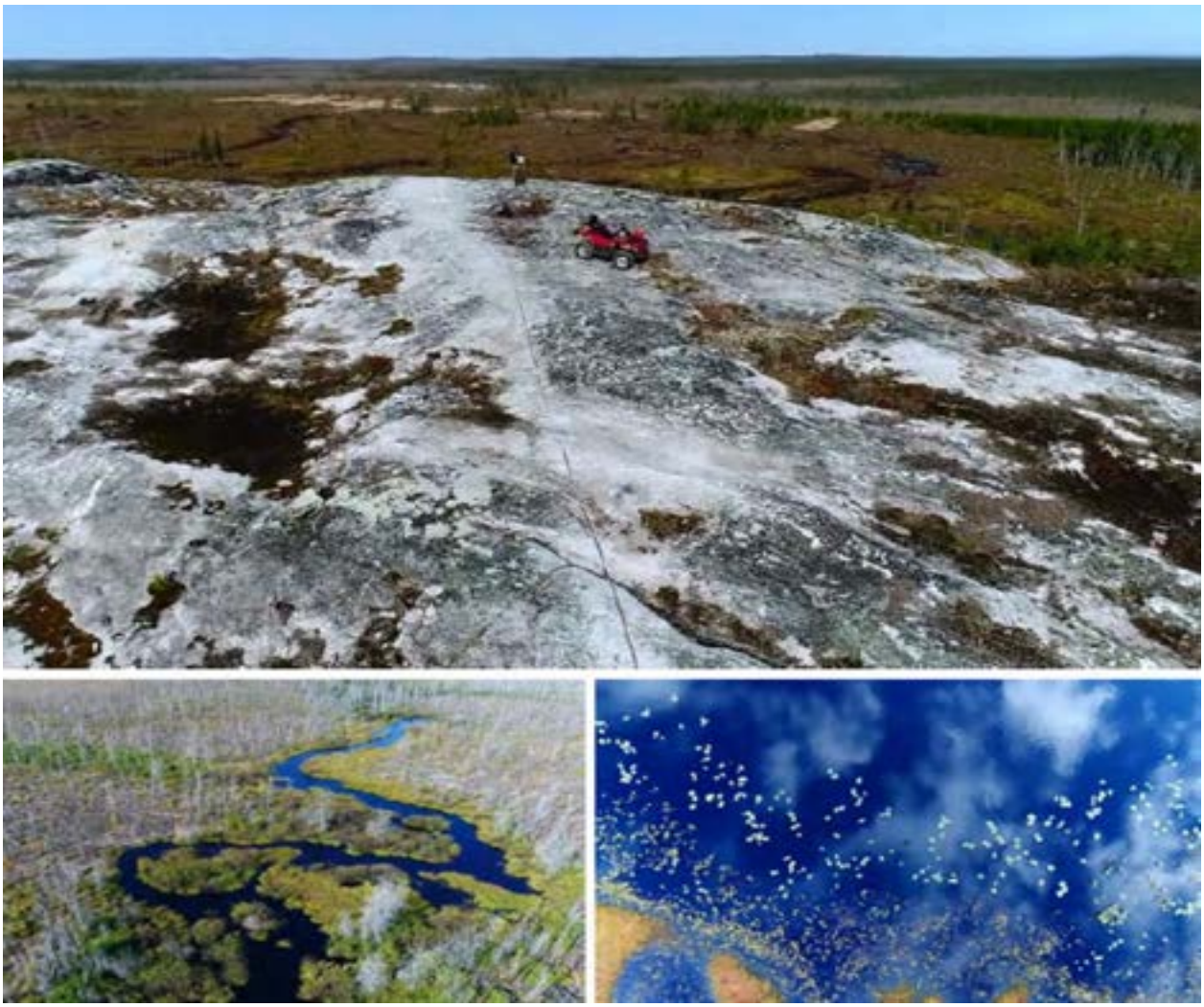
JAMES BAY, QUEBEC

DECEMBER 2024

CONFIDENTIAL

WSP REFERENCE: CA0036076.5537

FINAL VERSION



GALAXY LITHIUM (CANADA) INC.

GALAXY PROJECT

ENVIRONMENTAL MONITORING NOISE MEASUREMENTS TAKEN AT THE KM 381 TRUCK STOP

JAMES BAY, QUEBEC

FINAL VERSION
CONFIDENTIAL

WSP REFERENCE: CA0036076.5537

DECEMBER 2024

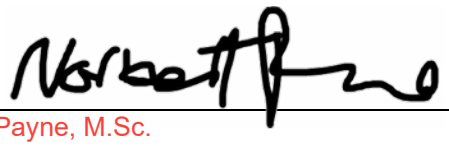
WSP CANADA INC.
1135 LEBOURGNEUF BOULEVARD
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WSP.COM

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December 6, 2024
Date

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December 6, 2024
Date

LIMITATIONS

WSP Canada Inc. (“WSP”) has prepared this report solely for its recipient, Galaxy Lithium (Canada) Inc., in accordance with the consultant agreement between the parties. In the event that a consultant agreement has not been executed, the parties agree that WSP’s General Terms and Conditions for consulting work, which were provided to you before this report was prepared, will govern their business relationship.

This report is intended to be used in its entirety. No excerpt can be considered as representative of the evaluation results.

The conclusions presented in this report are based on work performed by technical, trained, and professional personnel, in accordance with their reasonable interpretation of current and accepted engineering and technical practices at the time the work was carried out.

The content and opinions expressed in this report are based on observations and/or information available to WSP at the time it was prepared, through the application of investigative techniques and engineering analysis methods consistent with those customarily used by WSP and other engineers/technicians working under similar conditions, subject to the same time, financial, and physical constraints applicable to this type of project.

WSP denies and rejects any obligation to update this Report if, after the date of this report, conditions appear to differ materially from those presented in this report; however, WSP reserves the right to modify or supplement this Report on the basis of additional information, documents, or evidence.

WSP makes no representation as to the legal significance of its conclusions.

Disclosure of any information contained in this report is the sole responsibility of its recipient. If a third party uses, relies on, makes decisions or takes action based on this report, the said third party is solely responsible for the outcome. WSP accepts no liability for any damages suffered by a third party as a result of using this report or for damages that may result from any decision made or action taken based on this report.

WSP has performed its services for the recipient of this report, in accordance with the consultant agreement between the parties and while exercising the degree of caution, skill, and diligence ordinarily exercised by members of the same profession when providing the same or comparable services with respect to projects of a similar nature under similar circumstances. It is understood and agreed between WSP and the recipient of this report that WSP makes no warranty, express or implied, of any kind. Without limiting the generality of the foregoing, WSP and the recipient of this report agree and understand that WSP makes no representations or warranties as to the sufficiency of its scope of work for the purposes intended by the recipient of this report.

In preparing this report, WSP has relied in good faith on information provided by third parties, as indicated in the report. WSP has reasonably assumed that the information provided is correct and therefore WSP cannot be held responsible for the accuracy or completeness of such information.

The survey monuments and markers used in this report are intended primarily to establish differences in relative elevation between sampling locations and are not to be used for any other purpose. In particular, they must not be used for grading, excavation, construction, planning, development, etc.

This document is a translation of the report written in French. In the event of any discrepancy between French and English, the French version will prevail.

CLIENT

GALAXY LITHIUM (CANADA) INC.

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Environmental Superintendent	Maryse Godin

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TECHNITRAD INC.

English translation

REFERENCE FOR CITATIONS

WSP. 2024. Galaxy Project. Environmental Monitoring Noise Measurements Taken at the KM 381 Truck Stop James Bay, Quebec Report prepared for Galaxy Lithium (Canada) Inc. WSP reference: CA0036076.5537. 15 pp. and app.

SOMMAIRE / SUMMARY

Galaxy Lithium (Canada) Inc. a mandaté WSP Canada Inc. pour réaliser des mesures de bruit au relais routier du km 381 afin de vérifier le respect de la réglementation provinciale et des recommandations fédérales en matière de bruit lors des activités de préparation de site et de préconstruction sur le site du projet Galaxy. Les mesures, d'une durée de 24 heures, ont été prises par WSP le 7 septembre 2024, avec un sonomètre de Classe 1, le 831C du fabricant Larson-Davis. Les résultats démontrent le respect de la réglementation provinciale du MDDELCC et des recommandations fédérales sur l'impact potentiel du bruit sur la santé. En effet, le niveau moyen de bruit pendant la période de jour ($L_{Aeq\ 12h}$) était inférieur à 55 dBA et inférieur à 45 dBA pendant la période de nuit ($L_{Aeq\ 12h}$). Enfin, le changement du pourcentage de la population fortement gênée (% HA) mesuré était d'au plus 1,7 %, donc bien inférieur à la limite recommandée de 6,5 % (% HA) de Santé Canada.

To verify compliance with provincial noise regulations and with federal noise recommendations during site preparation and pre-construction activities on the site of the Galaxy project, WSP Canada Inc. was mandated by Galaxy Lithium (Canada) Inc. to carry out a noise study at the km 381 truck stop. The measurements, of a duration of 24 hours, were done by WSP on September 7, 2024 with a Class 1 sound meter, the 831C from the manufacturer Larson-Davis. The results of the measurements demonstrate compliance with the provincial regulations of the MDDELCC and with the federal recommendations on the potential noise impacts on health. In fact, the average noise level during the daytime period ($L_{eq\ 12h}$) was less than 55 dBA and less than 45 dBA during the nighttime period ($L_{eq\ 12h}$). Finally, the change in the percentage of the population highly annoyed (% HA) measured was no more than 1.7%, well below Health Canada's recommended limit of 6.5% (% HA).

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1 Introduction

1.1 Background information

In March 2024, Galaxy Lithium (Canada) Inc. (GLCI) began carrying out site preparation and pre-construction work on its Galaxy project, which is located in the Nord-du-Québec administrative region, roughly 10 km south of the Eastman River and 100 km east of James Bay, at the same latitude as the Cree Nation of Eastmain. The project site is located on Category III lands as defined under the James Bay and Northern Québec Agreement (JBNQA). Accessible via the Billy-Diamond Highway, it is close to the truck stop at Kilometre 381.

As part of the provincial and federal review and impact assessment process, GLCI must comply with the Decision Statement issued by the Minister of Environment under the CEAA on January 13, 2023, and amended on July 26, 2024. The Decision Statement sets out several conditions. GLCI is also required to comply with the Certificate of Authorization issued by the *Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs* (MELCCFP) on December 27, 2023. GLCI has therefore committed to implementing environmental and social monitoring programs as part of the Galaxy project.

As part of its environmental and social monitoring program, GLCI has committed to taking at least one series of noise measurements at the start of each major phase of work, and preparing an annual report summarizing the measurements. Accordingly, GLCI commissioned WSP to carry out noise monitoring during the pre-construction phase.

1.2 Objectives

WSP was tasked with:

- Documenting noise levels associated with work in progress, as measured at the truck stop over a 24-hour period.
- Determining whether the measured levels and calculated indicators comply with provincial regulations and federal recommendations.
- Analyzing any observed exceedances to determine the cause and propose appropriate mitigation measures to reduce noise levels associated with Galaxy project activities.

358,000
359,000
360,000
5,790,000
5,789,000
Vers Radisson / *To Radisson*
450 kV (4003-4004)
CE3
CE4 / kaa apishikamaach sīpiish
Lac Kapisikama / kaa apishikamaaw
CE5 / kaa wiisaapuuskaaw-sīpiishish
Route Billy-Diamond / *Billy-Diamond Highway*
Vers / *To* Matagami
Relais routier km 381 / *Truck stop*
P1
C7
0 55 m
Relais routier km 381 / *Truck stop*
P1
C7
0 200 m
Sonomètre / *Sound level meter*
Sonomètre de l'étude de 2011 / *Sound level meter from 2011 study*
Zone de dortoirs du relais routier / *Truck stop dormitory zone*
Sablière / *Sandpit*
Activité de terrassement / *Earthworks area*
Composante du projet / *Project Component*
Infrastructures minières / Mining infrastructure
Infrastructures / *Infrastructures*
Route principale / *Main road*
Route d'accès / *Access road*
Ligne de transport d'énergie / *Transmission line*
Relais routier / *Truck stop*
Hydrographie / *Hydrography*
CE3 Numéro de cours d'eau / *Stream number*
Cours d'eau permanent / *Permanent stream*
Cours d'eau à écoulement diffus ou intermittent / *Intermittent or diffused flow stream*
Plan d'eau / *Waterbody*
80°O
70°O
60°O
55°N
50°N
Baie d'Hudson
QUÉBEC
Baie James
Chisasibi
Wemindji
Eastmain
projet Galaxy
Galaxy project
Nemaska
Waskaganish
Matagami
Golfe Saint-Laurent
Montréal
0 200 km
arcadium lithium | Galaxy
projet Galaxy / Galaxy project
Suivis environnementaux en phase de construction – Mesure sonore / Environmental monitoring during the construction phase – Noise measurements
Carte / *Map* 1
Mesures sonores au relais routier du km 381 – 7 septembre 2024 / *Noise measurements at the Km 381 truck stop – September 7, 2024*
Sources :
Orthoimage: Galaxy, août 2017
Données du projet / Projet data, Alkem, dec, 2023
0 100 200 m
UTM, fuseau 18, NAD83
Octobre / *October* 2024
Préparation : N. Payne
Dessin : A. Masson
Approbation : D. Thiffault
CA0036076_5537_c1_CS_wsp_mesure_sonore_241021.mxd
wsp

1.3 Methodology

The location of the noise measurement point at the km 381 truck stop (Map 1) was selected based on the current layout of sensitive areas (dormitory) at the truck stop. The parameters measured and presented in the report correspond to the noise rating levels used in MELCCFP guidelines, including $L_{Ar,\ 12h}$, as well as "percent highly annoyed" indicator (%HA) recommended by Health Canada. In cases where construction work began before 7 a.m. or ended after 7 p.m., the $L_{Ar,\ 1h}$ noise rating level was measured for each hour of any night when construction work took place.

Noise levels were measured for a minimum of 24 hours.

1.3.1 Required instrumentation and calibration tests

Testing was conducted using a Class 1 integrating sound level meter compliant with ANSI S1.43-1997 (R2007): Specifications for Integrating-Averaging Sound Level Meters. The sound level meter used had been calibrated by an independent laboratory within the previous year. The microphone, mounted on a tripod at a height of 1.5 m above ground level, was protected at all times by a windscreen.

At a minimum, sound level meter calibration was checked at the start and end of sampling, using the same standard sound source. The maximum allowable deviation between the initial calibration and at the end of sampling was 0.5 dBA. Results with a higher deviation were rejected. The operator was responsible for recording calibration results.

1.3.2 Weather limitations

The following weather conditions are considered appropriate for taking noise measurements:

- Temperatures between -10 °C and 50 °C;
- Wind speeds not exceeding 20 km/h;
- Relative humidity levels between 5% and 90% or in accordance with the instrument manufacturer's limitations;
- No precipitation.

2 Regulations and recommendations

2.1 Provincial regulations

The MDDELCC (2015) has issued guidelines regarding noise levels from a construction site. The noise levels measured were compared to these guidelines.

For the daytime period between 7 a.m. and 7 p.m., the MELCCFP policy states that all reasonable and feasible measures must be taken by the contractor to ensure that the acoustic assessment level ($L_{Ar, 12h}$) from a construction site is equal to or lower than the highest of the following noise levels: 55 dB or the initial noise level, if greater than 55 dB. This limit applies at any reception point where the occupancy is residential or equivalent (vacationing, recreational, temporary shelter in the forest).

However, the guidelines also recognize that certain situations may prevent the contractor from carrying out work within the prescribed noise limits. Where applicable, the contractor is required to:

- Anticipate these situations as far in advance as possible, identify and limit them;
- Specify the nature of the work and the noise sources involved;
- Justify the construction methods used in relation to possible alternatives;
- Demonstrate that all reasonable and feasible measures have been taken to minimize the scope and duration of exceedances;
- Estimate the extent and duration of anticipated exceedances;
- Plan follow-up measures to assess the actual impact of these situations and implement the necessary corrective measures.

For evening (7 p.m. to 10 p.m.) and night (10 p.m. to 7 a.m.) periods, any one-hour acoustic assessment level ($L_{Ar, 1h}$) from a construction site must be equal to or lower than the highest of the following noise levels: 45 dB or the initial noise level, if greater than 45 dB. This limit applies at any reception point where the occupancy is residential or equivalent (hospital, institution, school).

At night (10 p.m. to 7 a.m.), in order to protect sleep, no deviation from these limits can be considered acceptable (except in cases of emergency or absolute necessity). However, over the three-hour evening period (7 p.m. to 10 p.m.), when the situation warrants it, the acoustic assessment level ($L_{Ar, 3h}$) for a construction site may reach 55 dB regardless of the initial level, provided that these exceedances are justified in accordance with requirements “a” through “f” as set out in section 2.1 of the sectoral policy for construction sites.

Regular working hours cover the 12-hour period from 7 a.m. to 7 p.m., with a corresponding guideline value of 55 dBA ($L_{Aeq, 12h}$) between 7 a.m. and 7 p.m.

2.2 Federal recommendations

Health Canada (2017) has issued a report to provide guidance on assessment of human health impacts associated with noise in the context of an environmental assessment, and to facilitate the interpretation of Health Canada recommendations related to the environmental assessment process.

As explained in section 5.4.2 of the Health Canada (2017) report:

> "… the project-related change in the sound environment and the related increase in %HA are evaluated. Using the dose-response relationship between noise levels and annoyance, as per ISO 1996-1:2003, one can calculate the percentage of a typical community that would report being 'highly annoyed,' expressed as %HA. The %HA increases exponentially as sound levels increase. Due to the non-linear nature of the relationship between noise and %HA, there can be a substantial increase in the %HA, with relatively small changes in the noise environment—in situations where the initial baseline noise level is high. In other words, the higher the initial noise level, the more the annoyance will increase when there is an increase from the baseline noise level. In general, this dose-response relationship may be a useful tool in characterizing and quantifying average community response to noise levels and changes in noise levels.
>
> Health Canada prefers the use of the dose-response relationship only for long-term noise exposure considerations in EAs, and holds the view that %HA be calculated only for receptors exposed to long-term project noise (more than one year). It is important to emphasize that these annoyance responses are not applicable to a particular individual or group, but represent an average community.
>
> […] Noise mitigation measures should be considered when a change in the calculated %HA at any given receptor location exceeds 6.5%."

Health Canada recommends assessing the impacts of noise on human health based on changes in the "percent highly annoyed" (%HA) indicator. The %HA calculation determines how an average community will react to a given noise level.

This indicator is calculated by applying noise weightings to the L_{dn} indicator, based on the type of noise involved (tonal noise, impact noise, etc.). Whereas individual reactions to certain noise levels can vary widely, a change in %HA across an average community has been shown to be uniform (Michaud et al., 2008).

It is also recommended that continuous outdoor noise levels not exceed 45 dBA at night (to avoid disrupting sleep) or 55 dBA during the day (to ensure speech is intelligible).

3 Results and analysis

3.1 Date and measurement point location

The sound level meter was installed on the afternoon of September 6 and removed on the morning of September 8, 2024. Measurements taken over the 24-hour period starting at 12 a.m. on September 7 were selected for analysis. The measurement point (P1 on Map 1) was located behind the dormitory at the km 381 truck stop. The corresponding geographic coordinates are as follows:

52.2296 N -77.0616 E

Photo 1 shows the equipment set up at the measurement point on September 7, 2024. The Billy-Diamond Highway can be seen on the left, approximately 100 m from the sound level meter.



Photo 1 **Sound level meter and temporary meteorological station behind the dormitory at the km 381 truck stop**

A new location has been chosen in relation to the 2011 measurement point, due to high noise levels unrelated to the Galaxy project observed during the 2024 monitoring efforts. The presence of a new truck parking area southeast of the km 381 site, near the 2011 measurement point (C7), contributes to a significant increase in ambient noise levels at that location. Trucks parked there would often keep their engines idling for extended periods of time. The trucks in question, mainly freight trucks on their way further north, had no connection with the Galaxy project. Fuel pump use has also increased since 2011. The pumps are located approximately 30 m from the 2011 measurement point.

The new measurement point is now located closer to sensitive areas, namely the truck stop's sleeping facilities (also used by night guards during the day) and the nursing station.

It is important to note that the actual measurement point (P1) is slightly closer to the Galaxy project site than the 2011 measurement point (C7). With respect to noise generated by activities at the Galaxy project site, the new location therefore offered no advantage in terms of distance attenuation. In addition, new buildings had been constructed since 2011, immediately to the northwest of the 2011 measurement point. These buildings help filter out noise produced by trucking activities unrelated to the project. Moreover, compared to point C7, point P1 is further away from trucking activities at the truck stop. As a result, residual noise (ambient noise excluding construction work) at measuring point P1 is lower than that measured in 2011 at point C7. In terms of analyzing noise from construction activities, the residual noise level data collected at point P1 in 2024 (at times when construction work was not underway) was therefore deemed more relevant than the measurements taken at point C7 in 2011.

3.2 Instrumentation details

The following instruments were used for taking noise measurements:

- Larson Davis sound level meter, model 831C, serial number 10283;
- Larson Davis sound level calibrator, model CAL200, serial number 4943;
- Sony digital voice recorder.

A temporary meteorological station (Davis Vantage Pro II and Kestrel 5500) was installed at the same location, 1.5 m above ground level.

3.3 Weather conditions

Appendix A contains weather data gathered using a temporary installation next to the noise measurement point. With a view to validating these readings, Appendix A also contains data gathered at the Galaxy project's permanent weather station, located approximately 2 km from the measurement point. However, wind speeds measured at the temporary station were not compared with those measured at the permanent station, because the temporary station took wind speed measurements at 1.5 m above ground level, whereas the permanent station took them at 10 m above ground level.

Humidity levels were above 90% between 2 a.m. and 9 a.m. on September 7, 2024. Humidity in excess of 90% can lead to condensation on the microphone membrane. It is possible to check whether this has occurred by calibrating the instruments before and after measurements are taken. Calibration was carried out, and no significant differences were noted between the start and the end of the measurement period. Accordingly, no data were excluded from analysis due to high relative humidity. Moreover, the microphone was fitted with an environmental shroud (model EPS2106 from Larson Davis) that protects connectors inside a tube containing desiccants. This allows for use in conditions from 0% to 100% humidity.

All other meteorological parameters were conducive to taking noise measurements.

3.4 Ongoing project site activities

On September 7, 2024, the following construction site activities were recorded as being underway at the Galaxy site:

- Excavation with backhoes and excavators;
- Compacting;
- Earthwork - Transportation of materials from the sandpit to the Galaxy site using 30-ton trucks;
- Use of loaders and crawler-mounted bulldozers.

All these activities were carried out between 7 a.m. and 7 p.m. A single project site activity was carried out before 7 a.m.: the refuelling of heavy equipment by a fuel truck on the construction site. This was done starting at 6 a.m.

However, only two activities associated with the Galaxy project site were audible at the measurement point: the loading of sand onto trucks at the sandpit located west of the Billy-Diamond Highway, roughly 500 m from the km 381 truck stop, and the truck transport along the access road and the Billy-Diamond Highway toward the project site (Map 1).

3.5 Measured noise levels – Provincial regulations

Table 1 compares provincial guidelines with the noise levels measured at point P1, located at the km 381 truck stop, on September 7, 2024. The noise level measured between 6 a.m. and 7 a.m. was 46.8 dBA. Upon listening to the recording, it was determined that all noise peaks between 6 a.m. and 7 a.m. were associated with the sound of vehicles starting up at the km 381 truck stop, vehicles leaving the truck stop, or vehicles passing by the truck stop on the Billy-Diamond Highway. The vehicles in question were mainly trucks used by project workers to travel from their accommodations to the Galaxy project site. When these noise peaks were excluded from the hour of measurement data, the $L_{eq\ 1h}$ noise level dropped to 41.3 dBA.

Appendix B contains graphical representations of noise levels before and after exclusion.

Table 1 Noise levels measured at the km 381 truck stop on September 7, 2024

	Period	Measured noise level (dBA)[a]	Noise level after exclusion (dBA)[a, b]	Limit per provincial regulations (dBA)	Compliance with provincial regulations
$L_{Ar,\ 1\ h}$	6 a.m. to 7 a.m	47	< 41	45	Yes
$L_{Ar,\ 12\ h}$	Daytime (7 a.m. to 7 p.m.)	46	< 46	55	Yes

Notes: a Noise level rounded to nearest dBA, ref.: $2x10^{-5}$ Pa.
b Exclusion of isolated noise events not associated with Galaxy project activities.

Noise associated with Galaxy project activities was below MELCCFP criteria both during the day and at night.

3.6 Measured noise levels – Federal recommendations

Noise levels measured between 6 a.m. and 7 p.m. included both residual noise (ambient noise excluding construction work) and construction noise. By contrast, only residual noise was measured between 7 p.m. and 6 a.m.

Table 2 shows the L_d, L_n, and L_{dn} noise levels measured at the km 381 truck stop on September 7, 2024. Residual (ambient noise excluding construction work) and construction noise levels during the day and at night were assessed based on noise measurements and observations.

Table 2 Results of %HA calculations, based on Health Canada recommendations

Measurement point	Ambient excluding work				Construction			Construction + ambient			
	L_d (dBA)	L_n (dBA)	L_{dn} (dBA)	%HA	L_d (dBA)	L_n (dBA)	L_{dn} (dBA)	L_{dn} (dBA)	%HA	Deviation	6.5% Compliance
P1	≤ 45.8	40.5	< 48.2	< 1.7	< 40	< 31.8	< 48.2	48.2	1.7	< 1.7	Yes

The change in percent highly annoyed (%HA) was no more than 1.7%, and possibly much lower than 1%, given that construction noise was sometimes barely audible, if at all. The change in percent highly annoyed (%HA) was found to be below Health Canada's recommended limit of 6.5%. Furthermore, the project site's continuous noise level was below Health Canada's recommended nighttime sleep disturbance limit (45 dBA) and daytime speech intelligibility limit (55 dBA).

4 Conclusion

Noise levels near sensitive areas of the km 381 truck stop were measured over a 24-hour period on September 7, 2024, while pre-construction work was underway at the Galaxy site. Following analysis, it was determined that the measured noise levels were in compliance with provincial standards and federal noise guidelines.

Further noise measurements are to be carried out when the project site resumes operations in 2025, at the start of each major phase of construction, or in the event of a noise complaint.

References

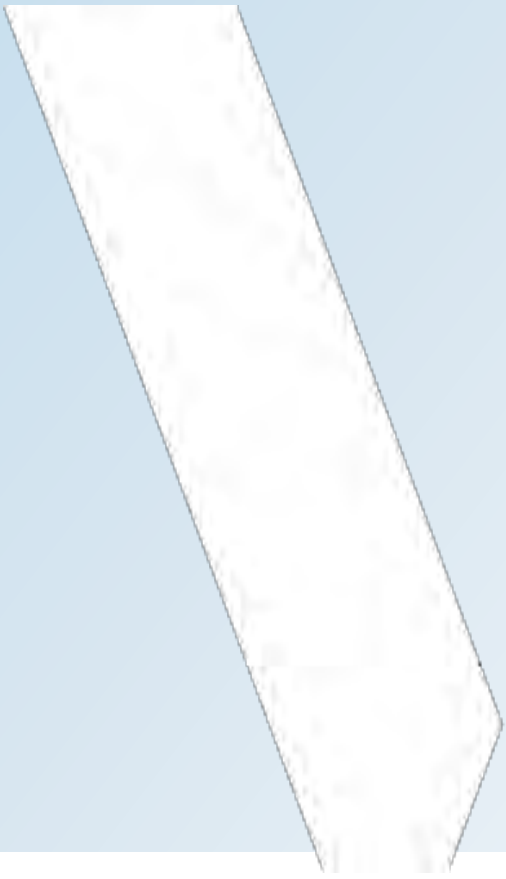
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APPENDIX

A WEATHER CONDITIONS



Date et heure	Temp C	Humidité %	km/h	Direction	Précipitation
2024-09-07 00:00:00	5	87	7	21	0,0
2024-09-07 01:00:00	5	88	4	3	0,0
2024-09-07 02:00:00	4	90	4	13	0,0
2024-09-07 03:00:00	3	91	4	7	0,0
2024-09-07 04:00:00	3	92	3	11	0,0
2024-09-07 05:00:00	3	93	6	24	0,0
2024-09-07 06:00:00	3	94	5	20	0,0
2024-09-07 07:00:00	3	97	4	17	0,0
2024-09-07 08:00:00	5	98	9	36	0,0
2024-09-07 09:00:00	6	90	7	61	0,0
2024-09-07 10:00:00	8	83	11	63	0,0
2024-09-07 11:00:00	9	79	11	60	0,0
2024-09-07 12:00:00	9	76	8	63	0,0
2024-09-07 13:00:00	10	74	11	63	0,0
2024-09-07 14:00:00	10	73	12	58	0,0
2024-09-07 15:00:00	10	72	11	85	0,0
2024-09-07 16:00:00	10	73	11	80	0,0
2024-09-07 17:00:00	11	71	15	78	0,0
2024-09-07 18:00:00	10	72	11	67	0,0
2024-09-07 19:00:00	10	75	8	72	0,0
2024-09-07 20:00:00	9	80	10	79	0,0
2024-09-07 21:00:00	9	83	8	84	0,0
2024-09-07 22:00:00	9	82	9	72	0,0
2024-09-07 23:00:00	9	81	8	78	0,0

Composite des données de Davis Vantage Pro 2 et de Kestrel 5500, installés au P1

Date et heure	humidité	direction	m/s
2024-09-07 00:00:00	90	338	2,9
2024-09-07 01:00:00	91	324	2,6
2024-09-07 02:00:00	92	328	2,6
2024-09-07 03:00:00	94	326	2,5
2024-09-07 04:00:00	96	321	2,5
2024-09-07 05:00:00	97	334	2,9
2024-09-07 06:00:00	97	338	2,8
2024-09-07 07:00:00	97	335	2,4
2024-09-07 08:00:00	96	140	3,3
2024-09-07 09:00:00	91	21	4,2
2024-09-07 10:00:00	84	24	5,2
2024-09-07 11:00:00	80	27	5,3
2024-09-07 12:00:00	78	30	4,3
2024-09-07 13:00:00	76	29	5,0
2024-09-07 14:00:00	74	25	5,4
2024-09-07 15:00:00	74	25	5,8
2024-09-07 16:00:00	74	27	5,9
2024-09-07 17:00:00	73	36	6,2
2024-09-07 18:00:00	74	32	5,9
2024-09-07 19:00:00	78	35	4,1
2024-09-07 20:00:00	79	36	4,4
2024-09-07 21:00:00	83	30	3,4
2024-09-07 22:00:00	84	30	3,8
2024-09-07 23:00:00	83	33	4,4

Données de la station permanente sur le terrain de Galaxy

APPENDIX

B

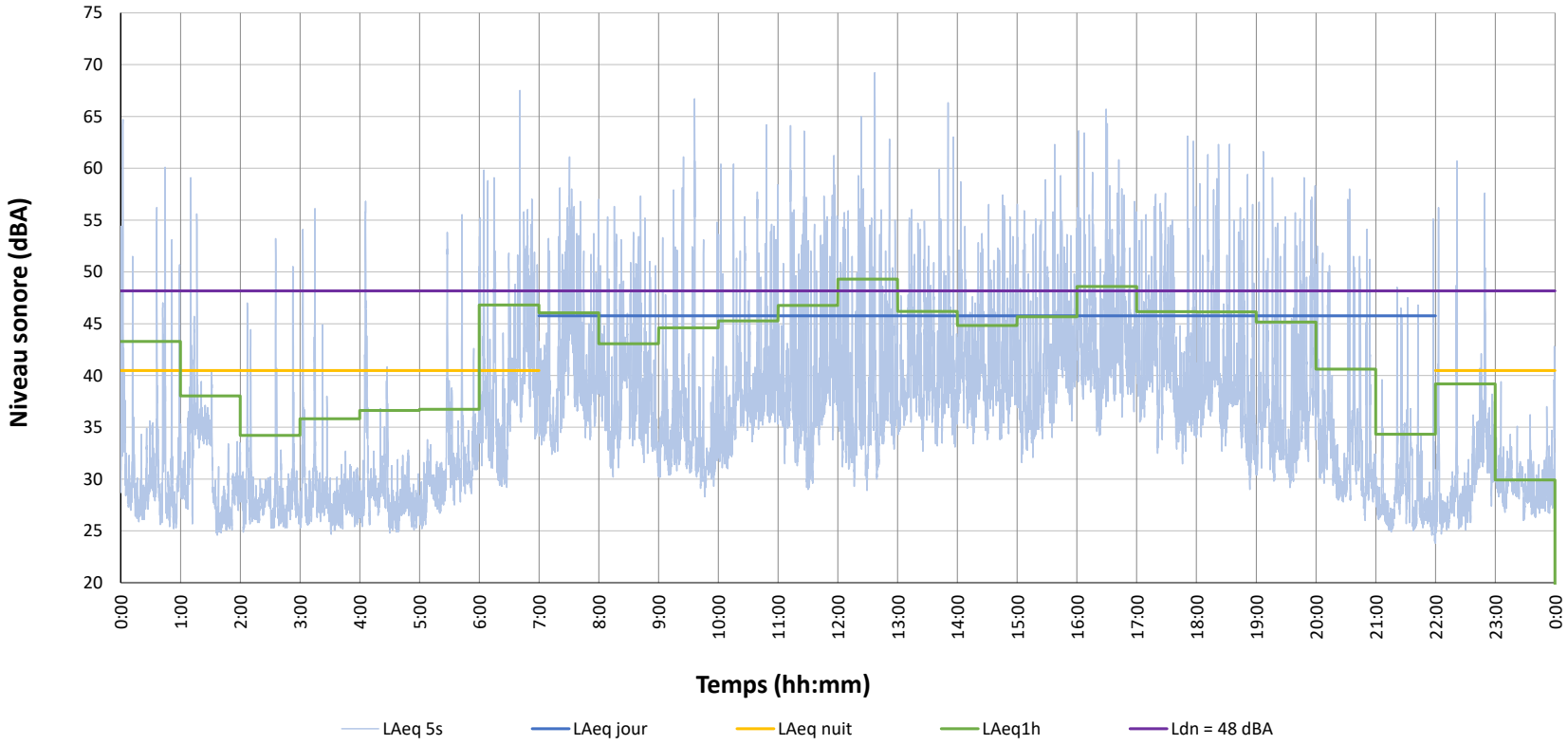
GRAPHICAL REPRESENTATION OF MEASUREMENTS

Numéro de projet: CA0036076.5537

Nom de projet: Galaxy

Client: GALAXY LITHIUM (CANADA) INC.

Mesures sonores au point P1
du samedi 07 septembre 2024 au dimanche 08 septembre 2024



Créé le: 2024-09-27 Par: NP

Révisé le: 2024-10-16 Par: MD

APPENDIX S – ENVIRONMENTAL MONITORING - TRADITIONAL FOOD QUALITY (PLANT COMPONENT) (WSP, 2025)

GALAXY LITHIUM (CANADA) INC.

GALAXY PROJECT

ENVIRONMENTAL MONITORING – TRADITIONAL FOOD QUALITY (PLANT COMPONENT)

JAMES BAY, QUEBEC

MARCH 2025

CONFIDENTIAL

WSP REFERENCE: CA0036076.5537

FINAL REPORT



GALAXY LITHIUM (CANADA) INC.

GALAXY PROJECT

ENVIRONMENTAL MONITORING – TRADITIONAL FOOD QUALITY (PLANT COMPONENT)

JAMES BAY, QUEBEC

FINAL REPORT
CONFIDENTIAL

WSP REFERENCE: CA0036076.5537

MARCH 2025

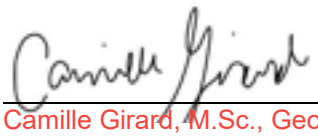
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This document is a translation of the report written in French. In the event of any discrepancy between French and English, the French version will prevail.

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English Translation

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C-2 Raw Concentration Table by Species

D **Full Descriptive Statistics Tables**

E **Statistical COnditions (Shapiro-Wilk, Levene), Statistical(ANOVA, Kruskal-Wallis) and Post-Hoc (Tukey, Dunn) Tests Results Table**

ABBREVIATIONS AND ACRONYMS

PCA	Principal component analysis
IAAC	Impact Assessment Agency of Canada
JBNQA	James Bay and Northern Québec Agreement
CCME	Canadian Council of Ministers of the Environment
ECCC	Environment and Climate Change Canada
GLCI	Galaxy Lithium (Canada) Inc.
CNG	Cree Nation Government
CEAA	Canadian Environmental Assessment Act
EQA	Environment Quality Act
MELCCFP	Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs
Mt	Megatonne
REP	Field duplicate
PSS	Permanent sampling station

Sommaire / Summary

Cette étude a pour but de présenter les résultats de la première année du programme de suivi de la qualité des plantes qui sont utilisées comme nourriture traditionnelle, en comparaison avec l'état de référence réalisé en 2023.

La campagne d'échantillonnage s'est déroulée du 19 au 23 août 2024 couvrant 11 stations de suivi, pour un total de 39 échantillons récoltés. Cette année, quatre espèces de plantes ont été suivies, soit l'épinette noire, le mélèze laricin, le bleuet et le thé du Labrador. La camarine noire n'a pu être récoltée et une faible abondance de bleuet a été observée, dû à une fructification hâtive.

Les analyses ont porté sur 36 paramètres, parmi lesquels 14 ont été détectés à des concentrations au-dessus de la limite de détection, soit l'aluminium, le baryum, le bore, le calcium, le cuivre, le fer, le magnésium, le manganèse, le phosphore total, le potassium, le rubidium, le sodium, le strontium et le zinc.

Les résultats ont révélé que le bleuet présente des concentrations de potassium significativement plus élevées comparativement aux autres espèces. Quant à l'épinette noire, elle affiche des concentrations significativement plus élevées en calcium tandis que le thé du Labrador se distingue par une concentration significativement plus élevée en magnésium. Le mélèze laricin ne présente pas de concentrations de paramètres significativement plus élevées par rapport aux autres espèces de plantes.

Une première analyse par composantes principales (ACP) rassemblant les paramètres analysés dans les quatre plantes a permis d'identifier trois groupes distincts présentant des associations entre une espèce et un regroupement de paramètres. Une seconde ACP, visant à analyser les différences entre les stations échantillonnées, n'a pas révélé de distinction notable entre les sites.

La comparaison interannuelle entre les concentrations des paramètres faisant l'objet du suivi de l'état de référence (2023) et le premier suivi (2024) a mis en évidence, de manière générale, une augmentation des concentrations pour la plupart des paramètres étudiés, bien que certaines baisses aient été enregistrées. En 2024, les concentrations d'étain ont connu une augmentation significative, atteignant des niveaux de 28 à 112 fois plus élevés que l'année précédente, bien que les concentrations de ce paramètre demeurent faibles et près de la limite de détection. Aucun changement significatif entre les concentrations de 2023 et 2024 n'a été détecté pour l'antimoine, le béryllium et le cobalt pour les quatre espèces étudiées. Les hausses ou les baisses statistiques rapportées peuvent être attribuables à plusieurs facteurs, comme la variabilité naturelle des précipitations, des conditions météorologiques ou des dépôts atmosphériques, qui vont influencer la disponibilité et la capacité d'absorption de paramètres par les espèces. Bien que les activités industrielles puissent également contribuer à expliquer certaines hausses, aucune activité d'exploitation industrielle n'a encore eu lieu sur le site du projet. Il n'est donc pas possible de conclure que les hausses observées seraient attribuables aux activités du projet.

Enfin, comme prévu dans le programme de suivi de la nourriture traditionnelle, le prochain suivi aura lieu à l'été 2025.

This study aims to present the results of the first year of the plant quality monitoring program for plants used as traditional food, compared to the reference state established in 2023.

The sampling campaign took place from August 19 to 23, 2024, covering 11 monitoring stations, with a total of 39 samples collected. This year, four plant species were monitored: black spruce, tamarack, blueberry, and Labrador tea. Black crowberry could not be harvested, and a low abundance of blueberries was observed due to early fruiting.

The analyses focused on 36 parameters, among which 14 were detected at concentrations above the detection limit: aluminum, barium, boron, calcium, copper, iron, magnesium, manganese, total phosphorus, potassium, rubidium, sodium, strontium, and zinc.

The results revealed that blueberries have significantly higher potassium concentrations compared to other species. Black spruce showed significantly higher calcium concentrations, while Labrador tea stood out with significantly higher magnesium concentrations. Tamarack did not show significantly higher concentrations of any parameters compared to the other plant species.

A principal component analysis (PCA) of the parameters analyzed in the four plants identified three distinct groups showing associations between a species and a set of parameters. A second PCA, aimed at analyzing differences between the sampled stations, did not reveal any notable distinctions between the sites.

The year-to-year comparison between the concentrations of the parameters monitored in the reference state (2023) and the first monitoring (2024) generally showed an increase in concentrations for most of the studied parameters, although some decreases were recorded. In 2024, tin concentrations saw a significant increase, reaching levels 28 to 112 times higher than the previous year, although the concentrations of this parameter remain low and close to the detection limit. No significant changes between the 2023 and 2024 concentrations were detected for antimony, beryllium, and cobalt for the four studied species. The reported statistical increases or decreases can be attributed to several factors, such as the natural variability of precipitation, weather conditions, or atmospheric deposits, which will influence the availability and absorption capacity of parameters by species. Although industrial activities may also help explain some increases, no industrial exploitation activities have yet taken place on the project site. Therefore, it is not possible to conclude that the observed increases are attributable to the project's activities.

Finally, as planned in the traditional food monitoring program, the next monitoring will take place in the summer of 2025.

1 Introduction

1.1 Background Information

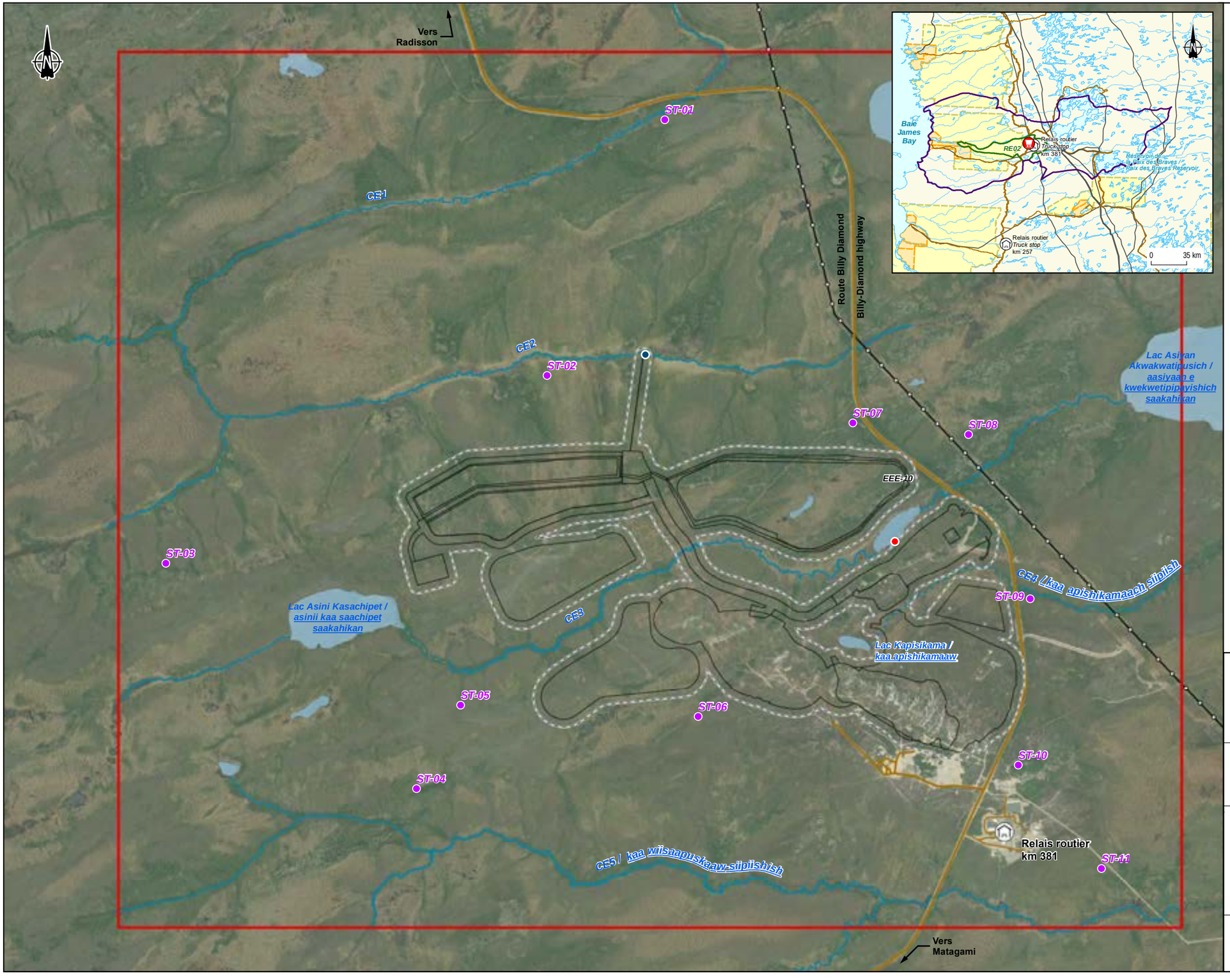
In March 2024, Galaxy Lithium (Canada) Inc. (GLCI) began carrying out site preparation and pre-construction work for its Galaxy project, which is located in the Nord-du-Québec administrative region, roughly 10 km south of the Eastman River and 100 km east of James Bay, at the same latitude as the Cree Nation of Eastmain. The site is located on Category III lands as defined under the James Bay and Northern Québec Agreement (JBNQA). Accessible via the Billy-Diamond Highway, near the truck stop at Kilometre 381.

As part of the provincial and federal review and impact assessment process, GLCI must comply with the Decision Statement issued by the Minister of Environment under the Canadian Environmental Assessment Act (CEAA, 2012) on January 13, 2023, and amended on July 26, 2024. The Decision Statement sets out several conditions. GLCI is also required to comply with the Certificate of Authorization issued by the *Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs* on December 27, 2023. GLCI has therefore committed to implementing environmental and social monitoring programs as part of the Galaxy project.

This report describes efforts to monitor contaminants of potential concern in plants likely to be consumed by the Cree population as traditional foods, in accordance with the environmental and social monitoring program (Arcadium Lithium, 2024).

1.2 Location of Monitoring Area

The monitoring area is located within the project's area of influence. Sampling stations have been set up all around the project site. Map 1 shows the location of permanent sampling stations (PSS). Appendix A contains a sampling station photographic report.



Composante de suivi / *Follow-up component*

- Stations permanentes d'échantillonnage des espèces végétales / *Permanent plant species sampling plots*

Composante du projet / *Project component*

- Infrastructures minières / *Mining infrastructure*
- Empreinte de la mine (zone tampon de 50 mètres) / *Mine footprint (buffer 50 meters)*
- Effluent minier / *Mining effluent*
- Effluent sanitaire / *Sanitary effluent*

Hydrographie / *Hydrography*

- CE3 — Numéro de cours d'eau / *Stream number*
- Cours d'eau permanent / *Permanent stream*
- Cours d'eau à écoulement diffus ou intermittent / *Intermittent or diffused flow stream*

Infrastructures / *Infrastructure*

- Route principale / *Main road*
- Route d'accès / *Access road*
- Ligne de transport d'énergie / *Transmission line*
- Relais routier / *Truck stop*
- Site de projet Galaxy / *Galaxy project site*

Limites / *Limits*

- Zone d'étude locale / *Local study area*
- Communauté d'Eastmain / *Eastmain community*
- Terrain de trappage (RE02) / *Trapping area (RE02)*
- Terres de catégorie I / *Category I land*
- Terres de catégorie II / *Category II land*

arcadium lithium | Galaxy

Projet Galaxy / Galaxy project
Suivis environnementaux en phase de construction – Nourriture traditionelle – Plante / Environmental monitoring during the construction phase – Traditonnal food – Plant

Carte / *Map* 1
Stations permanentes d'échantillonnage des plantes / *Permanent plant sampling stations*

Sources :
World Imagery, ESRI, 06-07-2023
Inventaire / Inventory : WSP, 2024
Données du projet / Project data : Galaxy, dec.2023

0 240 480 m
UTM, 18, NAD83

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CA0036076_5537_suC1_veg_station_wsp_local_250106.mxd

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2 Methodology

2.1 Field Campaign Overview

Raphaël Bouchard (Forestry Technician) and Siska Shooner (B.Sc., Biologist) carried out field work between August 19 and 23, 2024. This was during the blueberry and black crowberry fruiting period.

Field work consisted of collecting biological tissue samples at 11 stations located within the project's area of influence, near planned project infrastructure (Map 1).

At each station, samples were collected from five plant species identified as a potential food source for James Bay Cree communities (Table 1). Table 2 provides a list of analyzed parameters.

Table 1 Plants sampled and type of biological tissue collected

Species	Tissue	Quantity[1]
Black spruce (*Picea mariana*)	Needle	± 20 g (wet weight)
Tamarack (*Larix laricina*)	Inner bark	
Blueberry (*Vaccinium sp.*)	Fruit	
Labrador tea (*Rhododendron groenlandicum*)	Leaf	
Black crowberry (*Empetrum nigrum*)	Fruit	

Note: [1] The monitoring program should be updated based on the laboratory's recommendations. The quantity for each sample should be increased to 30 g to ensure sufficient material for analysis.

Table 2 List of analyzed parameters[1]

Aluminum (Al)	**Chromium (Cr)**	**Nickel (Ni)**	Thorium (Th)
Antimony (Sb)	**Cobalt (Co)**	Total phosphorus	**Titanium (Ti)**
Silver (Ag)	**Copper (Cu)**	**Lead (Pb)**	Tungsten (W)
Arsenic (As)	**Tin (Sn)**	Potassium (K)	**Uranium (U)**
Barium (Ba)	**Iron (Fe)**	Rubidium (Rb)	**Vanadium (V)**
Beryllium (Be)	**Lithium (Li)**	**Selenium (Se)**	**Zinc (Zn)**
Bismuth (Bi)	Magnesium (Mg)	Sodium (Na)	Zirconium (Zr)
Boron (B)	**Manganese (Mn)**	**Strontium (Sr)**	
Cadmium (Cd)	**Mercury (Hg)**	Tellurium (Te)	
Calcium (Ca)	**Molybdenum (Mo)**	Thallium (Tl)	

Note: [1] Although all parameters analyzed by the laboratory are listed in the report, not all are required under the monitoring program. Parameters covered by the monitoring program are shown in **bold**.

2.2 Sampling Protocol

The sampling protocol set out in the monitoring program (Arcadium Lithium, 2024) was followed to minimize the risk of environmental contamination of collected samples. The protocol also includes safety measures for handling nitric acid (10%) to prevent accidents and to limit discharge to the environment.

Once collected, the samples were placed in an airtight bag without being washed.

To ensure sample integrity, they were frozen at -20 °C within 24 hours of collection. Prior to freezing, tissue samples were kept at about 4 °C in a cooler. Samples were kept frozen until they were sent to the laboratory. The cold chain was maintained throughout the field campaign and transportation.

2.2.1 QA/QC

To monitor the quality and reliability of the sampling procedure, four field duplicates (REP) were collected in the field at the stations indicated in Table 3. Four duplicates (DUP, DUP2) were subsequently added by the laboratory.

Table 3 provides the location of each station, along with the samples collected and their identifiers.

Table 3 List of samples collected by station

Station	Coordinates	Species sampled	Sample identifier
ST-01	52°16’5.82”N, 77°5’35.05”W	Black spruce	2024-ST01-EPN-Aiguilles
		Black spruce (DUP)	2024-ST01-EPN-Aiguilles:DUP
		Black spruce (DUP2)	2024-ST01-EPN-Aiguilles:DUP2
		Tamarack	2024-ST01-MEL-Écorce
		Blueberry	2024-ST01-Bleuets-Fruits
		Blueberry (DUP)	2024-ST01-Bleuets-Fruits:DUP
		Blueberry (DUP2)	2024-ST01-Bleuets-Fruits:DUP2
		Labrador tea	2024-ST01-TLB-Feuilles
		* *No black crowberry fruit*	-
ST-02	52°15’20.79”N, 77°6’11.44”W	Black spruce	2024-ST02-EPN-Aiguilles
		Tamarack	2024-ST02-MEL-Écorce
		Blueberry	2024-ST02-Bleuets-Fruits [1]
		Labrador tea	2024-ST02-TLB-Feuilles
		* *No black crowberry fruit*	-

Table 3 List of samples collected by station (continued)

Station	Coordinates	Species sampled	Sample identifier
ST-03	52°14’39.67”N, 77°8’27.39”W	Black spruce	2024-ST03-EPN-Aiguilles
		Tamarack	2024-ST03-MEL-Écorce
		Tamarack (REP)	REP-2024-ST03-MEL-Écorce
		* *No blueberry fruit*	-
		Labrador tea	2024-ST03-TLB-Feuilles
		* *No black crowberry fruit*	-
ST-04	52°13’41.70”N, 77°6’53.93”W	Black spruce	2024-ST04-EPN-Aiguilles
		Tamarack	2024-ST04-MEL-Écorce
		Blueberry	2024-ST04-Bleuets-Fruits
		Labrador tea	2024-ST04-TLB-Feuilles
		* *No black crowberry fruit*	-
ST-05	52°14’5.42”N, 77°6’37.27”W	Black spruce	2024-ST05-EPN-Aiguilles
		Black spruce (REP)	REP-2024-ST05-EPN-Aiguilles
		Tamarack	2024-ST05-MEL-Écorce
		* *No blueberry fruit*	-
		Labrador tea	2024-ST05-TLB-Feuilles
		* *No black crowberry fruit*	-
ST-06	52°13’52.80”N, 77°5’26.87”W	Black spruce	2024-ST06-EPN-Aiguilles
		Tamarack	2024-ST06-MEL-Écorce
		* *No blueberry fruit*	-
		Labrador tea	2024-ST06-TLB-Feuilles
		* *No black crowberry fruit*	-
ST-07	52°15’6.60”N, 77°4’29.08”W	Black spruce	2024-ST07-EPN-Aiguilles
		Tamarack	2024-ST07-MEL-Écorce
		* *No blueberry fruit*	-
		Labrador tea	2024-ST07-TLB-Feuilles
		Labrador tea (REP)	REP-2024-ST07-TLB-Feuilles
		* *No black crowberry fruit*	-

Table 3 List of samples collected by station (continued)

Station	Coordinates	Species sampled	Sample identifier
ST-08	52°15’9.05”N, 77°3’0.64”W	Black spruce	2024-ST08-EPN-Aiguilles
		Tamarack	2024-ST08-MEL-Écorce
		* *No blueberry fruit*	-
		Labrador tea	2024-ST08-TLB-Feuilles
		* *No black crowberry fruit*	-
ST-09	52°14’23.31”N, 77°3’34.13”W	Black spruce	2024-ST09-EPN-Aiguilles
		Tamarack	2024-ST09-MEL-Écorce
		* *No blueberry fruit*	-
		Labrador tea	2024-ST09-TLB-Feuilles
		Labrador tea (REP)	REP-2024-ST09-TLB-Feuilles
		* *No black crowberry fruit*	-
ST-10	52°13’58.13”N, 77°3’36.88”W	Black spruce	2024-ST10-EPN-Aiguilles
		Tamarack	2024-ST10-MEL-Écorce
		* *No blueberry fruit*	-
		* *No Labrador tea fruit*	-
		* *No black crowberry fruit*	-
ST-11	52°13’37.50”N, 77°3’3.89”W	Black spruce	2024-ST11-EPN-Aiguilles
		Tamarack	2024-ST11-MEL-Écorce
		* *No blueberry fruit*	-
		Labrador tea	2024-ST11-TLB-Feuilles
		* *No black crowberry fruit*	-

Note: [1] Once dried, sample 2024-ST02-Bleuets-Fruits was below the minimum weight required by the laboratory for analysis. Analysis was performed, but the minimum detectable limits roughly doubled.

2.3 Statistical Processing

Statistical processing and analysis were performed using RStudio software version 4.3.2.

2.3.1 Descriptive Statistics

For each plant species, descriptive statistics (minimum, maximum, mean, and standard deviation) were calculated for parameter concentrations. The results were visualized with graphs produced using the "ggplot2" data visualization package.

2.3.2 Principal Component Analysis (PCA)

Two rounds of PCA were performed to examine the concentration distributions of analyzed parameters. The first round looked at the concentration distributions of analyzed parameters by species of interest, whereas the second sought to identify any differences between sampling stations.

PCA was performed using the "rda" function in version 2.6-8 of the "vegan" package (Oksanen *et al*., 2024).

2.3.3 Variance Analysis

Results for parameter concentrations in plant samples are expressed in terms of mean concentration (mg/kg). Before selecting a test (ANOVA, $ANOVA_{log}$, or Kruskal-Wallis), the normality of distributions was checked by the Shapiro-Wilk test and the homogeneity of variances was checked by Levene's test using the corresponding features in R software version 4.3.2. As required, a logarithmic transformation ($_{log}$) was applied to the variable values, to comply with ANOVA application conditions. If the ANOVA application conditions could not be met, the nonparametric Kruskal-Wallis test was used ($\alpha = 0.05$). This validation process made it possible to select best statistical test for each variable (parameter): ANOVA, ANOVA with logarithmic transformation ($ANOVA_{log}$), or Kruskal-Wallis test.

Based on the selected statistical test, post hoc tests were carried out to identify differences between groups: either Tukey's test ($\alpha = 0.05$), following an ANOVA or $ANOVA_{log}$ test, or Dunn's test ($\alpha = 0.05$), following a Kruskal-Wallis test. Dunn's test was performed using the "dunntest" function in version 1.3.6 of the "dunn.test" package (Dinno, 2024). In the graphs showing significant similarities and differences between the mean values for each group, statistically significant results ($p < 0.05$) are identified by letters.

3 Results and Discussion

3.1 Species Characterization and Availability

Laboratory analysis were performed by Bureau Veritas. The certificates of analysis included in Appendix B show the raw data for 2024. The tissue concentrations measured in the analyzed plant species are presented by sampling station in Appendix C-1 and by species in Appendix C-2.

Across the 11 stations, a total of 39 samples of black spruce, tamarack, blueberry, and Labrador tea were collected (including field duplicates). Four laboratory duplicates were added at the time of analysis, meaning a total of 43 samples were analyzed (Table 4).

Black spruce and tamarack samples were collected for analysis at all 11 stations. As for Labrador tea, none was found at station ST-10. Fruiting blueberries were only found at stations ST-01, ST-02, and ST-04. Although blueberry plants were found at other stations, no fruits were available. Black crowberry plants were found at some stations, but no fruit was available for sampling. As a result, no black crowberry sample could be collected. One possible explanation is that berry season started earlier in 2024 than in 2023. Land users typically collect plants and berries in August and September.

Table 4 Sample distribution by station in 2024

Station	Blueberry	Tamarack	Black spruce	Labrador tea	Black crowberry	Field duplicates	Laboratory duplicates	Total (n)
ST-01	1	1	1	1	0	0	4	**8**
ST-02	1	1	1	1	0	0	0	**4**
ST-03	0	1	1	1	0	1	0	**4**
ST-04	1	1	1	1	0	0	0	**4**
ST-05	0	1	1	1	0	1	0	**4**
ST-06	0	1	1	1	0	0	0	**3**
ST-07	0	1	1	1	0	1	0	**4**
ST-08	0	1	1	1	0	0	0	**3**
ST-09	0	1	1	1	0	1	0	**4**
ST-10	0	1	1	0	0	0	0	**2**
ST-11	0	1	1	1	0	0	0	**3**
Total	**3**	**11**	**11**	**10**	**0**	**4**	**4**	**43**

3.2 Comparison of Concentrations Measured in Plants Under Study

Of the 36 analyzed parameters, 14 had concentrations greater than 1 mg/kg or above the minimum detectable limit (Table 5): aluminum, barium, boron, calcium, copper, iron, magnesium, manganese, total phosphorus, potassium, rubidium, sodium, strontium, and zinc. Other parameters had concentrations below 1 mg/kg or below the minimum detectable limit. Full descriptive statistics (minimum, maximum, mean, standard deviation) are presented in Appendix D.

Table 5 Mean concentrations by species for all parameters analyzed in 2024

Species	Black spruce	Tamarack	Blueberry	Labrador tea	Minimum detectable limit (mg/kg)
Parameter[1]	Mean concentration (mg/kg)				
Aluminum (Al)	36.64	130.42	7.92	44	0.4
Antimony (Sb)*	0.02	0.02	0.02	0.02	0.04
Silver (Ag)*	0.07	0.01	0.003	0.003	0.001
Arsenic (As)*	0.01	0.01	0.01	0.03	0.005
Barium (Ba)	134.5	104.25	7.76	57.67	0.006
Beryllium (Be)*	0.002	0.002	0.002	0.002	0.003
Bismuth (Bi)*	0.001	0.001	0.001	0.001	0.002
Boron (B)	15.92	12.54	7.06	17	0.07
Cadmium (Cd)*	0.04	0.11	0.003	0.001	0.001
Calcium (Ca)	11885.71	5058.33	1192	4975	3
Chromium (Cr)*	0.03	0.06	0.11	0.13	0.05
Cobalt (Co)*	0.24	0.28	0.01	0.05	0.002
Copper (Cu)	1.3	2	5.66	3.03	0.05
Tin (Sn)	1.16	1.12	0.9	1.12	0.74
Iron (Fe)	16.16	19.48	17.8	65.25	1
Lithium (Li)*	0.01	0.02	0.01	0.06	0.02
Magnesium (Mg)	705	744.17	672	1019.17	1
Manganese (Mn)	1240.71	1493.33	459.4	812.5	0.03
Mercury (Hg)*	0.01	0.01	0.002	0.01	0.0003
Molybdenum (Mo)*	0.005	0.01	0.11	0.05	0.003
Nickel (Ni)*	0.65	1.9	0.39	0.61	0.01
Total phosphorus	612.86	850	922	1118.33	5
Lead (Pb)	0.09	0.03	0.05	0.03	0.007
Potassium (K)	2657.14	3933.33	10040	4508.33	3
Rubidium (Rb)	5.64	8.43	32	13.39	0.005
Selenium (Se)*	0.005	0.13	0.01	0.02	0.009
Sodium (Na)	13.71	10.66	47.02	13.9	3.7
Strontium (Sr)	56.29	62.5	1.95	11.91	0.005

Species	Black spruce	Tamarack	Blueberry	Labrador tea	Minimum detectable limit (mg/kg)
Parameter[1]	**Mean concentration (mg/kg)**				
Tellurium (Te)*	0.005	0.01	0.01	0.01	0.012
Thallium (Tl)*	0.03	0.01	0.001	0.002	0.002
Thorium (Th)*	0.002	0.002	0.003	0.01	0.004
Titanium (Ti)*	0.51	0.58	0.63	2.45	0.05
Tungsten (W)*	0.003	0.003	0.01	0.01	0.005
Uranium (U)*	0.001	0.001	0.001	0.003	0.001
Vanadium (V)*	0.01	0.01	0.01	0.11	0.009
Zinc (Zn)	129.64	57.75	6.66	14.58	0.3

Notes: [1] Parameters covered by the monitoring program are shown in **bold**.

* Parameter with concentration values below the minimum detectable limit or generally low concentration values.

Analysis of the concentrations measured in the various samples made it possible to identify specific trends for each plant species. Mean concentrations of the 14 parameters with concentrations above the minimum detectable limit were compared by species, using the most appropriate statistical test (ANOVA, ANOVA with log10 transformation, or Kruskal-Wallis). Appendix E contains a detailed table of statistical condition test results. This type of analysis is used to determine whether the differences observed between species are statistically significant (p-value ≤ 0.05). The nonparametric Kruskal-Wallis test was used to analyze mean concentrations of most parameters: barium, boron, calcium, copper, iron, magnesium, manganese, sodium, total phosphorus, and zinc. For the other parameters (aluminum, potassium, rubidium, and strontium), ANOVA with logarithmic transformation ($ANOVA_{log}$) was used.

Figure 1 shows the different trends by plant species. All statistical tests revealed significant differences in mean concentrations of analyzed parameters across the plant species under study, with the exception of sodium, whose mean concentrations did not vary significantly (Figure 1).

Compared to the other species, blueberries were found to have significantly lower aluminum (7.92 mg/kg; $p = 0.0025$) and strontium (1.95 mg/kg; $p = 1.3\ e^{-13}$) concentrations, and significantly higher potassium concentrations (10,040.0 mg/kg; $p = 3.3\ e^{-16}$).

Black spruce was found to have significantly higher calcium concentrations (11,885.7 mg/kg; $p = 0.0000009$) and the lowest rubidium concentrations (5.64 mg/kg; $p = 0.00000038$) of any species.

Compared to the other plant species, no significantly higher or lower concentrations of any parameter were found in tamarack.

Finally, Labrador tea was found to have significantly higher magnesium concentrations (1,019.17 mg/kg; $p = 0.0012$) than the other species.

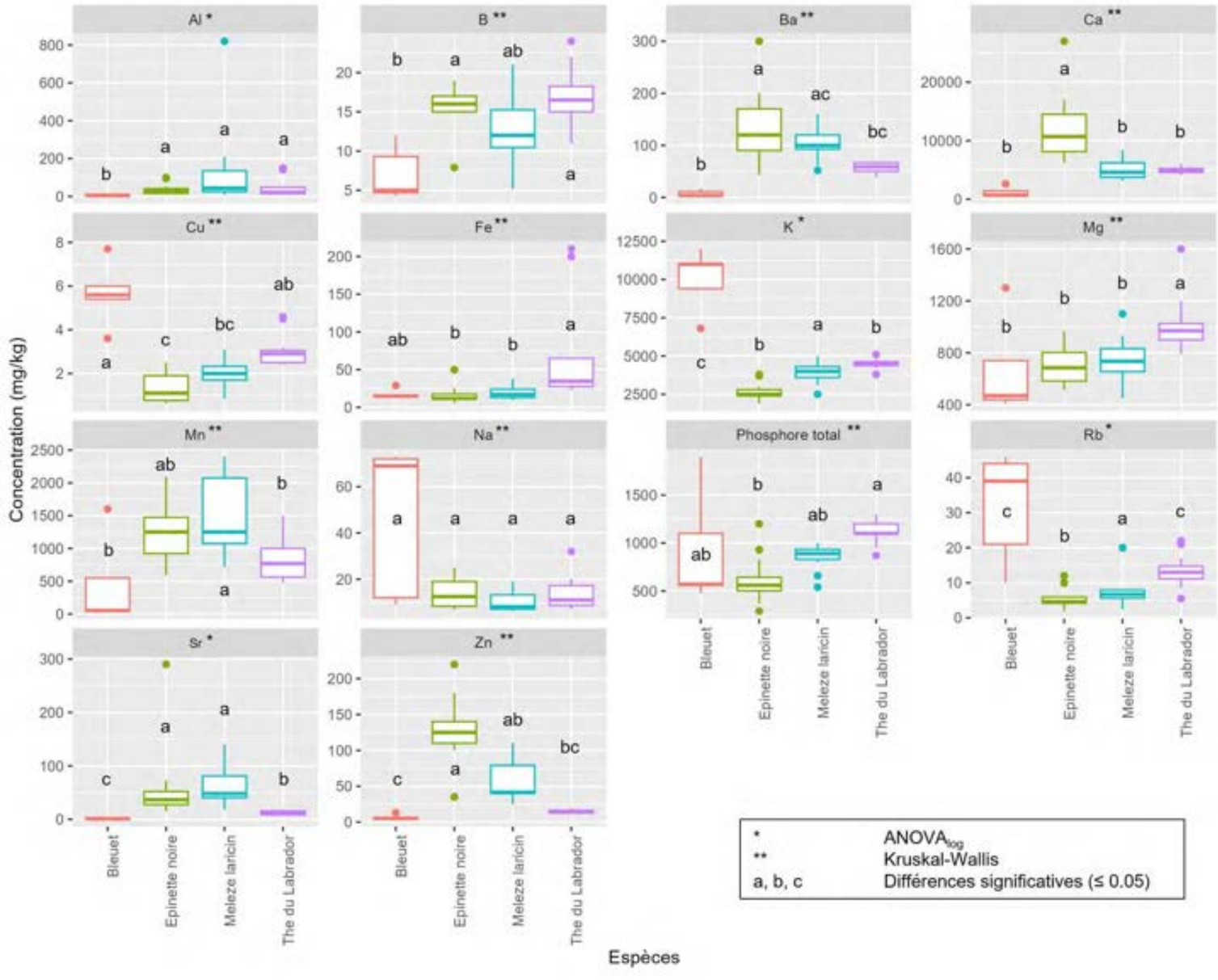


Figure 1 Comparison of mean concentrations of analyzed parameters in four plants (black spruce, blueberry, tamarack, and Labrador tea) in 2024[1]

[1] Letters indicate significant differences. Results for plants with the same letters were not significantly different.

3.3 Interspecies and Spatial Sample Variability

PCA was performed to better understand the relationship between concentrations of analyzed parameters and the various species under study. PCA results explained 53.3% of total variability, with the first principal component accounting for 36.8% and the second accounting for 16.5% (Figure 2). The results also identified three distinct groups:

1. A first group, consisting of Labrador tea samples with higher levels of iron, total phosphorus, and magnesium.
2. A second group, consisting of tamarack samples with higher levels of aluminum, boron, and manganese.
3. A third group, consisting of black spruce samples with higher levels of manganese, barium, calcium, strontium, and zinc.

Due to the small number of blueberry samples (n=3), no conclusions could be drawn for this species.

A second round of PCA was performed by station to compare parameter concentrations in the sampled plants and check for spatial trends (Figure 3). No clear patterns were observed, meaning that no spatial differences could be identified for this monitoring year.

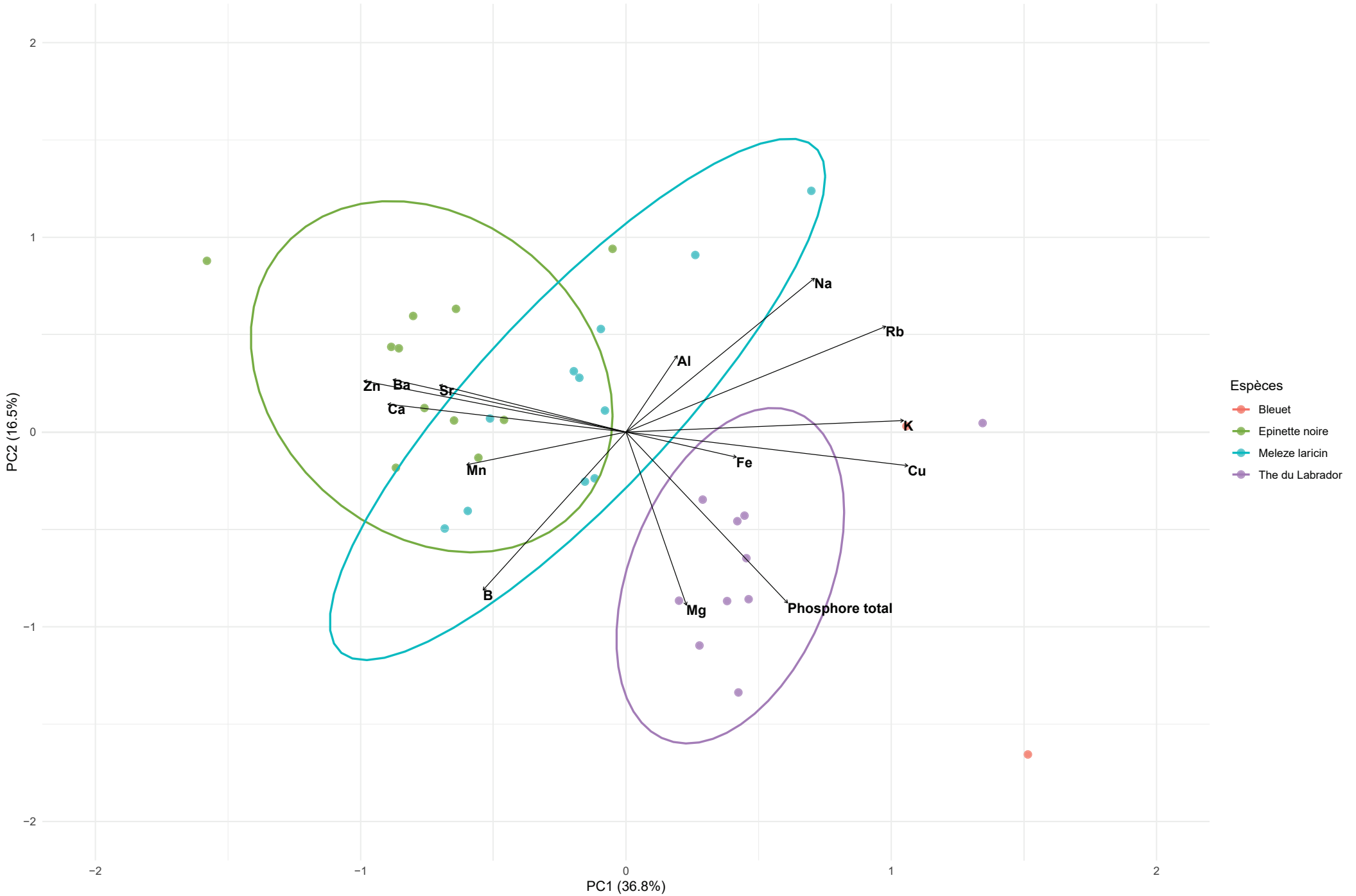


Figure 2 **Principal component analysis of concentrations of 14 parameters detected in traditional plant samples in 2024**

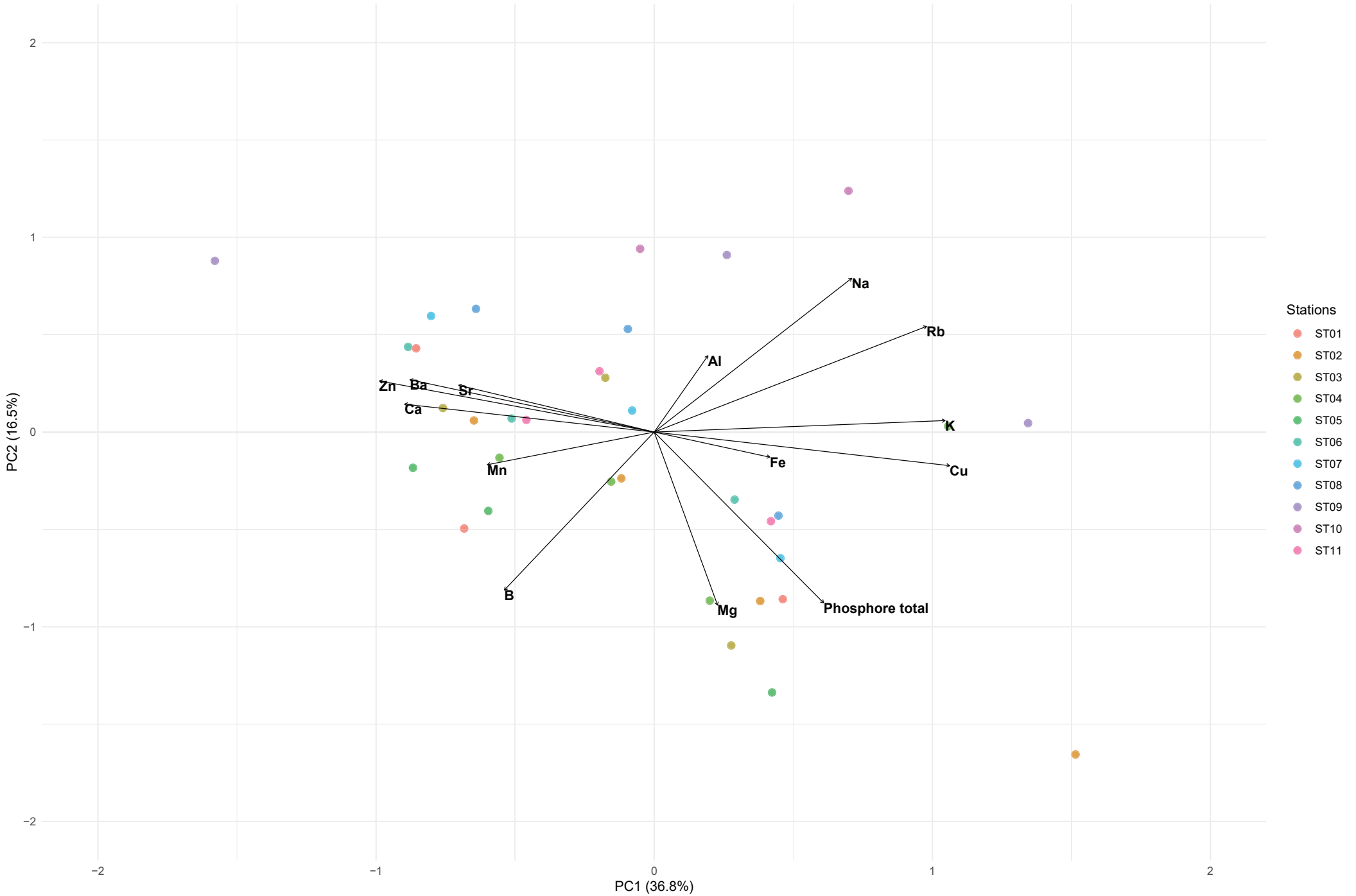


Figure 3 **Principal component analysis of concentrations of 14 parameters detected in traditional plant samples in 2024**

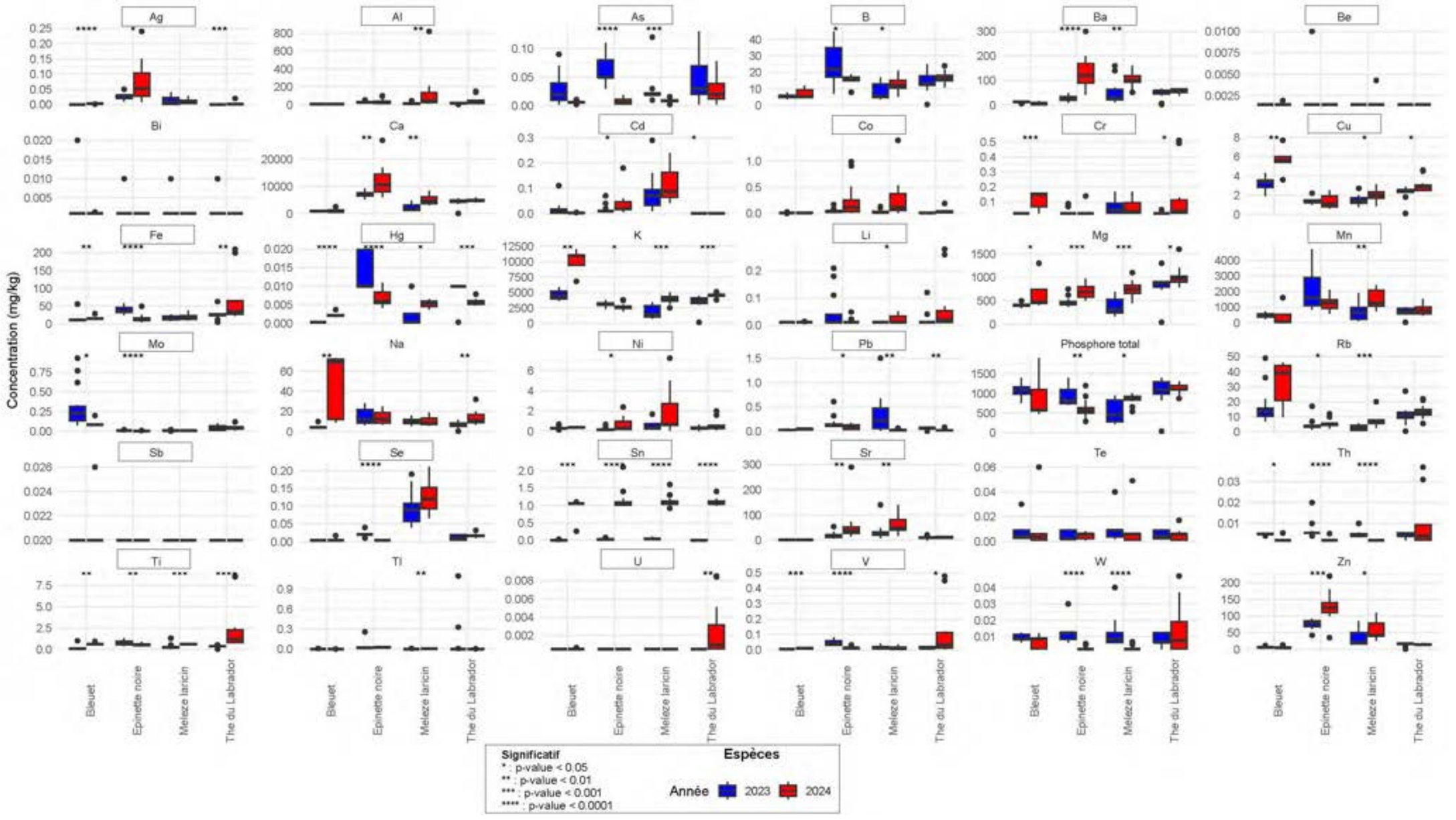
3.4 Year-to-Year Comparison of Parameter Concentrations in Plants for 2023 and 2024

Concentrations of analyzed parameters in plants of interest measured in 2024 were compared to 2023, which is considered the reference state (WSP, 2024). Because no black crowberry sample was analyzed in 2024, the corresponding data from 2023 was not included in the comparison. Likewise, since only some of the species and stations from the 2018 survey matched those from 2023 and 2024, pre-2023 data (WSP, 2018) was not used for comparison.

A nonparametric Kruskal-Wallis test was applied to identify any significant differences in mean concentrations between reference state (2023) and monitoring results (2024).

This comparative analysis showed several significant trends between 2023 and 2024, with results varying by species and parameter analyzed. Figure 4 shows the results for all parameters under study. However, only those parameters covered by the monitoring program are discussed below. Tables 6 to 9 shows mean concentrations for 2023 and 2024, minimum detectable limits, and significant differences between the concentrations as well as the ratio (increases are indicated by a plus sign + and decreases are indicated by a minus sign -). These tables also list ratios indicating an increase or a decrease in the mean concentration.

In blueberry samples, a significant increase in concentrations of the following eight parameters was observed: silver, chromium, copper, tin, iron, mercury, titanium, and vanadium (Table 6). For this species, tin was the parameter with the largest increase in mean concentration with a ratio of 90.2. Mean tin concentrations in blueberry samples increased from 0.01 mg/kg in 2023 to 0.9 mg/kg in 2024. However, only three blueberry samples were collected in 2024, and the mean concentration was close to three different minimum detectable limits reported for this parameter. There was also a marked increase in mean concentrations of mercury (8 times higher) and titanium (6.3 times higher) in 2024. Nevertheless, reported concentrations remain very low. Mean concentrations of various other parameters increased by ratios of between 1.2 and 3.8. Finally, a significant decrease in molybdenum concentrations was noted in 2024 (ratio of 0.4).



Note: [1] Parameters in boxes correspond to those covered by the monitoring program.

Figure 4 Comparison of concentration distributions of 36 parameters between reference state values (2023) and first-year monitoring results (2024) [1]

Table 6 Comparison of average concentrations of parameters measured in blueberry samples analyzed between reference state (2023) and 2024 monitoring results

Mean concentration (mg/kg)						
Species	**Blueberry**				**Significant difference (y/n)**	**Ratio[1]**
Parameter / Year	**2023**	**MDL (2023)**	**2024**	**MDL (2024)[a]**		
Aluminum (Al)	7	0.4	7.92	0.4	N	N/A
Antimony (Sb)*	0.02	0.04	0.021	0.04	N	N/A
Silver (Ag)	0.001	0.001	0.003	0.001	Y	3 (+)
Arsenic (As)*	0.03	0.005	0.006	0.005	N	N/A
Barium (Ba)	12	0.006	7.76	0.006	N	N/A
Beryllium (Be)*	0.002	0.003	0.002	0.003	N	N/A
Boron (B)	5	0.07	7.06	0.07	N	N/A
Cadmium (Cd)	0.02	0.001	0.003	0.001	N	N/A
Chromium (Cr)*	0.03	0.05	0.113	0.05	Y	3.8 (+)
Cobalt (Co)	0.01	0.002	0.011	0.002	N	N/A
Copper (Cu)	3	0.05	5.66	0.05	Y	1.9 (+)
Tin (Sn)*	0.01	0.01	0.9	2.1; 0.013; 0.74[b]	Y	90.2 (+)
Iron (Fe)	15	1; 25[c]	17.8	1	Y	1.2 (+)
Lithium (Li)*	0.01	0.02	0.011	0.02	N	N/A
Manganese (Mn)	469	10	459	0.03	N	N/A
Mercury (Hg)	0.0003	0.00038; 0.00062[d]	0.002	0.0003	Y	8 (+)
Molybdenum (Mo)	0.3	0.003	0.107	0.003	Y	0.4 (-)
Nickel (Ni)	0.4	0.01	0.39	0.01	N	N/A
Lead (Pb)	0.03	0.007	0.047	0.007	N	N/A
Selenium (Se)*	0.005	0.009	0.007	0.009	N	N/A
Strontium (Sr)	2	0.005	1.952	0.005	N	N/A
Titanium (Ti)	0.1	0.05	0.63	0.05	Y	6.3 (+)
Uranium (U)*	0.001	0.001	0.001	0.001	N	N/A
Vanadium (V)*	0.005	0.009	0.01	0.009	Y	2 (+)

Notes: * One or more samples showed concentrations below the minimum detectable limit. In these cases, a concentration equal to half the minimum detectable limit was assigned.

[1] The ratios were calculated by dividing the 2024 value by the 2023 value. Increases are indicated by a plus sign (+) and decreases are indicated by a minus sign (-).

[a] The minimum detectable limit for sample 2024-ST02-Bleuets-Fruits was increased and differs slightly from what is shown in the table.

[b] The minimum detectable limit for blueberry samples was variable.
For sample 2024-ST01-Bleuets-Fruits and laboratory duplicates: 2.1 mg/kg.
For sample 2024-ST02-Bleuets-Fruits: 0.013 mg/kg.
For sample 2024-ST04-Bleuets-Fruits: 0.74 mg/kg.

In tamarack samples, a significant increase in concentrations of the following ten parameters was observed: aluminum, arsenic, barium, boron, copper, tin, lithium, manganese, mercury, lead, strontium, and titanium (Table 7). For this species, tin was the parameter with the largest increase in mean concentration with a ratio of 28. Mean tin concentrations in tamarack samples increased from 0.04 mg/kg in 2023 to 1.12 mg/kg in 2024. There was also a marked increase in mean concentrations of aluminum, which increased from 15 mg/kg in 2023 to 130.4 mg/kg in 2024 (ratio of 8.7). Various other parameters increased by ratios of between 1.6 and 2. Finally, a significant decrease in concentrations of arsenic (ratio of 0.3) and lead (ratio of 0.07) was noted in 2024.

Table 7 Comparison of average concentrations of parameters measured in tamarack analyzed between reference state values (2023) and 2024 monitoring results

Mean concentration (mg/kg)						
Species	**Tamarack**				**Significant difference (y/n)**	**Ratio**
Parameter / Year	**2023**	**MDL (2023)**	**2024**	**MDL (2024)**		
Aluminum (Al)	15	0.4	130.42	0.4	Y	8.7 (+)
Antimony (Sb)*	0.02	0.04	0.02	0.04	N	N/A
Silver (Ag)	0.01	0.001	0.01	0.001	N	N/A
Arsenic (As)*	0.03	0.005	0.01	0.005	Y	0.3 (-)
Barium (Ba)	53	0.006; 5; 50[a]	104.25	0.006	Y	2 (+)
Beryllium (Be)*	0.002	0.003	0.002	0.003	N	N/A
Boron (B)	8	0.07; 5[a]	12.54	0.07	Y	1.6 (+)
Cadmium (Cd)	0.10	0.001	0.11	0.001	N	N/A
Chromium (Cr)*	0.10	0.05	0.06	0.05	N	N/A
Cobalt (Co)	0.04	0.002	0.28	0.002	N	N/A
Copper (Cu)	1	0.05	2	0.05	Y	2 (+)
Tin (Sn)*	0.04	0.01	1.12	0.74; 1.1; 2.1[a]	Y	28 (+)
Iron (Fe)	17	1; 25[a]	19.48	1	N	N/A
Lithium (Li)*	0.01	0.02	0.02	0.02	Y	2 (+)
Manganese (Mn)	738	1; 10[b]	1493.3	0.03	Y	2 (+)
Mercury (Hg)	0.003	0.00038; 0.0003; 0.00062[a]	0.01	0.0003	Y	1.8 (+)
Molybdenum (Mo)*	0.01	0.003	0.01	0.003	N	N/A
Nickel (Ni)	1	0.01	1.9	0.01	N	N/A
Lead (Pb)*	0.4	0.007	0.03	0.007	Y	0.07 (-)
Selenium (Se)	0	0.009	0.13	0.009	N	N/A
Strontium (Sr)	34	0.005	62.5	0.005	Y	1.8 (+)

Mean concentration (mg/kg)						
Species	Tamarack				Significant difference (y/n)	Ratio
Parameter / Year	2023	MDL (2023)	2024	MDL (2024)		
Titanium (Ti)	0.3	0.05	0.58	0.05	Y	1.9 (+)
Uranium (U)*	0.001	0.001	0.001	0.001	N	N/A
Vanadium (V)*	0.01	0.009	0.01	0.009	N	N/A

Notes: * One or more samples showed concentrations below the minimum detectable limit. In these cases, a concentration equal to half the minimum detectable limit was assigned.
[a] The MDL was variable for this parameter.
[b] Sample 2023-ST09-LARIX LARICINA-ÉCORCE INTERNE had an MDL of 1 mg/kg.

In black spruce samples, a significant increase in concentrations of the following seven parameters was observed: silver, barium, cadmium, tin, nickel, strontium, and vanadium (Table 8). For this species, tin was the parameter with the largest increase in mean concentration with a ratio of 58. Mean tin concentrations in black spruce samples increased from 0.02 mg/kg in 2023 to 1.16 mg/kg in 2024. However, it is important to note that the mean concentration reported in 2024 was close to the minimum detectable limit for this parameter. Various other parameters increased by ratios of between 0.2 and 4.8. Finally, a significant decrease in concentrations of arsenic, boron, iron, mercury, molybdenum, lead, selenium, and titanium was noted (ratios varied between 0.1 and 0.6).

Table 8 Comparison of average concentrations of parameters measured in black spruce samples analyzed between reference state (2023) and 2024 monitoring results

Mean concentration (mg/kg)						
Species	Black spruce				Significant difference (y/n)	Ratio
Parameter / Year	2023	MDL (2023)	2024	MDL (2024)		
Aluminum (Al)	28	0.4	36.64	0.4	N	N/A
Antimony (Sb)*	0.02	0.04	0.02	0.04	N	N/A
Silver (Ag)	0.03	0.001	0.07	0.001	Y	2.5 (+)
Arsenic (As)*	0.06	0.005	0.01	0.005	Y	0.1 (-)
Barium (Ba)	28	0.006; 5[a]	134.5	0.006	Y	4.8 (+)
Beryllium (Be)*	0.002	0.003	0.002	0.003	N	N/A
Boron (B)	25	0.07; 5[a]	15.92	0.07	Y	0.6 (-)
Cadmium (Cd)	0.02	0.001	0.04	0.001	Y	1.8 (+)
Chromium (Cr)*	0.04	0.05	0.03	0.05	N	N/A
Cobalt (Co)	0.04	0.002	0.24	0.002	N	N/A
Copper (Cu)	1	0.05	1.3	0.05	N	N/A
Tin (Sn)*	0.02	0.01	1.16	0.74; 1.1; 2.1[a]	Y	58 (+)
Iron (Fe)	41	1; 25[a]	16.16	1	Y	0.4 (-)

Mean concentration (mg/kg)						
Species	**Black spruce**					
Parameter / Year	**2023**	**MDL (2023)**	**2024**	**MDL (2024)**	**Significant difference (y/n)**	**Ratio**
Lithium (Li)*	0.05	0.02	0.01	0.02	N	N/A
Manganese (Mn)	1992	10	1240.71	0.03	N	N/A
Mercury (Hg)	0.01	0.00038; 0.0003; 0.00062[a]	0.007	0.0003	Y	0.7 (-)
Molybdenum (Mo)*	0.01	0.003	0.005	0.003	Y	0.5 (-)
Nickel (Ni)	0.2	0.01	0.65	0.01	Y	3.2 (+)
Lead (Pb)	0.2	0.007	0.09	0.007	Y	0.5 (-)
Selenium (Se)*	0.02	0.009	0.005	0.009	Y	0.2 (-)
Strontium (Sr)	20	0.005	56.29	0.005	Y	2.8 (+)
Titanium (Ti)	0.8	0.05	0.51	0.05	Y	0.6 (-)
Uranium (U)*	0.001	0.001	0.001	0.001	N	N/A
Vanadium (V)*	0.05	0.009	0.01	0.009	Y	0.2 (+)

Notes: * One or more samples showed concentrations below the minimum detectable limit. In these cases, a concentration equal to half the minimum detectable limit was assigned.

[a] The MDL was variable for this parameter.

In Labrador tea samples, a significant increase in concentrations of the following eight parameters was observed: silver, chromium, copper, tin, iron, titanium, uranium, and vanadium (Table 9). For this species, tin was the parameter with the largest increase in mean concentration with a ratio of 112. Mean tin concentrations in Labrador tea samples increased from 0.01 mg/kg in 2023 to 1.12 mg/kg in 2024. However, it is important to note that the mean concentration reported in 2024 was close to the minimum detectable limit for this parameter. Increased concentrations of titanium (ratio of 8.2) and vanadium (ratio of 11.1) were also reported. Various other parameters increased by ratios of between 1.5 and 4.2. Finally, a significant decrease in concentrations of cadmium, mercury, and lead was noted (ratios of between 0.5 and 0.9).

Table 9 Comparison of average concentrations of parameters measured in Labrador tea samples analyzed between reference state (2023) and 2024 monitoring results

Mean concentration (mg/kg)						
Species	Labrador tea				Significant difference (y/n)	Ratio
Parameter / Year	2023	MDL (2023)	2024	MDL (2024)		
Aluminum (Al)	18	0.4	44	0.4	N	N/A
Antimony (Sb)*	0.02	0.04	0.02	0.04	N	N/A
Silver (Ag)	0.001	0.001	0.003	0.001	Y	3 (+)
Arsenic (As)*	0.04	0.005	0.03	0.005	N	N/A
Barium (Ba)	49.00	0.006; 5[a]	57.67	0.006	N	N/A
Beryllium (Be)*	0.002	0.003	0.002	0.003	N	N/A
Boron (B)	15	0.07; 5[b]	17	0.07	N	N/A
Cadmium (Cd)*	0.001	0.001	0.0009	0.001	Y	0.9 (-)
Chromium (Cr)*	0.03	0.05	0.13	0.05	Y	4.2 (+)
Cobalt (Co)	0.01	0.002	0.05	0.002	N	N/A
Copper (Cu)	2	0.05	3.03	0.05	Y	1.5 (+)
Tin (Sn)*	0.01	0.01	1.12	0.74; 1.1; 2,1[c]	Y	112 (+)
Iron (Fe)	25	1; 25[c]	65.25	1	Y	2.6 (+)
Lithium (Li)*	0.02	0.02	0.06	0.02	N	N/A
Manganese (Mn)	682	0.03; 10[d]	812.5	0.03	N	N/A
Mercury (Hg)	0.01	0.00038; 0.0003; 0.00062[c]	0.006	0.0003	Y	0.6 (-)
Molybdenum (Mo)	0.05	0.003	0.05	0.003	N	N/A
Nickel (Ni)	0.3	0.01	0.61	0.01	N	N/A
Lead (Pb)	0.06	0.007	0.03	0.007	Y	0.5 (-)
Selenium (Se)	0.01	0.009	0.02	0.009	N	N/A
Strontium (Sr)	11	0.005	11.91	0.005	N	N/A
Titanium (Ti)	0.3	0.05	2.45	0.05	Y	8.2 (+)
Uranium (U)*	0.001	0.001	0.003	0.001	Y	2.5 (+)
Vanadium (V)*	0.01	0.009	0.11	0.009	Y	11.1 (+)

Notes: * One or more samples showed concentrations below the minimum detectable limit. In these cases, a concentration equal to half the minimum detectable limit was assigned.
[a] Only sample 2023-ST11-THÉ DU LABRADOR-FEUILLES had a concentration of 0.006 mg/kg.
[b] Only sample 2023-ST11-THÉ DU LABRADOR-FEUILLES had a concentration of 0.07 mg/kg.
[c] The MDL was variable for this parameter.
[d] Only sample 2023-ST11-THÉ DU LABRADOR-FEUILLES had a concentration of 0.03 mg/kg.

The year-to-year comparison of concentrations led to the following conclusions:

- For all four analyzed species, tin was the parameter with the highest ratios, indicating concentrations that were between 28 and 112 times higher. However, despite these high ratios, mean concentrations remained low and close to the minimum detectable limit.
- Silver concentrations increased for all species except tamarack.
- Mercury concentrations increased in blueberry and tamarack but decreased in black spruce and Labrador tea.
- Copper concentrations increased for all species except black spruce.
- Titanium concentrations increased for all species except black spruce, where they decreased.
- Vanadium concentrations increased for all species except tamarack.
- None of the four species showed significant change in concentrations between 2023 and 2024 of antimony, beryllium, or cobalt.
- In 2024, reported concentrations of silver, arsenic, cadmium, chromium, tin, lithium, mercury, molybdenum, nickel, lead, selenium, titanium, uranium, and vanadium were low and close to the minimum detectable limit.

Any statistically significant increase or decrease in concentrations can be attributed to multiple factors. To begin with, natural ecosystem variability can cause parameter concentrations to fluctuate from one year to the next. For example, weather conditions (e.g., precipitation and temperature) can influence the availability of different parameters and their ingestion by plants (Ouranos, 2011). Industrial activity, vehicle emissions, and other sources of air pollution can also cause parameter concentrations to vary in the surrounding environment. However, project-related industrial operations have yet to begin. To date, only deforestation and site preparation work has been carried out. Meanwhile, road work performed on the Billy-Diamond Highway in 2024, which included the use of heavy machinery, may have impacted certain parameters. It is therefore unlikely that the observed increases in concentrations of certain parameters are attributable to project activities.

4 Conclusion

Chemical characterization was performed on 39 samples from four plant species collected at 11 different sampling stations, in accordance with the environmental and social monitoring program. The plant species concerned (black spruce, tamarack, blueberry, Labrador tea) are all likely to be consumed by the Cree population as traditional foods.

Of the 36 analyzed parameters, 14 were detected in all four plant species: aluminum, barium, boron, calcium, copper, iron, magnesium, manganese, total phosphorus, potassium, rubidium, sodium, strontium, and zinc.

Along with high calcium levels in black spruce, the results for 2024 show that potassium concentrations have increased significantly in blueberries. High magnesium concentrations were found in Labrador tea, whereas there was no significant increase in any parameter for tamarack.

Principal component analysis identified three distinct relationships between a species (black spruce, tamarack, or Labrador tea) and a given set of parameters. However, the analysis did not reveal any spatial variability in concentrations, based on the sampling stations used.

Finally, for most of the parameters covered by the monitoring program, concentrations increased between 2023 and 2024. However, some decreases were also recorded. Tin was the only parameter for which levels increased in all four species under study. Compared to 2023, concentrations between 28 and 112 times higher were recorded in 2024. Nevertheless, concentrations of this parameter remain low and close to the reported minimum detectable limits. Reported statistical increases or decreases can be attributed to multiple factors, including natural variations in precipitation, weather conditions, and atmospheric fallout, that influence the availability of different parameters and their ingestion by plants. Although industrial activity may also help explain some of the increases, to date, no industrial operations have been carried out on the project site. It therefore cannot be concluded that the observed increases are attributable to project activities.

Finally, the next survey scheduled as part of the traditional food quality monitoring program will take place in summer 2025.

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A

SAMPLING STATION PHOTOGRAPHIC REPORT



PHOTO 1 **Station ST-01 - Est**



PHOTO 2 **Station ST-01 - Nord**



PHOTO 3 **Station ST-01 - Sud**



PHOTO 4 **Station ST-01 - Ouest**



PHOTO 5 **Station ST-02 - Est**

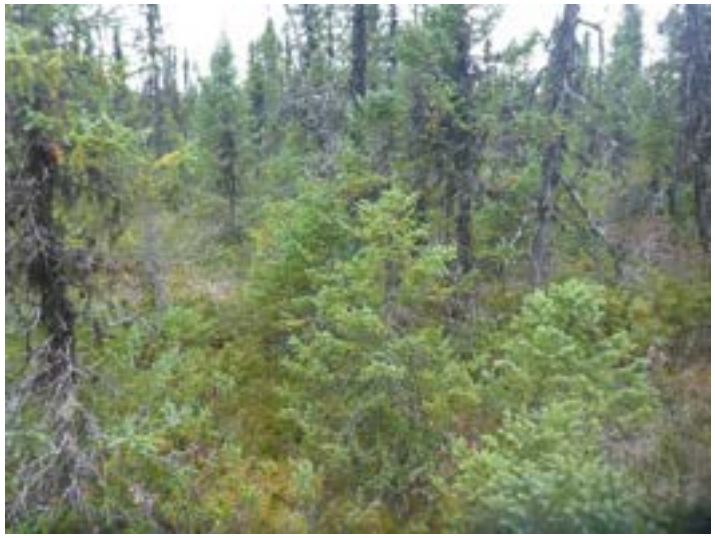


PHOTO 6 **Station ST-02 - Nord**



PHOTO 7 **Station ST-02 - Sud**

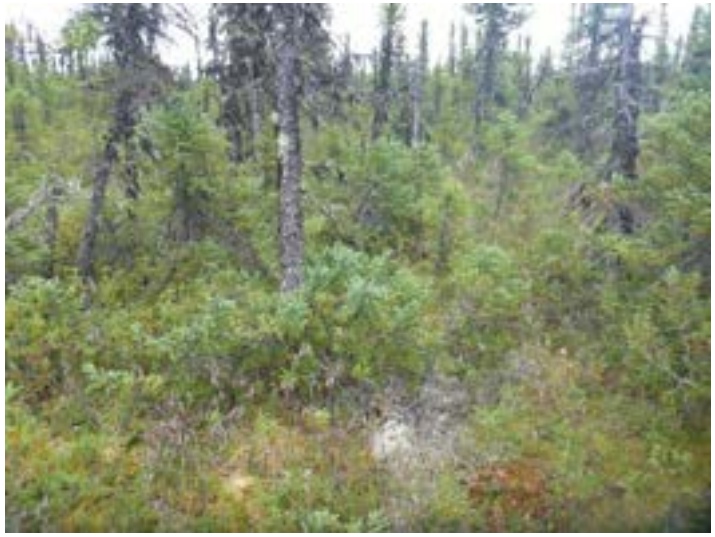


PHOTO 8 **Station ST-02 - Ouest**



PHOTO 9 **Station ST-03 - Est**



PHOTO 10 **Station ST-03 - Nord**



PHOTO 11 **Station ST-03 - Sud**



PHOTO 12 **Station ST-03 - Ouest**



PHOTO 13 **Station ST-04 - Est**



PHOTO 14 **Station ST-04 - Nord**



PHOTO 15 **Station ST-04 - Sud**



PHOTO 16 **Station ST-04 - Ouest**



PHOTO 17 **Station ST-05 - Est**

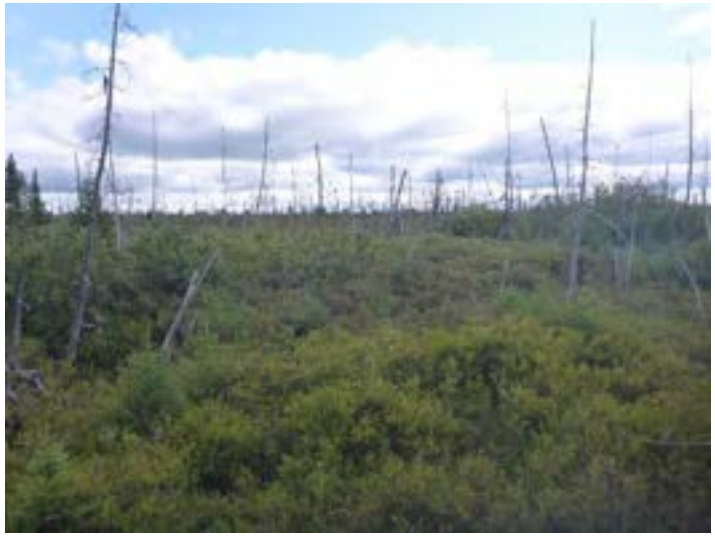


PHOTO 18 **Station ST-05 - Nord**



PHOTO 19 **Station ST-05 - Sud**



PHOTO 20 **Station ST-05 - Ouest**



PHOTO 21 **Station ST-06 - Est**



PHOTO 22 **Station ST-06 - Nord**



PHOTO 23 **Station ST-06 - Sud**



PHOTO 24 **Station ST-06 - Ouest**



PHOTO 25 **Station ST-08 - Est**



PHOTO 26 **Station ST-08 - Nord**



PHOTO 27 **Station ST-08 - Sud**



PHOTO 28 **Station ST-08 - Ouest**



PHOTO 29 **Station ST-09 - Est**



PHOTO 30 **Station ST-09 - Nord**



PHOTO 31 **Station ST-09 - Sud**



PHOTO 32 **Station ST-09 - Ouest**



PHOTO 33 **Station ST-11 - Est**



PHOTO 34 **Station ST-11 - Nord**

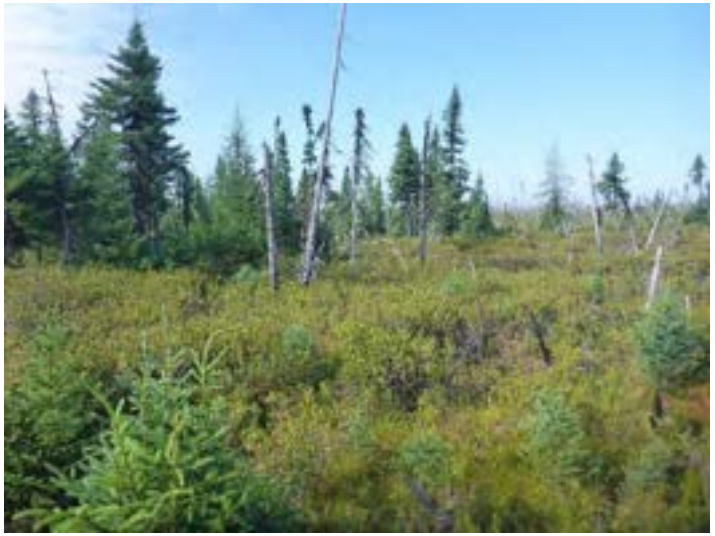


PHOTO 35 **Station ST-11 - Sud**

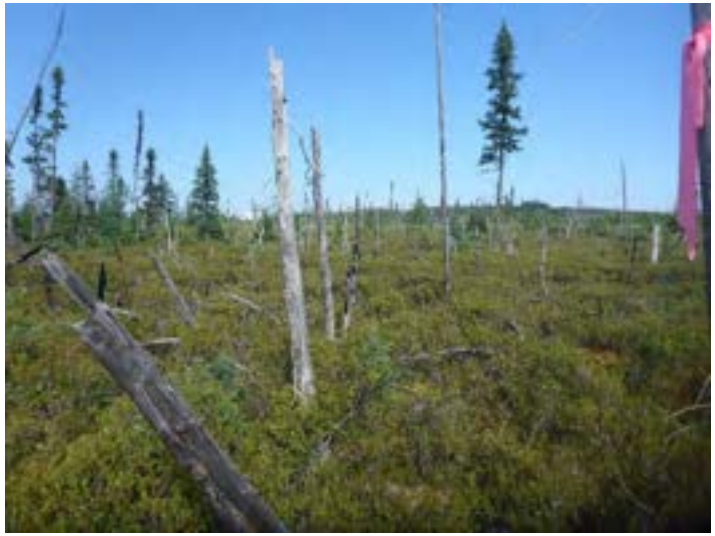


PHOTO 36 **Station ST-11- Ouest**

B

LABORATORY ANALYSIS CERTIFICATES

Votre # du projet: CA0036076.5537 tâche 0300D
Votre # Bordereau: 141983

Attention: Camille Girard

WSP Canada Inc.
1135 boulevard Lebourgneuf
Québec, QC
CANADA G2K 0M5

Date du rapport: 2024/11/15
Rapport: R2998963
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BUREAU VERITAS: C448300
Reçu: 2024/08/28, 12:45

Matrice: Végétaux
Nombre d'échantillons reçus: 39

Analyses	Quantité	Date de l' extraction	Date Analysé	Méthode de laboratoire	Méthode d'analyse
Métaux trace dans végétaux (base sèche)	4	N/A	2024/10/26	STL SOP-00006	MA.203–Mét Tra 1.1 m
Métaux trace dans végétaux (base sèche)	6	N/A	2024/10/28	STL SOP-00006	MA.203–Mét Tra 1.1 m
Métaux trace dans végétaux (base sèche)	14	N/A	2024/10/29	STL SOP-00006	MA.203–Mét Tra 1.1 m
Métaux trace dans végétaux (base sèche)	15	N/A	2024/11/08	STL SOP-00006	MA.203–Mét Tra 1.1 m
Lyophilisation (1)	14	2024/10/15	2024/10/15		
Lyophilisation (1)	25	2024/10/07	2024/10/07		

Remarques:

Bureau Veritas est certifié ISO/IEC 17025 pour certains paramètres précis des portées d'accréditation. Sauf indication contraire, les méthodes d'analyses utilisées par Bureau Veritas s'inspirent des méthodes de référence d'organismes provinciaux, fédéraux et américains, tels que le CCME, l'EPA, l'APHA ou le ministère de l'environnement du Québec.

Toutes les analyses présentées ont été réalisées conformément aux procédures et aux pratiques relatives à la méthodologie, à l'assurance qualité et au contrôle de la qualité généralement appliqués par les employés de Bureau Veritas (sauf s'il en a été convenu autrement par écrit entre le client et Bureau Veritas). Toutes les données de laboratoire rencontrent les contrôles statistiques et respectent tous les critères de CQ et les critères de performance des méthodes, sauf s'il en a été signalé autrement. Tous les blancs de méthode sont rapportés, toutefois, les données des échantillons correspondants ne sont pas corrigées pour la valeur du blanc, sauf indication contraire. Le cas échéant, sauf indication contraire, l'incertitude de mesure n'a pas été prise en considération lors de la déclaration de la conformité à la norme de référence.

Les responsabilités de Bureau Veritas sont restreintes au coût réel de l'analyse, sauf s'il en a été convenu autrement par écrit. Il n'existe aucune autre garantie, explicite ou implicite. Le client a fait appel à Bureau Veritas pour l'analyse de ses échantillons conformément aux méthodes de référence mentionnées dans ce rapport. L'interprétation et l'utilisation des résultats sont sous l'entière responsabilité du client et ne font pas partie des services offerts par Bureau Veritas, sauf si convenu autrement par écrit. Bureau Veritas ne peut pas garantir l'exactitude des résultats qui dépendent des renseignements fournis par le client ou son représentant.

Les résultats des échantillons solides, sauf les biotes, sont rapportés en fonction de la masse sèche, sauf indication contraire. Les analyses organiques ne sont pas corrigées en fonction de la récupération, sauf pour les méthodes de dilution isotopique.
Les résultats s'appliquent seulement aux échantillons analysés. Si l'échantillonnage n'est pas effectué par Bureau Veritas, les résultats se rapportent aux échantillons fournis pour analyse.
Le présent rapport ne doit pas être reproduit, sinon dans son intégralité, sans le consentement écrit du laboratoire.
Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.
Notez: Les données brutes sont utilisées pour le calcul du RPD (% d'écart relatif). L'arrondissement des résultats finaux peut expliquer la variation apparente.
(1) Cette analyse a été effectuée par Bureau Veritas Mississauga, 6740 Campobello Rd. , Mississauga, ON, L5N 2L8

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

Votre # du projet: CA0036076.5537 tâche 0300D
Votre # Bordereau: 141983

Attention: Camille Girard

WSP Canada Inc.
1135 boulevard Lebourgneuf
Québec, QC
CANADA G2K 0M5

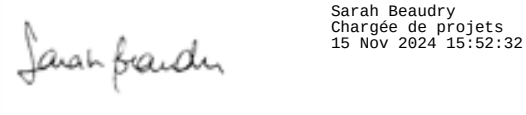
Date du rapport: 2024/11/15
Rapport: R2998963
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BUREAU VERITAS: C448300
Reçu: 2024/08/28, 12:45

Note : Les paramètres inclus dans le présent certificat sont accrédités par le ministère de l'environnement du Québec, à moins d'indication contraire.

clé de cryptage



Sarah Beaudry
Chargée de projets
15 Nov 2024 15:52:32

Veuillez adresser toute question concernant ce certificat d' analyse à:
Sarah Beaudry, Chargée de projets
Courriel: Sarah.Beaudry@bureauveritas.com
Téléphone (438)355-7268
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Ce rapport a été produit et distribué en utilisant une procédure automatisée sécuritaire.
Bureau Veritas a mis en place des procédures qui protègent contre l'utilisation non autorisée de la signature électronique et emploie les «signataires» requis, conformément à l'ISO/CEI17025. Pour la validation spécifique à un groupe de services, veuillez vous référer à la page des Signatures de validation si elle est incluse, sinon disponible sur demande. Pour les noms de validation des analystes/superviseurs spécifiques à un service, veuillez vous référer à la section Résumé de l'analyse si elle est incluse, sinon disponible sur demande. Ce rapport est autorisé par Aglaia Yannakis, Directrice générale, responsable des opérations du laboratoire Environnementale - Québec.

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7297	NK7297	NK7297		
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19		
# Bordereau		141983	141983	141983		
	Unités	2024-ST01-EPN-Aiguilles	2024-ST01-EPN-Aiguilles Dup. de Lab.	2024-ST01-EPN-Aiguilles Dup. de Lab. 2	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	16	17	21	0.40	2580445
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2580445
Argent (Ag) Extractible Total †	mg/kg	0.13	0.15	0.080 (1)	0.0010	2580445
Arsenic (As) Extractible Total †	mg/kg	<0.0050	<0.0050	0.0053	0.0050	2580445
Baryum (Ba) Extractible Total †	mg/kg	87	82	100	0.0060	2580445
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2580445
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2580445
Bore (B) Extractible Total †	mg/kg	17	16	19	0.070	2580445
Cadmium (Cd) Extractible Total †	mg/kg	0.014	0.015	0.020 (1)	0.0010	2580445
Calcium (Ca) Extractible Total †	mg/kg	6800	6600	8100	3.0	2580445
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2580445
Cobalt (Co) Extractible Total †	mg/kg	0.028	0.027	0.034	0.0020	2580445
Cuivre (Cu) Extractible Total †	mg/kg	0.79	0.76	0.88	0.050	2580445
Etain (Sn) Extractible Total †	mg/kg	1.0 (2)	1.1 (2)	1.0 (2)	0.74	2580445
Fer (Fe) Extractible Total †	mg/kg	10	11	11	1.0	2580445
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	0.020	2580445
Magnésium (Mg) Extractible Total †	mg/kg	570	560	620	1.0	2580445
Manganèse (Mn) Extractible Total †	mg/kg	1400	1400	1700	0.030	2580445
Mercure (Hg) Extractible Total †	mg/kg	0.0048	0.0051	0.0056	0.00030	2580445
Molybdène (Mo) Extractible Total †	mg/kg	0.0045	0.0051	0.0040	0.0030	2580445
Nickel (Ni) Extractible Total †	mg/kg	0.17	0.17	0.21	0.010	2580445
Phosphore total Extractible Total †	mg/kg	500	470	510	5.0	2580445
Plomb (Pb) Extractible Total †	mg/kg	0.13	0.17	0.15	0.0070	2580445
Potassium (K) Extractible Total †	mg/kg	2500	2300	2700	3.0	2580445
Rubidium (Rb) Extractible Total †	mg/kg	4.3	4.1	4.6	0.0050	2580445
Sélénium (Se) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	0.0090	2580445
Sodium (Na) Extractible Total †	mg/kg	11 (2)	10 (2)	10 (2)	3.7	2580445
Strontium (Sr) Extractible Total †	mg/kg	29	27	33	0.0050	2580445
Tellure (Te) Extractible Total †	mg/kg	<0.012 (2)	<0.012 (2)	<0.012 (2)	0.012	2580445
Thallium (Tl) Extractible Total †	mg/kg	0.029	0.027	0.031	0.0020	2580445
Thorium (Th) Extractible Total †	mg/kg	<0.0040	<0.0040	<0.0040	0.0040	2580445

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre
(1) La récupération ou l'écart relatif (RPD) pour ce composé est en dehors des limites de contrôle, mais l'ensemble du contrôle qualité rencontre les critères d'acceptabilité pour cette analyse
(2) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7297	NK7297	NK7297		
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19		
# Bordereau		141983	141983	141983		
	Unités	**2024-ST01-EPN-Aiguilles**	**2024-ST01-EPN-Aiguilles Dup. de Lab.**	**2024-ST01-EPN-Aiguilles Dup. de Lab. 2**	**LDR**	**Lot CQ**
Titane (Ti) Extractible Total †	mg/kg	0.38	0.41	0.45	0.050	2580445
Tungstene (W) Extractible Total †	mg/kg	0.0058	0.0050	<0.0050	0.0050	2580445
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2580445
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	0.011	0.0090	2580445
Zinc (Zn) Extractible Total †	mg/kg	180	180	220	0.30	2580445

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7298			NK7299		
Date d'échantillonnage		2024/08/19			2024/08/19		
# Bordereau		141983			141983		
	Unités	2024-ST01-MEL-Écorce	LDR	Lot CQ	2024-ST01-Bleuets-Fruits	LDR	Lot CQ
MÉTAUX							
Aluminium (Al) Extractible Total †	mg/kg	29	0.40	2580445	5.1	0.40	2588765
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	0.040	2580445	<0.040	0.040	2588765
Argent (Ag) Extractible Total †	mg/kg	0.014	0.0010	2580445	0.0032	0.0010	2588765
Arsenic (As) Extractible Total †	mg/kg	0.0089	0.0050	2580445	0.0064	0.0050	2588765
Baryum (Ba) Extractible Total †	mg/kg	120	0.0060	2580445	3.9	0.0060	2588765
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	0.0030	2580445	<0.0030	0.0030	2588765
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	0.0020	2580445	<0.0020	0.0020	2588765
Bore (B) Extractible Total †	mg/kg	21	0.070	2580445	5.0	0.070	2588765
Cadmium (Cd) Extractible Total †	mg/kg	0.21	0.0010	2580445	0.0025	0.0010	2588765
Calcium (Ca) Extractible Total †	mg/kg	6100	3.0	2580445	710	3.0	2588765
Chrome (Cr) Extractible Total †	mg/kg	<0.050	0.050	2580445	0.15	0.050	2588765
Cobalt (Co) Extractible Total †	mg/kg	0.084	0.0020	2580445	0.011	0.0020	2588765
Cuivre (Cu) Extractible Total †	mg/kg	1.7	0.050	2580445	6.0	0.050	2588765
Etain (Sn) Extractible Total †	mg/kg	1.1 (1)	0.74	2580445	<2.1 (1)	2.1	2588765
Fer (Fe) Extractible Total †	mg/kg	24	1.0	2580445	15	1.0	2588765
Lithium (Li) Extractible Total †	mg/kg	<0.020	0.020	2580445	<0.020	0.020	2588765
Magnésium (Mg) Extractible Total †	mg/kg	800	1.0	2580445	470	1.0	2588765
Manganèse (Mn) Extractible Total †	mg/kg	2400	0.030	2580445	53	0.030	2588765
Mercure (Hg) Extractible Total †	mg/kg	0.0062	0.00030	2580445	0.0024	0.00030	2588765
Molybdène (Mo) Extractible Total †	mg/kg	0.0078	0.0030	2580445	0.083	0.0030	2588765
Nickel (Ni) Extractible Total †	mg/kg	0.67	0.010	2580445	0.44	0.010	2588765
Phosphore total Extractible Total †	mg/kg	930	5.0	2580445	570	5.0	2588765
Plomb (Pb) Extractible Total †	mg/kg	0.042	0.0070	2580445	0.057	0.0070	2588765
Potassium (K) Extractible Total †	mg/kg	3800	3.0	2580445	12000	3.0	2588765
Rubidium (Rb) Extractible Total †	mg/kg	5.9	0.0050	2580445	46	0.0050	2588765
Sélénium (Se) Extractible Total †	mg/kg	0.16	0.0090	2580445	<0.0090	0.0090	2588765
Sodium (Na) Extractible Total †	mg/kg	7.3 (1)	3.7	2580445	73 (1)	13	2588765
Strontium (Sr) Extractible Total †	mg/kg	100	0.0050	2580445	0.99	0.0050	2588765
Tellure (Te) Extractible Total †	mg/kg	<0.012 (1)	0.012	2580445	0.0036	0.0020	2588765
Thallium (Tl) Extractible Total †	mg/kg	0.0052	0.0020	2580445	<0.0020	0.0020	2588765
Thorium (Th) Extractible Total †	mg/kg	<0.0040	0.0040	2580445	0.0040	0.0040	2588765
Titane (Ti) Extractible Total †	mg/kg	0.59	0.050	2580445	0.61	0.050	2588765
Tungstene (W) Extractible Total †	mg/kg	0.0052	0.0050	2580445	0.0087	0.0050	2588765
Uranium (U) Extractible Total †	mg/kg	<0.0010	0.0010	2580445	<0.0010	0.0010	2588765

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7298			NK7299		
Date d'échantillonnage		2024/08/19			2024/08/19		
# Bordereau		141983			141983		
	Unités	**2024-ST01-MEL-Écorce**	**LDR**	**Lot CQ**	**2024-ST01-Bleuets-Fruits**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	<0.0090	0.0090	2580445	0.016	0.0090	2588765
Zinc (Zn) Extractible Total †	mg/kg	97	0.30	2580445	5.0	0.30	2588765

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7299	NK7299		
Date d'échantillonnage		2024/08/19	2024/08/19		
# Bordereau		141983	141983		
	Unités	2024-ST01-Bleuets-Fruits Dup. de Lab.	2024-ST01-Bleuets-Fruits Dup. de Lab. 2	LDR	Lot CQ
MÉTAUX					
Aluminium (Al) Extractible Total †	mg/kg	3.6 (1)	4.9	0.40	2588765
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	0.040	2588765
Argent (Ag) Extractible Total †	mg/kg	0.0026	0.0037	0.0010	2588765
Arsenic (As) Extractible Total †	mg/kg	0.0054	0.0068	0.0050	2588765
Baryum (Ba) Extractible Total †	mg/kg	3.3	3.6	0.0060	2588765
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	0.0030	2588765
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	0.0020	2588765
Bore (B) Extractible Total †	mg/kg	4.3	4.7	0.070	2588765
Cadmium (Cd) Extractible Total †	mg/kg	0.0020	0.0020	0.0010	2588765
Calcium (Ca) Extractible Total †	mg/kg	590	660	3.0	2588765
Chrome (Cr) Extractible Total †	mg/kg	0.16	0.16	0.050	2588765
Cobalt (Co) Extractible Total †	mg/kg	0.010	0.012	0.0020	2588765
Cuivre (Cu) Extractible Total †	mg/kg	5.4	5.6	0.050	2588765
Etain (Sn) Extractible Total †	mg/kg	<2.1 (2)	<2.1 (2)	2.1	2588765
Fer (Fe) Extractible Total †	mg/kg	14	15	1.0	2588765
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	0.020	2588765
Magnésium (Mg) Extractible Total †	mg/kg	410	440	1.0	2588765
Manganèse (Mn) Extractible Total †	mg/kg	44	50	0.030	2588765
Mercure (Hg) Extractible Total †	mg/kg	0.0017 (1)	0.0020	0.00030	2588765
Molybdène (Mo) Extractible Total †	mg/kg	0.078	0.082	0.0030	2588765
Nickel (Ni) Extractible Total †	mg/kg	0.41	0.45	0.010	2588765
Phosphore total Extractible Total †	mg/kg	480	560	5.0	2588765
Plomb (Pb) Extractible Total †	mg/kg	0.057	0.073	0.0070	2588765
Potassium (K) Extractible Total †	mg/kg	11000	11000	3.0	2588765
Rubidium (Rb) Extractible Total †	mg/kg	39	44	0.0050	2588765
Sélénium (Se) Extractible Total †	mg/kg	<0.0090	<0.0090	0.0090	2588765
Sodium (Na) Extractible Total †	mg/kg	69 (2)	72 (2)	13	2588765
Strontium (Sr) Extractible Total †	mg/kg	0.85	0.92	0.0050	2588765
Tellure (Te) Extractible Total †	mg/kg	<0.0020	<0.0020	0.0020	2588765
Thallium (Tl) Extractible Total †	mg/kg	<0.0020	<0.0020	0.0020	2588765
Thorium (Th) Extractible Total †	mg/kg	<0.0040	<0.0040	0.0040	2588765

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre
(1) La récupération ou l'écart relatif (RPD) pour ce composé est en dehors des limites de contrôle, mais l'ensemble du contrôle qualité rencontre les critères d'acceptabilité pour cette analyse
(2) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7299	NK7299		
Date d'échantillonnage		2024/08/19	2024/08/19		
# Bordereau		141983	141983		
	Unités	2024-ST01-Bleuets-Fruits Dup. de Lab.	2024-ST01-Bleuets-Fruits Dup. de Lab. 2	LDR	Lot CQ
Titane (Ti) Extractible Total †	mg/kg	0.46	0.53	0.050	2588765
Tungstene (W) Extractible Total †	mg/kg	<0.0050	0.0090	0.0050	2588765
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2588765
Vanadium (V) Extractible Total †	mg/kg	0.011	0.013	0.0090	2588765
Zinc (Zn) Extractible Total †	mg/kg	4.4	4.9	0.30	2588765

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7300	NK7301	NK7302		
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19		
# Bordereau		141983	141983	141983		
	Unités	2024-ST01-TLB-Feuilles	2024-ST02-EPN-Aiguilles	2024-ST02-MEL-Écorce	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	11	36	10	0.40	2580445
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2580445
Argent (Ag) Extractible Total †	mg/kg	<0.0010	0.027	0.015	0.0010	2580445
Arsenic (As) Extractible Total †	mg/kg	0.0089	0.0068	0.0055	0.0050	2580445
Baryum (Ba) Extractible Total †	mg/kg	49	43	52	0.0060	2580445
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2580445
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2580445
Bore (B) Extractible Total †	mg/kg	18	18	15	0.070	2580445
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	0.0063	0.17	0.0010	2580445
Calcium (Ca) Extractible Total †	mg/kg	5100	13000	5900	3.0	2580445
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2580445
Cobalt (Co) Extractible Total †	mg/kg	0.0089	0.0079	0.0049	0.0020	2580445
Cuivre (Cu) Extractible Total †	mg/kg	2.9	0.66	1.7	0.050	2580445
Etain (Sn) Extractible Total †	mg/kg	1.0 (1)	1.0 (1)	0.92 (1)	0.74	2580445
Fer (Fe) Extractible Total †	mg/kg	29	25	14	1.0	2580445
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	0.020	2580445
Magnésium (Mg) Extractible Total †	mg/kg	910	850	930	1.0	2580445
Manganèse (Mn) Extractible Total †	mg/kg	810	590	900	0.030	2580445
Mercure (Hg) Extractible Total †	mg/kg	0.0048	0.0089	0.0038	0.00030	2580445
Molybdène (Mo) Extractible Total †	mg/kg	0.060	0.0035	<0.0030	0.0030	2580445
Nickel (Ni) Extractible Total †	mg/kg	0.29	0.14	0.097	0.010	2580445
Phosphore total Extractible Total †	mg/kg	1300	520	1000	5.0	2580445
Plomb (Pb) Extractible Total †	mg/kg	0.012	0.14	0.067	0.0070	2580445
Potassium (K) Extractible Total †	mg/kg	4700	2400	4300	3.0	2580445
Rubidium (Rb) Extractible Total †	mg/kg	12	1.9	2.5	0.0050	2580445
Sélénium (Se) Extractible Total †	mg/kg	0.018	<0.0090	0.21	0.0090	2580445
Sodium (Na) Extractible Total †	mg/kg	8.8 (1)	14 (1)	19 (1)	3.7	2580445
Strontium (Sr) Extractible Total †	mg/kg	8.6	20	43	0.0050	2580445
Tellure (Te) Extractible Total †	mg/kg	<0.012 (1)	<0.012 (1)	<0.012 (1)	0.012	2580445
Thallium (Tl) Extractible Total †	mg/kg	<0.0020	0.023	0.0064	0.0020	2580445
Thorium (Th) Extractible Total †	mg/kg	<0.0040	<0.0040	<0.0040	0.0040	2580445
Titane (Ti) Extractible Total †	mg/kg	0.89	0.47	0.63	0.050	2580445
Tungstene (W) Extractible Total †	mg/kg	0.0080	<0.0050	<0.0050	0.0050	2580445
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2580445

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7300	NK7301	NK7302		
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19		
# Bordereau		141983	141983	141983		
	Unités	**2024-ST01-TLB-Feuilles**	**2024-ST02-EPN-Aiguilles**	**2024-ST02-MEL-Écorce**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	0.017	0.0095	<0.0090	0.0090	2580445
Zinc (Zn) Extractible Total †	mg/kg	13	130	110	0.30	2580445

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7303			NK7304		
Date d'échantillonnage		2024/08/19			2024/08/19		
# Bordereau		141983			141983		
	Unités	2024-ST02-Bleuets-Fruits	LDR	Lot CQ	2024-ST02-TLB-Feuilles	LDR	Lot CQ
MÉTAUX							
Aluminium (Al) Extractible Total †	mg/kg	15	0.52	2583077	15	0.40	2580445
Antimoine (Sb) Extractible Total †	mg/kg	<0.052	0.052	2583077	<0.040	0.040	2580445
Argent (Ag) Extractible Total †	mg/kg	0.0030	0.0013	2583077	0.0012	0.0010	2580445
Arsenic (As) Extractible Total †	mg/kg	0.011	0.0065	2583077	<0.0050	0.0050	2580445
Baryum (Ba) Extractible Total †	mg/kg	17	0.0078	2583077	39	0.0060	2580445
Béryllium (Be) Extractible Total †	mg/kg	<0.0039	0.0039	2583077	<0.0030	0.0030	2580445
Bismuth (Bi) Extractible Total †	mg/kg	<0.0026	0.0026	2583077	<0.0020	0.0020	2580445
Bore (B) Extractible Total †	mg/kg	12	0.091	2583077	16	0.070	2580445
Cadmium (Cd) Extractible Total †	mg/kg	0.0037	0.0013	2583077	<0.0010	0.0010	2580445
Calcium (Ca) Extractible Total †	mg/kg	2600	3.9	2583077	4900	3.0	2580445
Chrome (Cr) Extractible Total †	mg/kg	0.068	0.065	2583077	<0.050	0.050	2580445
Cobalt (Co) Extractible Total †	mg/kg	0.011	0.0026	2583077	0.0045	0.0020	2580445
Cuivre (Cu) Extractible Total †	mg/kg	7.7	0.065	2583077	2.4	0.050	2580445
Etain (Sn) Extractible Total †	mg/kg	0.26	0.013	2583077	0.99 (1)	0.74	2580445
Fer (Fe) Extractible Total †	mg/kg	29	1.3	2583077	27	1.0	2580445
Lithium (Li) Extractible Total †	mg/kg	<0.026	0.026	2583077	<0.020	0.020	2580445
Magnésium (Mg) Extractible Total †	mg/kg	1300	1.3	2583077	960	1.0	2580445
Manganèse (Mn) Extractible Total †	mg/kg	1600	0.039	2583077	730	0.030	2580445
Mercure (Hg) Extractible Total †	mg/kg	0.0037	0.00039	2583077	0.0049	0.00030	2580445
Molybdène (Mo) Extractible Total †	mg/kg	0.20	0.0039	2583077	0.022	0.0030	2580445
Nickel (Ni) Extractible Total †	mg/kg	0.31	0.013	2583077	0.13	0.010	2580445
Phosphore total Extractible Total †	mg/kg	1900	6.5	2583077	1200	5.0	2580445
Plomb (Pb) Extractible Total †	mg/kg	0.032	0.0091	2583077	0.011	0.0070	2580445
Potassium (K) Extractible Total †	mg/kg	9400	3.9	2583077	5100	3.0	2580445
Rubidium (Rb) Extractible Total †	mg/kg	10	0.0065	2583077	5.5	0.0050	2580445
Sélénium (Se) Extractible Total †	mg/kg	0.017	0.012	2583077	0.020	0.0090	2580445
Sodium (Na) Extractible Total †	mg/kg	12 (1)	4.4	2583077	7.1 (1)	3.7	2580445
Strontium (Sr) Extractible Total †	mg/kg	2.6	0.0065	2583077	7.5	0.0050	2580445
Tellure (Te) Extractible Total †	mg/kg	0.060	0.0026	2583077	<0.012 (1)	0.012	2580445
Thallium (Tl) Extractible Total †	mg/kg	<0.0026	0.0026	2583077	<0.0020	0.0020	2580445
Thorium (Th) Extractible Total †	mg/kg	0.0054	0.0052	2583077	<0.0040	0.0040	2580445
Titane (Ti) Extractible Total †	mg/kg	0.92	0.065	2583077	0.76	0.050	2580445
Tungstene (W) Extractible Total †	mg/kg	0.012	0.0065	2583077	<0.0050	0.0050	2580445
Uranium (U) Extractible Total †	mg/kg	<0.0013	0.0013	2583077	<0.0010	0.0010	2580445

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7303			NK7304		
Date d'échantillonnage		2024/08/19			2024/08/19		
# Bordereau		141983			141983		
	Unités	2024-ST02-Bleuets-Fruits	LDR	Lot CQ	2024-ST02-TLB-Feuilles	LDR	Lot CQ
Vanadium (V) Extractible Total †	mg/kg	<0.012	0.012	2583077	0.011	0.0090	2580445
Zinc (Zn) Extractible Total †	mg/kg	13	0.39	2583077	12	0.30	2580445

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7305	NK7306	NK7307		
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19		
# Bordereau		141983	141983	141983		
	Unités	**REP-2024-ST03-MEL-Écorce**	**2024-ST03-EPN-Aiguilles**	**2024-ST03-MEL-Écorce**	**LDR**	**Lot CQ**
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	210	16	180	0.40	2580445
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2580445
Argent (Ag) Extractible Total †	mg/kg	0.0041	0.11	0.0019	0.0010	2580445
Arsenic (As) Extractible Total †	mg/kg	0.012	0.0099	0.010	0.0050	2580445
Baryum (Ba) Extractible Total †	mg/kg	96	170	100	0.0060	2580445
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2580445
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2580445
Bore (B) Extractible Total †	mg/kg	11	17	11	0.070	2580445
Cadmium (Cd) Extractible Total †	mg/kg	0.12	0.055	0.24	0.0010	2580445
Calcium (Ca) Extractible Total †	mg/kg	6600	9400	5000	3.0	2580445
Chrome (Cr) Extractible Total †	mg/kg	0.11	<0.050	0.095	0.050	2580445
Cobalt (Co) Extractible Total †	mg/kg	0.54	0.13	0.34	0.0020	2580445
Cuivre (Cu) Extractible Total †	mg/kg	2.4	2.2	2.3	0.050	2580445
Etain (Sn) Extractible Total †	mg/kg	0.98 (1)	1.0 (1)	1.3 (1)	0.74	2580445
Fer (Fe) Extractible Total †	mg/kg	38	12	17	1.0	2580445
Lithium (Li) Extractible Total †	mg/kg	0.044	<0.020	0.033	0.020	2580445
Magnésium (Mg) Extractible Total †	mg/kg	610	510	800	1.0	2580445
Manganèse (Mn) Extractible Total †	mg/kg	1300	2100	1200	0.030	2580445
Mercure (Hg) Extractible Total †	mg/kg	0.0058	0.0054	0.0060	0.00030	2580445
Molybdène (Mo) Extractible Total †	mg/kg	0.013	0.0061	0.020	0.0030	2580445
Nickel (Ni) Extractible Total †	mg/kg	3.7	0.20	2.4	0.010	2580445
Phosphore total Extractible Total †	mg/kg	920	830	850	5.0	2580445
Plomb (Pb) Extractible Total †	mg/kg	0.023	0.031	<0.0070	0.0070	2580445
Potassium (K) Extractible Total †	mg/kg	3100	3800	3900	3.0	2580445
Rubidium (Rb) Extractible Total †	mg/kg	5.6	4.5	8.0	0.0050	2580445
Sélénium (Se) Extractible Total †	mg/kg	0.15	<0.0090	0.15	0.0090	2580445
Sodium (Na) Extractible Total †	mg/kg	6.2 (1)	6.9 (1)	7.7 (1)	3.7	2580445
Strontium (Sr) Extractible Total †	mg/kg	110	68	75	0.0050	2580445
Tellure (Te) Extractible Total †	mg/kg	<0.012 (1)	<0.012 (1)	<0.012 (1)	0.012	2580445
Thallium (Tl) Extractible Total †	mg/kg	0.0086	0.015	0.011	0.0020	2580445
Thorium (Th) Extractible Total †	mg/kg	<0.0040	<0.0040	<0.0040	0.0040	2580445
Titane (Ti) Extractible Total †	mg/kg	0.53	0.48	0.49	0.050	2580445
Tungstene (W) Extractible Total †	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	2580445
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2580445

LDR = Limite de détection rapportée
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(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7305	NK7306	NK7307		
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19		
# Bordereau		141983	141983	141983		
	Unités	**REP-2024-ST03-MEL-Écorce**	**2024-ST03-EPN-Aiguilles**	**2024-ST03-MEL-Écorce**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	0.025	0.012	0.033	0.0090	2580445
Zinc (Zn) Extractible Total †	mg/kg	32	100	39	0.30	2580445

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7308	NK7309	NK7310		
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19		
# Bordereau		141983	141983	141983		
	Unités	2024-ST03-TLB-Feuilles	2024-ST04-EPN-Aiguilles	2024-ST04-MEL-Écorce	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	12	27	44	0.40	2580445
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2580445
Argent (Ag) Extractible Total †	mg/kg	<0.0010	0.24	0.014	0.0010	2580445
Arsenic (As) Extractible Total †	mg/kg	0.023	<0.0050	0.0062	0.0050	2580445
Baryum (Ba) Extractible Total †	mg/kg	51	110	160	0.0060	2580445
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2580445
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2580445
Bore (B) Extractible Total †	mg/kg	19	16	16	0.070	2580445
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	0.0090	0.041	0.0010	2580445
Calcium (Ca) Extractible Total †	mg/kg	5100	8200	8400	3.0	2580445
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2580445
Cobalt (Co) Extractible Total †	mg/kg	0.011	0.094	0.018	0.0020	2580445
Cuivre (Cu) Extractible Total †	mg/kg	2.9	1.1	2.5	0.050	2580445
Etain (Sn) Extractible Total †	mg/kg	1.1 (1)	1.1 (1)	1.2 (1)	0.74	2580445
Fer (Fe) Extractible Total †	mg/kg	28	16	13	1.0	2580445
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	0.020	2580445
Magnésium (Mg) Extractible Total †	mg/kg	980	970	930	1.0	2580445
Manganèse (Mn) Extractible Total †	mg/kg	1500	840	720	0.030	2580445
Mercure (Hg) Extractible Total †	mg/kg	0.0061	0.0042	0.0052	0.00030	2580445
Molybdène (Mo) Extractible Total †	mg/kg	0.050	0.0035	0.0049	0.0030	2580445
Nickel (Ni) Extractible Total †	mg/kg	0.20	0.35	0.62	0.010	2580445
Phosphore total Extractible Total †	mg/kg	1300	660	940	5.0	2580445
Plomb (Pb) Extractible Total †	mg/kg	0.010	0.040	0.026	0.0070	2580445
Potassium (K) Extractible Total †	mg/kg	4500	2800	5000	3.0	2580445
Rubidium (Rb) Extractible Total †	mg/kg	8.7	4.9	7.6	0.0050	2580445
Sélénium (Se) Extractible Total †	mg/kg	0.018	<0.0090	0.11	0.0090	2580445
Sodium (Na) Extractible Total †	mg/kg	8.4 (1)	7.3 (1)	7.3 (1)	3.7	2580445
Strontium (Sr) Extractible Total †	mg/kg	11	40	46	0.0050	2580445
Tellure (Te) Extractible Total †	mg/kg	<0.012 (1)	<0.012 (1)	<0.012 (1)	0.012	2580445
Thallium (Tl) Extractible Total †	mg/kg	<0.0020	0.024	0.0066	0.0020	2580445
Thorium (Th) Extractible Total †	mg/kg	<0.0040	<0.0040	<0.0040	0.0040	2580445
Titane (Ti) Extractible Total †	mg/kg	0.76	0.48	0.60	0.050	2580445
Tungstene (W) Extractible Total †	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	2580445
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2580445

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
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(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7308	NK7309	NK7310		
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19		
# Bordereau		141983	141983	141983		
	Unités	**2024-ST03-TLB-Feuilles**	**2024-ST04-EPN-Aiguilles**	**2024-ST04-MEL-Écorce**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	0.0090	2580445
Zinc (Zn) Extractible Total †	mg/kg	18	110	64	0.30	2580445

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Lot CQ = Lot contrôle qualité
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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7311	NK7312	NK7313		
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19		
# Bordereau		141983	141983	141983		
	Unités	**2024-ST04-Bleuets-Fruits**	**2024-ST04-TLB-Feuilles**	**REP-2024-ST05-EPN-Aiguilles**	**LDR**	**Lot CQ**
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	11	15	55	0.40	2580445
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2580445
Argent (Ag) Extractible Total †	mg/kg	0.0014	<0.0010	0.084	0.0010	2580445
Arsenic (As) Extractible Total †	mg/kg	<0.0050	0.0060	0.018	0.0050	2580445
Baryum (Ba) Extractible Total †	mg/kg	11	69	200	0.0060	2580445
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2580445
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2580445
Bore (B) Extractible Total †	mg/kg	9.3	24	19	0.070	2580445
Cadmium (Cd) Extractible Total †	mg/kg	0.0023	<0.0010	0.017	0.0010	2580445
Calcium (Ca) Extractible Total †	mg/kg	1400	6000	17000	3.0	2580445
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2580445
Cobalt (Co) Extractible Total †	mg/kg	0.0094	0.0046	0.19	0.0020	2580445
Cuivre (Cu) Extractible Total †	mg/kg	3.6	2.4	2.2	0.050	2580445
Etain (Sn) Extractible Total †	mg/kg	1.1 (1)	1.1 (1)	1.1 (1)	0.74	2580445
Fer (Fe) Extractible Total †	mg/kg	16	23	18	1.0	2580445
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	0.020	2580445
Magnésium (Mg) Extractible Total †	mg/kg	740	870	720	1.0	2580445
Manganèse (Mn) Extractible Total †	mg/kg	550	620	960	0.030	2580445
Mercure (Hg) Extractible Total †	mg/kg	0.0022	0.0054	0.0070	0.00030	2580445
Molybdène (Mo) Extractible Total †	mg/kg	0.090	0.017	0.0077	0.0030	2580445
Nickel (Ni) Extractible Total †	mg/kg	0.34	0.25	1.1	0.010	2580445
Phosphore total Extractible Total †	mg/kg	1100	1100	1200	5.0	2580445
Plomb (Pb) Extractible Total †	mg/kg	0.018	0.0097	0.043	0.0070	2580445
Potassium (K) Extractible Total †	mg/kg	6800	4400	3000	3.0	2580445
Rubidium (Rb) Extractible Total †	mg/kg	21	13	6.1	0.0050	2580445
Sélénium (Se) Extractible Total †	mg/kg	<0.0090	0.016	<0.0090	0.0090	2580445
Sodium (Na) Extractible Total †	mg/kg	9.1 (1)	8.5 (1)	6.9 (1)	3.7	2580445
Strontium (Sr) Extractible Total †	mg/kg	4.4	18	73	0.0050	2580445
Tellure (Te) Extractible Total †	mg/kg	<0.012 (1)	<0.012 (1)	<0.012 (1)	0.012	2580445
Thallium (Tl) Extractible Total †	mg/kg	<0.0020	<0.0020	0.0058	0.0020	2580445
Thorium (Th) Extractible Total †	mg/kg	<0.0040	<0.0040	<0.0040	0.0040	2580445
Titane (Ti) Extractible Total †	mg/kg	0.63	0.71	0.70	0.050	2580445
Tungstene (W) Extractible Total †	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	2580445
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2580445

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7311	NK7312	NK7313		
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19		
# Bordereau		141983	141983	141983		
	Unités	**2024-ST04-Bleuets-Fruits**	**2024-ST04-TLB-Feuilles**	**REP-2024-ST05-EPN-Aiguilles**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	0.012	0.0090	2580445
Zinc (Zn) Extractible Total †	mg/kg	6.0	17	140	0.30	2580445

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7314	NK7315	NK7316		
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19		
# Bordereau		141983	141983	141983		
	Unités	2024-ST05-EPN-Aiguilles	2024-ST05-MEL-Écorce	2024-ST05-TLB-Feuilles	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	43	14	23	0.40	2580445
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2580445
Argent (Ag) Extractible Total †	mg/kg	0.038	0.0064	0.0014	0.0010	2580445
Arsenic (As) Extractible Total †	mg/kg	0.012	0.011	0.065	0.0050	2580445
Baryum (Ba) Extractible Total †	mg/kg	170	150	69	0.0060	2580445
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2580445
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2580445
Bore (B) Extractible Total †	mg/kg	15	16	18	0.070	2580445
Cadmium (Cd) Extractible Total †	mg/kg	0.026	0.083	0.0015	0.0010	2580445
Calcium (Ca) Extractible Total †	mg/kg	15000	6900	5800	3.0	2580445
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2580445
Cobalt (Co) Extractible Total †	mg/kg	0.28	0.15	0.027	0.0020	2580445
Cuivre (Cu) Extractible Total †	mg/kg	1.1	2.3	3.0	0.050	2580445
Etain (Sn) Extractible Total †	mg/kg	1.1 (1)	1.1 (1)	1.2 (1)	0.74	2580445
Fer (Fe) Extractible Total †	mg/kg	11	17	32	1.0	2580445
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	0.020	2580445
Magnésium (Mg) Extractible Total †	mg/kg	590	1100	1600	1.0	2580445
Manganèse (Mn) Extractible Total †	mg/kg	910	2300	920	0.030	2580445
Mercure (Hg) Extractible Total †	mg/kg	0.0073	0.0063	0.0079	0.00030	2580445
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	0.0057	0.038	0.0030	2580445
Nickel (Ni) Extractible Total †	mg/kg	0.73	0.69	0.67	0.010	2580445
Phosphore total Extractible Total †	mg/kg	540	840	1100	5.0	2580445
Plomb (Pb) Extractible Total †	mg/kg	0.13	0.0080	0.024	0.0070	2580445
Potassium (K) Extractible Total †	mg/kg	1900	4200	4200	3.0	2580445
Rubidium (Rb) Extractible Total †	mg/kg	3.3	7.9	13	0.0050	2580445
Sélénium (Se) Extractible Total †	mg/kg	<0.0090	0.13	0.017	0.0090	2580445
Sodium (Na) Extractible Total †	mg/kg	25 (1)	6.3 (1)	11 (1)	3.7	2580445
Strontium (Sr) Extractible Total †	mg/kg	55	140	17	0.0050	2580445
Tellure (Te) Extractible Total †	mg/kg	<0.012 (1)	<0.012 (1)	<0.012 (1)	0.012	2580445
Thallium (Tl) Extractible Total †	mg/kg	0.015	0.0058	0.0024	0.0020	2580445
Thorium (Th) Extractible Total †	mg/kg	<0.0040	<0.0040	<0.0040	0.0040	2580445
Titane (Ti) Extractible Total †	mg/kg	0.42	0.55	0.81	0.050	2580445
Tungstene (W) Extractible Total †	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	2580445
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2580445

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7314	NK7315	NK7316		
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19		
# Bordereau		141983	141983	141983		
	Unités	**2024-ST05-EPN-Aiguilles**	**2024-ST05-MEL-Écorce**	**2024-ST05-TLB-Feuilles**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	0.018	<0.0090	0.014	0.0090	2580445
Zinc (Zn) Extractible Total †	mg/kg	140	85	16	0.30	2580445

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7317			NK7318		
Date d'échantillonnage		2024/08/19			2024/08/19		
# Bordereau		141983			141983		
	Unités	2024-ST06-EPN-Aiguilles	LDR	Lot CQ	2024-ST06-MEL-Écorce	LDR	Lot CQ
MÉTAUX							
Aluminium (Al) Extractible Total †	mg/kg	28	0.40	2580445	14	0.40	2580468
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	0.040	2580445	<0.040	0.040	2580468
Argent (Ag) Extractible Total †	mg/kg	0.062	0.0010	2580445	0.0025 (1)	0.0011	2580468
Arsenic (As) Extractible Total †	mg/kg	<0.0050	0.0050	2580445	0.0089	0.0050	2580468
Baryum (Ba) Extractible Total †	mg/kg	61	0.0060	2580445	110	0.0060	2580468
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	0.0030	2580445	<0.0030	0.0030	2580468
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	0.0020	2580445	<0.0020	0.0020	2580468
Bore (B) Extractible Total †	mg/kg	15	0.070	2580445	14	0.070	2580468
Cadmium (Cd) Extractible Total †	mg/kg	0.016	0.0010	2580445	0.058	0.0010	2580468
Calcium (Ca) Extractible Total †	mg/kg	15000	3.0	2580445	4200	3.0	2580468
Chrome (Cr) Extractible Total †	mg/kg	<0.050	0.050	2580445	<0.050	0.050	2580468
Cobalt (Co) Extractible Total †	mg/kg	0.021	0.0020	2580445	0.019	0.0020	2580468
Cuivre (Cu) Extractible Total †	mg/kg	0.74	0.050	2580445	0.85	0.050	2580468
Etain (Sn) Extractible Total †	mg/kg	1.2 (1)	0.74	2580445	1.6 (1)	1.1	2580468
Fer (Fe) Extractible Total †	mg/kg	5.2	1.0	2580445	9.7	1.0	2580468
Lithium (Li) Extractible Total †	mg/kg	<0.020	0.020	2580445	<0.020	0.020	2580468
Magnésium (Mg) Extractible Total †	mg/kg	650	1.0	2580445	710	1.0	2580468
Manganèse (Mn) Extractible Total †	mg/kg	1200	0.030	2580445	2300	0.030	2580468
Mercure (Hg) Extractible Total †	mg/kg	0.0056	0.00030	2580445	0.0065	0.00030	2580468
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	0.0030	2580445	0.0064	0.0030	2580468
Nickel (Ni) Extractible Total †	mg/kg	0.22	0.010	2580445	0.26	0.010	2580468
Phosphore total Extractible Total †	mg/kg	370	5.0	2580445	660	5.0	2580468
Plomb (Pb) Extractible Total †	mg/kg	0.096	0.0070	2580445	0.060	0.0070	2580468
Potassium (K) Extractible Total †	mg/kg	1900	3.0	2580445	4100	3.0	2580468
Rubidium (Rb) Extractible Total †	mg/kg	3.4	0.0050	2580445	4.6	0.0050	2580468
Sélénium (Se) Extractible Total †	mg/kg	<0.0090	0.0090	2580445	0.098	0.0090	2580468
Sodium (Na) Extractible Total †	mg/kg	7.8 (1)	3.7	2580445	8.6 (1)	3.6	2580468
Strontium (Sr) Extractible Total †	mg/kg	24	0.0050	2580445	33	0.0050	2580468
Tellure (Te) Extractible Total †	mg/kg	<0.012 (1)	0.012	2580445	0.049 (1)	0.016	2580468
Thallium (Tl) Extractible Total †	mg/kg	0.047	0.0020	2580445	0.0027	0.0020	2580468
Thorium (Th) Extractible Total †	mg/kg	<0.0040	0.0040	2580445	<0.0040	0.0040	2580468
Titane (Ti) Extractible Total †	mg/kg	0.34	0.050	2580445	0.48	0.050	2580468
Tungstene (W) Extractible Total †	mg/kg	<0.0050	0.0050	2580445	0.0070	0.0050	2580468
Uranium (U) Extractible Total †	mg/kg	<0.0010	0.0010	2580445	<0.0010	0.0010	2580468

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7317			NK7318		
Date d'échantillonnage		2024/08/19			2024/08/19		
# Bordereau		141983			141983		
	Unités	**2024-ST06-EPN-Aiguilles**	**LDR**	**Lot CQ**	**2024-ST06-MEL-Écorce**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	<0.0090	0.0090	2580445	<0.0090	0.0090	2580468
Zinc (Zn) Extractible Total †	mg/kg	120	0.30	2580445	77	0.30	2580468

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7319	NK7320	NK7321		
Date d'échantillonnage		2024/08/19	2024/08/22	2024/08/22		
# Bordereau		141983	141983	141983		
	Unités	2024-ST06-TLB-Feuilles	REP-2024-ST07-TLB-Feuilles	2024-ST07-EPN-Aiguilles	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	16	48	31	0.40	2580468
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2580468
Argent (Ag) Extractible Total †	mg/kg	0.0023 (1)	0.0031 (1)	0.0094 (1)	0.0011	2580468
Arsenic (As) Extractible Total †	mg/kg	0.014	0.021	0.0066	0.0050	2580468
Baryum (Ba) Extractible Total †	mg/kg	53	68	130	0.0060	2580468
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2580468
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2580468
Bore (B) Extractible Total †	mg/kg	15	17	16	0.070	2580468
Cadmium (Cd) Extractible Total †	mg/kg	0.0013	<0.0010	0.052	0.0010	2580468
Calcium (Ca) Extractible Total †	mg/kg	4700	5600	12000	3.0	2580468
Chrome (Cr) Extractible Total †	mg/kg	<0.050	0.11	<0.050	0.050	2580468
Cobalt (Co) Extractible Total †	mg/kg	0.0097	0.041	0.14	0.0020	2580468
Cuivre (Cu) Extractible Total †	mg/kg	2.9	2.5	1.3	0.050	2580468
Etain (Sn) Extractible Total †	mg/kg	1.4 (1)	1.4 (1)	1.4 (1)	1.1	2580468
Fer (Fe) Extractible Total †	mg/kg	26	65	11	1.0	2580468
Lithium (Li) Extractible Total †	mg/kg	<0.020	0.048	<0.020	0.020	2580468
Magnésium (Mg) Extractible Total †	mg/kg	790	1000	580	1.0	2580468
Manganèse (Mn) Extractible Total †	mg/kg	1000	490	1500	0.030	2580468
Mercure (Hg) Extractible Total †	mg/kg	0.0066	0.0056	0.0063	0.00030	2580468
Molybdène (Mo) Extractible Total †	mg/kg	0.047	0.035	0.0061	0.0030	2580468
Nickel (Ni) Extractible Total †	mg/kg	0.34	0.48	0.39	0.010	2580468
Phosphore total Extractible Total †	mg/kg	950	1100	590	5.0	2580468
Plomb (Pb) Extractible Total †	mg/kg	0.016	0.030	0.11	0.0070	2580468
Potassium (K) Extractible Total †	mg/kg	3800	4300	2500	3.0	2580468
Rubidium (Rb) Extractible Total †	mg/kg	8.5	13	4.6	0.0050	2580468
Sélénium (Se) Extractible Total †	mg/kg	0.022	0.015	<0.0090	0.0090	2580468
Sodium (Na) Extractible Total †	mg/kg	11 (1)	10 (1)	20 (1)	3.6	2580468
Strontium (Sr) Extractible Total †	mg/kg	7.9	10	29	0.0050	2580468
Tellure (Te) Extractible Total †	mg/kg	0.017 (1)	<0.016 (1)	<0.016 (1)	0.016	2580468
Thallium (Tl) Extractible Total †	mg/kg	0.0025	0.0025	0.042	0.0020	2580468
Thorium (Th) Extractible Total †	mg/kg	<0.0040	0.0098	<0.0040	0.0040	2580468
Titane (Ti) Extractible Total †	mg/kg	0.72	2.2	0.49	0.050	2580468
Tungstene (W) Extractible Total †	mg/kg	0.0076	0.018	0.0051	0.0050	2580468
Uranium (U) Extractible Total †	mg/kg	<0.0010	0.0051	<0.0010	0.0010	2580468

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7319	NK7320	NK7321		
Date d'échantillonnage		2024/08/19	2024/08/22	2024/08/22		
# Bordereau		141983	141983	141983		
	Unités	**2024-ST06-TLB-Feuilles**	**REP-2024-ST07-TLB-Feuilles**	**2024-ST07-EPN-Aiguilles**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	0.013	0.11	0.012	0.0090	2580468
Zinc (Zn) Extractible Total †	mg/kg	12	14	140	0.30	2580468

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7322	NK7323	NK7324		
Date d'échantillonnage		2024/08/22	2024/08/22	2024/08/22		
# Bordereau		141983	141983	141983		
	Unités	2024-ST07-MEL-Écorce	2024-ST07-TLB-Feuilles	2024-ST08-EPN-Aiguilles	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	44	50	15	0.40	2588765
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2588765
Argent (Ag) Extractible Total †	mg/kg	0.0061	0.0017	0.017	0.0010	2588765
Arsenic (As) Extractible Total †	mg/kg	0.0094	0.030	0.0051	0.0050	2588765
Baryum (Ba) Extractible Total †	mg/kg	120	55	110	0.0060	2588765
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2588765
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2588765
Bore (B) Extractible Total †	mg/kg	13	15	15	0.070	2588765
Cadmium (Cd) Extractible Total †	mg/kg	0.16	<0.0010	0.059	0.0010	2588765
Calcium (Ca) Extractible Total †	mg/kg	3200	4300	9100	3.0	2588765
Chrome (Cr) Extractible Total †	mg/kg	0.064	0.13	<0.050	0.050	2588765
Cobalt (Co) Extractible Total †	mg/kg	0.12	0.052	0.027	0.0020	2588765
Cuivre (Cu) Extractible Total †	mg/kg	1.7	2.5	0.63	0.050	2588765
Etain (Sn) Extractible Total †	mg/kg	<2.1 (1)	<2.1 (1)	<2.1 (1)	2.1	2588765
Fer (Fe) Extractible Total †	mg/kg	24	65	16	1.0	2588765
Lithium (Li) Extractible Total †	mg/kg	<0.020	0.069	<0.020	0.020	2588765
Magnésium (Mg) Extractible Total †	mg/kg	710	1100	780	1.0	2588765
Manganèse (Mn) Extractible Total †	mg/kg	1200	520	1300	0.030	2588765
Mercure (Hg) Extractible Total †	mg/kg	0.0059	0.0050	0.0054	0.00030	2588765
Molybdène (Mo) Extractible Total †	mg/kg	0.025	0.065	<0.0030	0.0030	2588765
Nickel (Ni) Extractible Total †	mg/kg	0.95	0.42	0.26	0.010	2588765
Phosphore total Extractible Total †	mg/kg	910	1100	290	5.0	2588765
Plomb (Pb) Extractible Total †	mg/kg	0.024	0.030	0.12	0.0070	2588765
Potassium (K) Extractible Total †	mg/kg	3600	4800	2500	3.0	2588765
Rubidium (Rb) Extractible Total †	mg/kg	6.9	14	5.4	0.0050	2588765
Sélénium (Se) Extractible Total †	mg/kg	0.066	0.0099	<0.0090	0.0090	2588765
Sodium (Na) Extractible Total †	mg/kg	14 (1)	17 (1)	22 (1)	13	2588765
Strontium (Sr) Extractible Total †	mg/kg	50	15	15	0.0050	2588765
Tellure (Te) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2588765
Thallium (Tl) Extractible Total †	mg/kg	0.0035	0.0052	0.033	0.0020	2588765
Thorium (Th) Extractible Total †	mg/kg	<0.0040	0.0092	<0.0040	0.0040	2588765
Titane (Ti) Extractible Total †	mg/kg	0.63	2.5	0.35	0.050	2588765
Tungstene (W) Extractible Total †	mg/kg	<0.0050	0.020	<0.0050	0.0050	2588765
Uranium (U) Extractible Total †	mg/kg	<0.0010	0.0025	<0.0010	0.0010	2588765

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7322	NK7323	NK7324		
Date d'échantillonnage		2024/08/22	2024/08/22	2024/08/22		
# Bordereau		141983	141983	141983		
	Unités	**2024-ST07-MEL-Écorce**	**2024-ST07-TLB-Feuilles**	**2024-ST08-EPN-Aiguilles**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	0.016	0.12	0.010	0.0090	2588765
Zinc (Zn) Extractible Total †	mg/kg	41	12	110	0.30	2588765

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7325	NK7326	NK7327		
Date d'échantillonnage		2024/08/22	2024/08/22	2024/08/22		
# Bordereau		141983	141983	141983		
	Unités	2024-ST08-MEL-Écorce	2024-ST08-TLB-Feuilles	REP-2024-ST09-TLB-Feuilles	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	30	27	150	0.40	2588765
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2588765
Argent (Ag) Extractible Total †	mg/kg	0.0053	0.020	0.0027	0.0010	2588765
Arsenic (As) Extractible Total †	mg/kg	0.0081	0.013	0.078	0.0050	2588765
Baryum (Ba) Extractible Total †	mg/kg	61	63	47	0.0060	2588765
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2588765
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2588765
Bore (B) Extractible Total †	mg/kg	8.5	22	11	0.070	2588765
Cadmium (Cd) Extractible Total †	mg/kg	0.082	0.0010	0.0017	0.0010	2588765
Calcium (Ca) Extractible Total †	mg/kg	3800	4200	4300	3.0	2588765
Chrome (Cr) Extractible Total †	mg/kg	<0.050	0.069	0.51	0.050	2588765
Cobalt (Co) Extractible Total †	mg/kg	0.066	0.031	0.19	0.0020	2588765
Cuivre (Cu) Extractible Total †	mg/kg	1.4	3.2	4.6	0.050	2588765
Etain (Sn) Extractible Total †	mg/kg	<2.1 (1)	<2.1 (1)	<2.1 (1)	2.1	2588765
Fer (Fe) Extractible Total †	mg/kg	13	41	210	1.0	2588765
Lithium (Li) Extractible Total †	mg/kg	<0.020	0.031	0.26	0.020	2588765
Magnésium (Mg) Extractible Total †	mg/kg	670	860	1000	1.0	2588765
Manganèse (Mn) Extractible Total †	mg/kg	1100	1000	480	0.030	2588765
Mercure (Hg) Extractible Total †	mg/kg	0.0047	0.0062	0.0058	0.00030	2588765
Molybdène (Mo) Extractible Total †	mg/kg	0.0063	0.012	0.057	0.0030	2588765
Nickel (Ni) Extractible Total †	mg/kg	0.62	0.59	2.0	0.010	2588765
Phosphore total Extractible Total †	mg/kg	540	870	1100	5.0	2588765
Plomb (Pb) Extractible Total †	mg/kg	0.029	0.036	0.070	0.0070	2588765
Potassium (K) Extractible Total †	mg/kg	2500	4600	4600	3.0	2588765
Rubidium (Rb) Extractible Total †	mg/kg	5.6	17	21	0.0050	2588765
Sélénium (Se) Extractible Total †	mg/kg	0.077	0.014	0.032	0.0090	2588765
Sodium (Na) Extractible Total †	mg/kg	13 (1)	18 (1)	32 (1)	13	2588765
Strontium (Sr) Extractible Total †	mg/kg	18	6.9	12	0.0050	2588765
Tellure (Te) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2588765
Thallium (Tl) Extractible Total †	mg/kg	0.0061	<0.0020	0.0027	0.0020	2588765
Thorium (Th) Extractible Total †	mg/kg	<0.0040	0.0068	0.031	0.0040	2588765
Titane (Ti) Extractible Total †	mg/kg	0.50	1.4	8.6	0.050	2588765
Tungstene (W) Extractible Total †	mg/kg	<0.0050	0.019	0.047	0.0050	2588765
Uranium (U) Extractible Total †	mg/kg	<0.0010	0.0015	0.0085	0.0010	2588765

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7325	NK7326	NK7327		
Date d'échantillonnage		2024/08/22	2024/08/22	2024/08/22		
# Bordereau		141983	141983	141983		
	Unités	**2024-ST08-MEL-Écorce**	**2024-ST08-TLB-Feuilles**	**REP-2024-ST09-TLB-Feuilles**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	<0.0090	0.057	0.48	0.0090	2588765
Zinc (Zn) Extractible Total †	mg/kg	42	14	15	0.30	2588765

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7328	NK7329	NK7330		
Date d'échantillonnage		2024/08/22	2024/08/22	2024/08/22		
# Bordereau		141983	141983	141983		
	Unités	2024-ST09-EPN-Aiguilles	2024-ST09-MEL-Écorce	2024-ST09-TLB-Feuilles	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	14	120	140	0.40	2588765
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2588765
Argent (Ag) Extractible Total †	mg/kg	0.042	0.0032	0.0015	0.0010	2588765
Arsenic (As) Extractible Total †	mg/kg	0.013	0.0096	0.070	0.0050	2588765
Baryum (Ba) Extractible Total †	mg/kg	300	100	63	0.0060	2588765
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2588765
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2588765
Bore (B) Extractible Total †	mg/kg	15	8.8	14	0.070	2588765
Cadmium (Cd) Extractible Total †	mg/kg	0.015	0.044	0.0013	0.0010	2588765
Calcium (Ca) Extractible Total †	mg/kg	27000	3600	4700	3.0	2588765
Chrome (Cr) Extractible Total †	mg/kg	<0.050	0.17	0.49	0.050	2588765
Cobalt (Co) Extractible Total †	mg/kg	0.99	0.48	0.19	0.0020	2588765
Cuivre (Cu) Extractible Total †	mg/kg	1.3	2.2	4.5	0.050	2588765
Etain (Sn) Extractible Total †	mg/kg	<2.1 (1)	<2.1 (1)	<2.1 (1)	2.1	2588765
Fer (Fe) Extractible Total †	mg/kg	50	11	200	1.0	2588765
Lithium (Li) Extractible Total †	mg/kg	0.048	0.032	0.28	0.020	2588765
Magnésium (Mg) Extractible Total †	mg/kg	920	460	1200	1.0	2588765
Manganèse (Mn) Extractible Total †	mg/kg	1200	1000	580	0.030	2588765
Mercure (Hg) Extractible Total †	mg/kg	0.010	0.0039	0.0053	0.00030	2588765
Molybdène (Mo) Extractible Total †	mg/kg	0.0074	0.0085	0.044	0.0030	2588765
Nickel (Ni) Extractible Total †	mg/kg	1.5	7.2	1.6	0.010	2588765
Phosphore total Extractible Total †	mg/kg	590	870	1200	5.0	2588765
Plomb (Pb) Extractible Total †	mg/kg	0.052	0.0090	0.084	0.0070	2588765
Potassium (K) Extractible Total †	mg/kg	2800	4300	4600	3.0	2588765
Rubidium (Rb) Extractible Total †	mg/kg	10	20	22	0.0050	2588765
Sélénium (Se) Extractible Total †	mg/kg	<0.0090	0.069	0.015	0.0090	2588765
Sodium (Na) Extractible Total †	mg/kg	15 (1)	13 (1)	20 (1)	13	2588765
Strontium (Sr) Extractible Total †	mg/kg	290	57	18	0.0050	2588765
Tellure (Te) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2588765
Thallium (Tl) Extractible Total †	mg/kg	0.036	0.0034	0.0024	0.0020	2588765
Thorium (Th) Extractible Total †	mg/kg	<0.0040	<0.0040	0.037	0.0040	2588765
Titane (Ti) Extractible Total †	mg/kg	0.85	0.60	8.5	0.050	2588765
Tungstene (W) Extractible Total †	mg/kg	<0.0050	<0.0050	0.037	0.0050	2588765
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0084	0.0010	2588765

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7328	NK7329	NK7330		
Date d'échantillonnage		2024/08/22	2024/08/22	2024/08/22		
# Bordereau		141983	141983	141983		
	Unités	**2024-ST09-EPN-Aiguilles**	**2024-ST09-MEL-Écorce**	**2024-ST09-TLB-Feuilles**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	0.031	0.019	0.45	0.0090	2588765
Zinc (Zn) Extractible Total †	mg/kg	110	41	19	0.30	2588765

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7331	NK7332	NK7333		
Date d'échantillonnage		2024/08/23	2024/08/22	2024/08/22		
# Bordereau		141983	141983	141983		
	Unités	**2024-ST10-EPN-Aiguilles**	**2024-ST11-EPN-Aiguilles**	**2024-ST11--MEL-Écorce**	**LDR**	**Lot CQ**
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	94	100	50	0.40	2588765
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2588765
Argent (Ag) Extractible Total †	mg/kg	0.024	0.031	0.028	0.0010	2588765
Arsenic (As) Extractible Total †	mg/kg	0.019	0.0055	<0.0050	0.0050	2588765
Baryum (Ba) Extractible Total †	mg/kg	180	140	84	0.0060	2588765
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2588765
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2588765
Bore (B) Extractible Total †	mg/kg	7.9	17	11	0.070	2588765
Cadmium (Cd) Extractible Total †	mg/kg	0.024	0.18	0.091	0.0010	2588765
Calcium (Ca) Extractible Total †	mg/kg	6200	13000	3200	3.0	2588765
Chrome (Cr) Extractible Total †	mg/kg	<0.050	0.14	0.050	0.050	2588765
Cobalt (Co) Extractible Total †	mg/kg	0.91	0.51	0.10	0.0020	2588765
Cuivre (Cu) Extractible Total †	mg/kg	2.5	2.1	1.8	0.050	2588765
Etain (Sn) Extractible Total †	mg/kg	<2.1 (1)	2.1 (1)	<2.1 (1)	2.1	2588765
Fer (Fe) Extractible Total †	mg/kg	12	18	19	1.0	2588765
Lithium (Li) Extractible Total †	mg/kg	0.022	<0.020	<0.020	0.020	2588765
Magnésium (Mg) Extractible Total †	mg/kg	740	810	450	1.0	2588765
Manganèse (Mn) Extractible Total †	mg/kg	670	1600	2000	0.030	2588765
Mercure (Hg) Extractible Total †	mg/kg	0.011	0.0090	0.0040	0.00030	2588765
Molybdène (Mo) Extractible Total †	mg/kg	0.0043	0.011	0.017	0.0030	2588765
Nickel (Ni) Extractible Total †	mg/kg	2.4	1.2	0.56	0.010	2588765
Phosphore total Extractible Total †	mg/kg	580	930	800	5.0	2588765
Plomb (Pb) Extractible Total †	mg/kg	0.027	0.037	0.016	0.0070	2588765
Potassium (K) Extractible Total †	mg/kg	2400	3700	3600	3.0	2588765
Rubidium (Rb) Extractible Total †	mg/kg	12	9.9	6.5	0.0050	2588765
Sélénium (Se) Extractible Total †	mg/kg	<0.0090	<0.0090	0.11	0.0090	2588765
Sodium (Na) Extractible Total †	mg/kg	20 (1)	16 (1)	<13 (1)	13	2588765
Strontium (Sr) Extractible Total †	mg/kg	42	43	45	0.0050	2588765
Tellure (Te) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	2588765
Thallium (Tl) Extractible Total †	mg/kg	0.043	0.030	0.0034	0.0020	2588765
Thorium (Th) Extractible Total †	mg/kg	0.0051	<0.0040	<0.0040	0.0040	2588765
Titane (Ti) Extractible Total †	mg/kg	0.69	0.69	0.64	0.050	2588765
Tungstene (W) Extractible Total †	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	2588765
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2588765

LDR = Limite de détection rapportée
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(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7331	NK7332	NK7333		
Date d'échantillonnage		2024/08/23	2024/08/22	2024/08/22		
# Bordereau		141983	141983	141983		
	Unités	**2024-ST10-EPN-Aiguilles**	**2024-ST11-EPN-Aiguilles**	**2024-ST11--MEL-Écorce**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	0.017	0.012	0.013	0.0090	2588765
Zinc (Zn) Extractible Total †	mg/kg	35	100	40	0.30	2588765

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7334	NK7335		
Date d'échantillonnage		2024/08/22	2024/08/23		
# Bordereau		141983	141983		
	Unités	2024-ST11-TLB-Feuilles	2024-ST10-MEL-écorce	LDR	Lot CQ
MÉTAUX					
Aluminium (Al) Extractible Total †	mg/kg	21	820	0.40	2588765
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	0.040	2588765
Argent (Ag) Extractible Total †	mg/kg	<0.0010	0.011	0.0010	2588765
Arsenic (As) Extractible Total †	mg/kg	0.020	0.016	0.0050	2588765
Baryum (Ba) Extractible Total †	mg/kg	66	98	0.0060	2588765
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	0.0043	0.0030	2588765
Bismuth (Bi) Extractible Total †	mg/kg	<0.0020	<0.0020	0.0020	2588765
Bore (B) Extractible Total †	mg/kg	15	5.2	0.070	2588765
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	0.067	0.0010	2588765
Calcium (Ca) Extractible Total †	mg/kg	5000	3800	3.0	2588765
Chrome (Cr) Extractible Total †	mg/kg	0.054	0.10	0.050	2588765
Cobalt (Co) Extractible Total †	mg/kg	0.025	1.4	0.0020	2588765
Cuivre (Cu) Extractible Total †	mg/kg	2.5	3.1	0.050	2588765
Etain (Sn) Extractible Total †	mg/kg	<2.1 (1)	<2.1 (1)	2.1	2588765
Fer (Fe) Extractible Total †	mg/kg	37	34	1.0	2588765
Lithium (Li) Extractible Total †	mg/kg	0.028	0.050	0.020	2588765
Magnésium (Mg) Extractible Total †	mg/kg	960	760	1.0	2588765
Manganèse (Mn) Extractible Total †	mg/kg	1100	1500	0.030	2588765
Mercure (Hg) Extractible Total †	mg/kg	0.0052	0.0051	0.00030	2588765
Molybdène (Mo) Extractible Total †	mg/kg	0.12	0.0071	0.0030	2588765
Nickel (Ni) Extractible Total †	mg/kg	0.31	5.0	0.010	2588765
Phosphore total Extractible Total †	mg/kg	1100	940	5.0	2588765
Plomb (Pb) Extractible Total †	mg/kg	0.017	0.032	0.0070	2588765
Potassium (K) Extractible Total †	mg/kg	4500	4800	3.0	2588765
Rubidium (Rb) Extractible Total †	mg/kg	13	20	0.0050	2588765
Sélénium (Se) Extractible Total †	mg/kg	0.013	0.19	0.0090	2588765
Sodium (Na) Extractible Total †	mg/kg	15 (1)	19 (1)	13	2588765
Strontium (Sr) Extractible Total †	mg/kg	11	33	0.0050	2588765
Tellure (Te) Extractible Total †	mg/kg	<0.0020	<0.0020	0.0020	2588765
Thallium (Tl) Extractible Total †	mg/kg	<0.0020	0.010	0.0020	2588765
Thorium (Th) Extractible Total †	mg/kg	0.0057	<0.0040	0.0040	2588765
Titane (Ti) Extractible Total †	mg/kg	1.6	0.68	0.050	2588765
Tungstene (W) Extractible Total †	mg/kg	<0.0050	<0.0050	0.0050	2588765
Uranium (U) Extractible Total †	mg/kg	0.0014	<0.0010	0.0010	2588765

LDR = Limite de détection rapportée
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(1) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

ID Bureau Veritas		NK7334	NK7335		
Date d'échantillonnage		2024/08/22	2024/08/23		
# Bordereau		141983	141983		
	Unités	**2024-ST11-TLB-Feuilles**	**2024-ST10-MEL-écorce**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	0.045	0.011	0.0090	2588765
Zinc (Zn) Extractible Total †	mg/kg	13	25	0.30	2588765

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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ANALYSE EN SOUS-TRAITANCE (VÉGÉTAUX)

ID Bureau Veritas		NK7297	NK7298	NK7299	
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19	
# Bordereau		141983	141983	141983	
	Unités	2024-ST01-EPN-Aiguilles	2024-ST01-MEL-Écorce	2024-ST01-Bleuets-Fruits	Lot CQ
CONVENTIONNELS					
Lyophilisation †	%	54	53	87	2579941

Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

ID Bureau Veritas		NK7300	NK7301	NK7302	
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19	
# Bordereau		141983	141983	141983	
	Unités	2024-ST01-TLB-Feuilles	2024-ST02-EPN-Aiguilles	2024-ST02-MEL-Écorce	Lot CQ
CONVENTIONNELS					
Lyophilisation †	%	47	53	54	2579941

Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

ID Bureau Veritas		NK7303	NK7304	NK7305	
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19	
# Bordereau		141983	141983	141983	
	Unités	2024-ST02-Bleuets-Fruits	2024-ST02-TLB-Feuilles	REP-2024-ST03-MEL-Écorce	Lot CQ
CONVENTIONNELS					
Lyophilisation †	%	86	46	56	2579941

Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

ID Bureau Veritas		NK7306	NK7307	NK7308	
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19	
# Bordereau		141983	141983	141983	
	Unités	2024-ST03-EPN-Aiguilles	2024-ST03-MEL-Écorce	2024-ST03-TLB-Feuilles	Lot CQ
CONVENTIONNELS					
Lyophilisation †	%	62	57	48	2579941

Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

ID Bureau Veritas		NK7309	NK7310	NK7311	
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19	
# Bordereau		141983	141983	141983	
	Unités	2024-ST04-EPN-Aiguilles	2024-ST04-MEL-Écorce	2024-ST04-Bleuets-Fruits	Lot CQ
CONVENTIONNELS					
Lyophilisation †	%	57	56	86	2579941

Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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ANALYSE EN SOUS-TRAITANCE (VÉGÉTAUX)

ID Bureau Veritas		NK7312	NK7313	NK7314	NK7315	
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19	2024/08/19	
# Bordereau		141983	141983	141983	141983	
	Unités	**2024-ST04-TLB-Feuilles**	**REP-2024-ST05-EPN-Aiguilles**	**2024-ST05-EPN-Aiguilles**	**2024-ST05-MEL-Écorce**	**Lot CQ**
CONVENTIONNELS						
Lyophilisation †	%	46	63	53	57	2579941

Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

ID Bureau Veritas		NK7316	NK7317	NK7318	NK7319	
Date d'échantillonnage		2024/08/19	2024/08/19	2024/08/19	2024/08/19	
# Bordereau		141983	141983	141983	141983	
	Unités	**2024-ST05-TLB-Feuilles**	**2024-ST06-EPN-Aiguilles**	**2024-ST06-MEL-Écorce**	**2024-ST06-TLB-Feuilles**	**Lot CQ**
CONVENTIONNELS						
Lyophilisation †	%	48	52	54	47	2579941

Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

ID Bureau Veritas		NK7320	NK7321		NK7322	
Date d'échantillonnage		2024/08/22	2024/08/22		2024/08/22	
# Bordereau		141983	141983		141983	
	Unités	**REP-2024-ST07-TLB-Feuilles**	**2024-ST07-EPN-Aiguilles**	**Lot CQ**	**2024-ST07-MEL-Écorce**	**Lot CQ**
CONVENTIONNELS						
Lyophilisation †	%	46	53	2579941	55	2579942

Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

ID Bureau Veritas		NK7323	NK7324	NK7325	NK7326	
Date d'échantillonnage		2024/08/22	2024/08/22	2024/08/22	2024/08/22	
# Bordereau		141983	141983	141983	141983	
	Unités	**2024-ST07-TLB-Feuilles**	**2024-ST08-EPN-Aiguilles**	**2024-ST08-MEL-Écorce**	**2024-ST08-TLB-Feuilles**	**Lot CQ**
CONVENTIONNELS						
Lyophilisation †	%	48	50	50	46	2579942

Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

ID Bureau Veritas		NK7327	NK7328	NK7329	NK7330	
Date d'échantillonnage		2024/08/22	2024/08/22	2024/08/22	2024/08/22	
# Bordereau		141983	141983	141983	141983	
	Unités	**REP-2024-ST09-TLB-Feuilles**	**2024-ST09-EPN-Aiguilles**	**2024-ST09-MEL-Écorce**	**2024-ST09-TLB-Feuilles**	**Lot CQ**
CONVENTIONNELS						
Lyophilisation †	%	48	60	56	50	2579942

Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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ANALYSE EN SOUS-TRAITANCE (VÉGÉTAUX)

ID Bureau Veritas		NK7331	NK7332	NK7333	
Date d'échantillonnage		2024/08/23	2024/08/22	2024/08/22	
# Bordereau		141983	141983	141983	
	Unités	**2024-ST10-EPN-Aiguilles**	**2024-ST11-EPN-Aiguilles**	**2024-ST11--MEL-Écorce**	**Lot CQ**
CONVENTIONNELS					
Lyophilisation †	%	55	63	55	2579942

Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

ID Bureau Veritas		NK7334	NK7335	
Date d'échantillonnage		2024/08/22	2024/08/23	
# Bordereau		141983	141983	
	Unités	**2024-ST11-TLB-Feuilles**	**2024-ST10-MEL-écorce**	**Lot CQ**
CONVENTIONNELS				
Lyophilisation †	%	48	57	2579942

Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre

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REMARQUES GÉNÉRALES

MÉTAUX SOLUBLES À L'ACIDE (VÉGÉTAUX)

Te, Na, Sn : À cause de la nature de l'échantillon, une meilleure limite de détection ne peut être fournie.
Noter que l'échantillon nk7297 est non homogène.
Les limites de détection indiquées sont modifiées en fonction du poids d'échantillon utilisé pour l'analyse. NK7303
Veuillez noter que les echantillons ont été lyophilisés avant la digestion et l'analyse.

Les résultats ne se rapportent qu'aux échantillons soumis pour analyse

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RAPPORT ASSURANCE QUALITÉ

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
2580445	DMI	Blanc fortifié	Aluminium (Al) Extractible Total	2024/10/28		97	%
			Antimoine (Sb) Extractible Total	2024/10/28		72 (1)	%
			Argent (Ag) Extractible Total	2024/10/28		93	%
			Arsenic (As) Extractible Total	2024/10/28		85	%
			Baryum (Ba) Extractible Total	2024/10/28		103	%
			Béryllium (Be) Extractible Total	2024/10/28		91	%
			Bismuth (Bi) Extractible Total	2024/10/28		91	%
			Bore (B) Extractible Total	2024/10/28		101	%
			Cadmium (Cd) Extractible Total	2024/10/28		88	%
			Calcium (Ca) Extractible Total	2024/10/28		97	%
			Chrome (Cr) Extractible Total	2024/10/28		100	%
			Cobalt (Co) Extractible Total	2024/10/28		99	%
			Cuivre (Cu) Extractible Total	2024/10/28		96	%
			Etain (Sn) Extractible Total	2024/10/28		116	%
			Fer (Fe) Extractible Total	2024/10/28		97	%
			Lithium (Li) Extractible Total	2024/10/28		107	%
			Magnésium (Mg) Extractible Total	2024/10/28		97	%
			Manganèse (Mn) Extractible Total	2024/10/28		101	%
			Mercure (Hg) Extractible Total	2024/10/28		81	%
			Molybdène (Mo) Extractible Total	2024/10/28		107	%
			Nickel (Ni) Extractible Total	2024/10/28		97	%
			Phosphore total Extractible Total	2024/10/28		90	%
			Plomb (Pb) Extractible Total	2024/10/28		95	%
			Potassium (K) Extractible Total	2024/10/28		105	%
			Rubidium (Rb) Extractible Total	2024/10/28		103	%
			Sélénium (Se) Extractible Total	2024/10/28		73 (1)	%
			Sodium (Na) Extractible Total	2024/10/28		102	%
			Strontium (Sr) Extractible Total	2024/10/28		99	%
			Tellure (Te) Extractible Total	2024/10/28		92	%
			Thallium (Tl) Extractible Total	2024/10/28		84	%
			Thorium (Th) Extractible Total	2024/10/28		107	%
			Titane (Ti) Extractible Total	2024/10/28		104	%
			Tungstene (W) Extractible Total	2024/10/28		115	%
			Uranium (U) Extractible Total	2024/10/28		99	%
			Vanadium (V) Extractible Total	2024/10/28		104	%
			Zinc (Zn) Extractible Total	2024/10/28		77	%
2580445	DMI	Blanc de méthode	Aluminium (Al) Extractible Total	2024/10/28	<0.40		mg/kg
			Antimoine (Sb) Extractible Total	2024/10/28	<0.040		mg/kg
			Argent (Ag) Extractible Total	2024/10/28	<0.0010		mg/kg
			Arsenic (As) Extractible Total	2024/10/28	<0.0050		mg/kg
			Baryum (Ba) Extractible Total	2024/10/28	0.049, LDR=0.0060		mg/kg
			Béryllium (Be) Extractible Total	2024/10/28	<0.0030		mg/kg
			Bismuth (Bi) Extractible Total	2024/10/28	<0.0020		mg/kg
			Bore (B) Extractible Total	2024/10/28	<0.070		mg/kg
			Cadmium (Cd) Extractible Total	2024/10/28	<0.0010		mg/kg
			Calcium (Ca) Extractible Total	2024/10/28	<3.0		mg/kg
			Chrome (Cr) Extractible Total	2024/10/28	<0.050		mg/kg
			Cobalt (Co) Extractible Total	2024/10/28	<0.0020		mg/kg
			Cuivre (Cu) Extractible Total	2024/10/28	<0.050		mg/kg
			Etain (Sn) Extractible Total	2024/10/28	<0.74		mg/kg
			Fer (Fe) Extractible Total	2024/10/28	<1.0		mg/kg
			Lithium (Li) Extractible Total	2024/10/28	<0.020		mg/kg

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RAPPORT ASSURANCE QUALITÉ (SUITE)

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Magnésium (Mg) Extractible Total	2024/10/28	<1.0		mg/kg
			Manganèse (Mn) Extractible Total	2024/10/28	<0.030		mg/kg
			Mercure (Hg) Extractible Total	2024/10/28	<0.00030		mg/kg
			Molybdène (Mo) Extractible Total	2024/10/28	<0.0030		mg/kg
			Nickel (Ni) Extractible Total	2024/10/28	<0.010		mg/kg
			Phosphore total Extractible Total	2024/10/28	<5.0		mg/kg
			Plomb (Pb) Extractible Total	2024/10/28	<0.0070		mg/kg
			Potassium (K) Extractible Total	2024/10/28	<3.0		mg/kg
			Rubidium (Rb) Extractible Total	2024/10/28	<0.0050		mg/kg
			Sélénium (Se) Extractible Total	2024/10/28	<0.0090		mg/kg
			Sodium (Na) Extractible Total	2024/10/28	<3.7		mg/kg
			Strontium (Sr) Extractible Total	2024/10/28	<0.0050		mg/kg
			Tellure (Te) Extractible Total	2024/10/28	<0.012		mg/kg
			Thallium (Tl) Extractible Total	2024/10/28	<0.0020		mg/kg
			Thorium (Th) Extractible Total	2024/10/28	0.0062, LDR=0.0040		mg/kg
			Titane (Ti) Extractible Total	2024/10/28	<0.050		mg/kg
			Tungstene (W) Extractible Total	2024/10/28	<0.0050		mg/kg
			Uranium (U) Extractible Total	2024/10/28	<0.0010		mg/kg
			Vanadium (V) Extractible Total	2024/10/28	<0.0090		mg/kg
			Zinc (Zn) Extractible Total	2024/10/28	<0.30		mg/kg
2580468	DMI	Blanc fortifié	Aluminium (Al) Extractible Total	2024/10/26		101	%
			Antimoine (Sb) Extractible Total	2024/10/26		69 (1)	%
			Argent (Ag) Extractible Total	2024/10/26		92	%
			Arsenic (As) Extractible Total	2024/10/26		86	%
			Baryum (Ba) Extractible Total	2024/10/26		102	%
			Béryllium (Be) Extractible Total	2024/10/26		86	%
			Bismuth (Bi) Extractible Total	2024/10/26		93	%
			Bore (B) Extractible Total	2024/10/26		98	%
			Cadmium (Cd) Extractible Total	2024/10/26		84	%
			Calcium (Ca) Extractible Total	2024/10/26		100	%
			Chrome (Cr) Extractible Total	2024/10/26		102	%
			Cobalt (Co) Extractible Total	2024/10/26		98	%
			Cuivre (Cu) Extractible Total	2024/10/26		94	%
			Etain (Sn) Extractible Total	2024/10/26		101	%
			Fer (Fe) Extractible Total	2024/10/26		101	%
			Lithium (Li) Extractible Total	2024/10/26		100	%
			Magnésium (Mg) Extractible Total	2024/10/26		99	%
			Manganèse (Mn) Extractible Total	2024/10/26		102	%
			Mercure (Hg) Extractible Total	2024/10/26		84	%
			Molybdène (Mo) Extractible Total	2024/10/26		108	%
			Nickel (Ni) Extractible Total	2024/10/26		99	%
			Phosphore total Extractible Total	2024/10/26		85	%
			Plomb (Pb) Extractible Total	2024/10/26		94	%
			Potassium (K) Extractible Total	2024/10/26		97	%
			Rubidium (Rb) Extractible Total	2024/10/26		104	%
			Sélénium (Se) Extractible Total	2024/10/26		73 (1)	%
			Sodium (Na) Extractible Total	2024/10/26		104	%
			Strontium (Sr) Extractible Total	2024/10/26		100	%
			Tellure (Te) Extractible Total	2024/10/26		89	%
			Thallium (Tl) Extractible Total	2024/10/26		85	%
			Thorium (Th) Extractible Total	2024/10/26		103	%
			Titane (Ti) Extractible Total	2024/10/26		104	%

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RAPPORT ASSURANCE QUALITÉ (SUITE)

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Tungstene (W) Extractible Total	2024/10/26		118	%
			Uranium (U) Extractible Total	2024/10/26		97	%
			Vanadium (V) Extractible Total	2024/10/26		109	%
			Zinc (Zn) Extractible Total	2024/10/26		75	%
2580468	DMI	Blanc de méthode	Aluminium (Al) Extractible Total	2024/10/26	0.54, LDR=0.40		mg/kg
			Antimoine (Sb) Extractible Total	2024/10/26	<0.040		mg/kg
			Argent (Ag) Extractible Total	2024/10/26	<0.0011		mg/kg
			Arsenic (As) Extractible Total	2024/10/26	<0.0050		mg/kg
			Baryum (Ba) Extractible Total	2024/10/26	0.044, LDR=0.0060		mg/kg
			Béryllium (Be) Extractible Total	2024/10/26	<0.0030		mg/kg
			Bismuth (Bi) Extractible Total	2024/10/26	<0.0020		mg/kg
			Bore (B) Extractible Total	2024/10/26	<0.070		mg/kg
			Cadmium (Cd) Extractible Total	2024/10/26	<0.0010		mg/kg
			Calcium (Ca) Extractible Total	2024/10/26	<3.0		mg/kg
			Chrome (Cr) Extractible Total	2024/10/26	<0.050		mg/kg
			Cobalt (Co) Extractible Total	2024/10/26	<0.0020		mg/kg
			Cuivre (Cu) Extractible Total	2024/10/26	<0.050		mg/kg
			Etain (Sn) Extractible Total	2024/10/26	<1.1		mg/kg
			Fer (Fe) Extractible Total	2024/10/26	<1.0		mg/kg
			Lithium (Li) Extractible Total	2024/10/26	<0.020		mg/kg
			Magnésium (Mg) Extractible Total	2024/10/26	<1.0		mg/kg
			Manganèse (Mn) Extractible Total	2024/10/26	<0.030		mg/kg
			Mercure (Hg) Extractible Total	2024/10/26	<0.00030		mg/kg
			Molybdène (Mo) Extractible Total	2024/10/26	<0.0030		mg/kg
			Nickel (Ni) Extractible Total	2024/10/26	<0.010		mg/kg
			Phosphore total Extractible Total	2024/10/26	<5.0		mg/kg
			Plomb (Pb) Extractible Total	2024/10/26	<0.0070		mg/kg
			Potassium (K) Extractible Total	2024/10/26	<3.0		mg/kg
			Rubidium (Rb) Extractible Total	2024/10/26	<0.0050		mg/kg
			Sélénium (Se) Extractible Total	2024/10/26	<0.0090		mg/kg
			Sodium (Na) Extractible Total	2024/10/26	<3.6		mg/kg
			Strontium (Sr) Extractible Total	2024/10/26	<0.0050		mg/kg
			Tellure (Te) Extractible Total	2024/10/26	<0.016		mg/kg
			Thallium (Tl) Extractible Total	2024/10/26	<0.0020		mg/kg
			Thorium (Th) Extractible Total	2024/10/26	<0.0040		mg/kg
			Titane (Ti) Extractible Total	2024/10/26	<0.050		mg/kg
			Tungstene (W) Extractible Total	2024/10/26	<0.0050		mg/kg
			Uranium (U) Extractible Total	2024/10/26	<0.0010		mg/kg
			Vanadium (V) Extractible Total	2024/10/26	<0.0090		mg/kg
			Zinc (Zn) Extractible Total	2024/10/26	<0.30		mg/kg
2583077	DMI	Blanc fortifié	Aluminium (Al) Extractible Total	2024/10/28		106	%
			Antimoine (Sb) Extractible Total	2024/10/28		84	%
			Argent (Ag) Extractible Total	2024/10/28		102	%
			Arsenic (As) Extractible Total	2024/10/28		92	%
			Baryum (Ba) Extractible Total	2024/10/28		107	%
			Béryllium (Be) Extractible Total	2024/10/28		95	%
			Bismuth (Bi) Extractible Total	2024/10/28		98	%
			Bore (B) Extractible Total	2024/10/28		107	%
			Cadmium (Cd) Extractible Total	2024/10/28		95	%
			Calcium (Ca) Extractible Total	2024/10/28		107	%
			Chrome (Cr) Extractible Total	2024/10/28		111	%

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Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Cobalt (Co) Extractible Total	2024/10/28		105	%
			Cuivre (Cu) Extractible Total	2024/10/28		98	%
			Etain (Sn) Extractible Total	2024/10/28		113	%
			Fer (Fe) Extractible Total	2024/10/28		106	%
			Lithium (Li) Extractible Total	2024/10/28		106	%
			Magnésium (Mg) Extractible Total	2024/10/28		109	%
			Manganèse (Mn) Extractible Total	2024/10/28		107	%
			Mercure (Hg) Extractible Total	2024/10/28		85	%
			Molybdène (Mo) Extractible Total	2024/10/28		115	%
			Nickel (Ni) Extractible Total	2024/10/28		103	%
			Phosphore total Extractible Total	2024/10/28		96	%
			Plomb (Pb) Extractible Total	2024/10/28		101	%
			Potassium (K) Extractible Total	2024/10/28		108	%
			Rubidium (Rb) Extractible Total	2024/10/28		109	%
			Sélénium (Se) Extractible Total	2024/10/28		77	%
			Sodium (Na) Extractible Total	2024/10/28		114	%
			Strontium (Sr) Extractible Total	2024/10/28		106	%
			Tellure (Te) Extractible Total	2024/10/28		96	%
			Thallium (Tl) Extractible Total	2024/10/28		85	%
			Thorium (Th) Extractible Total	2024/10/28		113	%
			Titane (Ti) Extractible Total	2024/10/28		116	%
			Tungstene (W) Extractible Total	2024/10/28		119	%
			Uranium (U) Extractible Total	2024/10/28		104	%
			Vanadium (V) Extractible Total	2024/10/28		115	%
			Zinc (Zn) Extractible Total	2024/10/28		82	%
2583077	DMI	Blanc de méthode	Aluminium (Al) Extractible Total	2024/10/28	<0.40		mg/kg
			Antimoine (Sb) Extractible Total	2024/10/28	<0.040		mg/kg
			Argent (Ag) Extractible Total	2024/10/28	<0.0010		mg/kg
			Arsenic (As) Extractible Total	2024/10/28	<0.0050		mg/kg
			Baryum (Ba) Extractible Total	2024/10/28	<0.0060		mg/kg
			Béryllium (Be) Extractible Total	2024/10/28	<0.0030		mg/kg
			Bismuth (Bi) Extractible Total	2024/10/28	<0.0020		mg/kg
			Bore (B) Extractible Total	2024/10/28	<0.070		mg/kg
			Cadmium (Cd) Extractible Total	2024/10/28	<0.0010		mg/kg
			Calcium (Ca) Extractible Total	2024/10/28	<3.0		mg/kg
			Chrome (Cr) Extractible Total	2024/10/28	<0.050		mg/kg
			Cobalt (Co) Extractible Total	2024/10/28	<0.0020		mg/kg
			Cuivre (Cu) Extractible Total	2024/10/28	<0.050		mg/kg
			Etain (Sn) Extractible Total	2024/10/28	0.038, LDR=0.010		mg/kg
			Fer (Fe) Extractible Total	2024/10/28	<1.0		mg/kg
			Lithium (Li) Extractible Total	2024/10/28	<0.020		mg/kg
			Magnésium (Mg) Extractible Total	2024/10/28	<1.0		mg/kg
			Manganèse (Mn) Extractible Total	2024/10/28	<0.030		mg/kg
			Mercure (Hg) Extractible Total	2024/10/28	<0.00030		mg/kg
			Molybdène (Mo) Extractible Total	2024/10/28	<0.0030		mg/kg
			Nickel (Ni) Extractible Total	2024/10/28	0.014, LDR=0.010		mg/kg
			Phosphore total Extractible Total	2024/10/28	<5.0		mg/kg
			Plomb (Pb) Extractible Total	2024/10/28	<0.0070		mg/kg
			Potassium (K) Extractible Total	2024/10/28	<3.0		mg/kg
			Rubidium (Rb) Extractible Total	2024/10/28	<0.0050		mg/kg
			Sélénium (Se) Extractible Total	2024/10/28	<0.0090		mg/kg

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Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Sodium (Na) Extractible Total	2024/10/28	<3.4		mg/kg
			Strontium (Sr) Extractible Total	2024/10/28	<0.0050		mg/kg
			Tellure (Te) Extractible Total	2024/10/28	0.0059, LDR=0.0020		mg/kg
			Thallium (Tl) Extractible Total	2024/10/28	<0.0020		mg/kg
			Thorium (Th) Extractible Total	2024/10/28	<0.0040		mg/kg
			Titane (Ti) Extractible Total	2024/10/28	<0.050		mg/kg
			Tungstene (W) Extractible Total	2024/10/28	<0.0050		mg/kg
			Uranium (U) Extractible Total	2024/10/28	<0.0010		mg/kg
			Vanadium (V) Extractible Total	2024/10/28	<0.0090		mg/kg
			Zinc (Zn) Extractible Total	2024/10/28	<0.30		mg/kg
2588765	DMI	Blanc fortifié	Aluminium (Al) Extractible Total	2024/11/08		96	%
			Antimoine (Sb) Extractible Total	2024/11/08		74 (1)	%
			Argent (Ag) Extractible Total	2024/11/08		98	%
			Arsenic (As) Extractible Total	2024/11/08		85	%
			Baryum (Ba) Extractible Total	2024/11/08		101	%
			Béryllium (Be) Extractible Total	2024/11/08		90	%
			Bismuth (Bi) Extractible Total	2024/11/08		93	%
			Bore (B) Extractible Total	2024/11/08		94	%
			Cadmium (Cd) Extractible Total	2024/11/08		88	%
			Calcium (Ca) Extractible Total	2024/11/08		96	%
			Chrome (Cr) Extractible Total	2024/11/08		109	%
			Cobalt (Co) Extractible Total	2024/11/08		101	%
			Cuivre (Cu) Extractible Total	2024/11/08		94	%
			Etain (Sn) Extractible Total	2024/11/08		111	%
			Fer (Fe) Extractible Total	2024/11/08		95	%
			Lithium (Li) Extractible Total	2024/11/08		99	%
			Magnésium (Mg) Extractible Total	2024/11/08		111	%
			Manganèse (Mn) Extractible Total	2024/11/08		101	%
			Mercure (Hg) Extractible Total	2024/11/08		79	%
			Molybdène (Mo) Extractible Total	2024/11/08		105	%
			Nickel (Ni) Extractible Total	2024/11/08		102	%
			Phosphore total Extractible Total	2024/11/08		82	%
			Plomb (Pb) Extractible Total	2024/11/08		99	%
			Potassium (K) Extractible Total	2024/11/08		104	%
			Rubidium (Rb) Extractible Total	2024/11/08		109	%
			Sélénium (Se) Extractible Total	2024/11/08		71 (1)	%
			Sodium (Na) Extractible Total	2024/11/08		112	%
			Strontium (Sr) Extractible Total	2024/11/08		101	%
			Tellure (Te) Extractible Total	2024/11/08		71 (1)	%
			Thallium (Tl) Extractible Total	2024/11/08		80	%
			Thorium (Th) Extractible Total	2024/11/08		110	%
			Titane (Ti) Extractible Total	2024/11/08		112	%
			Tungstene (W) Extractible Total	2024/11/08		103	%
			Uranium (U) Extractible Total	2024/11/08		98	%
			Vanadium (V) Extractible Total	2024/11/08		106	%
			Zinc (Zn) Extractible Total	2024/11/08		73 (1)	%
2588765	DMI	Blanc de méthode	Aluminium (Al) Extractible Total	2024/11/08	<0.40		mg/kg
			Antimoine (Sb) Extractible Total	2024/11/08	<0.040		mg/kg
			Argent (Ag) Extractible Total	2024/11/08	<0.0010		mg/kg
			Arsenic (As) Extractible Total	2024/11/08	<0.0050		mg/kg
			Baryum (Ba) Extractible Total	2024/11/08	0.020, LDR=0.0060		mg/kg

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Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Béryllium (Be) Extractible Total	2024/11/08	<0.0030		mg/kg
			Bismuth (Bi) Extractible Total	2024/11/08	<0.0020		mg/kg
			Bore (B) Extractible Total	2024/11/08	<0.070		mg/kg
			Cadmium (Cd) Extractible Total	2024/11/08	<0.0010		mg/kg
			Calcium (Ca) Extractible Total	2024/11/08	<3.0		mg/kg
			Chrome (Cr) Extractible Total	2024/11/08	<0.050		mg/kg
			Cobalt (Co) Extractible Total	2024/11/08	<0.0020		mg/kg
			Cuivre (Cu) Extractible Total	2024/11/08	<0.050		mg/kg
			Etain (Sn) Extractible Total	2024/11/08	<2.1		mg/kg
			Fer (Fe) Extractible Total	2024/11/08	<1.0		mg/kg
			Lithium (Li) Extractible Total	2024/11/08	<0.020		mg/kg
			Magnésium (Mg) Extractible Total	2024/11/08	<1.0		mg/kg
			Manganèse (Mn) Extractible Total	2024/11/08	<0.030		mg/kg
			Mercure (Hg) Extractible Total	2024/11/08	<0.00030		mg/kg
			Molybdène (Mo) Extractible Total	2024/11/08	<0.0030		mg/kg
			Nickel (Ni) Extractible Total	2024/11/08	<0.010		mg/kg
			Phosphore total Extractible Total	2024/11/08	<5.0		mg/kg
			Plomb (Pb) Extractible Total	2024/11/08	<0.0070		mg/kg
			Potassium (K) Extractible Total	2024/11/08	<3.0		mg/kg
			Rubidium (Rb) Extractible Total	2024/11/08	<0.0050		mg/kg
			Sélénium (Se) Extractible Total	2024/11/08	<0.0090		mg/kg
			Sodium (Na) Extractible Total	2024/11/08	<13		mg/kg
			Strontium (Sr) Extractible Total	2024/11/08	0.0069, LDR=0.0050		mg/kg
			Tellure (Te) Extractible Total	2024/11/08	<0.0020		mg/kg
			Thallium (Tl) Extractible Total	2024/11/08	<0.0020		mg/kg
			Thorium (Th) Extractible Total	2024/11/08	<0.0040		mg/kg
			Titane (Ti) Extractible Total	2024/11/08	<0.050		mg/kg
			Tungstene (W) Extractible Total	2024/11/08	<0.0050		mg/kg
			Uranium (U) Extractible Total	2024/11/08	<0.0010		mg/kg
			Vanadium (V) Extractible Total	2024/11/08	<0.0090		mg/kg
			Zinc (Zn) Extractible Total	2024/11/08	<0.30		mg/kg

LDR = Limite de détection rapportée

Blanc fortifié: Un blanc, d'une matrice exempte de contaminants, auquel a été ajouté une quantité connue d'analyte provenant généralement d'une deuxième source. Utilisé pour évaluer la précision de la méthode.

Blanc de méthode: Une partie aliquote de matrice pure soumise au même processus analytique que les échantillons, du prétraitement au dosage. Sert à évaluer toutes contaminations du laboratoire.

Réc = Récupération

(1) La récupération ou l'écart relatif (RPD) pour ce composé est en dehors des limites de contrôle, mais l'ensemble du contrôle qualité rencontre les critères d'acceptabilité pour cette analyse

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

PAGE DES SIGNATURES DE VALIDATION

Les résultats analytiques ainsi que les données de contrôle-qualité contenus dans ce rapport ont été vérifiés et validés par:

Zineb El Ouali
Membre OCQ#2021-051

Zineb El Ouali, M.Sc.,Chimiste, Montréal, Analyste II

Automated Statchk

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eCDR: Q141983

Délai requis: Délai régulier
Date d'arrivée prévue: 2024/08/28
Soumis par: Siska Shooner
Soumis à: Montréal (Env. Lab)

Information facture

Attn: Comptes payables
WSP Canada Inc.
1135 boulevard Lebourgneuf
Québec , QC , G2K 0M5
Envoyer à:
capayablesinvoice@wsp.com

Information rapport

Attn: Camille Girard
WSP Canada Inc.
1135 boulevard Lebourgneuf
Québec , QC , G2K 0M5
Envoyer à:
camille.girard@wsp.com

Information Projet

 # Soumission: C30388
Bon de commande:
No. projet: CA0036076.5537 tâche 0300D
Adresse du site:

Liste des délais analytiques

A: Délai régulier

Id. échantillon client	eCDR réf.	Date et heure de prélèvement	Matrice	Nbre. cont	Lyophilisation	Métaux trace dans végétaux (base sèche)
					A	A
2024-ST01-EPN-Aiguilles	1	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST01-MEL-Écorce	2	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST01-Bleuets-Fruits	3	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST01-TLB-Feuilles	4	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST02-EPN-Aiguilles	5	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST02-MEL-Écorce	6	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST02-Bleuets-Fruits	7	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST02-TLB-Feuilles	8	2024/08/19	VÉGÉT AUX	1	A	A
REP-2024-ST03-MEL-Écorce	9	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST03-EPN-Aiguilles	10	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST03-MEL-Écorce	11	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST03-TLB-Feuilles	12	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST04-EPN-Aiguilles	13	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST04-MEL-Écorce	14	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST04-Bleuets-Fruits	15	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST04-TLB-Feuilles	16	2024/08/19	VÉGÉT AUX	1	A	A
REP-2024-ST05-EPN-Aiguilles	17	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST05-EPN-Aiguilles	18	2024/08/19	VÉGÉT AUX	1	A	A
2024-ST05-MEL-Écorce	19	2024/08/19	VÉGÉT AUX	1	A	A

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Sarah Beaudry
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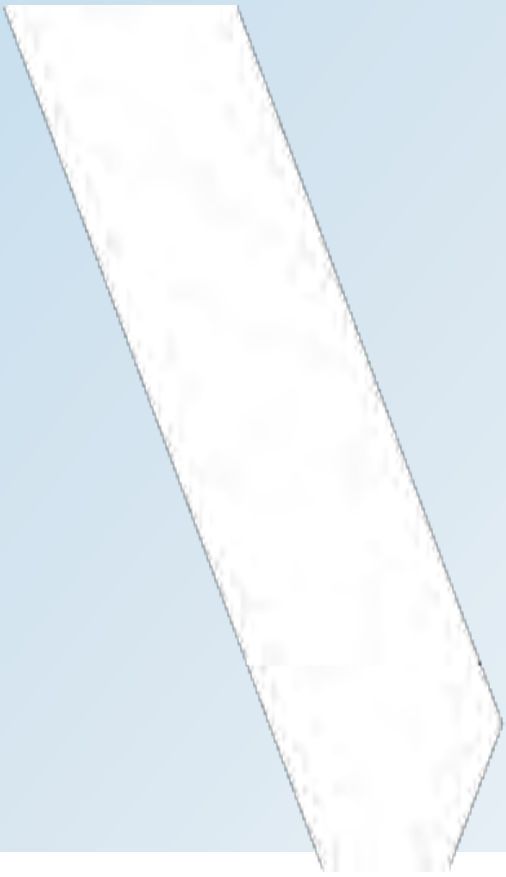
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NOVA-2024-08-4108

Sarah Look
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Lucyes
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drver

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RAW CONCENTRATIONS TABLES



C-1 RAW CONCENTRATION TABLES BY STATION

Station 01 (ST-01) - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)				
Échantillon	**2024-ST01-EPN-Aiguilles**	**2024-ST01-MEL-Écorce**	**2024-ST01-Bleuets-Fruits**	**2024-ST01-TLB-Feuilles**
Bureau Veritas	NK7297	NK7298	NK7299	NK7300
Date d'échantillonnage	2024-08-19	2024-08-19	2024-08-19	2024-08-19
Aluminium (Al)	16	29	5,1	11
Antimoine (Sb)	<0,040	<0,040	<0,040	<0,040
Argent (Ag)	0,13	0,014	0,0032	<0,0010
Arsenic (As)	<0,0050	0,0089	0,0064	0,0089
Baryum (Ba)	87	120	3,9	49
Béryllium (Be)	<0,0030	<0,0030	<0,0030	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0020	<0,0020
Bore (B)	17	21	5	18
Cadmium (Cd)	0,014	0,21	0,0025	<0,0010
Calcium (Ca)	6800	6100	710	5100
Chrome (Cr)	<0,050	<0,050	0,15	<0,050
Cobalt (Co)	0,028	0,084	0,011	0,0089
Cuivre (Cu)	0,79	1,7	6	2,9
Etain (Sn)	1	1,1	<2,1	1
Fer (Fe)	10	24	15	29
Lithium (Li)	<0,020	<0,020	<0,020	<0,020
Magnésium (Mg)	570	800	470	910
Manganèse (Mn)	1400	2400	53	810
Mercure (Hg)	0,0048	0,0062	0,0024	0,0048
Molybdène (Mo)	0,0045	0,0078	0,083	0,06
Nickel (Ni)	0,17	0,67	0,44	0,29
Phosphore total	500	930	570	1300
Plomb (Pb)	0,13	0,042	0,057	0,012
Potassium (K)	2500	3800	12000	4700
Rubidium (Rb)	4,3	5,9	46	12
Sélénium (Se)	<0,0090	0,16	<0,0090	0,018
Sodium (Na)	11	7,3	73	8,8
Strontium (Sr)	29	100	0,99	8,6
Tellure (Te)	<0,012	<0,012	0,0036	<0,012
Thallium (Tl)	0,029	0,0052	<0,0020	<0,0020
Thorium (Th)	<0,0040	<0,0040	0,004	<0,0040
Titane (Ti)	0,38	0,59	0,61	0,89
Tungstene (W)	0,0058	0,0052	0,0087	0,008
Uranium (U)	<0,0010	<0,0010	<0,0010	<0,0010
Vanadium (V)	<0,0090	<0,0090	0,016	0,017
Zinc (Zn)	180	97	5	13
CONVENTIONNELS				
Lyophilisation	54	53	87	47

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

Station 02 (ST-02) - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)				
Échantillon	**2024-ST02-EPN-Aiguilles**	**2024-ST02-MEL-Écorce**	**2024-ST02-Bleuets-Fruits**	**2024-ST02-TLB-Feuilles**
Bureau Veritas	NK7301	NK7302	NK7303	NK7304
Date d'échantillonnage	2024-08-19	2024-08-19	2024-08-19	2024-08-19
Aluminium (Al)	36	10	15	15
Antimoine (Sb)	<0,040	<0,040	<0,052	<0,040
Argent (Ag)	0,027	0,015	0,003	0,0012
Arsenic (As)	0,0068	0,0055	0,011	<0,0050
Baryum (Ba)	43	52	17	39
Béryllium (Be)	<0,0030	<0,0030	<0,0039	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0026	<0,0020
Bore (B)	18	15	12	16
Cadmium (Cd)	0,0063	0,17	0,0037	<0,0010
Calcium (Ca)	13000	5900	2600	4900
Chrome (Cr)	<0,050	<0,050	0,068	<0,050
Cobalt (Co)	0,0079	0,0049	0,011	0,0045
Cuivre (Cu)	0,66	1,7	7,7	2,4
Etain (Sn)	1	0,92	0,26	0,99
Fer (Fe)	25	14	29	27
Lithium (Li)	<0,020	<0,020	<0,026	<0,020
Magnésium (Mg)	850	930	1300	960
Manganèse (Mn)	590	900	1600	730
Mercure (Hg)	0,0089	0,0038	0,0037	0,0049
Molybdène (Mo)	0,0035	<0,0030	0,2	0,022
Nickel (Ni)	0,14	0,097	0,31	0,13
Phosphore total	520	1000	1900	1200
Plomb (Pb)	0,14	0,067	0,032	0,011
Potassium (K)	2400	4300	9400	5100
Rubidium (Rb)	1,9	2,5	10	5,5
Sélénium (Se)	<0,0090	0,21	0,017	0,02
Sodium (Na)	14	19	12	7,1
Strontium (Sr)	20	43	2,6	7,5
Tellure (Te)	<0,012	<0,012	0,06	<0,012
Thallium (Tl)	0,023	0,0064	<0,0026	<0,0020
Thorium (Th)	<0,0040	<0,0040	0,0054	<0,0040
Titane (Ti)	0,47	0,63	0,92	0,76
Tungstene (W)	<0,0050	<0,0050	0,012	<0,0050
Uranium (U)	<0,0010	<0,0010	<0,0013	<0,0010
Vanadium (V)	0,0095	<0,0090	<0,012	0,011
Zinc (Zn)	130	110	13	12
CONVENTIONNELS				
Lyophilisation	53	54	86	46

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

Station 03 (ST-03) - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)				
Échantillon	**REP-2024-ST03-MEL-Écorce**	**2024-ST03-EPN-Aiguilles**	**2024-ST03-MEL-Écorce**	**2024-ST03-TLB-Feuilles**
Bureau Veritas	NK7305	NK7306	NK7307	NK7308
Date d'échantillonnage	2024-08-19	2024-08-19	2024-08-19	2024-08-19
Aluminium (Al)	210	16	180	12
Antimoine (Sb)	<0,040	<0,040	<0,040	<0,040
Argent (Ag)	0,0041	0,11	0,0019	<0,0010
Arsenic (As)	0,012	0,0099	0,01	0,023
Baryum (Ba)	96	170	100	51
Béryllium (Be)	<0,0030	<0,0030	<0,0030	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0020	<0,0020
Bore (B)	11	17	11	19
Cadmium (Cd)	0,12	0,055	0,24	<0,0010
Calcium (Ca)	6600	9400	5000	5100
Chrome (Cr)	0,11	<0,050	0,095	<0,050
Cobalt (Co)	0,54	0,13	0,34	0,011
Cuivre (Cu)	2,4	2,2	2,3	2,9
Etain (Sn)	0,98	1	1,3	1,1
Fer (Fe)	38	12	17	28
Lithium (Li)	0,044	<0,020	0,033	<0,020
Magnésium (Mg)	610	510	800	980
Manganèse (Mn)	1300	2100	1200	1500
Mercure (Hg)	0,0058	0,0054	0,006	0,0061
Molybdène (Mo)	0,013	0,0061	0,02	0,05
Nickel (Ni)	3,7	0,2	2,4	0,2
Phosphore total	920	830	850	1300
Plomb (Pb)	0,023	0,031	<0,0070	0,01
Potassium (K)	3100	3800	3900	4500
Rubidium (Rb)	5,6	4,5	8	8,7
Sélénium (Se)	0,15	<0,0090	0,15	0,018
Sodium (Na)	6,2	6,9	7,7	8,4
Strontium (Sr)	110	68	75	11
Tellure (Te)	<0,012	<0,012	<0,012	<0,012
Thallium (Tl)	0,0086	0,015	0,011	<0,0020
Thorium (Th)	<0,0040	<0,0040	<0,0040	<0,0040
Titane (Ti)	0,53	0,48	0,49	0,76
Tungstene (W)	<0,0050	<0,0050	<0,0050	<0,0050
Uranium (U)	<0,0010	<0,0010	<0,0010	<0,0010
Vanadium (V)	0,025	0,012	0,033	<0,0090
Zinc (Zn)	32	100	39	18
CONVENTIONNELS				
Lyophilisation	56	62	57	48

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

Station 04 (ST-04) - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)				
Échantillon	**2024-ST04-EPN-Aiguilles**	**2024-ST04-MEL-Écorce**	**2024-ST04-Bleuets-Fruits**	**2024-ST04-TLB-Feuilles**
Bureau Veritas	NK7309	NK7310	NK7311	NK7312
Date d'échantillonnage	2024-08-19	2024-08-19	2024-08-19	2024-08-19
Aluminium (Al)	27	44	11	15
Antimoine (Sb)	<0,040	<0,040	<0,040	<0,040
Argent (Ag)	0,24	0,014	0,0014	<0,0010
Arsenic (As)	<0,0050	0,0062	<0,0050	0,006
Baryum (Ba)	110	160	11	69
Béryllium (Be)	<0,0030	<0,0030	<0,0030	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0020	<0,0020
Bore (B)	16	16	9,3	24
Cadmium (Cd)	0,009	0,041	0,0023	<0,0010
Calcium (Ca)	8200	8400	1400	6000
Chrome (Cr)	<0,050	<0,050	<0,050	<0,050
Cobalt (Co)	0,094	0,018	0,0094	0,0046
Cuivre (Cu)	1,1	2,5	3,6	2,4
Etain (Sn)	1,1	1,2	1,1	1,1
Fer (Fe)	16	13	16	23
Lithium (Li)	<0,020	<0,020	<0,020	<0,020
Magnésium (Mg)	970	930	740	870
Manganèse (Mn)	840	720	550	620
Mercure (Hg)	0,0042	0,0052	0,0022	0,0054
Molybdène (Mo)	0,0035	0,0049	0,09	0,017
Nickel (Ni)	0,35	0,62	0,34	0,25
Phosphore total	660	940	1100	1100
Plomb (Pb)	0,04	0,026	0,018	0,0097
Potassium (K)	2800	5000	6800	4400
Rubidium (Rb)	4,9	7,6	21	13
Sélénium (Se)	<0,0090	0,11	<0,0090	0,016
Sodium (Na)	7,3	7,3	9,1	8,5
Strontium (Sr)	40	46	4,4	18
Tellure (Te)	<0,012	<0,012	<0,012	<0,012
Thallium (Tl)	0,024	0,0066	<0,0020	<0,0020
Thorium (Th)	<0,0040	<0,0040	<0,0040	<0,0040
Titane (Ti)	0,48	0,6	0,63	0,71
Tungstene (W)	<0,0050	<0,0050	<0,0050	<0,0050
Uranium (U)	<0,0010	<0,0010	<0,0010	<0,0010
Vanadium (V)	<0,0090	<0,0090	<0,0090	<0,0090
Zinc (Zn)	110	64	6	17
CONVENTIONNELS				
Lyophilisation	57	56	86	46

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

Station 05 (ST-05) - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)				
Échantillon	**REP-2024-ST05-EPN-Aiguilles**	**2024-ST05-EPN-Aiguilles**	**2024-ST05-MEL-Écorce**	**2024-ST05-TLB-Feuilles**
Bureau Veritas	NK7313	NK7314	NK7315	NK7316
Date d'échantillonnage	2024-08-19	2024-08-19	2024-08-19	2024-08-19
Aluminium (Al)	55	43	14	23
Antimoine (Sb)	<0,040	<0,040	<0,040	<0,040
Argent (Ag)	0,084	0,038	0,0064	0,0014
Arsenic (As)	0,018	0,012	0,011	0,065
Baryum (Ba)	200	170	150	69
Béryllium (Be)	<0,0030	<0,0030	<0,0030	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0020	<0,0020
Bore (B)	19	15	16	18
Cadmium (Cd)	0,017	0,026	0,083	0,0015
Calcium (Ca)	17000	15000	6900	5800
Chrome (Cr)	<0,050	<0,050	<0,050	<0,050
Cobalt (Co)	0,19	0,28	0,15	0,027
Cuivre (Cu)	2,2	1,1	2,3	3
Etain (Sn)	1,1	1,1	1,1	1,2
Fer (Fe)	18	11	17	32
Lithium (Li)	<0,020	<0,020	<0,020	<0,020
Magnésium (Mg)	720	590	1100	1600
Manganèse (Mn)	960	910	2300	920
Mercure (Hg)	0,007	0,0073	0,0063	0,0079
Molybdène (Mo)	0,0077	<0,0030	0,0057	0,038
Nickel (Ni)	1,1	0,73	0,69	0,67
Phosphore total	1200	540	840	1100
Plomb (Pb)	0,043	0,13	0,008	0,024
Potassium (K)	3000	1900	4200	4200
Rubidium (Rb)	6,1	3,3	7,9	13
Sélénium (Se)	<0,0090	<0,0090	0,13	0,017
Sodium (Na)	6,9	25	6,3	11
Strontium (Sr)	73	55	140	17
Tellure (Te)	<0,012	<0,012	<0,012	<0,012
Thallium (Tl)	0,0058	0,015	0,0058	0,0024
Thorium (Th)	<0,0040	<0,0040	<0,0040	<0,0040
Titane (Ti)	0,7	0,42	0,55	0,81
Tungstene (W)	<0,0050	<0,0050	<0,0050	<0,0050
Uranium (U)	<0,0010	<0,0010	<0,0010	<0,0010
Vanadium (V)	0,012	0,018	<0,0090	0,014
Zinc (Zn)	140	140	85	16
CONVENTIONNELS				
Lyophilisation	63	53	57	48

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

Station 06 (ST-06) - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)			
Échantillon	**2024-ST06-EPN-Aiguilles**	**2024-ST06-MEL-Écorce**	**2024-ST06-TLB-Feuilles**
Bureau Veritas	NK7317	NK7318	NK7319
Date d'échantillonnage	2024-08-19	2024-08-19	2024-08-19
Aluminium (Al)	28	14	16
Antimoine (Sb)	<0,040	<0,040	<0,040
Argent (Ag)	0,062	0,0025	0,0023
Arsenic (As)	<0,0050	0,0089	0,014
Baryum (Ba)	61	110	53
Béryllium (Be)	<0,0030	<0,0030	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0020
Bore (B)	15	14	15
Cadmium (Cd)	0,016	0,058	0,0013
Calcium (Ca)	15000	4200	4700
Chrome (Cr)	<0,050	<0,050	<0,050
Cobalt (Co)	0,021	0,019	0,0097
Cuivre (Cu)	0,74	0,85	2,9
Etain (Sn)	1,2	1,6	1,4
Fer (Fe)	5,2	9,7	26
Lithium (Li)	<0,020	<0,020	<0,020
Magnésium (Mg)	650	710	790
Manganèse (Mn)	1200	2300	1000
Mercure (Hg)	0,0056	0,0065	0,0066
Molybdène (Mo)	<0,0030	0,0064	0,047
Nickel (Ni)	0,22	0,26	0,34
Phosphore total	370	660	950
Plomb (Pb)	0,096	0,06	0,016
Potassium (K)	1900	4100	3800
Rubidium (Rb)	3,4	4,6	8,5
Sélénium (Se)	<0,0090	0,098	0,022
Sodium (Na)	7,8	8,6	11
Strontium (Sr)	24	33	7,9
Tellure (Te)	<0,012	0,049	0,017
Thallium (Tl)	0,047	0,0027	0,0025
Thorium (Th)	<0,0040	<0,0040	<0,0040
Titane (Ti)	0,34	0,48	0,72
Tungstene (W)	<0,0050	0,007	0,0076
Uranium (U)	<0,0010	<0,0010	<0,0010
Vanadium (V)	<0,0090	<0,0090	0,013
Zinc (Zn)	120	77	12
CONVENTIONNELS			
Lyophilisation	52	54	47

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection

Station 07 (ST-07) - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)				
Échantillon	**REP-2024-ST07-TLB-Feuilles**	**2024-ST07-EPN-Aiguilles**	**2024-ST07-MEL-Écorce**	**2024-ST07-TLB-Feuilles**
Bureau Veritas	NK7320	NK7321	NK7322	NK7323
Date d'échantillonnage	2024-08-22	2024-08-22	2024-08-22	2024-08-22
Aluminium (Al)	48	31	44	50
Antimoine (Sb)	<0,040	<0,040	<0,040	<0,040
Argent (Ag)	0,0031	0,0094	0,0061	0,0017
Arsenic (As)	0,021	0,0066	0,0094	0,03
Baryum (Ba)	68	130	120	55
Béryllium (Be)	<0,0030	<0,0030	<0,0030	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0020	<0,0020
Bore (B)	17	16	13	15
Cadmium (Cd)	<0,0010	0,052	0,16	<0,0010
Calcium (Ca)	5600	12000	3200	4300
Chrome (Cr)	0,11	<0,050	0,064	0,13
Cobalt (Co)	0,041	0,14	0,12	0,052
Cuivre (Cu)	2,5	1,3	1,7	2,5
Etain (Sn)	1,4	1,4	<2,1	<2,1
Fer (Fe)	65	11	24	65
Lithium (Li)	0,048	<0,020	<0,020	0,069
Magnésium (Mg)	1000	580	710	1100
Manganèse (Mn)	490	1500	1200	520
Mercure (Hg)	0,0056	0,0063	0,0059	0,005
Molybdène (Mo)	0,035	0,0061	0,025	0,065
Nickel (Ni)	0,48	0,39	0,95	0,42
Phosphore total	1100	590	910	1100
Plomb (Pb)	0,03	0,11	0,024	0,03
Potassium (K)	4300	2500	3600	4800
Rubidium (Rb)	13	4,6	6,9	14
Sélénium (Se)	0,015	<0,0090	0,066	0,0099
Sodium (Na)	10	20	14	17
Strontium (Sr)	10	29	50	15
Tellure (Te)	<0,016	<0,016	<0,0020	<0,0020
Thallium (Tl)	0,0025	0,042	0,0035	0,0052
Thorium (Th)	0,0098	<0,0040	<0,0040	0,0092
Titane (Ti)	2,2	0,49	0,63	2,5
Tungstene (W)	0,018	0,0051	<0,0050	0,02
Uranium (U)	0,0051	<0,0010	<0,0010	0,0025
Vanadium (V)	0,11	0,012	0,016	0,12
Zinc (Zn)	14	140	41	12
CONVENTIONNELS				
Lyophilisation	46	53	55	48

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

Station 08 (ST-08) - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)			
Échantillon	**2024-ST08-EPN-Aiguilles**	**2024-ST08-MEL-Écorce**	**2024-ST08-TLB-Feuilles**
Bureau Veritas	NK7324	NK7325	NK7326
Date d'échantillonnage	2024-08-22	2024-08-22	2024-08-22
Aluminium (Al)	15	30	27
Antimoine (Sb)	<0,040	<0,040	<0,040
Argent (Ag)	0,017	0,0053	0,02
Arsenic (As)	0,0051	0,0081	0,013
Baryum (Ba)	110	61	63
Béryllium (Be)	<0,0030	<0,0030	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0020
Bore (B)	15	8,5	22
Cadmium (Cd)	0,059	0,082	0,001
Calcium (Ca)	9100	3800	4200
Chrome (Cr)	<0,050	<0,050	0,069
Cobalt (Co)	0,027	0,066	0,031
Cuivre (Cu)	0,63	1,4	3,2
Etain (Sn)	<2,1	<2,1	<2,1
Fer (Fe)	16	13	41
Lithium (Li)	<0,020	<0,020	0,031
Magnésium (Mg)	780	670	860
Manganèse (Mn)	1300	1100	1000
Mercure (Hg)	0,0054	0,0047	0,0062
Molybdène (Mo)	<0,0030	0,0063	0,012
Nickel (Ni)	0,26	0,62	0,59
Phosphore total	290	540	870
Plomb (Pb)	0,12	0,029	0,036
Potassium (K)	2500	2500	4600
Rubidium (Rb)	5,4	5,6	17
Sélénium (Se)	<0,0090	0,077	0,014
Sodium (Na)	22	13	18
Strontium (Sr)	15	18	6,9
Tellure (Te)	<0,0020	<0,0020	<0,0020
Thallium (Tl)	0,033	0,0061	<0,0020
Thorium (Th)	<0,0040	<0,0040	0,0068
Titane (Ti)	0,35	0,5	1,4
Tungstene (W)	<0,0050	<0,0050	0,019
Uranium (U)	<0,0010	<0,0010	0,0015
Vanadium (V)	0,01	<0,0090	0,057
Zinc (Zn)	110	42	14
CONVENTIONNELS			
Lyophilisation	50	50	46

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

Station 09 (ST-09) - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)				
Échantillon	**REP-2024-ST09-TLB-Feuilles**	**2024-ST09-EPN-Aiguilles**	**2024-ST09-MEL-Écorce**	**2024-ST09-TLB-Feuilles**
Bureau Veritas	NK7327	NK7328	NK7329	NK7330
Date d'échantillonnage	2024-08-22	2024-08-22	2024-08-22	2024-08-22
Aluminium (Al)	150	14	120	140
Antimoine (Sb)	<0,040	<0,040	<0,040	<0,040
Argent (Ag)	0,0027	0,042	0,0032	0,0015
Arsenic (As)	0,078	0,013	0,0096	0,07
Baryum (Ba)	47	300	100	63
Béryllium (Be)	<0,0030	<0,0030	<0,0030	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0020	<0,0020
Bore (B)	11	15	8,8	14
Cadmium (Cd)	0,0017	0,015	0,044	0,0013
Calcium (Ca)	4300	27000	3600	4700
Chrome (Cr)	0,51	<0,050	0,17	0,49
Cobalt (Co)	0,19	0,99	0,48	0,19
Cuivre (Cu)	4,6	1,3	2,2	4,5
Etain (Sn)	<2,1	<2,1	<2,1	<2,1
Fer (Fe)	210	50	11	200
Lithium (Li)	0,26	0,048	0,032	0,28
Magnésium (Mg)	1000	920	460	1200
Manganèse (Mn)	480	1200	1000	580
Mercure (Hg)	0,0058	0,01	0,0039	0,0053
Molybdène (Mo)	0,057	0,0074	0,0085	0,044
Nickel (Ni)	2	1,5	7,2	1,6
Phosphore total	1100	590	870	1200
Plomb (Pb)	0,07	0,052	0,009	0,084
Potassium (K)	4600	2800	4300	4600
Rubidium (Rb)	21	10	20	22
Sélénium (Se)	0,032	<0,0090	0,069	0,015
Sodium (Na)	32	15	13	20
Strontium (Sr)	12	290	57	18
Tellure (Te)	<0,0020	<0,0020	<0,0020	<0,0020
Thallium (Tl)	0,0027	0,036	0,0034	0,0024
Thorium (Th)	0,031	<0,0040	<0,0040	0,037
Titane (Ti)	8,6	0,85	0,6	8,5
Tungstene (W)	0,047	<0,0050	<0,0050	0,037
Uranium (U)	0,0085	<0,0010	<0,0010	0,0084
Vanadium (V)	0,48	0,031	0,019	0,45
Zinc (Zn)	15	110	41	19
CONVENTIONNELS				
Lyophilisation	48	60	56	50

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

Station 10 (ST-10) - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)		
Échantillon	**2024-ST10-EPN-Aiguilles**	**2024-ST10-MEL-écorce**
Bureau Veritas	NK7331	NK7335
Date d'échantillonnage	2024-08-23	2024-08-23
Aluminium (Al)	94	820
Antimoine (Sb)	<0,040	<0,040
Argent (Ag)	0,024	0,011
Arsenic (As)	0,019	0,016
Baryum (Ba)	180	98
Béryllium (Be)	<0,0030	0,0043
Bismuth (Bi)	<0,0020	<0,0020
Bore (B)	7,9	5,2
Cadmium (Cd)	0,024	0,067
Calcium (Ca)	6200	3800
Chrome (Cr)	<0,050	0,1
Cobalt (Co)	0,91	1,4
Cuivre (Cu)	2,5	3,1
Etain (Sn)	<2,1	<2,1
Fer (Fe)	12	34
Lithium (Li)	0,022	0,05
Magnésium (Mg)	740	760
Manganèse (Mn)	670	1500
Mercure (Hg)	0,011	0,0051
Molybdène (Mo)	0,0043	0,0071
Nickel (Ni)	2,4	5
Phosphore total	580	940
Plomb (Pb)	0,027	0,032
Potassium (K)	2400	4800
Rubidium (Rb)	12	20
Sélénium (Se)	<0,0090	0,19
Sodium (Na)	20	19
Strontium (Sr)	42	33
Tellure (Te)	<0,0020	<0,0020
Thallium (Tl)	0,043	0,01
Thorium (Th)	0,0051	<0,0040
Titane (Ti)	0,69	0,68
Tungstene (W)	<0,0050	<0,0050
Uranium (U)	<0,0010	<0,0010
Vanadium (V)	0,017	0,011
Zinc (Zn)	35	25
CONVENTIONNELS		
Lyophilisation	55	57

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

Station 11 (ST-11) - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)			
Échantillon	**2024-ST11-EPN-Aiguilles**	**2024-ST11--MEL-Écorce**	**2024-ST11-TLB-Feuilles**
Bureau Veritas	NK7332	NK7333	NK7334
Date d'échantillonnage	2024-08-22	2024-08-22	2024-08-22
Aluminium (Al)	100	50	21
Antimoine (Sb)	<0,040	<0,040	<0,040
Argent (Ag)	0,031	0,028	<0,0010
Arsenic (As)	0,0055	<0,0050	0,02
Baryum (Ba)	140	84	66
Béryllium (Be)	<0,0030	<0,0030	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0020
Bore (B)	17	11	15
Cadmium (Cd)	0,18	0,091	<0,0010
Calcium (Ca)	13000	3200	5000
Chrome (Cr)	0,14	0,05	0,054
Cobalt (Co)	0,51	0,1	0,025
Cuivre (Cu)	2,1	1,8	2,5
Etain (Sn)	2,1	<2,1	<2,1
Fer (Fe)	18	19	37
Lithium (Li)	<0,020	<0,020	0,028
Magnésium (Mg)	810	450	960
Manganèse (Mn)	1600	2000	1100
Mercure (Hg)	0,009	0,004	0,0052
Molybdène (Mo)	0,011	0,017	0,12
Nickel (Ni)	1,2	0,56	0,31
Phosphore total	930	800	1100
Plomb (Pb)	0,037	0,016	0,017
Potassium (K)	3700	3600	4500
Rubidium (Rb)	9,9	6,5	13
Sélénium (Se)	<0,0090	0,11	0,013
Sodium (Na)	16	<13	15
Strontium (Sr)	43	45	11
Tellure (Te)	<0,0020	<0,0020	<0,0020
Thallium (Tl)	0,03	0,0034	<0,0020
Thorium (Th)	<0,0040	<0,0040	0,0057
Titane (Ti)	0,69	0,64	1,6
Tungstene (W)	<0,0050	<0,0050	<0,0050
Uranium (U)	<0,0010	<0,0010	0,0014
Vanadium (V)	0,012	0,013	0,045
Zinc (Zn)	100	40	13
CONVENTIONNELS			
Lyophilisation	63	55	48

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

C-2 RAW CONCENTRATION TABLE BY SPECIES

Épinette noire - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)												
Échantillon	**2024-ST01-EPN-Aiguilles**	**2024-ST02-EPN-Aiguilles**	**2024-ST03-EPN-Aiguilles**	**2024-ST04-EPN-Aiguilles**	**REP-2024-ST05-EPN-Aiguilles**	**2024-ST05-EPN-Aiguilles**	**2024-ST06-EPN-Aiguilles**	**2024-ST07-EPN-Aiguilles**	**2024-ST08-EPN-Aiguilles**	**2024-ST09-EPN-Aiguilles**	**2024-ST10-EPN-Aiguilles**	**2024-ST11-EPN-Aiguilles**
Bureau Veritas	NK7297	NK7301	NK7306	NK7309	NK7313	NK7314	NK7317	NK7321	NK7324	NK7328	NK7331	NK7332
Date d'échantillonnage	2024-08-19	2024-08-19	2024-08-19	2024-08-19	2024-08-19	2024-08-19	2024-08-19	2024-08-22	2024-08-22	2024-08-22	2024-08-23	2024-08-22
Aluminium (Al)	16	36	16	27	55	43	28	31	15	14	94	100
Antimoine (Sb)	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040
Argent (Ag)	0,13	0,027	0,11	0,24	0,084	0,038	0,062	0,0094	0,017	0,042	0,024	0,031
Arsenic (As)	<0,0050	0,0068	0,0099	<0,0050	0,018	0,012	<0,0050	0,0066	0,0051	0,013	0,019	0,0055
Baryum (Ba)	87	43	170	110	200	170	61	130	110	300	180	140
Béryllium (Be)	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020
Bore (B)	17	18	17	16	19	15	15	16	15	15	7,9	17
Cadmium (Cd)	0,014	0,0063	0,055	0,009	0,017	0,026	0,016	0,052	0,059	0,015	0,024	0,18
Calcium (Ca)	6800	13000	9400	8200	17000	15000	15000	12000	9100	27000	6200	13000
Chrome (Cr)	<0,050	<0,050	<0,050	<0,050	<0,050	<0,050	<0,050	<0,050	<0,050	<0,050	<0,050	0,14
Cobalt (Co)	0,028	0,0079	0,13	0,094	0,19	0,28	0,021	0,14	0,027	0,99	0,91	0,51
Cuivre (Cu)	0,79	0,66	2,2	1,1	2,2	1,1	0,74	1,3	0,63	1,3	2,5	2,1
Etain (Sn)	1	1	1	1,1	1,1	1,1	1,2	1,4	<2,1	<2,1	<2,1	2,1
Fer (Fe)	10	25	12	16	18	11	5,2	11	16	50	12	18
Lithium (Li)	<0,020	<0,020	<0,020	<0,020	<0,020	<0,020	<0,020	<0,020	<0,020	0,048	0,022	<0,020
Magnésium (Mg)	570	850	510	970	720	590	650	580	780	920	740	810
Manganèse (Mn)	1400	590	2100	840	960	910	1200	1500	1300	1200	670	1600
Mercure (Hg)	0,0048	0,0089	0,0054	0,0042	0,007	0,0073	0,0056	0,0063	0,0054	0,01	0,011	0,009
Molybdène (Mo)	0,0045	0,0035	0,0061	0,0035	0,0077	<0,0030	<0,0030	0,0061	<0,0030	0,0074	0,0043	0,011
Nickel (Ni)	0,17	0,14	0,2	0,35	1,1	0,73	0,22	0,39	0,26	1,5	2,4	1,2
Phosphore total	500	520	830	660	1200	540	370	590	290	590	580	930
Plomb (Pb)	0,13	0,14	0,031	0,04	0,043	0,13	0,096	0,11	0,12	0,052	0,027	0,037
Potassium (K)	2500	2400	3800	2800	3000	1900	1900	2500	2500	2800	2400	3700
Rubidium (Rb)	4,3	1,9	4,5	4,9	6,1	3,3	3,4	4,6	5,4	10	12	9,9
Sélénium (Se)	<0,0090	<0,0090	<0,0090	<0,0090	<0,0090	<0,0090	<0,0090	<0,0090	<0,0090	<0,0090	<0,0090	<0,0090
Sodium (Na)	11	14	6,9	7,3	6,9	25	7,8	20	22	15	20	16
Strontium (Sr)	29	20	68	40	73	55	24	29	15	290	42	43
Tellure (Te)	<0,012	<0,012	<0,012	<0,012	<0,012	<0,012	<0,012	<0,016	<0,0020	<0,0020	<0,0020	<0,0020
Thallium (Tl)	0,029	0,023	0,015	0,024	0,0058	0,015	0,047	0,042	0,033	0,036	0,043	0,03
Thorium (Th)	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	0,0051	<0,0040
Titane (Ti)	0,38	0,47	0,48	0,48	0,7	0,42	0,34	0,49	0,35	0,85	0,69	0,69
Tungstene (W)	0,0058	<0,0050	<0,0050	<0,0050	<0,0050	<0,0050	<0,0050	0,0051	<0,0050	<0,0050	<0,0050	<0,0050
Uranium (U)	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010
Vanadium (V)	<0,0090	0,0095	0,012	<0,0090	0,012	0,018	<0,0090	0,012	0,01	0,031	0,017	0,012
Zinc (Zn)	180	130	100	110	140	140	120	140	110	110	35	100
CONVENTIONNELS												
Lyophilisation	54	53	62	57	63	53	52	53	50	60	55	63

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

Bleuet - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)			
Échantillon	**2024-ST01-Bleuets-Fruits**	**2024-ST02-Bleuets-Fruits**	**2024-ST04-Bleuets-Fruits**
Bureau Veritas	NK7299	NK7303	NK7311
Date d'échantillonnage	2024-08-19	2024-08-19	2024-08-19
Aluminium (Al)	5,1	15	11
Antimoine (Sb)	<0,040	<0,052	<0,040
Argent (Ag)	0,0032	0,003	0,0014
Arsenic (As)	0,0064	0,011	<0,0050
Baryum (Ba)	3,9	17	11
Béryllium (Be)	<0,0030	<0,0039	<0,0030
Bismuth (Bi)	<0,0020	<0,0026	<0,0020
Bore (B)	5	12	9,3
Cadmium (Cd)	0,0025	0,0037	0,0023
Calcium (Ca)	710	2600	1400
Chrome (Cr)	0,15	0,068	<0,050
Cobalt (Co)	0,011	0,011	0,0094
Cuivre (Cu)	6	7,7	3,6
Etain (Sn)	<2,1	0,26	1,1
Fer (Fe)	15	29	16
Lithium (Li)	<0,020	<0,026	<0,020
Magnésium (Mg)	470	1300	740
Manganèse (Mn)	53	1600	550
Mercure (Hg)	0,0024	0,0037	0,0022
Molybdène (Mo)	0,083	0,2	0,09
Nickel (Ni)	0,44	0,31	0,34
Phosphore total	570	1900	1100
Plomb (Pb)	0,057	0,032	0,018
Potassium (K)	12000	9400	6800
Rubidium (Rb)	46	10	21
Sélénium (Se)	<0,0090	0,017	<0,0090
Sodium (Na)	73	12	9,1
Strontium (Sr)	0,99	2,6	4,4
Tellure (Te)	0,0036	0,06	<0,012
Thallium (Tl)	<0,0020	<0,0026	<0,0020
Thorium (Th)	0,004	0,0054	<0,0040
Titane (Ti)	0,61	0,92	0,63
Tungstene (W)	0,0087	0,012	<0,0050
Uranium (U)	<0,0010	<0,0013	<0,0010
Vanadium (V)	0,016	<0,012	<0,0090
Zinc (Zn)	5	13	6
CONVENTIONNELS			
Lyophilisation	87	86	86

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

Mélèze laricin - 19-23 août 2024 Identification de l'échantillon/Résultats analytiques (mg/kg)												
Échantillon	**2024-ST01-MEL-Écorce**	**2024-ST02-MEL-Écorce**	**REP-2024-ST03-MEL-Écorce**	**2024-ST03-MEL-Écorce**	**2024-ST04-MEL-Écorce**	**2024-ST05-MEL-Écorce**	**2024-ST06-MEL-Écorce**	**2024-ST07-MEL-Écorce**	**2024-ST08-MEL-Écorce**	**2024-ST09-MEL-Écorce**	**2024-ST10-MEL-écorce**	**2024-ST11--MEL-Écorce**
Bureau Veritas	NK7298	NK7302	NK7305	NK7307	NK7310	NK7315	NK7318	NK7322	NK7325	NK7329	NK7335	NK7333
Date d'échantillonnage	2024-08-19	2024-08-19	2024-08-19	2024-08-19	2024-08-19	2024-08-19	2024-08-19	2024-08-22	2024-08-22	2024-08-22	2024-08-23	2024-08-22
Aluminium (Al)	29	10	210	180	44	14	14	44	30	120	820	50
Antimoine (Sb)	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040
Argent (Ag)	0,014	0,015	0,0041	0,0019	0,014	0,0064	0,0025	0,0061	0,0053	0,0032	0,011	0,028
Arsenic (As)	0,0089	0,0055	0,012	0,01	0,0062	0,011	0,0089	0,0094	0,0081	0,0096	0,016	<0,0050
Baryum (Ba)	120	52	96	100	160	150	110	120	61	100	98	84
Béryllium (Be)	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	0,0043	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020
Bore (B)	21	15	11	11	16	16	14	13	8,5	8,8	5,2	11
Cadmium (Cd)	0,21	0,17	0,12	0,24	0,041	0,083	0,058	0,16	0,082	0,044	0,067	0,091
Calcium (Ca)	6100	5900	6600	5000	8400	6900	4200	3200	3800	3600	3800	3200
Chrome (Cr)	<0,050	<0,050	0,11	0,095	<0,050	<0,050	<0,050	0,064	<0,050	0,17	0,1	0,05
Cobalt (Co)	0,084	0,0049	0,54	0,34	0,018	0,15	0,019	0,12	0,066	0,48	1,4	0,1
Cuivre (Cu)	1,7	1,7	2,4	2,3	2,5	2,3	0,85	1,7	1,4	2,2	3,1	1,8
Etain (Sn)	1,1	0,92	0,98	1,3	1,2	1,1	1,6	<2,1	<2,1	<2,1	<2,1	<2,1
Fer (Fe)	24	14	38	17	13	17	9,7	24	13	11	34	19
Lithium (Li)	<0,020	<0,020	0,044	0,033	<0,020	<0,020	<0,020	<0,020	<0,020	0,032	0,05	<0,020
Magnésium (Mg)	800	930	610	800	930	1100	710	710	670	460	760	450
Manganèse (Mn)	2400	900	1300	1200	720	2300	2300	1200	1100	1000	1500	2000
Mercure (Hg)	0,0062	0,0038	0,0058	0,006	0,0052	0,0063	0,0065	0,0059	0,0047	0,0039	0,0051	0,004
Molybdène (Mo)	0,0078	<0,0030	0,013	0,02	0,0049	0,0057	0,0064	0,025	0,0063	0,0085	0,0071	0,017
Nickel (Ni)	0,67	0,097	3,7	2,4	0,62	0,69	0,26	0,95	0,62	7,2	5	0,56
Phosphore total	930	1000	920	850	940	840	660	910	540	870	940	800
Plomb (Pb)	0,042	0,067	0,023	<0,0070	0,026	0,008	0,06	0,024	0,029	0,009	0,032	0,016
Potassium (K)	3800	4300	3100	3900	5000	4200	4100	3600	2500	4300	4800	3600
Rubidium (Rb)	5,9	2,5	5,6	8	7,6	7,9	4,6	6,9	5,6	20	20	6,5
Sélénium (Se)	0,16	0,21	0,15	0,15	0,11	0,13	0,098	0,066	0,077	0,069	0,19	0,11
Sodium (Na)	7,3	19	6,2	7,7	7,3	6,3	8,6	14	13	13	19	<13
Strontium (Sr)	100	43	110	75	46	140	33	50	18	57	33	45
Tellure (Te)	<0,012	<0,012	<0,012	<0,012	<0,012	<0,012	0,049	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020
Thallium (Tl)	0,0052	0,0064	0,0086	0,011	0,0066	0,0058	0,0027	0,0035	0,0061	0,0034	0,01	0,0034
Thorium (Th)	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040
Titane (Ti)	0,59	0,63	0,53	0,49	0,6	0,55	0,48	0,63	0,5	0,6	0,68	0,64
Tungstene (W)	0,0052	<0,0050	<0,0050	<0,0050	<0,0050	<0,0050	0,007	<0,0050	<0,0050	<0,0050	<0,0050	<0,0050
Uranium (U)	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010
Vanadium (V)	<0,0090	<0,0090	0,025	0,033	<0,0090	<0,0090	<0,0090	0,016	<0,0090	0,019	0,011	0,013
Zinc (Zn)	97	110	32	39	64	85	77	41	42	41	25	40
CONVENTIONNELS												
Lyophilisation	53	54	56	57	56	57	54	55	50	56	57	55

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

Thé du Labrador - 19-23 août 2024
Identification de l'échantillon/Résultats analytiques (mg/kg)

Échantillon	2024-ST01-TLB-Feuilles	2024-ST02-TLB-Feuilles	2024-ST03-TLB-Feuilles	2024-ST04-TLB-Feuilles	2024-ST05-TLB-Feuilles	2024-ST06-TLB-Feuilles	REP-2024-ST07-TLB-Feuilles	2024-ST07-TLB-Feuilles	2024-ST08-TLB-Feuilles	REP-2024-ST09-TLB-Feuilles	2024-ST09-TLB-Feuilles	2024-ST11-TLB-Feuilles
Bureau Veritas	NK7300	NK7304	NK7308	NK7312	NK7316	NK7319	NK7320	NK7323	NK7326	NK7327	NK7330	NK7334
Date d'échantillonnage	2024-08-19	2024-08-19	2024-08-19	2024-08-19	2024-08-19	2024-08-19	2024-08-22	2024-08-22	2024-08-22	2024-08-22	2024-08-22	2024-08-22
Aluminium (Al)	11	15	12	15	23	16	48	50	27	150	140	21
Antimoine (Sb)	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040	<0,040
Argent (Ag)	<0,0010	0,0012	<0,0010	<0,0010	0,0014	0,0023	0,0031	0,0017	0,02	0,0027	0,0015	<0,0010
Arsenic (As)	0,0089	<0,0050	0,023	0,006	0,065	0,014	0,021	0,03	0,013	0,078	0,07	0,02
Baryum (Ba)	49	39	51	69	69	53	68	55	63	47	63	66
Béryllium (Be)	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030	<0,0030
Bismuth (Bi)	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020
Bore (B)	18	16	19	24	18	15	17	15	22	11	14	15
Cadmium (Cd)	<0,0010	<0,0010	<0,0010	<0,0010	0,0015	0,0013	<0,0010	<0,0010	0,001	0,0017	0,0013	<0,0010
Calcium (Ca)	5100	4900	5100	6000	5800	4700	5600	4300	4200	4300	4700	5000
Chrome (Cr)	<0,050	<0,050	<0,050	<0,050	<0,050	<0,050	0,11	0,13	0,069	0,51	0,49	0,054
Cobalt (Co)	0,0089	0,0045	0,011	0,0046	0,027	0,0097	0,041	0,052	0,031	0,19	0,19	0,025
Cuivre (Cu)	2,9	2,4	2,9	2,4	3	2,9	2,5	2,5	3,2	4,6	4,5	2,5
Etain (Sn)	1	0,99	1,1	1,1	1,2	1,4	1,4	<2,1	<2,1	<2,1	<2,1	<2,1
Fer (Fe)	29	27	28	23	32	26	65	65	41	210	200	37
Lithium (Li)	<0,020	<0,020	<0,020	<0,020	<0,020	<0,020	0,048	0,069	0,031	0,26	0,28	0,028
Magnésium (Mg)	910	960	980	870	1600	790	1000	1100	860	1000	1200	960
Manganèse (Mn)	810	730	1500	620	920	1000	490	520	1000	480	580	1100
Mercure (Hg)	0,0048	0,0049	0,0061	0,0054	0,0079	0,0066	0,0056	0,005	0,0062	0,0058	0,0053	0,0052
Molybdène (Mo)	0,06	0,022	0,05	0,017	0,038	0,047	0,035	0,065	0,012	0,057	0,044	0,12
Nickel (Ni)	0,29	0,13	0,2	0,25	0,67	0,34	0,48	0,42	0,59	2	1,6	0,31
Phosphore total	1300	1200	1300	1100	1100	950	1100	1100	870	1100	1200	1100
Plomb (Pb)	0,012	0,011	0,01	0,0097	0,024	0,016	0,03	0,03	0,036	0,07	0,084	0,017
Potassium (K)	4700	5100	4500	4400	4200	3800	4300	4800	4600	4600	4600	4500
Rubidium (Rb)	12	5,5	8,7	13	13	8,5	13	14	17	21	22	13
Sélénium (Se)	0,018	0,02	0,018	0,016	0,017	0,022	0,015	0,0099	0,014	0,032	0,015	0,013
Sodium (Na)	8,8	7,1	8,4	8,5	11	11	10	17	18	32	20	15
Strontium (Sr)	8,6	7,5	11	18	17	7,9	10	15	6,9	12	18	11
Tellure (Te)	<0,012	<0,012	<0,012	<0,012	<0,012	0,017	<0,016	<0,0020	<0,0020	<0,0020	<0,0020	<0,0020
Thallium (Tl)	<0,0020	<0,0020	<0,0020	<0,0020	0,0024	0,0025	0,0025	0,0052	<0,0020	0,0027	0,0024	<0,0020
Thorium (Th)	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	<0,0040	0,0098	0,0092	0,0068	0,031	0,037	0,0057
Titane (Ti)	0,89	0,76	0,76	0,71	0,81	0,72	2,2	2,5	1,4	8,6	8,5	1,6
Tungstene (W)	0,008	<0,0050	<0,0050	<0,0050	<0,0050	0,0076	0,018	0,02	0,019	0,047	0,037	<0,0050
Uranium (U)	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	<0,0010	0,0051	0,0025	0,0015	0,0085	0,0084	0,0014
Vanadium (V)	0,017	0,011	<0,0090	<0,0090	0,014	0,013	0,11	0,12	0,057	0,48	0,45	0,045
Zinc (Zn)	13	12	18	17	16	12	14	12	14	15	19	13
CONVENTIONNELS												
Lyophilisation	47	46	48	46	48	47	46	48	46	48	50	48

Note : Lorsque le "<" est inscrit, cela signifie que la concentration rapportée est inférieure à la limite de détection.

D

FULL DESCRIPTIVE STATISTICS TABLES

Statistiques descriptives - 19-23 août 2024
Concentrations (mg/kg)

Espèce	Épinette noire					Mélèze laricin					Bleuet					Thé du Labrador				
Statistique descriptive / Paramètre	Minimum	Maximum	Moyenne	Écart-type	Nombre	Minimum	Maximum	Moyenne	Écart-type	Nombre	Minimum	Maximum	Moyenne	Écart-type	Nombre	Minimum	Maximum	Moyenne	Écart-type	Nombre
Aluminium (Al)	14,000	100,000	36,643	28,210	14	10,000	820,000	130,417	227,197	12	3,600	15,000	7,920	4,882	5	11,000	150,000	44,000	48,936	12
Antimoine (Sb)	0,020	0,020	0,020	0,000	14	0,020	0,020	0,020	0,000	12	0,020	0,026	0,021	0,003	5	0,020	0,020	0,020	0,000	12
Argent (Ag)	0,009	0,240	0,075	0,065	14	0,002	0,028	0,009	0,008	12	0,001	0,004	0,003	0,001	5	0,001	0,020	0,003	0,005	12
Arsenic (As)	0,003	0,019	0,008	0,006	14	0,003	0,016	0,009	0,003	12	0,003	0,011	0,006	0,003	5	0,003	0,078	0,029	0,026	12
Baryum (Ba)	43,000	300,000	134,500	66,506	14	52,000	160,000	104,250	31,456	12	3,300	17,000	7,760	6,082	5	39,000	69,000	57,667	10,003	12
Béryllium (Be)	0,002	0,002	0,002	0,000	14	0,002	0,004	0,002	0,001	12	0,002	0,002	0,002	0,000	5	0,002	0,002	0,002	0,000	12
Bismuth (Bi)	0,001	0,001	0,001	0,000	14	0,001	0,001	0,001	0,000	12	0,001	0,001	0,001	0,000	5	0,001	0,001	0,001	0,000	12
Bore (B)	7,900	19,000	15,921	2,696	14	5,200	21,000	12,542	4,213	12	4,300	12,000	7,060	3,422	5	11,000	24,000	17,000	3,542	12
Cadmium (Cd)	0,006	0,180	0,036	0,045	14	0,041	0,240	0,114	0,066	12	0,002	0,004	0,003	0,001	5	0,001	0,002	0,001	0,000	12
Calcium (Ca)	6200,000	27000,000	11885,714	5577,959	14	3200,000	8400,000	5058,333	1696,766	12	590,000	2600,000	1192,000	851,980	5	4200,000	6000,000	4975,000	589,491	12
Chrome (Cr)	0,025	0,140	0,033	0,031	14	0,025	0,170	0,062	0,048	12	0,025	0,160	0,113	0,062	5	0,025	0,510	0,126	0,178	12
Cobalt (Co)	0,008	0,990	0,242	0,330	14	0,005	1,400	0,277	0,397	12	0,009	0,012	0,011	0,001	5	0,005	0,190	0,050	0,067	12
Cuivre (Cu)	0,630	2,500	1,304	0,661	14	0,850	3,100	1,996	0,590	12	3,600	7,700	5,660	1,466	5	2,400	4,600	3,025	0,759	12
Étain (Sn)	1,000	2,100	1,161	0,290	14	0,920	1,600	1,121	0,179	12	0,260	1,100	0,902	0,360	5	0,990	1,400	1,120	0,141	12
Fer (Fe)	5,200	50,000	16,157	10,846	14	9,700	38,000	19,475	8,989	12	14,000	29,000	17,800	6,301	5	23,000	210,000	65,250	66,805	12
Lithium (Li)	0,010	0,048	0,014	0,010	14	0,010	0,050	0,020	0,015	12	0,010	0,013	0,011	0,001	5	0,010	0,280	0,065	0,098	12
Magnésium (Mg)	510,000	970,000	705,000	144,635	14	450,000	1100,000	744,167	189,567	12	410,000	1300,000	672,000	374,927	5	790,000	1600,000	1019,167	212,751	12
Manganèse (Mn)	590,000	2100,000	1240,714	420,722	14	720,000	2400,000	1493,333	598,321	12	44,000	1600,000	459,400	673,517	5	480,000	1500,000	812,500	306,776	12
Mercure (Hg)	0,004	0,011	0,007	0,002	14	0,004	0,007	0,005	0,001	12	0,002	0,004	0,002	0,001	5	0,005	0,008	0,006	0,001	12
Molybdène (Mo)	0,002	0,011	0,005	0,003	14	0,002	0,025	0,010	0,007	12	0,078	0,200	0,107	0,052	5	0,012	0,120	0,047	0,028	12
Nickel (Ni)	0,140	2,400	0,646	0,674	14	0,097	7,200	1,897	2,258	12	0,310	0,450	0,390	0,062	5	0,130	2,000	0,607	0,585	12
Phosphore total (P)	290,000	1200,000	612,857	234,961	14	540,000	1000,000	850,000	131,010	12	480,000	1900,000	922,000	599,683	5	870,000	1300,000	1118,333	124,815	12
Plomb (Pb)	0,027	0,170	0,091	0,051	14	0,004	0,067	0,028	0,020	12	0,018	0,073	0,047	0,022	5	0,010	0,084	0,029	0,024	12
Potassium (K)	1900,000	3800,000	2657,143	557,072	14	2500,000	5000,000	3933,333	690,630	12	6800,000	12000,000	10040,000	2036,664	5	3800,000	5100,000	4508,333	323,218	12
Rubidium (Rb)	1,900	12,000	5,643	2,916	14	2,500	20,000	8,425	5,618	12	10,000	46,000	32,000	15,764	5	5,500	22,000	13,392	4,826	12
Sélénium (Se)	0,005	0,005	0,005	0,000	14	0,066	0,210	0,127	0,047	12	0,005	0,017	0,007	0,006	5	0,010	0,032	0,017	0,006	12
Sodium (Na)	6,900	25,000	13,707	6,114	14	6,200	19,000	10,658	4,796	12	9,100	73,000	47,020	33,341	5	7,100	32,000	13,900	7,110	12
Strontium (Sr)	15,000	290,000	56,286	69,415	14	18,000	140,000	62,500	36,545	12	0,850	4,400	1,952	1,551	5	6,900	18,000	11,908	4,118	12
Tellure (Te)	0,001	0,008	0,005	0,002	14	0,001	0,049	0,008	0,013	12	0,001	0,060	0,014	0,026	5	0,001	0,017	0,005	0,005	12
Thallium (Tl)	0,006	0,047	0,029	0,012	14	0,003	0,011	0,006	0,003	12	0,001	0,001	0,001	0,000	5	0,001	0,005	0,002	0,001	12
Thorium (Th)	0,002	0,005	0,002	0,001	14	0,002	0,002	0,002	0,000	12	0,002	0,005	0,003	0,002	5	0,002	0,037	0,009	0,012	12
Titane (Ti)	0,340	0,850	0,514	0,155	14	0,480	0,680	0,577	0,066	12	0,460	0,920	0,630	0,176	5	0,710	8,600	2,454	2,910	12
Tungstène (W)	0,003	0,006	0,003	0,001	14	0,003	0,007	0,003	0,001	12	0,003	0,012	0,007	0,004	5	0,003	0,047	0,014	0,015	12
Uranium (U)	0,001	0,001	0,001	0,000	14	0,001	0,001	0,001	0,000	12	0,001	0,001	0,001	0,000	5	0,001	0,009	0,003	0,003	12
Vanadium (V)	0,005	0,031	0,012	0,007	14	0,005	0,033	0,012	0,010	12	0,005	0,016	0,010	0,005	5	0,005	0,480	0,111	0,170	12
Zinc (Zn)	35,000	220,000	129,643	44,309	14	25,000	110,000	57,750	28,017	12	4,400	13,000	6,660	3,591	5	12,000	19,000	14,583	2,429	12

E

STATISTICAL CONDITIONS (SHAPIRO-WILK, LEVENE), STATISTICAL(ANOVA, KRUSKAL-WALLIS) AND POST-HOC (TUKEY, DUNN) TESTS RESULTS TABLE

	Statistiques descriptives																			
Paramètre	**Moyenne.bleuet**	**Ecart.type.bleuet**	**Erreur.type.bleuet**	**n.bleuet**	**Minimum.epinete**	**Maximum.bleuet**	**Mediane.bleuet**	**Moyenne.Epinette**	**Ecart.type.epinette**	**Erreur.type.epinette**	**n.epinette**	**Minimum.epinette.1**	**Maximum.epinette**	**Mediane.epinette**	**Moyenne.meleze**	**Ecart.type.meleze**	**Erreur.type.meleze**	**n.meleze**	**Minimum.epinete.2**	**Maximum.meleze**	**Mediane.meleze**
Al	7,92	4,88	2,18	5	3,6	15	5,1	36,64	28,21	7,54	14	14	100	27,5	130,42	227,20	65,59	12	10	820	44
B	7,06	3,42	1,53	5	4,3	12	5	15,92	2,70	0,72	14	7,9	19	16	12,54	4,21	1,22	12	5,2	21	12
Ba	7,76	6,08	2,72	5	3,3	17	3,9	134,50	66,51	17,77	14	43	300	120	104,25	31,46	9,08	12	52	160	100
Ca	1192	851,98	381,02	5	590	2600	710	11885,71	5577,96	1490,77	14	6200	27000	10700	5058,33	1696,77	489,81	12	3200	8400	4600
Cu	5,66	1,47	0,66	5	3,6	7,7	5,6	1,30	0,66	0,18	14	0,63	2,5	1,1	2,00	0,59	0,17	12	0,85	3,1	2
Fe	17,8	6,30	2,82	5	14	29	15	16,16	10,85	2,90	14	5,2	50	12	19,48	8,99	2,59	12	9,7	38	17
K	10040	2036,66	910,82	5	6800	12000	11000	2657,14	557,07	148,88	14	1900	3800	2500	3933,33	690,63	199,37	12	2500	5000	4000
Mg	672	374,93	167,67	5	410	1300	470	705,00	144,63	38,66	14	510	970	685	744,17	189,57	54,72	12	450	1100	735
Mn	459,4	673,52	301,21	5	44	1600	53	1240,71	420,72	112,44	14	590	2100	1250	1493,33	598,32	172,72	12	720	2400	1250
Na	47,02	33,34	14,91	5	9,1	73	69	13,71	6,11	1,63	14	6,9	25	12,5	10,66	4,80	1,38	12	6,2	19	8,15
Phosphore_total	922	599,68	268,19	5	480	1900	570	612,86	234,96	62,80	14	290	1200	560	850,00	131,01	37,82	12	540	1000	890
Rb	32	15,76	7,05	5	10	46	39	5,64	2,92	0,78	14	1,9	12	4,6	8,43	5,62	1,62	12	2,5	20	6,7
Sr	1,95	1,55	0,69	5	0,85	4,4	0,99	56,29	69,41	18,55	14	15	290	36,5	62,50	36,55	10,55	12	18	140	48
Zn	6,66	3,59	1,61	5	4,4	13	5	129,64	44,31	11,84	14	35	220	125	57,75	28,02	8,09	12	25	110	41,5

Statistiques descriptives							ANOVA	Test de Shapiro-Wilk				Test de Levene	Test post-hoc de Tukey				$ANOVA_{log}$
Moyenne.the.labrador	Ecart.type.the.labrador	Erreur.type.the.labrador	n.the.labrador	Minimum.epinette.3	Maximum.the.labrador	Mediane.the.labrador	p.de.ANOVA *p-value ≤ 0.05 Diff significative entre les moy des groupes*	shap.bleut *si p>0,05 : Distrib normale*	shap.Meleze	shap.epinette	shap.the.labrador	p.Levene *si p>0,05 : Variances sont homogènes*	Group.tukey.Meleze	Group.tukey.Epinette	Group.tukey.The	Group.tukey.Bleuet	p.de.ANOVA.transfo *p-value ≤ 0.05 Diff significative entre les moy des groupes*
44	48,94	14,13	12	11	150	22	0,163309811	0,22407806	5,07E-05	0,001882722	0,000473269	0,0126761	a	a	a	a	**0,0025002**
17	3,54	1,02	12	11	24	16,5	1,42E-05	0,13409962	0,965121748	0,002685388	0,758854669	0,283941353	a	ab	b	c	0,00000200
57,7	10,00	2,89	12	39	69	59	1,97E-06	0,08363689	0,74784862	0,323465045	0,25176504	0,000721331	a	a	b	b	0,00000000
4975	589,49	170,17	12	4200	6000	4950	2,37E-07	0,06702629	0,205439784	0,024343078	0,462224686	0,00038599	a	b	b	b	0,00000000
3,025	0,76	0,22	12	2,4	4,6	2,9	4,54E-12	0,797935442	0,87208797	0,017439403	0,002776841	0,333810202	a	b	c	c	0,00000000
65,25	66,81	19,28	12	23	210	34,5	0,005303166	0,003178869	0,082076014	0,000286877	0,000205274	0,000457482	a	b	b	b	0,00002083
4508,3	323,22	93,30	12	3800	5100	4550	3,13E-18	0,356010487	0,876318431	0,105757515	0,750635504	6,91E-05	a	b	b	c	**0,00000000**
1019,2	212,75	61,42	12	790	1600	970	0,001527803	0,059601069	0,854583985	0,403513777	0,008169358	0,145852742	a	b	b	b	0,00106247
812,5	306,78	88,56	12	480	1500	770	0,000484119	0,021497778	0,093717077	0,953613513	0,214694453	0,067185231	a	ab	bc	c	0,00000121
13,9	7,11	2,05	12	7,1	32	11	1,13E-05	0,018999052	0,018397118	0,151986594	0,020842811	9,02E-15	a	b	b	b	0,00156974
1118,3	124,82	36,03	12	870	1300	1100	0,000158273	0,084209605	0,033181025	0,06838392	0,127910609	0,000156248	a	ab	ab	b	0,00003456
13,4	4,83	1,39	12	5,5	22	13	3,21E-08	0,283913456	0,001290599	0,017538509	0,406332858	3,36E-06	a	b	bc	c	**0,00000038**
11,9	4,12	1,19	12	6,9	18	11	0,008887465	0,073596085	0,122151588	8,73E-06	0,127879113	0,052463511	a	ab	b	b	**0,000000000**
14,6	2,43	0,70	12	12	19	14	4,83E-12	0,008171147	0,078047699	0,418451367	0,179914329	0,000534675	a	b	c	c	0,00000000

Test de Shapiro-Wilk				Test de Levene	Test post-hoc de Tukey				Test du Kruskal-Wallis	Test post-hoc de Dunn						Décision	
shap.log.bleuet *si p>0,05 : Distrib normale*	shap.log.Meleze	shap.log.epinette	shap.log.the.labrador	p.Levene.log.transfo *si p>0,05 : Variances sont homogènes*	Group.tukey.log.Meleze	Group.tukey.log.Epinette	Group.tukey.log.The	Group.tukey.log.Bleuet	p.de.Kruskal.Wallis *p-value ≤ 0.05 : Au moins une des distrib des groupes est différente*	p.Dunn.Bleuet… Epinette.noire	p.Dunn.Bleuet… Meleze.laricin	p.Dunn.Epinette.noire… Meleze.laricin	p.Dunn.Bleuet… The.du.Labrador	p.Dunn.Epinette.noire… The.du.Labrador	p.Dunn.Meleze.laricin… The.du.Labrador	Test retenu	Différence significative entre les moy ou groupe (o/n) ?
0,415436502	**0,49**	**0,116245311**	**0,058070529**	**0,108474**	**a**	**a**	**a**	**b**	0,007297875	0,024903318	0,003785273	1	0,066851762	1	1	ANOVA transfo	Oui
0,178989587	0,640538252	0,000159788	0,909377208	0,014668597	a	ab	b	c	0,000631072	0,00478976	0,623412847	0,15030882	0,002850378	1	0,089140488	Kruskal Wallis	Oui
0,116082426	0,448276364	0,99454784	0,19080319	0,000939114	a	a	b	c	0,0000117	0,000113758	0,001581375	1	0,582609399	0,003770109	0,056891811	Kruskal Wallis	Oui
0,209033488	0,322928621	0,542376114	0,546951926	0,000132315	a	b	b	c	0,0000009	0,000003	0,161004791	0,001565266	0,148568666	0,001843234	1	Kruskal Wallis	Oui
0,635438704	0,213779997	0,102562062	0,010630142	0,022503221	a	b	c	d	0,0000010	0,000020	0,006363152	0,501217408	0,967312914	0,000120065	0,087622659	Kruskal Wallis	Oui
0,00904037	0,663464874	0,125269868	0,008603497	0,118935959	a	b	b	b	0,0001968	1	1	1	0,094259213	0,000104167	0,014019344	Kruskal Wallis	Oui
0,197046043	**0,356217223**	**0,320611376**	**0,544584992**	**0,09**	**a**	**b**	**b**	**c**	0,0000004	4,05E-06	0,02504638	0,041170645	0,581320806	8,81E-05	0,697761516	ANOVA transfo	Oui
0,180264396	0,545772747	0,587359041	0,074609098	0,014627263	a	b	b	b	0,0012154	1	1	1	0,014586287	0,003474868	0,026594824	Kruskal Wallis	Oui
0,074510947	0,369056795	0,792549361	0,568262596	2,55192E-10	a	a	a	b	0,0024358	0,08012952	0,020009976	1	1	0,133711951	0,024492371	Kruskal Wallis	Oui
0,023333689	0,052256794	0,227488611	0,39967323	2,65E-05	a	b	b	b	0,0730675	0,708844	0,057722455	0,909625623	0,758250987	1	1	Kruskal Wallis	Non
0,221709616	0,007805225	0,742090767	0,0852624	0,000655056	a	a	ab	b	0,0001042	1,000000	1	0,326700711	0,19720057	2,92485E-05	0,064525063	Kruskal Wallis	Oui
0,152581414	**0,113566819**	**0,369474682**	**0,374499603**	**0,55**	**a**	**b**	**c**	**c**	0,0000322	0,000305222	0,025239973	0,812831951	1	0,001112068	0,182945458	ANOVA transfo	Oui
0,125602811	**0,893091322**	**0,07**	**0,30494514**	**0,286500455**	**a**	**a**	**b**	**c**	0,0000006	0,000825801	0,00004	1	1	0,006890993	0,000201885	ANOVA transfo	Oui
0,045824689	0,294023771	0,009037011	0,244963449	0,055895957	a	b	c	d	0,0000001	7,18741E-06	0,010893912	0,162237918	1	4,7323E-06	0,051534655	Kruskal Wallis	Oui

APPENDIX T – ENVIRONMENTAL MONITORING - TRADITIONAL FOOD QUALITY (BEAVER COMPONENT) (WSP, 2025)

GALAXY LITHIUM (CANADA) INC.

GALAXY PROJECT

ENVIRONMENTAL MONITORING – TRADITIONAL FOOD QUALITY (BEAVER COMPONENT)

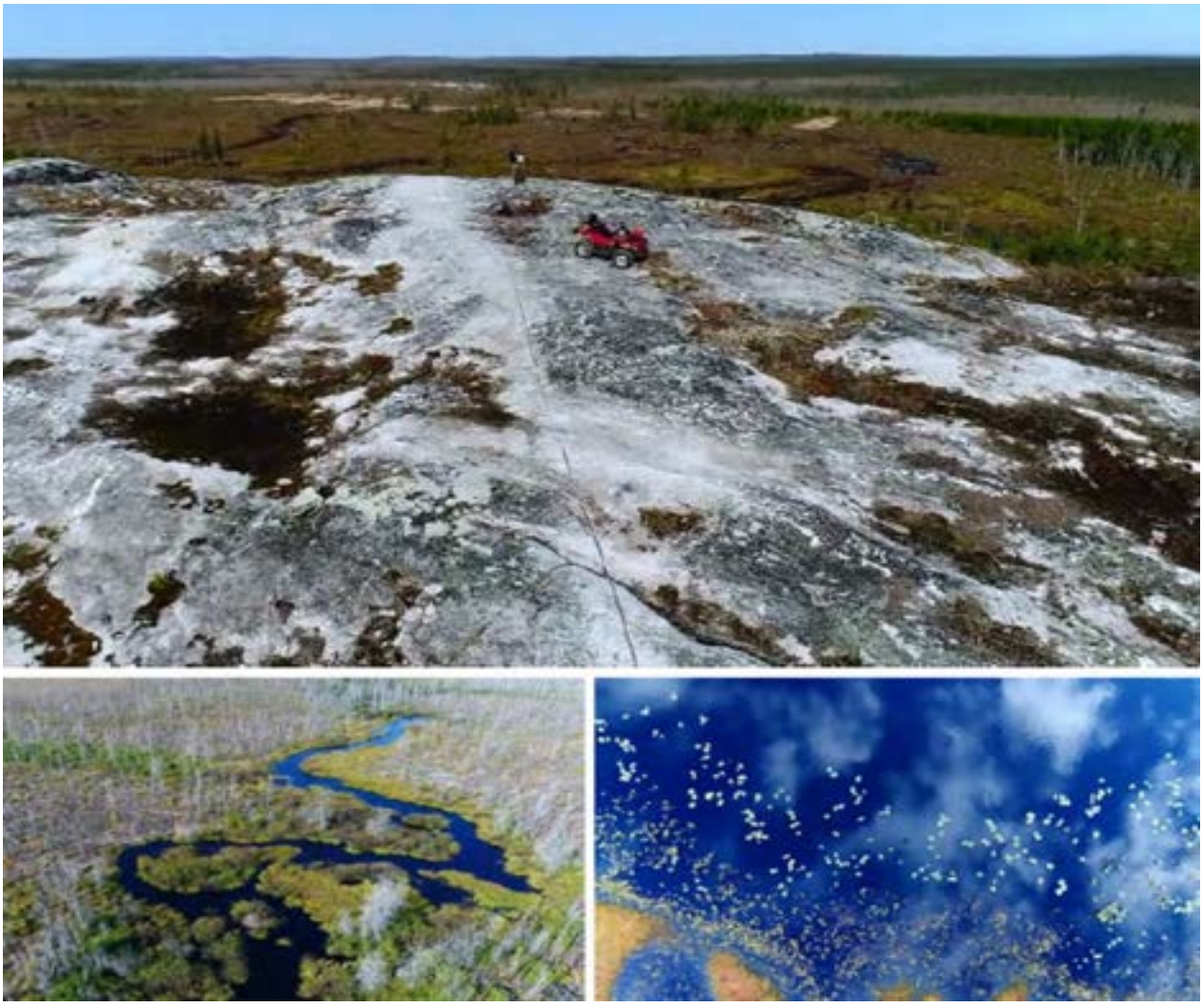
JAMES BAY, QUEBEC

FEBRUARY 2025

CONFIDENTIAL

WSP REFERENCE: CA0036076.5537

FINAL VERSION



GALAXY LITHIUM (CANADA) INC.

GALAXY PROJECT

ENVIRONMENTAL MONITORING – TRADITIONAL FOOD QUALITY (BEAVER COMPONENT)

JAMES BAY, QUEBEC

FINAL VERSION
CONFIDENTIAL

WSP REFERENCE: CA0036076.5537

FEBRUARY 2025

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LIMITATIONS

WSP Canada Inc. (“WSP”) has prepared this report solely for its recipient, Galaxy Lithium (Canada) Inc., in accordance with the consultant agreement between the parties. In the event that a consultant agreement has not been executed, the parties agree that WSP’s General Terms and Conditions for consulting work, which were provided to you before this report was prepared, will govern their business relationship.

This report is intended to be used in its entirety. No excerpt can be considered as representative of the evaluation results.

The conclusions presented in this report are based on work performed by technical, trained, and professional personnel, in accordance with their reasonable interpretation of current and accepted engineering and technical practices at the time the work was carried out.

The content and opinions expressed in this report are based on observations and/or information available to WSP at the time it was prepared, through the application of investigative techniques and engineering analysis methods consistent with those customarily used by WSP and other engineers/technicians working under similar conditions, subject to the same time, financial, and physical constraints applicable to this type of project.

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In preparing this report, WSP has relied in good faith on information provided by third parties, as indicated in the report. WSP has reasonably assumed that the information provided is correct and therefore WSP cannot be held responsible for the accuracy or completeness of such information.

The survey monuments and markers used in this report are intended primarily to establish differences in relative elevation between sampling locations and are not to be used for any other purpose. In particular, they must not be used for grading, excavation, construction, planning, development, etc.

This document is a translation of the report written in French. In the event of any discrepancy between French and English, the French version will prevail.

CLIENT

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TECHNITRAD INC.

English Translation

REFERENCE FOR CITATIONS

WSP. 2025. Galaxy Project. Environmental Monitoring – Traditional Food Quality (Beaver Component). James Bay, Quebec. Report prepared for Galaxy Lithium (Canada) Inc. WSP reference: CA0036076.5537. 23 pp. and app.

SOMMAIRE/SUMMARY

Ce rapport présente les résultats du suivi de la qualité de la nourriture traditionnelle (volet castor) sur le site minier de Galaxy Lithium (Canada) Inc. réalisé du 30 septembre au 8 octobre 2024. Les objectifs de la présente campagne de suivi étaient de réaliser un suivi de la population de castor comprenant notamment l'inventaire par drone des signes d'activités du castor et la description de leur habitat sur les cours d'eau CE1 à CE5. Par la suite, la campagne visait à effectuer le trappage d'un nombre limité de castors sur les cours d'eau CE1 à CE5 afin de prélever des échantillons biologiques (muscle, foie, rein et queue) pour l'analyse des métaux présents dans les tissus du castor. L'inventaire par drone a permis de répertorier un total de 48 sites d'activités du castor (barrage, hutte, empreintes, etc.) sur les cinq cours d'eau (CE1 à CE5) de la zone d'étude et dans deux sections de moins de 500 m situées près du cours d'eau CE5 mais à l'extérieur de la zone d'étude. Ainsi, 30 barrages (deux actifs et 28 inactifs), 17 huttes (une active, 15 inactives et une indéterminée) ainsi qu'un signe de présence (empreintes, rognure, etc.) ont été relevés. Les résultats de cet inventaire aérien indiquent qu'il n'y aurait pas de castors dans la zone d'étude. Toutefois, les observations terrestres suggèrent la présence d'un à deux castors dans la zone d'étude. À l'extérieur de la zone d'étude, il a été estimé qu'il y aurait entre trois et six castors en combinant l'inventaire par drone et les observations terrestres. À la lumière de ces résultats, il a été décidé de ne pas effectuer de trappage afin de préserver la population actuelle de castors sur le territoire, jugée insuffisante pour les besoins de l'étude. De plus, la capture aurait potentiellement pu compromettre le suivi environnemental – nourriture traditionnelle (volet castor) à moyen et long termes. Galaxy Lithium (Canada) Inc. prévoit ainsi réaliser en 2025 l'inventaire des signes de présence de castors dans la zone d'étude afin de déterminer les variations de la population de castors. En fonction des résultats, GLCI décidera de procéder ou non au trappage, tout en incluant un survol en drone du CE2 pour relever les changements à l'écoulement et au niveau d'eau du cours d'eau.

This report presents the results of the monitoring program for the quality of beaver used as traditional food at the Galaxy Lithium (Canada) Inc. mining site conducted from September 30 to October 8, 2024. The objectives of this monitoring campaign included a follow-up of the beaver population, notably through the identification of beaver activity signs by drone inventory, and habitat descriptions in watercourses CE1 to CE5. Subsequently, the campaign aimed to trap a limited number of beavers on watercourses CE1 to CE5 to collect biological samples (muscles, liver, kidney and tail) for metals analysis in beaver tissue. A total of 48 beaver activity sites (dam, lodge, footprints, etc.) were identified by drone across the five watercourses (CE1 to CE5) within the study area and two sections of less than 500 meters located near watercourse CE5 but outside of the study area. Thus, 30 dams (two active and 28 inactive), 17 lodges (one active, 15 inactive, and one undetermined) as well as a sign of presence (footprints, gnawing, etc.) were recorded. The results from this aerial inventory indicate that there are no beavers in the study area, however, terrestrial observations suggest the presence of one to two beavers in the study area. Outside the study area, it was estimated that there would be between three and six beavers by combining the drone inventory and terrestrial observations. In light of these results, it was decided not to carry out the trapping to preserve the current beaver population on the territory, which was deemed insufficient for the study's needs. Moreover, the capture could have potentially compromised medium and long-term environmental monitoring – traditional food (beaver component). Thus, Galaxy Lithium (Canada) Inc. plans to conduct an inventory of beaver activity signs in the study area in 2025 to determine variations in the beaver population. Based on the results, GLCI will decide whether to proceed with trapping, while also including a drone survey of CE2 to observe changes in water flow and levels.

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1 Introduction

1.1 Background Information

In March 2024, Galaxy Lithium (Canada) Inc. (GLCI) began carrying out site preparation and pre-construction work for its Galaxy project, which is located in the Nord-du-Québec administrative region, roughly 10 km south of the Eastman River and 100 km east of James Bay, at the same latitude as the Cree Nation of Eastmain. The site is located on Category III lands as defined under the James Bay and Northern Québec Agreement (JBNQA). Accessible via the Billy-Diamond Highway, near the truck stop at Kilometre 381.

As part of the provincial and federal review and impact assessment process, GLCI must comply with the Decision Statement issued by the Minister of Environment under the Canadian Environmental Assessment Act (CEAA, 2012) on January 13, 2023, and amended on July 26, 2024. The Decision Statement sets out several conditions. GLCI is also required to comply with the Certificate of Authorization issued by *the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs* on December 27, 2023. GLCI has therefore committed to implementing environmental and social monitoring programs as part of the Galaxy project.

This report describes the methodology used to monitor the American beaver (*Castor canadensis*). This methodology is based on sections 12.2.2 and 5.10.1 of the environmental and social monitoring program released on March 15, 2024 (Arcadium Lithium, 2024), as well as on the results of the 2024 monitoring campaign.

1.2 Objectives

WSP was tasked with a two-fold mandate: monitoring contamination in beaver tissues and conducting a drone survey of the CE2 watercourse to identify active beaver sites that could cause changes in the flow and level of water.

The following activities were planned in pursuit of these objectives:

- Drone survey of watercourses CE1 to CE5 to document the presence of beavers (search for active sites) in preparation for trapping to monitor the quality of traditional foods and to record changes in the flow and level of water in theCE2 watercourse;
- Trapping of beavers along watercourses CE1 to CE5 and collection of biological samples;
- Analysis of metals present in beaver tissues collected (muscle, liver, kidney, and tail).

2 Methodology

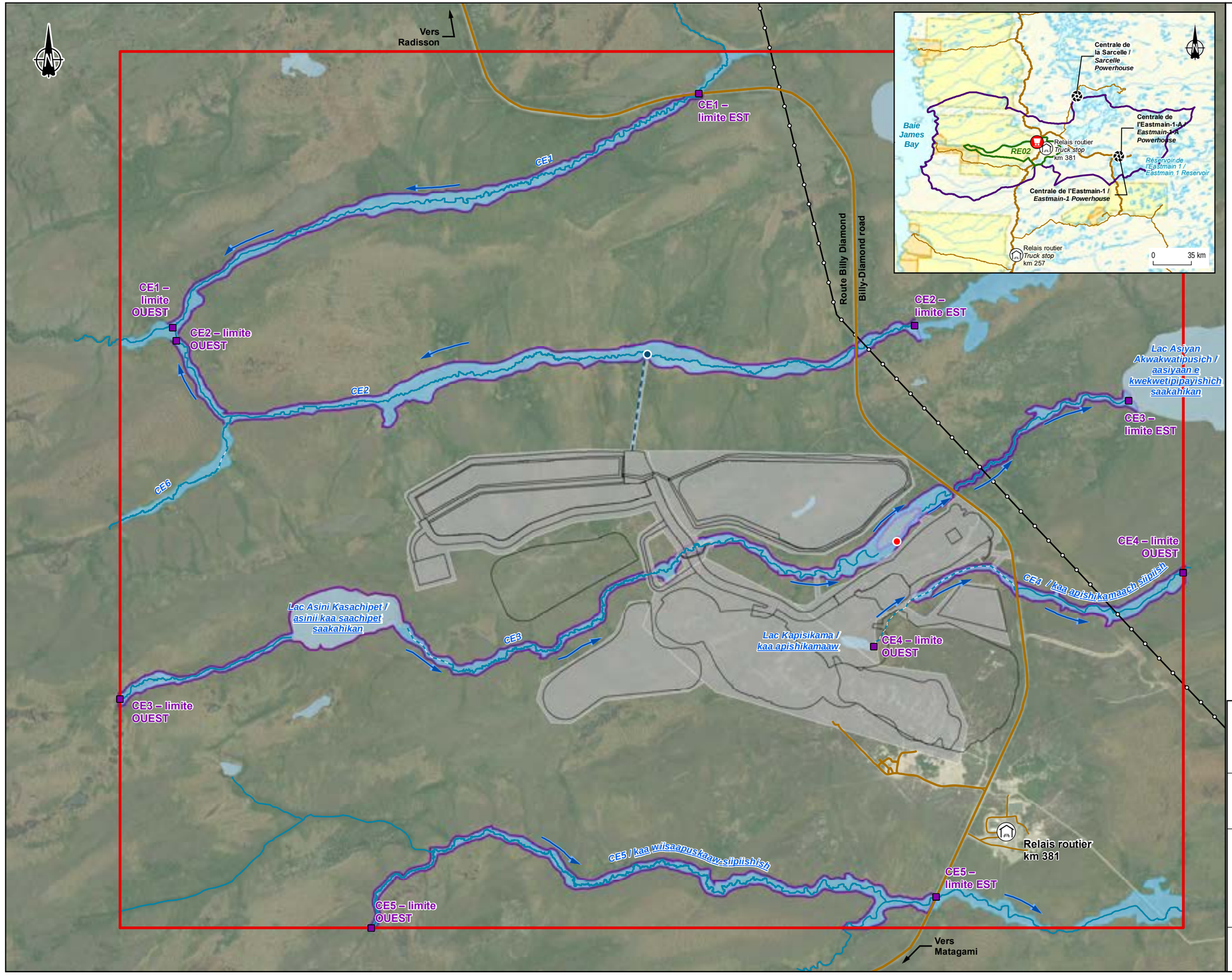
The field campaign, including mobilization and demobilization activities, covered a nine-day period from September 30 to October 8, 2024. The field team consisted of Olivier Tremblay, an environmental technician with WSP, and Brian Weapenicappo, the tallyman from RE02 trapline.

2.1 Drone survey

A drone survey was conducted to document beaver activity and environmental changes associated with their presence. A drone was flown along the entire length of watercourses CE1 to CE5 (Map 1) to identify active beaver sites such as dams, lodges, tree harvesting sites, etc. Drone observations were intended to facilitate the search for active sites and thereby optimize effort linked to traps installation for trapping. Table 1 shows the coordinates of the upstream and downstream points of each section surveyed along each watercourse.

Table 1 Coordinates of upstream and downstream points of sections surveyed along watercourses

Watercourse	Western Boundary		Junction with Billy-Diamond Highway		Eastern Boundary	
CE1	52° 15’ 22.13” N	77° 08’ 17.79” W	52° 16’ 12.99” N	77° 05’ 25.52” W	52° 16’ 12.95” N	77° 05’ 25.51” W
CE2	52° 15’ 19.56” N	77° 08’ 16.41” W	52° 15’ 22.17” N	77° 04’ 30.88” W	52° 15’ 26.99” N	77° 04’ 11.70” W
CE3	52° 14’ 53.54” N	77° 03’ 57.15” W	52° 14’ 53.58” N	77° 03’ 57.17” W	52° 15’ 12.93” N	77° 03’ 00.00” W
CE4	52° 14’ 21.41” N	77° 04’ 22.26” W	52° 14’ 33.90” N	77° 03’ 35.49” W	52° 14’ 33.86” N	77° 03’ 35.48” W
CE5	52° 13’ 21.23” N	77° 07’ 06.10” W	52° 13’ 30.83” N	77° 03’ 59.16” W	52° 13’ 30.78” N	77° 03’ 59.15” W



Zone d'étude locale / *Local study area*

Infrastructures minières projetées / *Projected mining infrastructures*

- Effluent minier / *Mining effluent*
- Effluent sanitaire / *Sanitary effluent*
- Infrastructures minières / *Mining infrastructure*
- Empreinte de la mine (zone tampon de 50 mètres) / *Mine footprint (buffer 50 meters)*
- Périmètre de déboisement / *Clearing area*

Inventaire / *Inventory*

- Limite d'inventaire de cours d'eau / *Stream inventory boundary*

Hydrographie / *Hydrography*

- CE3 — Numéro de cours d'eau / *Stream number*
- Cours d'eau permanent / *Permanent stream*
- Cours d'eau à écoulement diffus ou intermittent / *Intermittent or diffused flow stream*
- Sens d'écoulement de l'eau / *Direction of water flow*
- Littoral des cours d'eau / *Watercourses shoreline*

Infrastructures / *Infrastructure*

- Route principale / *Main road*
- Route d'accès / *Access road*
- Ligne de transport d'énergie / *Transmission line*
- Relais routier / *Truck stop*

Limites / *Limits*

- Communauté d'Eastmain / *Eastmain community*
- Terrain de trappage (RE02) / *Trapping area (RE02)*
- Terres de catégorie I / *Category I land*
- Terres de catégorie II / *Category II land*

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Projet Galaxy / Galaxy Project

Suivis environnementaux en phase de construction – Nourriture traditionelle – Castor / Environmental monitoring during the construction phase – Traditonnal food – Beaver

Carte 1 / *Map 1*
Localisation du site à l'étude et cours d'eau inventoriés / *Location of study site and inventoried watercourses*

Sources :
Orthoimage: ESRI
Inventaire / Inventory: WSP 2024
Données du projet / Project data : Galaxy, dec. 2023

0 240 480 m
UTM, fuseau 18, NAD83

Décembre / *December* 2024

Préparation : A. Brousseau
Dessin : A. Masson
Approbation : D. Thiffault

CA0036076_5537_suCastor_c1_loc_metho_241219.mxd

wsp

The drone used was a DJI Matrice 30T, which is a Category 2[1] rotary-wing UAV. It was equipped with imaging and mapping sensors, including three cameras with different resolutions: wide angle (12 MP), zoom (12 MP), and thermal (1.3 MP). To maximize data collection in the field, all three cameras were used. The drone was also equipped with a global navigation satellite system (GNSS).

The drone pilot held a pilot certificate issued by Transport Canada, which regulates the operation of uncrewed aircraft systems (drones). Under the terms of this certificate, the pilot ensured compliance with all rules applicable to this type of survey as set out in the *Canadian Aviation Regulations* (CAR; SOR/96-433), more specifically in Part IX — Remotely Piloted Aircraft Systems.[2]

No programmed flight plan was carried out. The drone was flown manually, the pilot navigated through the environment using a viewing device (remote control screen), while ensuring that the defined survey area was exhaustively covered. In practical terms, the pilot flew the drone along each target watercourse (CE1 to CE5), using the wide-angle camera to quickly locate and identify points of interest associated with the presence of beavers. Once a point of interest was detected, the pilot either zoomed in on the camera or decreased the drone's altitude to collect high-quality photos and video. In certain situations, the thermal (infra-red) camera was used to acquire additional data on an observation. All points of interest were geolocated using the drone's built-in system, in addition to being photographed or videoed as a means of documenting the survey area. In other words, the pilot used all available means and opportunities to maximize quality of aerial observation and collected data. A few representative photographs of each watercourse (CE1 to CE5) are included in Appendix A (Photos 1 to 28).

Regarding data on signs of beaver activity, the presence indicators were recorded on the tablet connected to the drone. When evidence of beaver activity was detected, the relevant indicators (food caches, lodges, dams, etc.) were recorded. The observers, including the tallyman, also determined whether the evidence indicated recent activity (current year) or an inactive site (previous years). All evidence of beaver presence was recorded and geolocated using a GPS device. Other wildlife observations were also recorded.

It should be noted that environmental and meteorological limitations, including precipitation and strong winds, occurred during the survey and required the interruption or rescheduling of some drone flights to avoid instability and to allow for high-quality imaging. Finally, while flying the drone in natural environments, special care was taken to avoid disturbing wildlife. Accordingly, the drone was consistently flown at a decent altitude with minimal time spend hovering over any detected individuals.

1 Transport Canada regulations (Government of Canada, 2023) establish three weight categories for drones. Category 2 corresponds to drones weighing more than 250 g but less than 25 kg.

2 For further information, see Government of Canada, 2024. Canadian Aviation Regulations (SOR/96-433).

2.2 Beaver trapping and biological sampling

Trapping and biological sampling had been planned to determine the quality of beaver biological tissues typically eaten by the Cree population, by comparing observed levels with baseline levels. The monitoring program targeted a number of trappings equivalent to two beavers per watercourse (CE1 to CE5), for a total of 10 beavers. Samples of flesh (muscle), organs (liver and kidney), and fatty tissue (tail) were to be taken from each captured individual for metal analysis (testing conducted at an external laboratory).

However, in the interest of preserving the existing beaver population, trapping was not carried out as part of this field campaign. The local population was deemed too small for the purposes of the study, and trapping could have compromised environmental monitoring over the medium and long term.

The trapping of wild animals for scientific, educational, or wildlife management purposes requires a special, species-specific permit issued by the MELCCFP (SEG permit). Such a permit was obtained before the start of the field campaign to allow for the planned trapping of beavers (Appendix B).

3 Results

This section details the results of the 2024 field campaign. It also provides a short literature review on beaver biology and an estimate of the number of colonies in the local study area (referred to below as the "study area"). Finally, it discusses why trapping and, by extension, biological sampling were not carried out.

3.1 Biology of the American beaver

This section provides a brief literature review on beavers. It gathers the information needed, together with the data collected in the field, to assess the number of colonies present in the study area.

3.1.1 Habitat

Beavers are ecosystem engineers. In other words, they have the ability to transform, maintain, or create habitats for their own use, while continually adapting those habitats to their needs (Smith *et al.,* 1991; Rosell *et al.,* 2005). In turn, structures built by beavers affect the ability of other species to access biotic and abiotic resources, as well as the physicochemical components and biological properties of the surrounding environment (Jones, Lawton and Shachak, 1994; Gurney and Lawton, 1996; Rosell *et al.,* 2005). In short, beavers influence the availability of different types of wetland and aquatic habitats (Rosell *et al.,* 2005).

Beaver habitat selection also depends on a range of other geomorphological and aquatic factors, such as stream gradient, stream width and depth, watershed size upstream of a dam, floodplain width, substrate type, and riparian slope (Labbé, 2009).

Beavers prefer habitats consisting of aquatic environments such as ponds, small lakes with silty or earthy bottoms, and slow and meandering watercourses (Fortin *et al.,* 2001). These environments generally feature a relatively stable flow and level of water, as well as a low-gradient stream bed (Fournier, 2013). Finally, these preferred locations are found close to feeding areas rich in desirable hardwood species. However, presence of human infrastructure, such as roads and culverts can encourage beaver settlement (Curtis and Jensen, 2004; Labbé, 2009). In fact, because anthropogenic structures like these affect the flow of water, their presence often facilitates the establishment of beavers in a given area.

Beavers will begin by building a dam (Rosell *et al*., 2005). In ecological terms, it acts as a dike to raise the water level in order to create a basin (pond) (Collen and Gibson, 2001; Baker and Hill, 2003). In turn, this pond facilitates beavers' access to food by making it easier to travel by water, while also providing shelter from terrestrial predators (Jenkins and Busher, 1979). As for beaver lodges, they have many uses: escape cover from predators, a source of warmth, as well as a place to rest, reproduce, and raise young (Allen, 1983). Food caches indicate that a colony is feeding in the area. Depending on the season, these caches will contain different forms of various woody species, including buds, branches, and saplings (Léger, 2004). Finally, tooth marks left on trees at harvesting sites and the tracks of individual beavers provide evidence that the species has at least travelled through an area.

3.1.2 Feeding

Beavers are rodents and primarily feed on the bark, leaves, thin branches, and twigs of various hardwood and grass species (Baker and Hill, 2003; Fournier, 2013). The beaver's preferred forest species is the trembling aspen (*Populus tremuloides*) (Johnston and Naiman, 1990; Fortin *et al.,* 2001; Gallant *et al.,* 2004). However, paper birch (*Betula papyrifera*), mountain ash (*Sorbus* spp.), cherry (*Prunus* spp.), alder (*Alnus* spp.), willow (*Salix* spp.), and red maple (*Acer rubrum*) trees are also species of interest for the beaver.

In summer, herbaceous plants make up a large part of its diet (Novak, 1987). During the period of open water, beavers also supplement their diet with aquatic plants like duckweed, pondweed, sedges, and water lilies (Fournier, 2013).

At times when their preferred food sources (deciduous and herbaceous species) become scarce on the territory, beavers may feed on coniferous species (Müller-Schwarze, 2011). However, this remains a marginal phenomenon that mainly occurs in response to starvation (Duchesne *et al.,* 2013).

In late summer, they gather substantial reserves of food. These caches of branches remain accessible under the water throughout the winter (Müller-Schwarze, 2011).

To meet its food and infrastructure needs, a single beaver can harvest an average of 216 trees and shrubs annually (Fournier *et al.,* 2001). That is equivalent, on an annual basis, to a deciduous stand such as a one-hectare aspen stand per pair of beavers (Fournier, 2013).

3.1.3 Breeding

Beavers form lifelong monogamous pairs. Mating usually occurs in January or February (Prescott and Richard, 2004). Gestation typically lasts between 103 and 108 days, with the female giving birth to an average of between two and four offspring in May or June. Females only have one litter per year (Prescott and Richard, 2004). However, fecundity is based on a variety of factors, including food availability, age, population density, and environmental threats.

Each colony consists of a dominant pair and its offspring from the previous two years. A typical colony therefore has between 2 and 12 individuals (Fortin *et al.,* 2001). Young beavers leave the colony at about two years of age, in the spring and are then capable of reproducing (from the age of 21 months).

3.1.4 Movements and migration

According to data from research projects (using capture, marking, and telemetry), individuals and colonies can cover dozens of kilometres within a two-week period when dispersing or travelling (Fournier, 2013). In cases of relocation, the distances covered by beavers vary between 0 and 36.5 linear kilometres (Fournier, 2013).

When entering a terrestrial environment to access food, beavers generally remain within 100 m of a body of water. However, when food resources are scarce, they may venture up to 200 m onto land (Jenkins, 1980; Allen, 1983; McGinley and Whitham, 1985; Fortin *et al.,* 2001).

3.1.5 Predation

The North American beaver's main natural predator is the grey wolf (*Canis lupus*). Hunting pressure is greatest in spring and summer, especially when deer are scarce in the area (Hall, 1971; Baker and Hill, 2003; Gable *et al.,* 2018).

Currently, the main cause of beaver mortality remains human trapping, which is undertaken to control the population, manage conflict with human infrastructure (depredation), or harvest fur (Government of Québec, 2024).

In the Nord-du-Québec region, beavers may be hunted by any number of terrestrial mammals, including the river otter (*Lontra canadensis*), coyote (*Canis latrans*), black bear (*Ursus americanus*), red fox (*Vulpes vulpes*), American mink (*Neovison vison*), and Canadian lynx (*Lynx canadensis*) (Prescott and Richard, 2004; Duchesne *et al.,* 2013). However, compared to wolves and humans, these predators have very little impact on beaver populations (Smith *et al.,* 1994; Baker and Hill, 2003).

3.2 Inventory

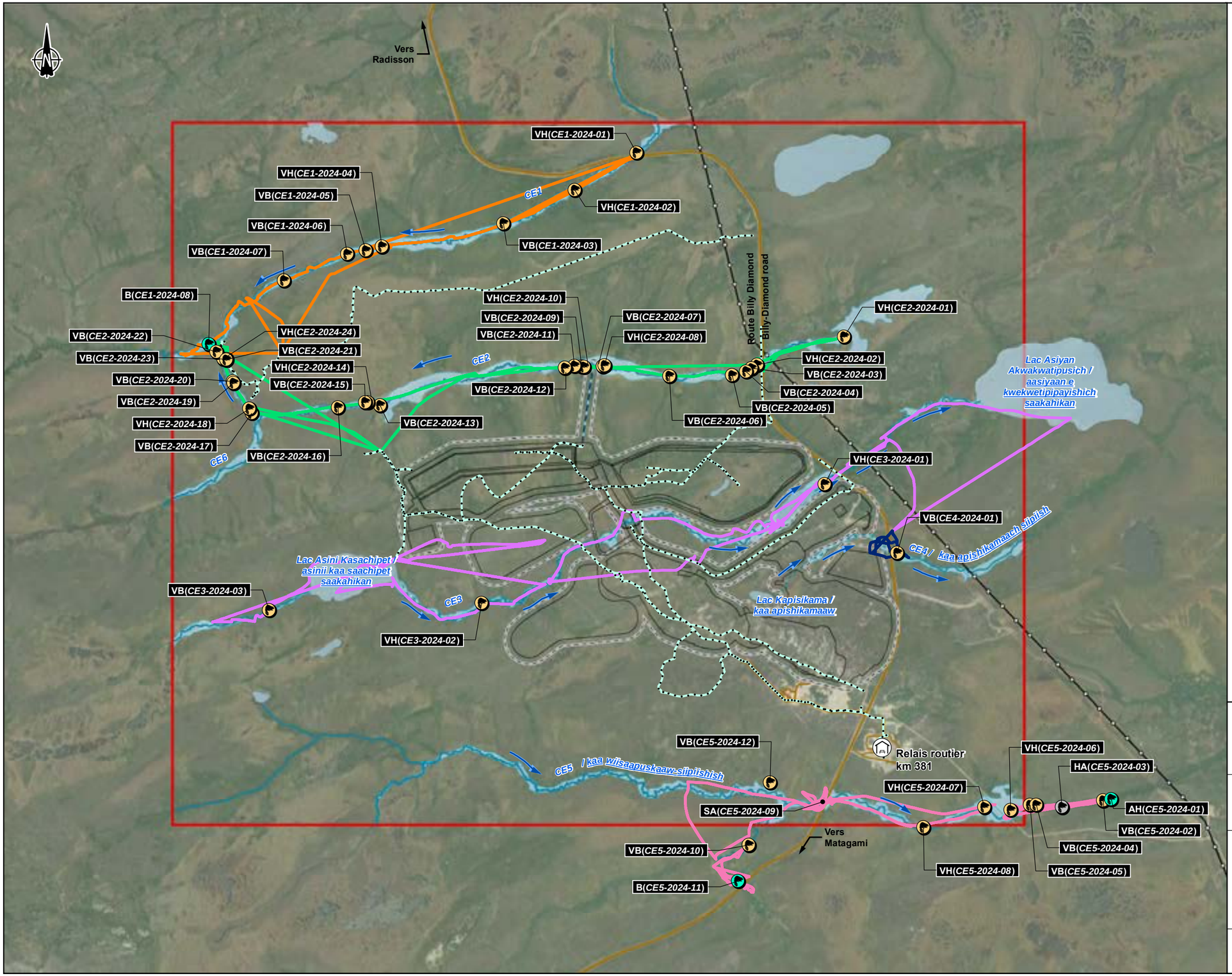
3.2.1 Survey conditions

The drone survey of watercourses CE1 to CE5 was conducted from October 2 to 6, 2024 (Map 2). Multiple drone flights were required for each watercourse, except in the case of watercourse CE4. It required only a single flight due to its length and the ability to carry out some terrestrial observations in an amphibious all-terrain vehicle (Argo).

As mentioned in the Methodology section, overflight times and/or altitudes varied based on weather conditions, visibility conditions, and the number of items detected. Table 2 provides details on the flights conducted over each watercourse.

Table 2 Details of drone flights conducted over watercourses CE1 to CE5 in 2024

Watercourse	Date	Flight number	Time		Overflight time	Average altitude
			Start	End		
CE1	2024-4-10	1	12:01 p.m.	12:25 p.m.	23 minutes and 55.7 seconds	168 feet (51.2 m)
		2	12:29 p.m.	12:53 p.m.	23 minutes and 29.9 seconds	166 feet (50.6 m)
	2024-5-10	3	9:54 a.m.	10:08 a.m.	14 minutes and 18.6 seconds	129 feet (39.3 m)
		4	10:11 a.m.	10:25 a.m.	13 minutes and 32.2 seconds	178 feet (54.2 m)
CE2	2024-3-10	1	3:15 p.m.	3:34 p.m.	18 minutes and 49.3 seconds	223 feet (68.0 m)
	2024-5-10	2	10:39 a.m.	10:49 a.m.	9 minutes and 25.6 seconds	132 feet (40.2 m)
		3	10:52 a.m.	11:17 a.m.	24 minutes and 36.6 seconds	134 feet (40.8 m)
		4	2:59 p.m.	3:24 p.m.	24 minutes and 50.6 seconds	240 feet (73.1 m)
		5	3:25 p.m.	3:50 p.m.	24 minutes and 59.8 seconds	247 feet (75.2 m)
CE3	2024-3-10	1	1:30 p.m.	1:53 p.m.	22 minutes and 45.1 seconds	270 feet (82.3 m)
		2	2:27 p.m.	2:48 p.m.	21 minutes and 24.4 seconds	129 feet (39.3 m)
	2024-4-10	3	9:17 a.m.	9:40 a.m.	22 minutes and 50.7 seconds	155 feet (47.2 m)
		4	9:46 a.m.	10:05 a.m.	19 minutes and 33.2 seconds	182 feet (55.4 m)
CE4	2024-3-10	1	1:17 p.m.	1:29 p.m.	12 minutes and 4.8 seconds	136 feet (41.4 m)
CE5	2024-2-10	1	4:19 p.m.	4:44 p.m.	25 minutes and 21.2 seconds	182 feet (55.4 m)
		2	4:46 p.m.	5:07 p.m.	21 minutes and 7.3 seconds	280 feet (85.3 m)
	2024-4-10	3	3:56 p.m.	4:19 p.m.	23 minutes and 43.1 seconds	109 feet (33.2 m)
	2024-5-10	4	8:32 a.m.	8:56 a.m.	24 minutes and 1.9 seconds	64 feet (19.5 m)
		5	8:57 a.m.	9:07 a.m.	9 minutes and 45.0 seconds	72 feet (21.9 m)



Zone d'étude locale / *Local study area*

Infrastructures minières projetées /
Projected mining infrastructures

Infrastructures minières / *Mining infrastructure*

Empreinte de la mine (zone tampon de 50 mètres) /
Mine footprint (buffer 50 meters)

Inventaire / *Inventory*

Drone / *Drone*

CE1
CE2
CE3
CE4
CE5

Argo / *Argo*

Argo / *Argo*

Habitat du castor / *Beaver habitat*

Actif / *Active*
Inactif / *Inactive*
Non déterminé / *Undetermined*

Indice de présence de castor / *Beaver sign of presence*

AH

AH : Amas frais et hutte / *Fresh pile of food and den*
B : Barrage actif / *Active dam*
VB : Vieux barrage / *Old dam*
VH : Vieille hutte / *Old den*
SA : Site d'abattage et site d'alimentation /
Tree felling site and feeding site

Hydrographie / *Hydrography*

CE3 Numéro de cours d'eau / *Stream number*

Cours d'eau permanent / *Permanent stream*

Cours d'eau à écoulement diffus ou intermittent /
Intermittent or diffused flow stream

Sens d'écoulement de l'eau / *Direction of water flow*

Littoral des cours d'eau / *Watercourses shoreline*

Infrastructures / *Infrastructure*

Route principale / *Main road*

Route d'accès / *Access road*

Ligne de transport d'énergie / *Transmission line*

Relais routier / *Truck stop*

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Projet Galaxy / Galaxy Project

Suivis environnementaux en phase de construction – Nourriture traditionelle – Castor /
Environmental monitoring during the construction phase – Traditonnal food – Beaver

Carte / *Map* 2
Signes de présence du castor dans les cours d'eau de la zone d'étude / *Signs of beaver presence in the watercourse of the study area*

Sources :
Orthoimage: ESRI
Inventaire / Inventory: WSP 2024
Données du projet / Project data : Galaxy, dec. 2023

0 240 480 m
UTM, fuseau 18, NAD83

Décembre /
***December* 2024**

Préparation : A. Brousseau
Dessin : A. Masson
Approbation : D. Thiffault
CA0036076_5537_suCastor_c2_habitat_castor_241219.mxd

wsp

3.2.2 Counts, observations, and traditional knowledge

3.2.2.1 Beaver presence indicator counts

All five target watercourses (CE1 to CE5) were covered to detect all potential beaver habitat. Together, the drone footage and team member observations made it possible to survey and record 48 beaver presence indicators (Table 3, Map 2, Photos 29 to 41 in Appendix A).

These indicators were classified according to type of use and level of activity. The observers, including the tallyman, determined whether the evidence indicated recent activity (current year) or an inactive site (previous years). They considered factors such as the presence of vegetation, fresh mud, or shavings, as well as the level of maintenance.

It was determined that the 48 recorded indicators included two active dams and 28 inactive dams. Only one lodge was deemed active, based on the presence of a nearby fresh food cache. Fifteen other lodges were deemed inactive at the time of the survey. It was not possible to determine the status of one lodge observed outside the study area, along watercourse CE5 so its status was considered as undetermined. The level of beaver activity at this location could not be assessed based on drone survey footage, nor could team members access the lodge by land to confirm whether it was active or inactive.

With respect to other beaver presence indicators, only one site used for travel and feeding (harvesting of trees) was detected. It was located along watercourse CE5. The water level was high because the beavers had blocked a culvert. The team observed numerous recently cut trees and multiple feeding sites. The presence of beavers was also confirmed by the fact that one or more individuals took aspen branches that had been left in the vicinity by the technician and the tallyman. Although the site was active and flooded, it had no visible lodge. In fact, depredation occurred at the site earlier in the year. As a result, the beavers had been trapped at the request of the *Société de développement de la Baie-James* (SDBJ).

With respect to inactive sites, it is important to remember that beavers sometimes use burrows that can go unnoticed during drone and ground surveys. As a result, the corresponding habitat is classified as inactive. It is also possible that the beavers had migrated to another environment, meaning that no evidence of recent activity (an active site) could be detected.

The watercourse with the highest number of beaver presence indicators was watercourse CE2, with 24 active sites detected. It was followed by watercourses CE1 and CE5, each of which had eight detected sites. The survey of watercourse CE5 covered sections both within and outside the study area. Watercourses CE3 and CE4 had just 3 and 1 detected sites, respectively.

It should be noted that an active dam was spotted about 3 km southeast of the study area. However, it was not included in the count of beaver presence indicators because of its location well outside the study area (Photo 42 in Appendix A).

Table 3 Beaver presence indicators detected by drone survey and ground exploration in 2024

Watercourse	Beaver dams		Beaver lodges			Other presence indicators	Total
	Active	Inactive	Active	Inactive	Undetermined		
CE1	1	4	0	3	0	-	8
CE2	0	17	0	7	0	-	24
CE3	0	1	0	2	0	-	3
CE4	0	1	0	0	0	-	1
CE5	0	4	0	3	0	1 feeding site	8
Outside study area[1]	1	1	1	0	1	-	4
Total	**2**	**28**	**1**	**15**	**1**	**1**	**48**

Notes: 1 Near watercourse CE5 (along the watercourse, but outside the study area).

3.2.2.2 Field observations

According to the information gathered by the technician and the tallyman, many areas where beavers had been present in recent years seem to have been abandoned. This could be explained by a number of factors, including a lack of available food resources, scarce vegetation, and the very limited extent of regrowth (which also hinders the construction of dams and lodges).

Where beavers are concerned, environmental carrying capacity therefore varies from one part of the study area to another, mainly as a function of vegetation. Primarily composed of mature stands with no understory, watercourses CE3 and CE4 were assessed as having the lowest carrying capacity of all watercourses in the study area. Such meandering watercourses are mainly used by beavers for travel and tend to be unsuitable for long-term settlement.

By contrast, a high rate of forest regeneration was observed in the area surrounding watercourse CE5, with an increased presence of alder and willow trees, two species that beavers find especially attractive. This area appeared to have been used mainly for feeding, given that no lodges with visible food caches were observed. However, there were indications that beavers were in the process of establishing themselves there.

Finally, beaver sightings were recorded outside the study area, including along watercourse CE1 to the north, near Billy-Diamond Highway and along watercourse CE5. More specifically, an active lodge housing a colony was observed at a fork of watercourse CE1, near the Billy-Diamond Highway. However, if this colony were to pose a problem for the highway, the SDBJ would be required to conduct trapping.

3.2.2.3 Traditional Cree knowledge

During the field campaign, the team relied on traditional knowledge shared by the tallyman to record a more detailed picture of the current state of the land.

The tallyman confirmed other Cree may have trapped beavers locally without his knowledge, given the study area's proximity to the Billy-Diamond Highway, its accessibility, and its size. But he also pointed out that he had not trapped any beavers in 2024, except for one problematic individual in watercourse CE5. He had trapped this animal near the Billy-Diamond Highway at the request of SDBJ, because of the risk it posed to road infrastructure.

The tallyman also reported seeing a beaver predated by a grey wolf in the study area earlier in the year. He described increased predation in the study area, possibly due to the presence of a pack of grey wolves in the vicinity of watercourse CE2.

3.2.3 Estimated number of colonies

Although access to food has a major influence on the size of a beaver's home range, other biological factors can also come into play. This includes gender, age, habitat type (e.g., pond, lake, stream, river), seasonal constraints, and social organization of the family unit (Baker and Hill, 2003). Home ranges generally extend between 0.6 and 2.5 linear kilometres along a watercourse (Fortin *et al.,* 2001; Bérubé and Paradis, 2007).

Because the distance between various active and inactive sites within the study area was less than 2.5 km, it is possible that some of the beavers present at active sites had come from sites deemed inactive. At the same time, individuals from the colonies observed at active sites could, in the future, help establish new sites suitable for beavers. It is important to consider the home ranges of each individual when interpreting data on the number of beavers present in the study area.

A typical beaver colony will remain at a site with sufficient vegetation for about ten years (Bordage and Fillion, 1988; Sturtevant, 1998). The average size of a beaver colony is 3.65 individuals (Pilon and Daigle, 1984; Brunelle and Bider, 1987), with the number of individuals varying between two and 12 (Fortin *et al.,* 2001). Only active sites, where a lodge with a fresh food cache was observed, were considered when estimating the number of colonies.

Using drone survey data alone, no active beaver colonies could be identified in the study area, given that no active lodges were observed. However, an active colony was identified outside the study area, further along watercourse CE5 (Map 2). Based on the literature cited above, it was estimated that there were approximately 3.65 beavers in this section of the watercourse in the fall of 2024.

Based on the knowledge of the technician and the tallyman, it was estimated that there were between four and eight beavers in the entire survey area. Specifically, it was determined that one or two individuals may have been feeding at the site observed along watercourse CE5, where the watercourse crosses the Billy-Diamond Highway. In addition, one or two individuals may have been present at the active dam observed south of the study area, also adjacent to Billy-Diamond Highway. Finally, between two and four beavers may have been occupying the sole active lodge with a fresh food cache observed along the section of watercourse CE5 located to the south of the study area.

Considering all available information, there were potentially only one or two beavers in the study area, and their presence was most likely for the purposes of feeding or travelling to more favourable habitat. Meanwhile, the number of beavers outside the study area was estimated to be between three and six.

3.2.4 Water flow and level in watercourse CE2

In accordance with study objectives, the field team noted changes in the flow and level of water observed during the overflight of watercourse CE2. Numerous photographs (Appendix A) were taken and the coordinates of each beaver structure were noted.

Structures like beaver dams can affect water levels and the flow over the length of a watercourse. For example, dams generally raise the water level upstream and, depending on the permeability of the structure, the water level downstream is generally lowered. However, due to the highly dynamic nature of the environment, it is not possible to properly assess changes in the flow and level of water in watercourse CE2 based on the data collected by the team.

During the 2024 field campaign, the beaver presence indicators observed along watercourse CE2 (dams and lodges) were associated with inactive sites. Data associated with the presence of beavers in watercourse CE2 were shared with the team responsible for monitoring watercourse hydrology in the study area. Water-level data for watercourse CE2 will therefore be included in the hydrological monitoring report (WSP, 2025).

3.3 Beaver trapping and biological sampling for quality monitoring of traditional food

After a thorough analysis of the November 2024 inventory data, it appears that the number of beavers present in the study area would be insufficient to reach the minimum capture threshold required, i.e. 10 beavers, without harming the population. As a result, GLCI decided not to conduct any trapping in the fall of 2024, to avoid damaging the beaver population. Given unstable beaver population dynamics, excessive sampling could have resulted in significant ecological imbalance. A drastic reduction in beaver numbers would not only pose a long-term threat to the local beaver population, but also disrupt local ecosystems. At the same time, it would call into question the sustainability of beaver monitoring in the context of the Galaxy project.

To support quality monitoring of traditional food, GLCI will carry out the same beaver presence survey of the study area in 2025. This will make it possible to determine whether there has been an increase or decrease in the local beaver population, or if the population has remained stable. Based on the data collected in 2025, GLCI may choose to trap beavers, if their numbers are sufficient, or to postpone trapping until a later date.

This approach aims to ensure the long-term survival of the local beaver population while maintaining ecological balance. By carefully monitoring beaver populations, GLCI can ensure that all interventions are based on sound scientific data, thereby minimizing any negative impacts on the local ecosystem and Indigenous communities.

4 Conclusion

In summary, the field campaign lasted from September 30 to October 8, 2024. A drone survey was conducted to identify signs of beaver activity and characterize beaver habitat along watercourses CE1 to CE5.

The aerial survey made it possible to identify a total of 48 sites along those sections of the five watercourses (CE1 to CE5) located within the study area, and along two sections of watercourse CE5 located within 500 m of the study area. These sites included 30 dams (two active and 28 inactive), 17 lodges (one active, 15 inactive, and one undetermined), and one indicator of activity (footprints, shavings, etc.).

In theory, the drone survey data indicate that there were no beavers in the study area. On the other hand, field observations and the relevant literature suggest the presence of a colony of about 3.65 beavers adjacent to the study area, along watercourse CE5. Considering all the data gathered through drone flights and field observations by team members, especially the detection of a feeding or travel site, it appears likely that there were one or two beavers in the study area. The number of beavers outside the study area has been estimated at between three and six.

To preserve the existing beaver population, which was deemed too small for the purposes of the study, no trapping was carried out. Indeed, capturing beavers could have compromised the “Environmental Monitoring – Traditional Food (Beaver Component)” process over the medium and long term.

The same beaver presence survey is scheduled to be carried out in the study area next year. The 2025 survey will therefore make it possible to determine whether there has been an increase or decrease in the local beaver population, or if the population has remained stable. Based on these results, GLCI may choose to trap beavers, if their numbers are sufficient, or to postpone trapping until a later date.

The survey scheduled for 2025 will also include a drone survey of watercourse CE2, to record changes in the flow and level of water.

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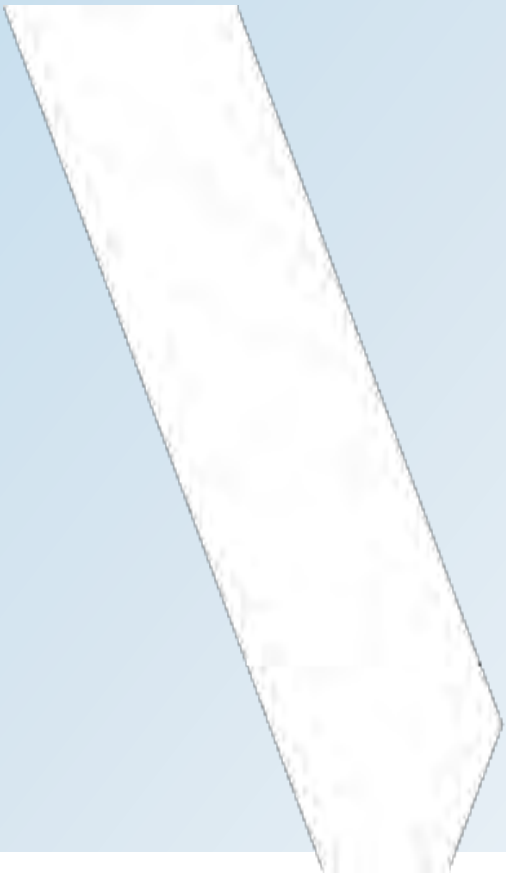
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APPENDIX

A PHOTOGRAPHIC DIRECTORY



RAPPORT PHOTOGRAPHIQUE



PHOTO 1 **Inventaire par drone – Cours d'eau CE1**



PHOTO 2 **Inventaire par drone – Cours d'eau CE1**



PHOTO 3 **Inventaire par drone – Cours d'eau CE1**



PHOTO 4 **Inventaire par drone – Jonction à la route Billy-Diamond – Cours d'eau CE1**



PHOTO 6 **Inventaire par drone – Cours d'eau CE2**



PHOTO 7 **Inventaire par drone – Cours d'eau CE2**



PHOTO 8 **Inventaire par drone – Cours d'eau CE2**



PHOTO 9 **Inventaire par drone – Jonction à la route Billy-Diamond – Cours d'eau CE2**



PHOTO 10 **Inventaire par drone – Cours d'eau CE3**



PHOTO 11 **Inventaire par drone – Lac Asyan Akwakwatipusich – Cours d'eau CE3**

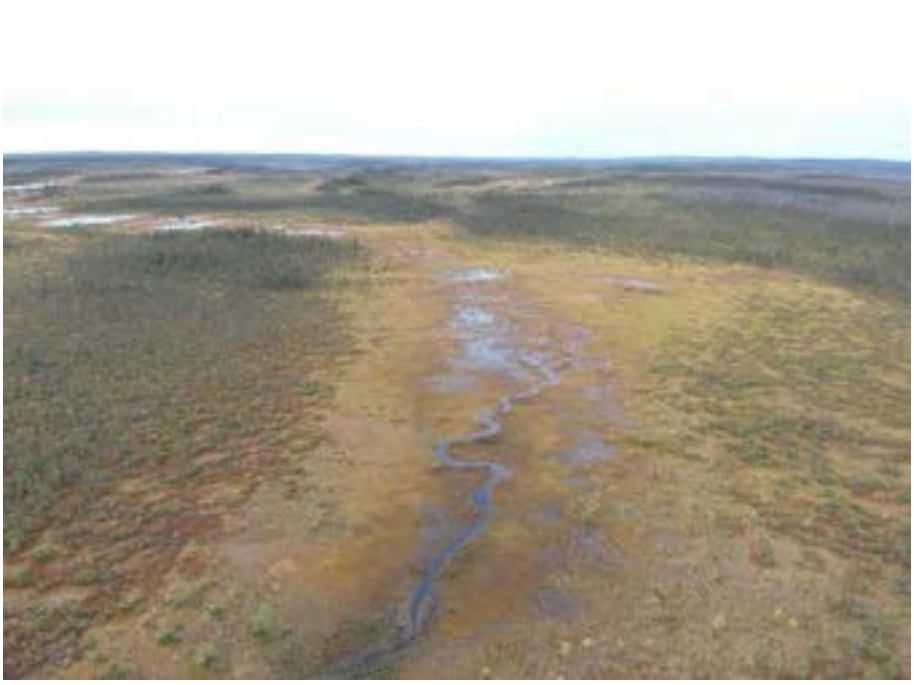


PHOTO 12 **Inventaire par drone – Cours d'eau CE3**



PHOTO 13 **Inventaire par drone – Cours d'eau CE3**



PHOTO 14 **Inventaire par drone – Jonction à la route Billy-Diamond – Cours d'eau CE3**



PHOTO 15 **Inventaire par drone – Jonction à la route Billy-Diamond – Cours d'eau CE3**



PHOTO 16 **Inventaire par drone – Cours d'eau CE4**



PHOTO 17 **Inventaire par drone – Cours d'eau CE4**



PHOTO 18 **Inventaire par drone – Jonction à la route Billy-Diamond – Cours d'eau CE4**



PHOTO 19 **Inventaire par drone – Jonction à la route Billy-Diamond – Cours d'eau CE4**



PHOTO 20 **Inventaire par drone – Cours d'eau CE5**



PHOTO 21 **Inventaire par drone – Cours d'eau CE5**



PHOTO 22 **Inventaire par drone – Embranchement vers le sud – Cours d'eau CE5**



PHOTO 23 **Inventaire par drone – Embranchement vers le sud – Cours d'eau CE5**



PHOTO 24 **Inventaire par drone – Jonction à la route Billy-Diamond – Cours d'eau CE5**



PHOTO 25 **Inventaire par drone – Extérieur de la zone d'étude, près du cours d'eau CE5**



PHOTO 26 **Inventaire par drone – Extérieur de la zone d'étude, embranchement avec le cours d'eau CE5**



PHOTO 27 **Inventaire par drone – Jonction à la route Billy-Diamond – Extérieur de la zone d'étude, embranchement avec le cours d'eau CE5**



PHOTO 28 **Inventaire par drone – Signe de présence – Barrage de castor – Cours d'eau CE1**



PHOTO 29 **Inventaire par drone – Signe de présence – Vieille hutte (retrait) – Cours d'eau CE1**



PHOTO 30 **Inventaire par drone – Signe de présence – Vieille hutte – Cours d'eau CE1**



PHOTO 31 **Inventaire par drone – Signe de présence – Vieux barrage – Cours d'eau CE2**



PHOTO 32 **Inventaire par drone – Signe de présence – Vieille hutte – Cours d'eau CE2**



PHOTO 33 **Inventaire par drone – Signe de présence – Vieux barrage – Cours d'eau CE2**

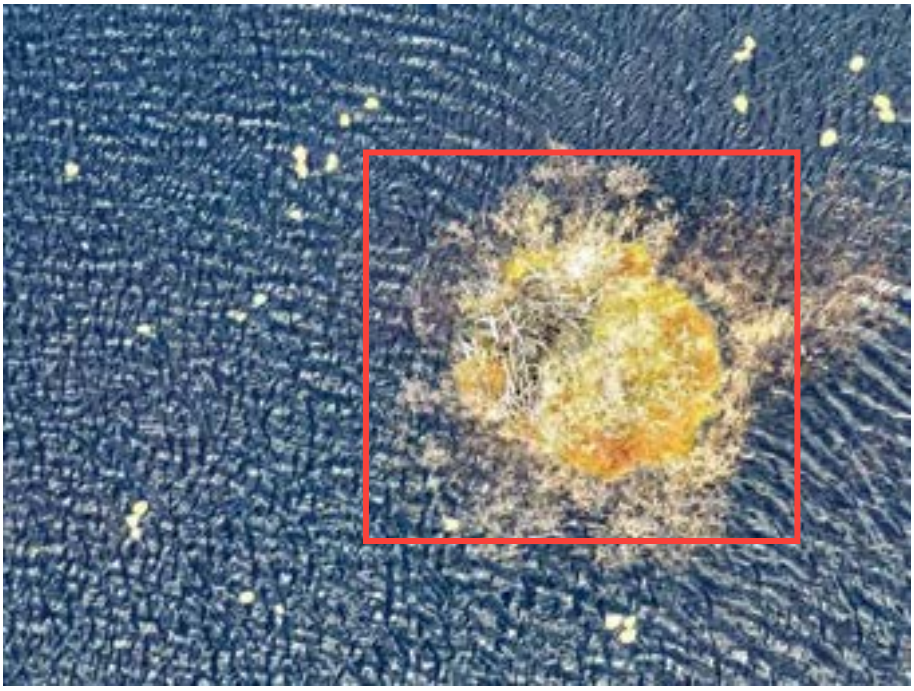


PHOTO 34 **Inventaire par drone – Signe de présence – Vieille hutte – Cours d'eau CE2**



PHOTO 35 **Inventaire par drone – Signe de présence – Vieux barrage – Cours d'eau CE2**



PHOTO 36 **Inventaire par drone – Signe de présence – Vieille hutte – Cours d'eau CE3**



PHOTO 37 **Inventaire par drone – Signe de présence – Deux vieux barrages – Cours d'eau CE5**



PHOTO 38 **Inventaire par drone – Signe de présence – Vieux barrage – Cours d'eau CE5**



PHOTO 39 **Inventaire par drone – Signe de présence – Hutte sans amas (activité indéterminée) – Extérieur de la zone d'étude, continuité du cours d'eau CE5**



PHOTO 40 **Inventaire par drone – Signe de présence – Hutte active avec amas frais – Extérieur de la zone d'étude, continuité du cours d'eau CE5**



PHOTO 41 **Inventaire par drone – Signe de présence – Barrage actif – Extérieur de la zone d'étude (sud-est)**

APPENDIX

B

SEG PERMIT

Ministère
de l'Environnement,
de la Lutte contre
les changements
climatiques, de la Faune
et des Parcs
Québec

Direction de la gestion de la faune du Nord-du-Québec
Secteur de la faune et des parcs

PAR COURRIEL

Chibougamau, le 10 septembre 2024

Madame Arianne Brousseau
WSP Canada Inc.
1890, avenue Charles-Normand
Baie-Comeau (Québec) G4Z 0A8

N/Réf. : 2024-08-28-150-10-G-F

Objet : Permis à des fins de gestion de la faune

Madame,

La Direction de la gestion de la faune du ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs du Nord-du-Québec, vous délivre un permis de gestion de la faune afin de vous permettre de réaliser vos objectifs. Veuillez prendre connaissance du contenu de votre permis, il fait état des conditions que vous devez respecter. Tout manquement à l'une des conditions de ce permis peut entraîner, pour vous et vos aides, des poursuites judiciaires et une amende. Nous vous rappelons que malgré les possibilités légales d'exercer certaines activités à caractère exceptionnel, ce permis ne vous soustrait pas, vous et vos aides, à l'obligation de vous conformer à toute autre réglementation applicable.

Il est important que vous preniez connaissance de toutes les précisions indiquées dans chacune des sections du présent permis et que vous vous y conformiez. Portez une attention particulière à la période de validité du permis, car elle pourrait différer de celle demandée.

Veuillez signer votre permis : celui-ci est personnel, il ne peut être délégué, cédé ou transféré à une autre personne. Vous devez le porter sur vous lorsque vous exercez les activités qui y sont prévues. Vous devez l'exhiber à un agent de protection de la faune qui vous en fait la demande. Vos aides doivent également porter sur eux une copie de ce permis lorsqu'ils sont en cours d'activité. Tout travail effectué en vertu de ce permis doit être fait sous votre supervision.

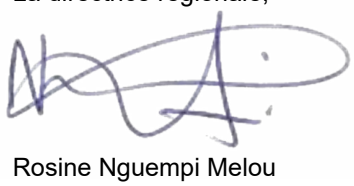
Avant de travailler sur le terrain, vous devez informer la Direction de la protection de la faune de la région du Nord-du-Québec (coordonnées indiquées sur le permis) et lui communiquer votre plan de travail. De plus, pour accéder à un territoire particulier, vous devez aviser l'organisme responsable ou obtenir toutes les autorisations requises. Il en va de même pour accéder à une propriété privée.

Adresse : 951. Boulevard Hamel
Chibougamau (Québec) G8P2Z3
Téléphone : 418 748-7701
Courriel : nord-du-quebec.faune.permis@mffp.gouv.qc.ca

Pour toute demande d'information concernant votre permis, veuillez écrire à l'adresse suivante : nord-du-quebec.faune.permis@mffp.gouv.qc.ca . Aussi, lors de communications écrites, veuillez indiquer le numéro du permis en référence.

Recevez, Madame, nos meilleures salutations.

La directrice régionale,



RNM/GS/as/bstj

Rosine Nguempi Melou

p. j. (3)

c. c. MM. Guillaume Szor, biologiste, Direction de la gestion de la faune du Nord-du-Québec, MELCCFP
Guy Belzile, commandant, directeur p.i. de la protection de la faune, District nord-ouest, MELCCFP

Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs
Québec

Permis de gestion de la faune

N° du permis						
Année	Mois	Jour	Nº séq.	Région	Type	Loi
2024	08	28	150	10	G	F

Période de validité du permis						
Année	Mois	Jour		Année	Mois	Jour
2024	09	15	AU	2024	11	15

Ce permis comprend neuf sections numérotées de 1 à 9.

Région visée : Nord-du-Québec

1 Titulaire

Madame Arianne Brousseau
Biologiste
WSP Canada Inc.
1890, avenue Charles-Normand
Baie-Comeau – Québec - Canada - G4Z0A8
Téléphone : 450 760-0858
Courriel : arianne.brousseau@wsp.com
Résident

2 Personne(s) supervisée(s) par le titulaire

Nom	Statut ou qualification	Téléphone
Oliver Langlois-Tremblay	Piégeur	819 570-2533
Brian Weapenicappo	Piégeur	N/D
Brylon Weapenicappo	Piégeur	N/D
Waylon Weapenicappo	Piégeur	N/D

Pour capturer ou tuer un castor, il est fortement recommandé que les personnes responsables soient titulaires d'un certificat de piégeur.

3 Autorisation

Le présent permis autorise, en vertu de l'article 47 de *Loi sur la conservation et la mise en valeur de la faune*, le titulaire et les personnes mentionnées à la section 2 à passer outre aux dispositions de l'article 67 de cette loi, afin de prélever, **en cas de nécessité**, des castors et ce, aux conditions énumérées dans les sections suivantes.

4 Localisation des lieux de capture

Territoires visés : Région du Nord-du-Québec

Endroits de capture : Site minier projeté – projet de Galaxy Lithium – environ 10 km au sud de la rivière Eastmain. Cours d'eau CE1 (-77,07624; 52,25569), CD2 (-77,13288; 52,251380), CE3 (-77,06260;52,24401), CE4 (-77,10843; 52,22805) et CE5 (-77,06796; 52,22482)

5 Spécimens

Espèces visées	Quantité maximale	Caractéristiques (taille, sexe, âge, etc.)
Castor (Castor canadensis)	10	Mâle et femelle de toute taille

6 Modes de capture des animaux

Les castors devant être sacrifiés, doivent être éliminés à l'aide d'un piège certifié, conforme aux Normes Internationales de Piégeage Sans Cruauté (NIPSC), et ce, de façon qu'ils soient tués rapidement. La liste des exigences règlementaires en termes d'engins de piégeage autorisés au Québec pour le castor se trouve à l'adresse suivante : https://www.quebec.ca/tourisme-et-loisirs/activites-sportives-et-de-plein-air/piegeage/engins/pieges-autorises

7 Manipulations, transport et disposition des spécimens

Les spécimens capturés peuvent être offerts au maître de trappe responsable du secteur environnant le lieu de capture. Si ce dernier refuse, les carcasses doivent être soit enterrées dans les environs immédiats, au-delà de la ligne naturelle des hautes eaux, ou dans un site autorisé (ex. : dépotoir) ou, lorsque la capture des castors est réalisée par un piégeur possédant un certificat de piégeage valide, les carcasses peuvent être conservées et/ou mises en valeur par ce dernier. Par mise en valeur, on entend ici l'utilisation de toute partie du castor y compris le castoréum, la fourrure et la chair mais ce uniquement **à des fins personnelles (aucune commercialisation permise**).

Tout rat musqué, loutre ou vison d'Amérique tué accidentellement doit être disposé de la même manière. Tout autre animal capturé ne faisant pas l'objet de ce permis doit, s'il est indemne et vivant, être remis immédiatement en liberté sur les lieux mêmes de sa capture ou, s'il est mort ou blessé, remis à un agent de protection de la faune.

8	**Autres conditions à respecter**

Pour être valide, le permis doit être signé par le titulaire.

Le titulaire et ses aides doivent porter sur eux le présent permis (ou une copie de celui-ci) lorsqu'ils exercent des activités prévues au permis, et l'exhiber à un agent de protection de la faune qui en fait la demande.

Le titulaire doit informer le bureau de la Direction de la protection de la faune de Radisson (tél. : 819 638-8305/ téléc. : 819 638-6074) 48 heures avant de travailler sur le terrain, et communiquer son plan de travail. Si vous ne pouvez joindre le personnel, prenez note des démarches effectuées et laissez un message indiquant vos intentions.

Un rapport écrit des activités doit être transmis **d'ici le 16 décembre 2024 par courriel** à l'adresse électronique suivante :

nord-du-quebec.faune.permis@mffp.gouv.qc.ca ou par la poste à l'adresse suivante :

Direction de la gestion de la faune du Nord-du-Québec
Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs
951, boulevard Hamel
Chibougamau (Québec) G8P 2Z3

Ce rapport doit contenir les renseignements suivants :

- Description des efforts effectués pour contacter les agents de protection de la faune avant les travaux (date des appels et bureau contacté);
- Nom et prénom de la personne qui a capturé le castor;
- Numéro de certificat du chasseur ou du piégeur (Code P) si applicable;
- Dates et coordonnées des sites des captures;
- Quantité totale des captures par espèce et par site;
- Engins et méthodes de capture;
- Modes de disposition des castors tués.

***Veuillez prendre note que nous vous demandons d'utiliser le modèle de rapport fourni avec ce permis.**

Chaque engin de capture doit être identifié de façon lisible au nom du titulaire ou porter le numéro du présent permis. Dans le cas des engins submergés, l'identification doit être lisible sans qu'on ait besoin de retirer l'engin de l'eau.

Tout addenda relatif à ce permis fait partie intégrante de ce permis. Les conditions précisées au permis s'appliquent avec les adaptations nécessaires

Veuillez noter que tous les travaux dans l'habitat du poisson, dont l'aménagement d'un dispositif de contrôle du niveau des eaux ou un dispositif de protection de ponceau empêchant l'installation d'un barrage de castor, doivent être préalablement autorisés par le biais d'un tel permis de gestion de la faune ou par une autorisation en vertu de l'article 128.7 de la Loi sur la Conservation et la mise en valeur de la faune (R.L.R.Q., c. C61.1).

9	**Fonctionnaire autorisé**		
Directrice de la gestion de la faune Rosine Nguempi Melou Nom (en lettres moulées)		Signature	Date de délivrance Année / mois / jour 2024-09-10
Téléphone : 418 748-7701		Courriel : rosine.nmelou@mffp.gouv.qc.ca	

Brousseau, Arianne (CAAB075064)
Signé numériquement par Brousseau, Arianne (CAAB075064)
DN : cn=Brousseau, Arianne (CAAB075064), ou=Active, email=Arianne.Brousseau@wsp.com
Date : 2024.09.12 12:59:16 -04'00'

Signature du titulaire

APPENDIX U – ENVIRONMENTAL MONITORING – TRADITIONAL FOOD QUALITY (FISH COMPONENT) (WSP, 2025)

GALAXY LITHIUM (CANADA) INC.

GALAXY PROJECT

ENVIRONMENTAL MONITORING – TRADITIONAL FOOD QUALITY (FISH COMPONENT)

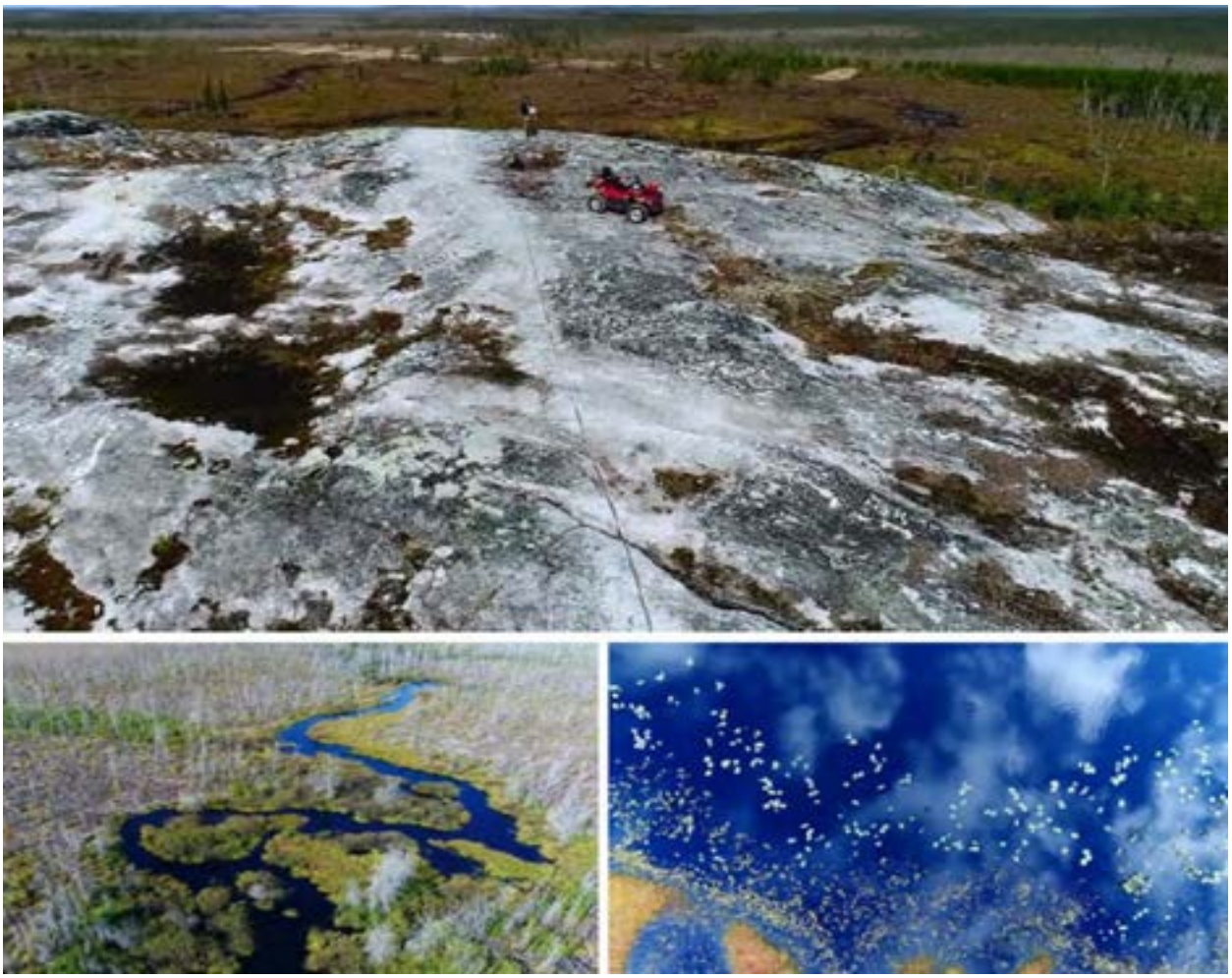
JAMES BAY, QUEBEC

MARCH 2025

CONFIDENTIAL

WSP REFERENCE: CA0036076.5537

FINAL VERSION



GALAXY LITHIUM (CANADA) INC.

GALAXY PROJECT

ENVIRONMENTAL MONITORING – TRADITIONAL FOOD QUALITY (FISH COMPONENT)

JAMES BAY, QUEBEC

FINAL VERSION
CONFIDENTIAL

WSP REFERENCE: CA0036076.5537

MARCH 2025

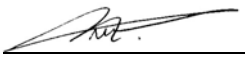
WSP CANADA INC.
1135 LEBOURGNEUF BOULEVARD
QUÉBEC CITY, QUEBEC G2K 0M5
CANADA

TELEPHONE: +1-418-623-2254
FAX: +1-418-624-1857

WSP.COM

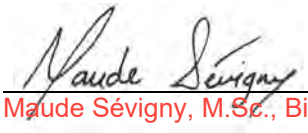
SIGNATURES

PREPARED BY



Mariem Fadhlaoui, Ph.D., Ecotoxicologist
Project Manager, Aquatic Ecology

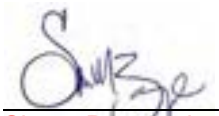
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SOMMAIRE / SUMMARY

Cette étude d'état de référence avait pour objectif de débuter le programme de suivi de la qualité des poissons qui sont utilisés comme nourriture traditionnelle. La pêche s'est déroulée du 19 au 31 août 2024. L'échantillonnage a été réalisé à un total de sept sites répartis dans la zone du projet Galaxy, incluant les cours d'eau CE1 et CE2 séparés en quatre sites distincts (CE1, CE2 amont, CE2 aval et la confluence des cours d'eau CE1+CE2) ainsi qu'un site sur chacun des cours d'eau CE3, CE4 et CE5.En raison de la faible abondance des espèces d'intérêt considérées comme nourriture traditionnelle, deux espèces de poissons ont été capturées : l'omble de fontaine (*Salvelinus fontinalis*) aux sites CE1+CE2, CE2 amont, CE2 aval et CE4, et le grand brochet (*Esox lucius*) aux sites CE3 et CE5.

Des concentrations de mercure élevées ont été observées aux sites CE3 et CE5 dans la chair du grand brochet par rapport à l'omble de fontaine, probablement liées au phénomène de bioamplification, vu la nature du régime alimentaire de ce poisson. Par ailleurs, des concentrations plus élevées de métaux ont été détectées dans l'omble de fontaine au site CE4, ce qui semble attribuable à la fois à la physiologie des poissons juvéniles, qui ont un métabolisme élevé qui favorise la bioaccumulation des métaux, ainsi qu'aux concentrations existantes dans le cours d'eau.

The purpose of this baseline study was to initiate the monitoring program for the quality of fish used as traditional food. Fishing took place from August 19 to 31, 2024. Sampling was carried out at a total of seven sites distributed throughout the project area, including watercourses CE1 and CE2 separated into four distinct sites (CE1, CE2 upstream, CE2 downstream and the confluence of watercourses CE1+CE2) as well as one site at each of watercourses CE3, CE4 and CE5. Due to low abundance of target species considered as traditional food, two fish species were captured: brook trout (Salvelinus fontinalis) at sites CE1+CE2, CE2 upstream, CE2 downstream and CE4, and northern pike (Esox lucius) at sites CE3 and CE5.

High mercury concentrations were observed in the northern pike tissue at sites CE3 and CE5 compared to brook trout, probably due to the phenomenon of biomagnification, given the nature of this fish's diet. On the other hand, higher concentrations of metals were detected in brook trout at site CE4, which seems to be attributable both to the physiology of juvenile fish, which have a high metabolism that contributes to metal bioaccumulation, and to existing concentrations in this watercourse.

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1 Introduction

1.1 Background Information

In March 2024, Galaxy Lithium (Canada) Inc. (GLCI) began carrying out site preparation and pre-construction work on its Galaxy project, which is located in the Nord-du-Québec administrative region, roughly 10 km south of the Eastman River and 100 km east of James Bay, at the same latitude as the Cree Nation of Eastmain. The site is located on Category III lands as defined under the James Bay and Northern Québec Agreement (JBNQA). Accessible via the Billy-Diamond Highway, it is near the truck stop at Kilometre 381 (Map 1).

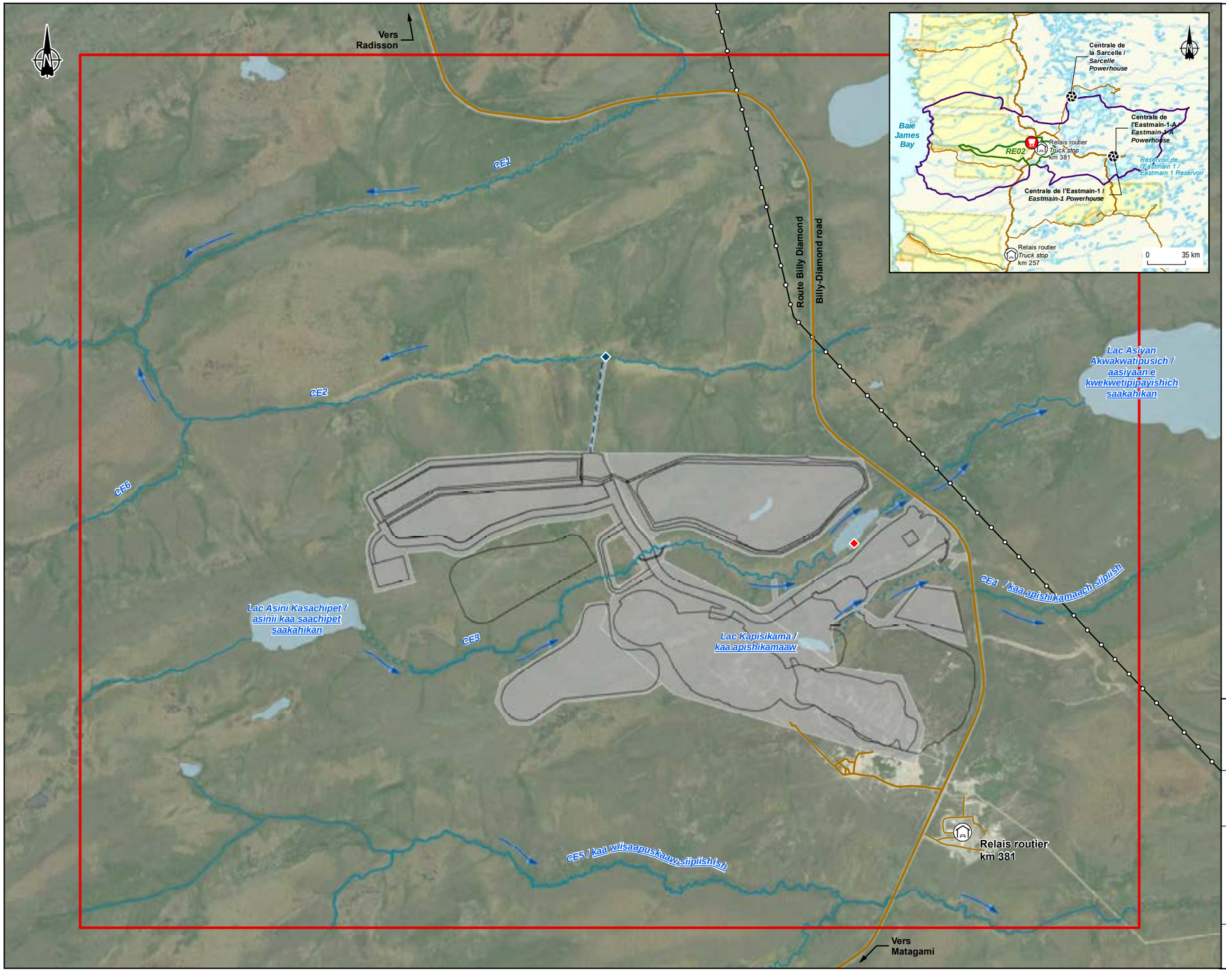
As part of the provincial and federal review and impact assessment process, GLCI must comply with the Decision Statement issued by the Minister of Environment under the CEAA on January 13, 2023, and amended on July 26, 2024. The Decision Statement sets out several conditions. GLCI is also required to comply with the Certificate of Authorization issued by the *Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs* on December 27, 2023. GLCI has therefore committed to implementing environmental and social monitoring programs as part of the Galaxy Project.

GLCI commissioned WSP to carry out the fish component of the traditional food quality monitoring program, after Health Canada recommended including such a component in the monitoring program. This initial report covers implementation of the monitoring program, as well as baseline survey results for traditional food quality (fish component) at the Galaxy project site.

1.2 Objectives

WSP was tasked with:

- Implementing the traditional food monitoring program (fish component);
- Determining baseline values for the quality of fish used as a traditional food source in the context of the monitoring program.



Zone d'étude locale / *Local study area*

Infrastructures minières projetées /
Projected mining infrastructures

- Effluent minier / *Mining effluent*
- Effluent sanitaire / *Sanitary effluent*
- Infrastructures minières / *Mining infrastructure*
- Empreinte de la mine (zone tampon de 50 mètres) / *Mine footprint (buffer 50 meters)*
- Périmètre de déboisement / *Clearing area*

Hydrographie / *Hydrography*

- CE3 — Numéro de cours d'eau / *Stream number*
- Cours d'eau permanent / *Permanent stream*
- Cours d'eau à écoulement diffus ou intermittent / *Intermittent or diffused flow stream*
- Sens d'écoulement de l'eau / *Direction of water flow*
- Plan d'eau / *Waterbody*

Infrastructures / *Infrastructures*

- Route principale / *Main road*
- Route d'accès / *Access road*
- Ligne de transport d'énergie / *Transmission line*
- Relais routier / *Truck stop*

Limites / *Limits*

- Communauté d'Eastmain / *Eastmain community*
- Terrain de trappage (RE02) / *Trapping area (RE02)*
- Terres de catégorie I / *Category I land*
- Terres de catégorie II / *Category II land*

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Projet Galaxy / Galaxy Project
Suivis environnementaux en phase de construction – Nourriture traditionelle – Poisson /
Environmental monitoring during the construction phase – Traditonnal food – Fish

Carte 1 / *Map 1*
Localisation du site à l'étude /
Location of study site

Sources :
Orthoimage: ESRI
Inventaire / Inventory: WSP 2024
Données du projet / Project data : Galaxy, dec. 2023

0 240 480 m
UTM, fuseau 18, NAD83

Décembre /
***December* 2024**

Préparation : M. Sévigny
Dessin : R. Bouchard
Approbation : D. Thiffault
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2 Methodology

Antoine Therrien and Maxime Berthilier, both of whom work as wildlife technicians on WSP's aquatic ecology team, conducted the baseline survey from August 19 to August 31, 2024.

2.1 Sampling Method

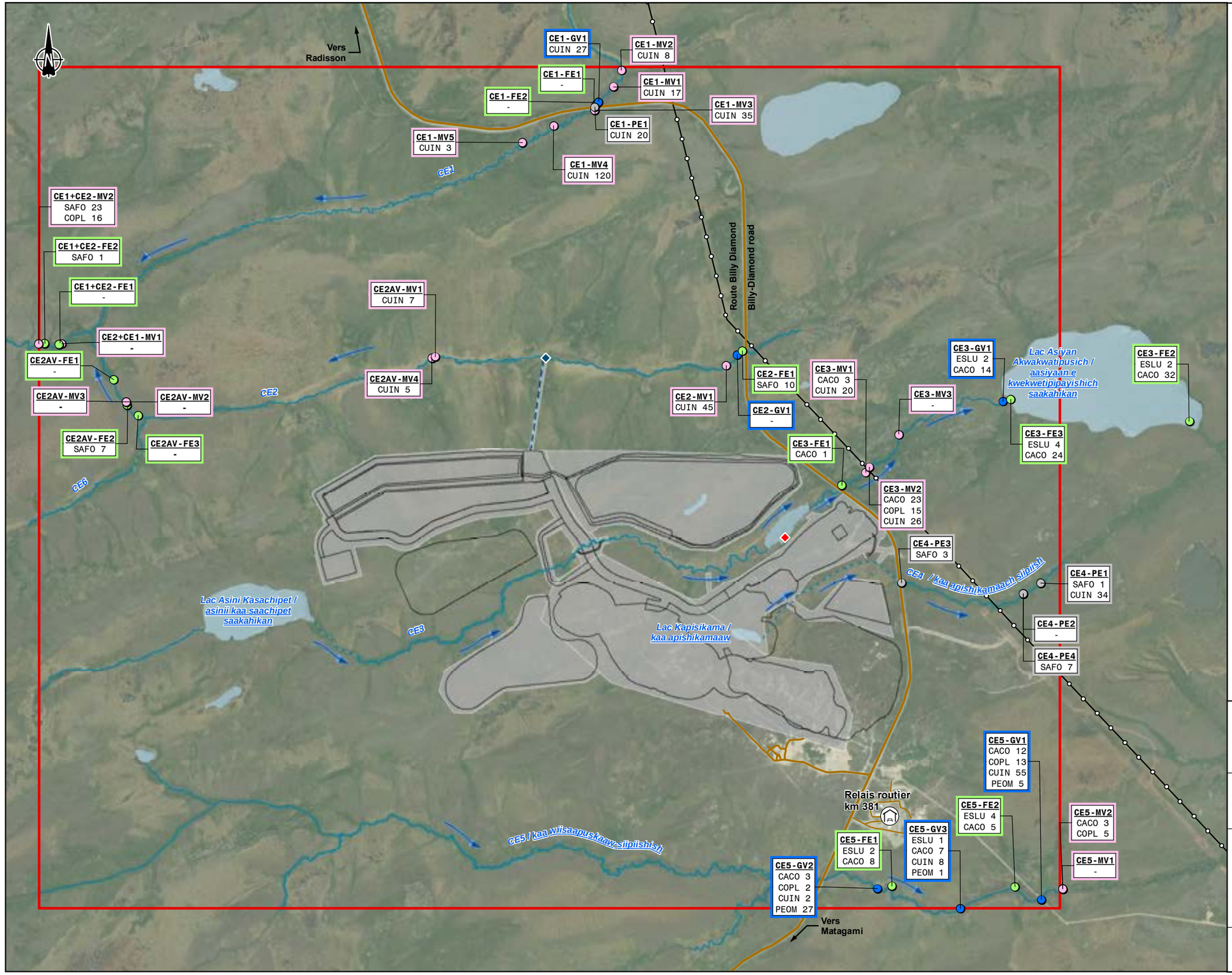
2.1.1 Sampling Sites and Stations

The survey covered a total of five watercourses: watercourses CE1 to CE4, which will be directly or indirectly impacted by Galaxy project operations, and watercourse CE5, which is located south of the project site and will serve as a control site throughout the multi-year monitoring effort. To allow for more detailed study of sections in direct contact with mine effluent, watercourses CE1 and CE2 were divided into four separate study sites: CE1, CE2 upstream of the planned mine effluent discharge point (CE2), CE2 downstream of the planned mine effluent discharge point (CE2-AV), as well as the section downstream of the confluence of watercourses CE1 and CE2. Accordingly, Map 2 shows a total of seven study sites for traditional food quality monitoring (fish component):

- CE1
- CE1 + CE2 (downstream of confluence)
- CE2
- CE2-AV
- CE3
- CE4
- CE5 (control)

Between four and nine sampling stations were installed for each site, at locations selected in the field. Fishing was carried out over one to four nights. The coordinates of each station were recorded so they can be consulted during monitoring efforts in future years. At each sampling station, the following physicochemical parameters were measured using a Hanna multiparameter meter:

- Water temperature (°C)
- Conductivity (µS/cm)
- pH
- Dissolved oxygen (mg/L)



Zone d'étude locale / *Local study area*

Infrastructures minières projetées / *Projected mining infrastructures*

- Effluent minier / *Mining effluent*
- Effluent sanitaire / *Sanitary effluent*
- Infrastructures minières / *Mining infrastructure*
- Empreinte de la mine (zone tampon de 50 mètres) / *Mine footprint (buffer 50 meters)*
- Périmètre de déboisement / *Clearing area*

Stations d'échantillonnage/ *Sampling stations*

Engins de pêche / *Fishing gear*

- Filet / *Gill net*
- Mini-verveux / *Small fyke net*
- Pêche électrique / *Electrofishing*
- Grand verveux / *Big fyke net*

Espèce / *Species* — CE3-FE1 / CACO 1 — Nom de la station / *Station name*; Nombre de captures / *Captures*

Espèces de poisson / *Fish species*

CACO	Meunier noir / *White sucker*
COPL	Mené de lac / *Lake minnow*
CUIN	Épinoche à cinq épines/ *Brook stickleback*
ESLU	Grand brochet / *Northern pike*
PEOM	Omisco / *Trout-perch*
SAFO	Omble de fontaine / *Brook trout*
-	Aucune capture / *No capture*

Hydrographie / *Hydrography*

- CE3 — Numéro de cours d'eau / *Stream number*
- Cours d'eau permanent / *Permanent stream*
- Cours d'eau à écoulement diffus ou intermittent / *Intermittent or diffused flow stream*
- Sens d'écoulement de l'eau / *Direction of water flow*
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Infrastructures / *Infrastructures*

- Route principale / *Main road*
- Route d'accès / *Access road*
- Ligne de transport d'énergie / *Transmission line*
- Relais routier / *Truck stop*

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Projet Galaxy / Galaxy Project

Suivis environnementaux en phase de construction – Nourriture traditionelle – Poisson / Environmental monitoring during the construction phase – Traditonnal food – Fish

Carte 2 / *Map 2*
Localisation des stations et des résultats de pêche / *Location of fishing stations and results*

Sources :
Orthoimage: ESRI
Inventaire / Inventory: WSP 2024
Données du projet / Project data : Galaxy, dec. 2023

0 — 250 — 500 m
UTM, fuseau 18, NAD83

Décembre / *December* 2024

Préparation : M. Sévigny
Dessin : R. Bouchard
Approbation : D. Thiffault
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2.1.2 Fishing Gear

Fishing gear was selected based on the characteristics of the watercourses covered by the survey. It included the following:

- Small and large fyke nets;
- Experimental gillnets;
- Portable electrofisher.

All caught specimens of species of interest for consumption were kept, unless the target of 10 individuals of the same species at a given site was exceeded using the same gear. In that case, fish were sorted by size, with the aim of keeping the largest individuals.

2.1.3 Fish Measurements and Sampling

2.1.3.1 Measurements

The species of all fish caught were identified, and all fish were counted. Catches were counted separately for each type of gear. Parameters measured included total weight (± 0.001 g for fish < 40 mm, and ± 0.1 g for fish ≥ 40 mm), total and fork length (± 1 mm), and liver weight. Prior to dissection and tissue sampling, sex and sexual maturity of each fish were determined, when possible. All fish caught were also inspected for external and internal anomalies. In addition, age structures (otoliths from brook trout and cleithrums from northern pike) were collected, carefully cleaned, and stored in pre-labelled envelopes for later analysis.

2.1.3.2 Fish Tissue Sampling

Approximately 10 to 15 g of flesh (excluding skin, bones, and viscera) was sampled from under the dorsal fin of each fish. These samples were placed in clean Whirlpack bags and stored in a -20 °C freezer throughout the field survey to preserve their integrity. To avoid cross-contamination, dissecting equipment and work surfaces were cleaned with a 10% nitric acid solution after each sample was taken.

2.1.3.3 Laboratory Testing

Once field work was complete, the samples were sorted to ensure accurate identification, and then sent to the Bureau Veritas laboratory in Montréal in a cooler containing dry ice. Samples from a total of 57 fish (brook trout and northern pike) were analyzed for metal content in the fish flesh. The detection limit for each metal analyzed and the average recovery rate [1](n=5) were supplied by the Bureau Veritas laboratory and are summarized in Table 1. Average recovery rates are based on the percentage of metals analyzed within a reference standard, making it possible to assess the accuracy of the analytical method. For quality control purposes, 10% of the samples were analyzed twice.

[1] The recovery rate is the difference (in percentage) between the measured concentration of a fortified sample and the measured concentration of the same sample when unfortified, divided by the concentration of the added substance. A minimum of five tests is required to determine the recovery percentage of an analytical method (CEAEQ, 2003: Protocole pour la validation et la vérification d'une méthode d'analyse en microbiologie).

Table 1 List of metals analyzed in fish tissue, detection limits, and recovery rates (Bureau Véritas, 2024)

Parameter	Detection limit (mg/kg)	Average recovery rate (%)
Aluminum (Al)	0.4	102.00±4.74
Antimony (Sb)	0.04	69.50±0.58
Silver (Ag)	0.001	85.00±2.35
Arsenic (As)	0.005	80.80±1.64
Barium (Ba)	0.006	103.50±2.65
Beryllium (Be)	0.003	81.80±4.71
Boron (B)	0.07	78.80±5.54
Cadmium (Cd)	0.001	80.80±3.49
Calcium (Ca)	3	96.60±2.07
Chromium (Cr)	0.05	101.00±2.83
Cobalt (Co)	0.002	97.20±1.79
Copper (Cu)	0.05	88.80±1.92
Tin (Sn)	0.036	104.50±5.92
Iron (Fe)	1	97.00±2.00
Lithium (Li)	0.02	99.60±2.88
Magnesium (Mg)	1	110.20±3.03
Manganese (Mn)	0.03	99.00±2.24
Mercury (Hg)	0.0003	79.20±12.42
Molybdenum (Mo)	0.003	100.40±0.89
Nickel (Ni)	0.01	95.00±2.55
Total phosphorus (P)	5	81.40±2.30
Lead (Pb)	0.007	93.80±2.17
Selenium (Se)	0.009	69.20±1.79
Sodium (Na)	0.9	106.80±1.79
Strontium (Sr)	0.005	104.80±1.10
Thallium (Tl)	0.002	76.00±7.91
Titanium (Ti)	0.05	107.20±3.90
Uranium (U)	0.001	98.20±3.56
Vanadium (V)	0.009	103.80±2.77
Zinc (Zn)	0.3	68.80±3.49

2.1.4 Age Determination

The method used to prepare bone structures differs from species to species. For brook trout, otoliths are first encased within a mold with epoxy resin. Once the epoxy hardens, sections are cut perpendicular to the long axis using an Isomet saw. The sample is then fixed on a microscope slide with a drop of epoxy resin, and sandblasted before being examined under a binocular loupe. In the case of northern pike, the cleithrum is placed in a black-bottomed dish containing a mixture of glycerine and water. The structure is then analyzed directly with a binocular loupe.

Age readings on each structure were carried out independently by two experienced readers. In the case where there was a discrepancy between readings, the reading by the more experienced analyst was retained. In both cases where there was a discrepancy between readings, this was also the younger, and therefore more conservative reading.

2.2 Data Processing and Analysis

2.2.1 Biological Characteristics

All field data recorded by hand were entered into a computer spreadsheet (Microsoft Excel ©). Various indices were calculated to assess the health and maturity of the fish.

Fulton's condition factor (FCF) was estimated using the following formula:

$$\mathbf{FCF} = \left(\frac{W_T}{L^3}\right) \mathbf{x\ 100}$$

where W_T corresponds to total weight (g) and L to fork length (mm).

The gonadosomatic index (GSI), used to assess sexual maturity, was determined using the following formula:

$$GSI = \frac{100\ x\ W_G}{W_T}$$

where W_G corresponds to gonad weight and W_T to total weight.

The hepatosomatic index (HSI), an indicator of energy status, was calculated as follows:

$$HSI = \frac{100\ x\ W_L}{W_T}$$

where W_L corresponds to liver weight and W_T to total weight.

Basic descriptive statistics (mean, standard deviation, minimum, maximum) were then calculated on the following variables: total length, fork length, total weight, Fulton's condition factor, and age.

Statistical tests, generated using R software version 4.3.2, were performed to identify differences in total length, total weight, Fulton's condition factor, and age of target species between study sites. Before proceeding with inter-site comparison tests (ANOVA or Kruskal-Wallis), the normality of distributions was checked by the Shapiro-Wilk test, and the homogeneity of variances was checked by Levene's test using R software version 4.3.2. As required, a logarithmic transformation was applied to the variables, to comply with the ANOVA application conditions. Where such a data transformation did not allow ANOVA conditions to be met, a non-parametric Kruskal-Wallis test ($\alpha = 0.05$) on untransformed data and Dunn's test ($\alpha = 0.05$) were performed to identify differences between sites. In the graphs showing the mean values for each group, statistically significant results ($p < 0.05$) are identified by letters.

Finally, the age structure of the target species was illustrated using histograms that show the relative abundance of different age groups.

2.2.2 Metal Content

Data were expressed in terms of mean ± standard deviation, and statistical analysis was performed with JMP 18 (SAS Institute Inc.). Before making comparisons between the means of the various monitored parameters, the normality of the distributions and the homogeneity of the variances were checked. For data that were normally distributed, an ANOVA analysis was applied with a Tukey-Kramer HSD test to determine the level of significance (p-value). If data were non-parametric, a Kruskal-Wallis or Wilcoxon test was applied.

A principal component analysis (PCA) was carried out to highlight the distribution of metals by station and species.

3 Results

3.1 Characteristics of Sampling Sites and Stations

3.1.1 Watercourses Characterization (WSP, 2018)

This study did not involve conducting any fish habitat characterization, aside from the physicochemical parameters measured at the target stations, because the data had already been gathered in the context of an earlier study, conducted in 2017 (WSP, 2018). Given the relevance of including these data in this study, summaries of the already completed characterizations for the five watercourses under study are presented in Table 2.

Broadly speaking, watercourse CE1 was characterized by a low flow velocity (less than 0.2 m/s) and a substrate dominated by fine particles. No fish survey was carried out in that watercourse. Watercourse CE2 had similar characteristics to CE1, but also stood out by its flow velocity variability (0.04 m/s to 0.19 m/s), greater width, coarser substrate, and very acidic pH (3.5 to 3.8). The fish observed were mainly brook trout (*Salvelinus fontinalis*) and lake chub (*Couesius plumbeus*). CE3 was the longest watercourse, with meandering sections, rapids, and pools. The pH was slightly higher (4.09 to 4.7), and dissolved oxygen levels were higher (57% to 82%). Several species of fish were caught, including brook trout, white sucker (*Catostomus commersonii*), brook stickleback (*Culaea inconstans*), and lake chub. CE4 was the smallest watercourse, with a very low flow velocity (0.01 m/s), a channel width of less than one metre in places, and a substrate composed of fine particles. However, it did not appear suitable for fish. Finally, CE5 was characterized by a low flow velocity (0.05 m/s to 0.20 m/s), a substrate composed of fine particles, and higher pH levels than other watercourses. Several fish species were observed, including trout-perch (*Percopsis omiscomaycus*), white sucker, brook stickleback, lake chub, and northern pike (*Esox lucius*).

Table 2 Characteristics recorded in 2017 for watercourses CE1, CE2, CE3, CE4, and CE5

	CE1	CE2	CE3	CE4	CE5
General characteristics	Permanent watercourse whose source is located in an ombrotrophic bog east of the highway	Permanent watercourse whose source is located in an ombrotrophic bog	Permanent watercourse flowing out of Lake Asini Kasachipet	Permanent watercourse past the Billy-Diamond Highway, fed by runoff from bogs around Lake Kapisikama	Homogeneous watercourse whose source is located in a complex of bogs
Average width	2.2 m	2.4 m	> 20 m	Approx. 1.7 m	4.8 m
Average shoreline width	51 m	63 m	54 m	60 m	77 m
Average depth	1 m	> 1 m	> 1 m	0.3 m	0.75 m
Flow velocity	< 0.2 m/s	Between 0.04 m/s (August) and 0.19 m/s (October)	Between 0.10 m/s (August) and 0.30 m/s (June)	Approximately 0.01 m/s	Between 0.05 m/s (August) and 0.20 m/s (June and October)
Substrate composition	Dominated by fine particles	Presence of a section dominated by fine particles, silt, and organic matter and another section dominated by coarser materials (gravel, pebbles, and stones)	Dominated by fine particles with decomposing organic matter	Comprised exclusively of fine particles	Dominated by fine particles
Fish species	No fish survey was carried out	Brook trout and lake chub	Brook trout, white sucker, brook stickleback, and lake chub	Not conducive to fish	Trout-perch, white sucker, brook stickleback, lake chub, and northern pike
Physicochemical parameters	Undetermined	Acidic pH (3.5 to 3.8) Conductivity between 16 µS/cm and 17 µS/cm Low dissolved oxygen concentrations (36%-42%)	Acidic pH (4.09 to 4.7) Conductivity between 12 µS/cm and 13 µS/cm Dissolved oxygen (57%-82%)	Acidic pH (4.58) Conductivity of 21 µS/cm Dissolved oxygen concentrations (68%)	Acidic pH (5.16) Conductivity of 16 µS/cm Dissolved oxygen concentrations (63%)

3.1.2 Physicochemical Parameters

During the survey conducted from August 19 to 31, 2024, water temperatures ranging from 9.17 °C to 16.71 °C were recorded at all stations where physicochemical parameters were measured (Table 3). Conductivity ranged from 42 µs/cm to 262 µs/cm in watercourses CE1 to CE4. The value for watercourse CE5 was 492 µs/cm. Dissolved oxygen was close to 0 mg/L at sites CE1, CE2-AV, and CE4. It was between 2 mg/L and 4.5 mg/L at sites CE2 and CE5. Only site CE3 had an oxygen concentration more suitable for aquatic life, at 8.05 mg/L. As for pH levels, they varied between 5.04 and 6.32.

Table 3 Water physicochemistry at the various stations in 2024

Site	Station	Date	Temperature (°C)	Conductivity (µs/cm)	Dissolved oxygen (%)	Dissolved oxygen (mg/L)	pH
CE1	CE1-GV1	August 20, 2024	14.08	82	0.0	0.00	5.14
	CE1-MV1	August 20, 2024	13.10	71	0.0	0.00	5.52
	CE1-MV3	August 20, 2024	14.82	94	8.0	0.78	5.30
	CE1-MV4	August 21, 2024	14.41	85	0.0	0.00	5.43
	CE1-PE1	August 30, 2024	12.25	92	0.0	0.00	5.04
CE1+CE2	CE1+CE2-MV2	August 23, 2024	15.81	71	62.3	6.15	5.79
CE2	CE2-GV1	August 20, 2024	12.77	262	19.9	2.12	6.27
	CE2-FE2	August 25, 2024	15.76	61	24.2	2.22	6.08
CE2-AV	CE2-AV-FE1	August 22, 2024	13.99	73	0.0	0.00	5.35
CE3	CE3-FE2	August 26, 2024	16.71	42	85.9	8.05	5.88
CE4	CE4-PE1	August 28, 2024	12.67	89	0.0	0.00	5.75
	CE4-PE3	August 30, 2024	9.17	240	4.0	0.45	5.72
CE5	CE5-GV2	August 28, 2024	11.9	492	42.8	4.48	6.32

3.2 Fishing Effort and Catch Abundance

Fifty fishing nights and five electrofishing stations (4,007 seconds of fishing in total) were distributed across the seven study sites located along the five watercourses (Table 4). These efforts resulted in the capture of 42 brook trout and 15 northern pike. Other species caught included white sucker (*Catostomus commersonii*), lake chub (*Couesius plumbeus*), brook stickleback (*Culaea inconstans*), and trout-perch (*Percopsis omiscomaycus*). Brook trout and northern pike were the only two species kept for traditional food monitoring. Other species, not commonly eaten, were returned to the water.

Over the course of 13 fishing nights, a total of 230 brook sticklebacks were caught at site CE1. This was despite the fact that the nine fishing stations and one electrofishing station concerned were intended for catching brook trout (Table 5). At site CE1+CE2, 16 lake chub and 24 brook trout were caught over the course of four fishing nights spread across four stations. Of these fish, 13 specimens of lake trout were selected for traditional food quality monitoring. Forty-five lake chub and 10 brook trout were caught at site CE2, over the course of six fishing nights spread across four stations. At site CE2-AV, located downstream of the Galaxy project's planned effluent discharge point along watercourse CE2, 12 lake chub and seven brook trout were caught over the course of 10 fishing nights spread across seven stations. Ninety-seven white sucker, 15 lake chub, 46 brook stickleback, and eight northern pike were caught at site CE3 over the course of nine fishing nights spread across seven stations. Fishing efforts at site CE3 were largely focused on the area near the lake into which watercourse CE3 flows, downstream of the Billy-Diamond Highway. Although some fishing was initially conducted further upstream along CE3, it did not result in the capture of either of the two species of interest. Meanwhile, the lake had good potential for catching northern pike. As for site CE4, its small size made it impossible to install fishing gear. Nevertheless, 34 brook stickleback and 11 brook trout were caught across four electrofishing stations. Fishing at site CE5 was carried out over the course of eight nights spread across seven different stations. These various fishing efforts resulted in a total catch of 38 white sucker, 20 lake chub, 65 brook stickleback, seven northern pike, and 33 trout-perch.

Table 4 Fishing effort, by site and station[1]

Site	Station	August 20, 2024	August 21, 2024	August 22, 2024	August 23, 2024	August 24, 2024	August 25, 2024	August 26, 2024	August 28, 2024	August 30, 2024	Total per station
CE1	CE1-FE1		1	1	1	1					4
	CE1-FE2			1	1	1					3
	CE1-GV1	1									1
	CE1-MV1	1									1
	CE1-MV2	1									1
	CE1-MV3	1									1
	CE1-MV4		1								1
	CE1-MV5		1								1
	CE1-PE1									1	1
	TOTAL	**4**	**3**	**2**	**2**	**2**				**1**	**14**
CE1+CE2	CE1+CE2-FE1				1						1
	CE1+CE2-FE2				1						1
	CE1+CE2-MV1				1						1
	CE1+CE2-MV2				1[2]						1
	TOTAL				**4**						**4**
CE2	CE2-FE1		1								1
	CE2-GV1	1	1								2
	CE2-MV1	1	1								2
	TOTAL	**2**	**3**								**5**

Site	Station	August 20, 2024	August 21, 2024	August 22, 2024	August 23, 2024	August 24, 2024	August 25, 2024	August 26, 2024	August 28, 2024	August 30, 2024	Total per station
CE2-AV	CE2-AV-FE1			1	1						2
	CE2-AV-FE2				1	1					2
	CE2-AV-FE3					1					1
	CE2-AV-MV1				1	1					2
	CE2-AV-MV2				1						1
	CE2-AV-MV3				1						1
	CE2-AV-MV4					1					1
	TOTAL			**1**	**5**	**4**					**10**
CE3	CE3-FE1					1					1
	CE3-FE2						1	1			2
	CE3-FE3							1			1
	CE3-GV1							1			1
	CE3-MV1						1	1			2
	CE3-MV2						1	1			2
	CE3-MV3						1				1
	TOTAL					1	3	5			10
CE4	CE4-PE1								1		1
	CE4-PE2								1		1
	CE4-PE3									1	1
	CE4-PE4									1	1
	TOTAL								**2**	**2**	**4**

Site	Station	August 20, 2024	August 21, 2024	August 22, 2024	August 23, 2024	August 24, 2024	August 25, 2024	August 26, 2024	August 28, 2024	August 30, 2024	Total per station
CE5	CE5-FE1								1		1
	CE5-FE2								1		1
	CE5-GV1		1	1							2
	CE5-GV2								1		1
	CE5-GV3								1		1
	CE5-MV1		1								1
	CE5-MV2		1								1
	TOTAL		**3**	**1**					**4**		**8**
TOTAL		**6**	**9**	**4**	**11**	**7**	**4**	**5**	**6**	**3**	**55**

Notes: [1] Results are presented in terms of fishing nights for all gear except the portable electrofisher (PE). Results for the PE are presented in terms of the number of stations.
[2] Fishing gear was installed from 11:00 a.m. to 12:20 p.m. on August 23, raised to collect brook trout, and then put back in the water overnight.

Table 5 Number of fish from each species caught, by study site

Species	Number of fish caught								Number of caught fish sampled
	CE1	CE1+CE2	CE2	CE2-AV	CE3	CE4	CE5	Total	
White sucker					97		38	110	0
Lake chub		16			15		20	51	0
Brook stickleback	230		45	12	46	38	65	433	0
Northern pike					8		7	0	15
Trout-perch							33	33	0
Brook trout		24	10	7		12		11	42
Total	**230**	**40**	**55**	**19**	**166**	**50**	**163**	**638**	**57**

3.3 Biological Characteristics of Target Species

3.3.1 Brook Trout

Between seven and 13 brook trout were caught at each of the four sites (CE1+CE2, CE2, CE2-AV, and CE4). Descriptive statistics for these fish are presented in Table 6. In summary, brook trout caught at sites CE1+CE2, CE2, and CE2-AV had mean total lengths of 193.85 mm, 198.10 mm, and 209.57 mm, respectively. Individuals caught at site CE4 had a mean total length of 145.33 mm. A comparison of total lengths between sites found that brook trout from site CE4 were significantly smaller than fish caught at other sites. Furthermore, the specimens caught at the other sites were of similar sizes ($p < 0.001$; Figure 1).

The average weights of brook trout caught at sites CE1+CE2, CE2, and CE2-AV were 65.10 g, 69.57 g, and 88.60 g, respectively, compared to the average weight of 30.03 g for brook trout caught at site CE4. As with total length, the weights of brook trout from site CE4 were significantly lower than those from the other sites ($p < 0.001$; Figure 2).

Results were more similar for Fulton's condition factor, with an overall mean of 0.884 and a standard deviation of 0.056. In this case, a comparison between sites showed no significant differences ($p = 0.597$; Figure 3 and Figure 4).

Finally, brook trout from site CE4 were significantly younger than those from other sites. The CE4 catch consisted solely of one- and two-year-old fish. By contrast, ages ranged from two to three years at site CE2, and from two to four years at sites CE1+CE2 and CE2-AV ($p < 0.001$; Figure 5 and Figure 6).

Table 6 Descriptive statistics for brook trout caught at various sites

Site	Number of individuals	Total length (mm)				Fork length (mm)				Total weight (g)				Fulton's coefficient				Age (years)			
		Mean	Standard deviation	Min.	Max.	Mean	Standard deviation	Min.	Max.	Mean	Standard deviation	Min.	Max.	Mean	Standard deviation	Min.	Max.	Mean	Standard deviation	Min.	Max.
CE1+CE2	13	193.9	19.23	171	232	185.2	18.73	164	221	65.1	18.99	42.2	105.5	0.872	0.037	0.797	0.92	2.75	0.62	2	4
CE2	10	198.1	18.35	179	246	189.2	18.7	171	238	69.57	22.45	48	130.1	0.874	0.047	0.829	0.968	2.4	0.52	2	3
CE2-AV	7	209.6	36.5	147	261	201.1	35.82	139	250	88.6	42.96	26.1	154.5	0.884	0.051	0.822	0.97	2.71	0.76	2	4
CE4	12	145.3	21.66	114	181	138.8	21.48	107	175	30.03	14.45	12.1	54.7	0.903	0.08	0.758	1.026	1.42	0.51	1	2
All sites	42	183.6	33.63	114	261	175.6	32.78	107	250	60.06	31.23	12.1	154.5	0.884	0.056	0.758	1.026	2.27	0.81	1	4

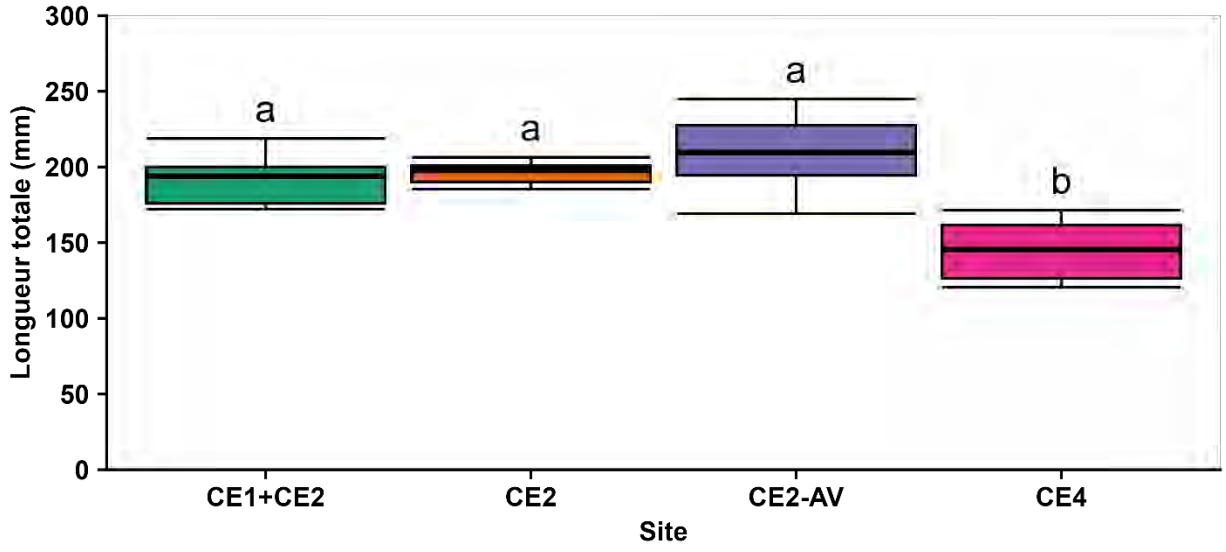


Figure 1 **Total length of brook trout, by site**

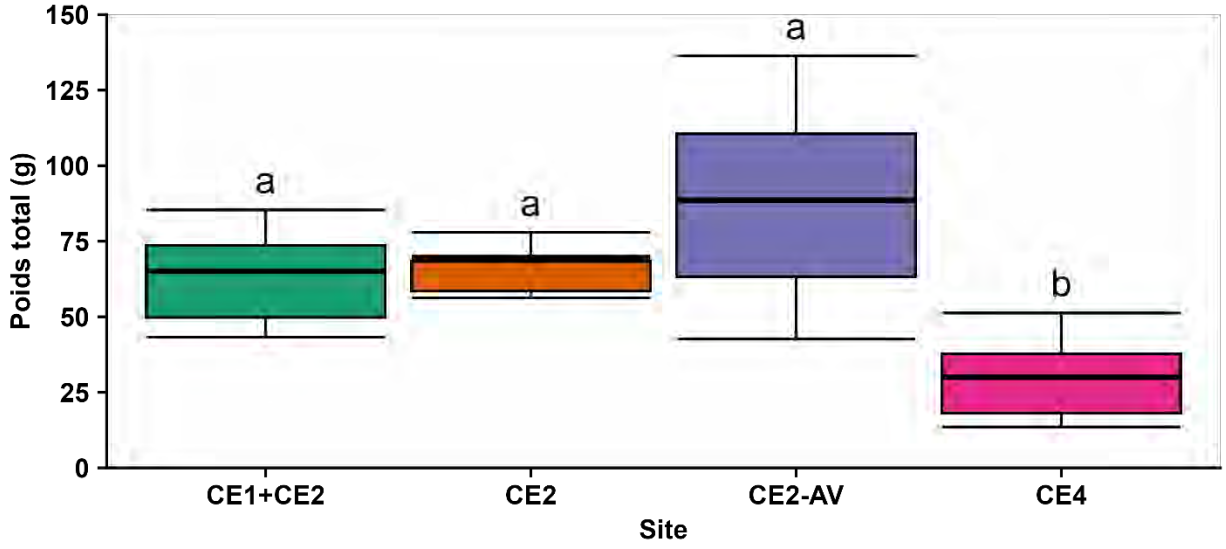


Figure 2 **Total weight of brook trout, by site**

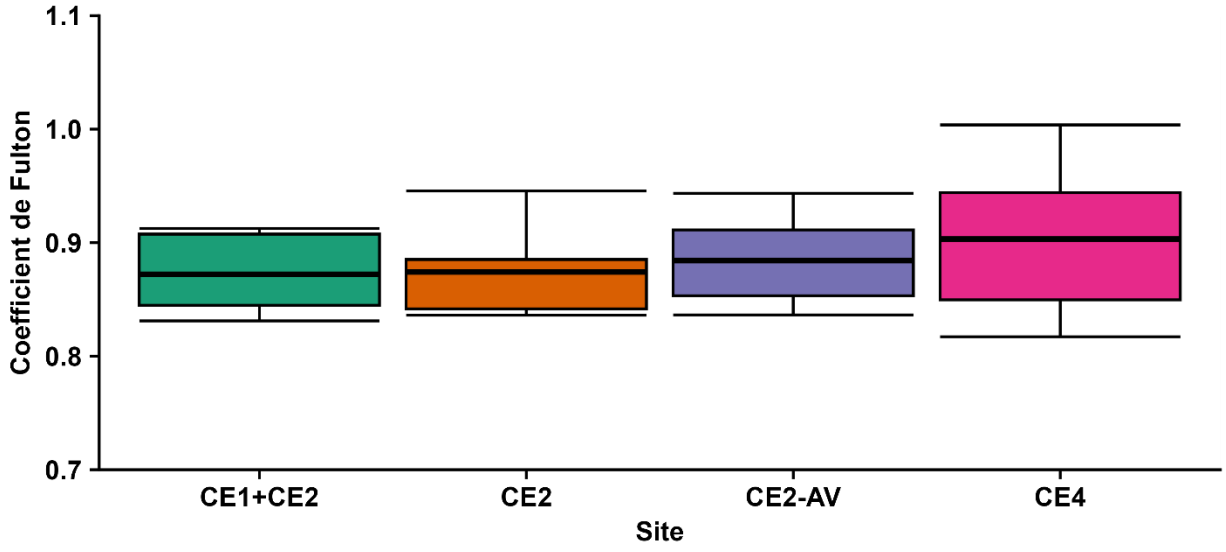


Figure 3 Fulton's condition factor for brook trout, by site

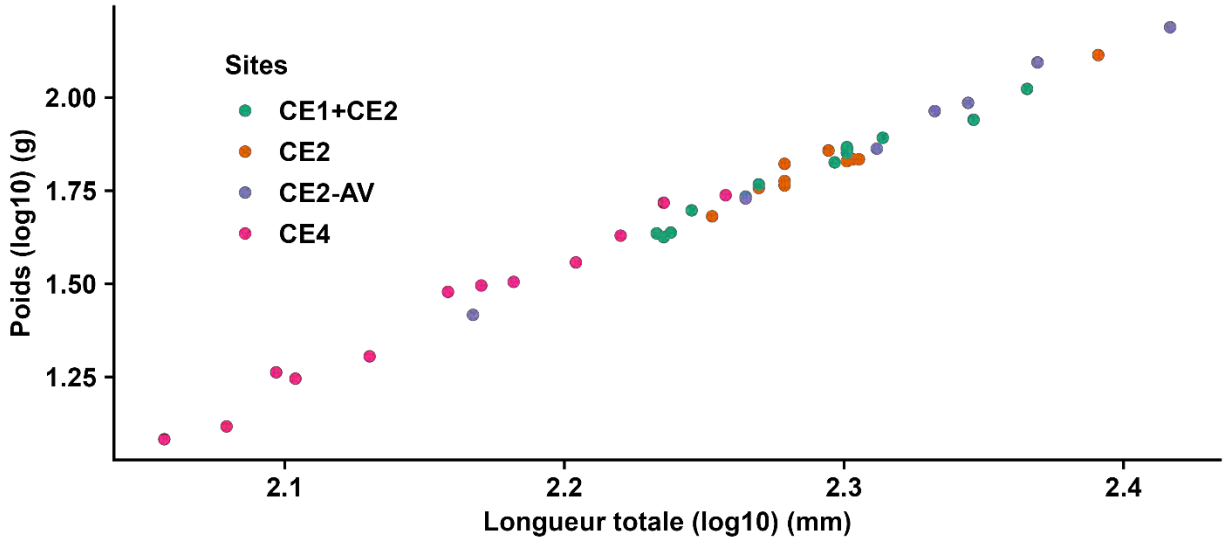


Figure 4 Weight (log10) in relation to total length (log10) for brook trout caught at various sites

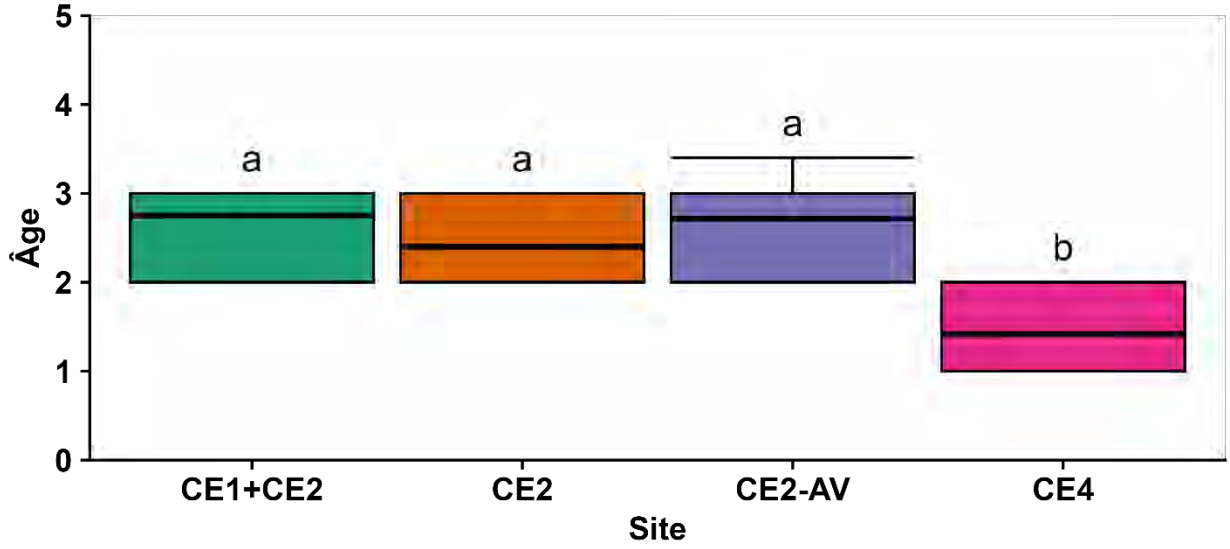


Figure 5 Age of brook trout, by site

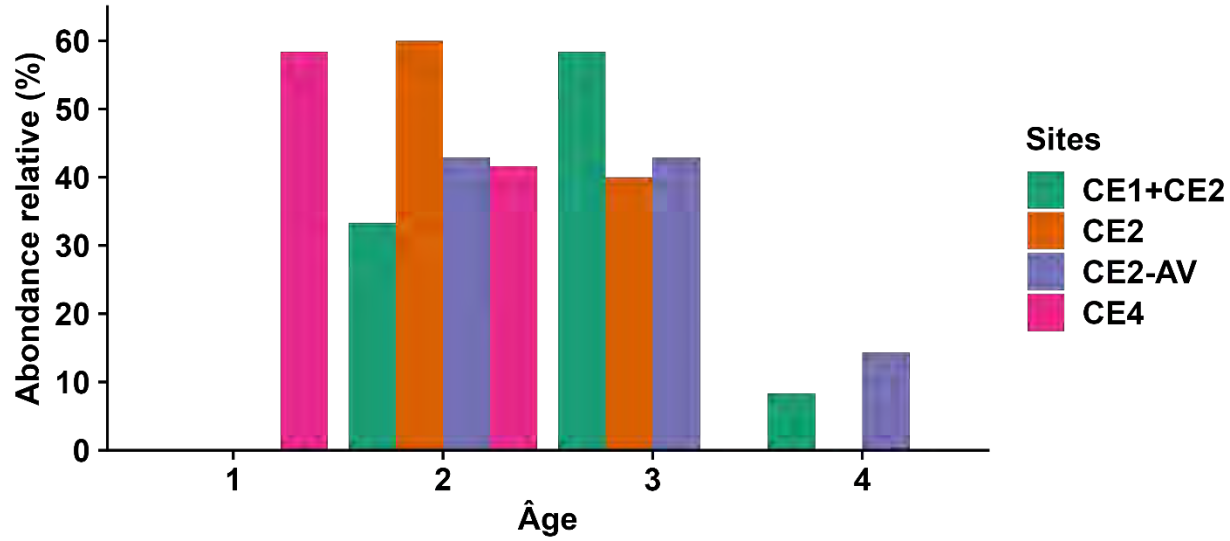


Figure 6 Relative abundance of different ages of brook trout, by site

3.3.2 Northern Pike

Table 7 contains descriptive statistics for the 15 northern pike caught at site CE3 (eight specimens) and site CE5 (seven specimens). These fish had a mean total length of 457.73 mm, a mean fork length of 436.73 mm, a mean total weight of 527.08 g, and a mean Fulton's condition factor of 0.529.

The northern pike caught at the two different sites were not significantly different in terms of total length (p = 0.354, Figure 7), total weight (p = 0.355, Figure 8figure 8), Fulton's condition factor (p = 0.809, Figure 9 and Figure 10), or age (p = 0.751, Figure 11 and Figure 12). However, the catch at site CE5 consisted mainly of three-year-old northern pike, along with a few four- and five-year-old individuals. By contrast, the individuals caught at site CE3 were between two and five years old.

Table 7 Descriptive statistics for northern pike caught at various sites

Site	Number of individuals	Total length (mm)				Fork length (mm)				Total weight (g)				Fulton's condition factor				Age			
		Mean	Standard deviation	Min.	Max.	Mean	Standard deviation	Min.	Max.	Mean	Standard deviation	Min.	Max.	Mean	Standard deviation	Min.	Max.	Mean	Standard deviation	Min.	Max.
CE3	8	465.4	59.1	357	535	440.4	58.5	335	513	560.9	200	215.2	804.6	0.531	0.036	0.473	0.569	3.5	0.9	2	5
CE5	7	449	38.5	430	536	432.6	40.3	410	523	488.8	157.9	411.5	846.1	0.527	0.022	0.5	0.557	3.4	0.8	3	5
All sites	15	457.7	49.5	357	536	436.7	49.2	335	523	527.3	179.1	215.2	846.1	0.529	0.029	0.473	0.569	3.5	0.8	2	5

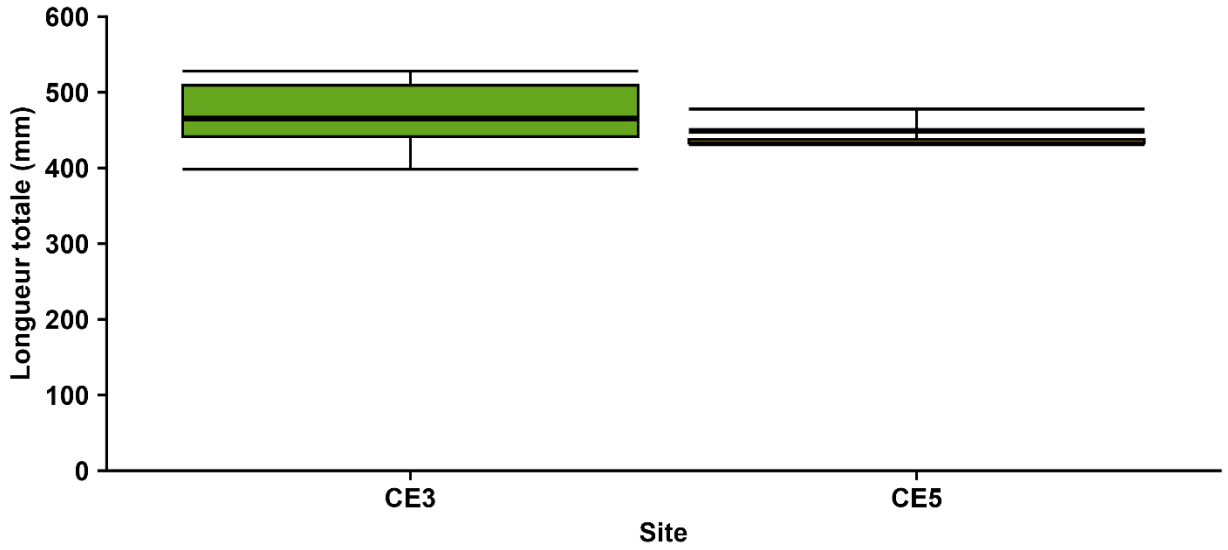


Figure 7 Total length of northern pike, by site

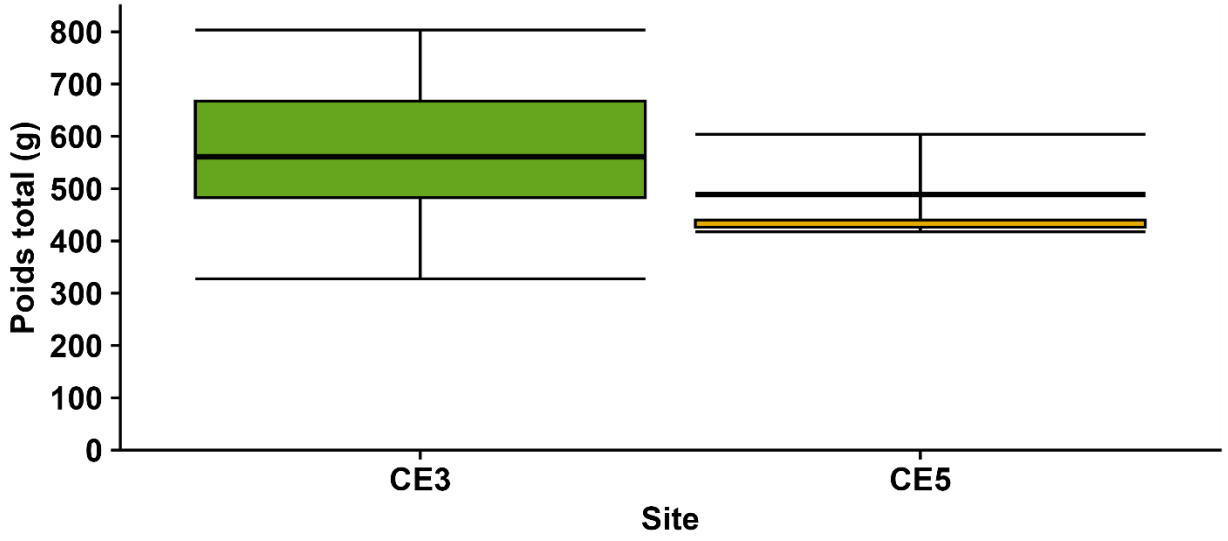


Figure 8 Total weight of northern pike, by site

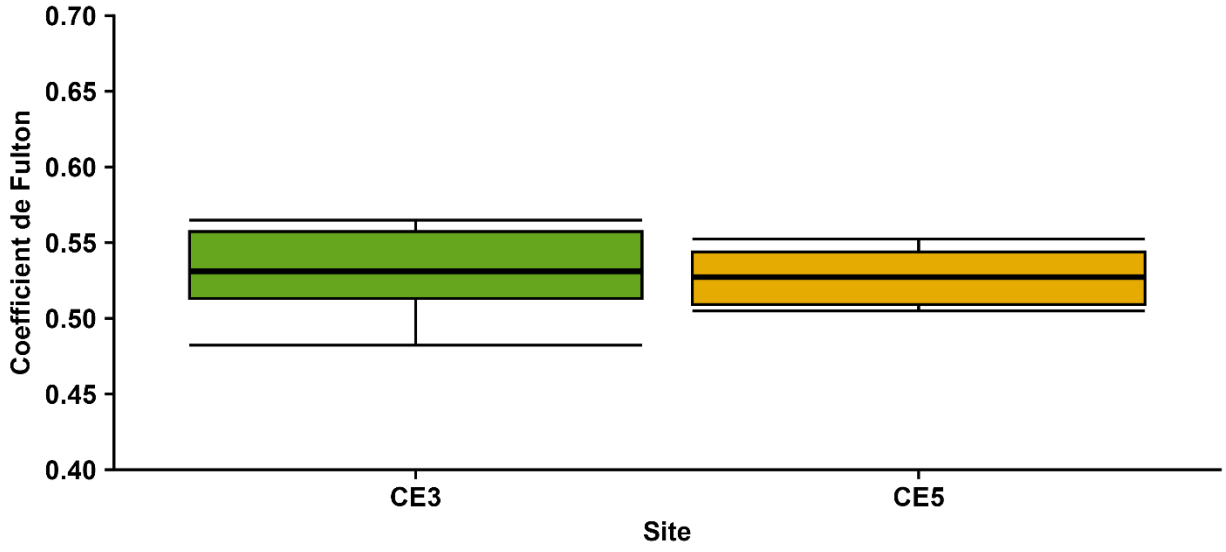


Figure 9 Fulton's coefficient for northern pike, by site

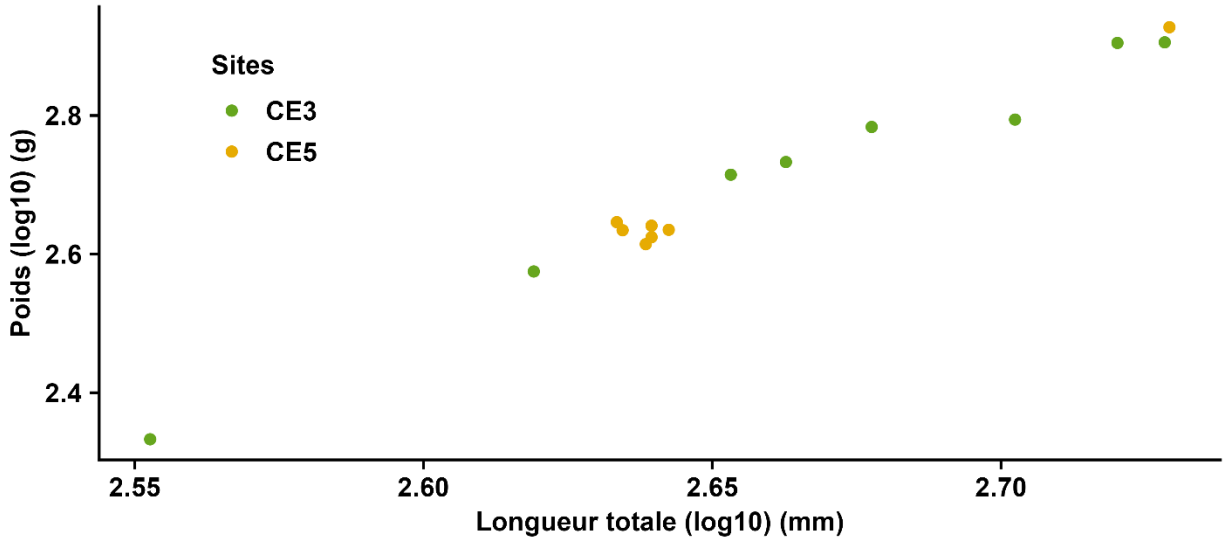


Figure 10 Weight (log10) in relation to total length (log10) for northern pike caught at various sites

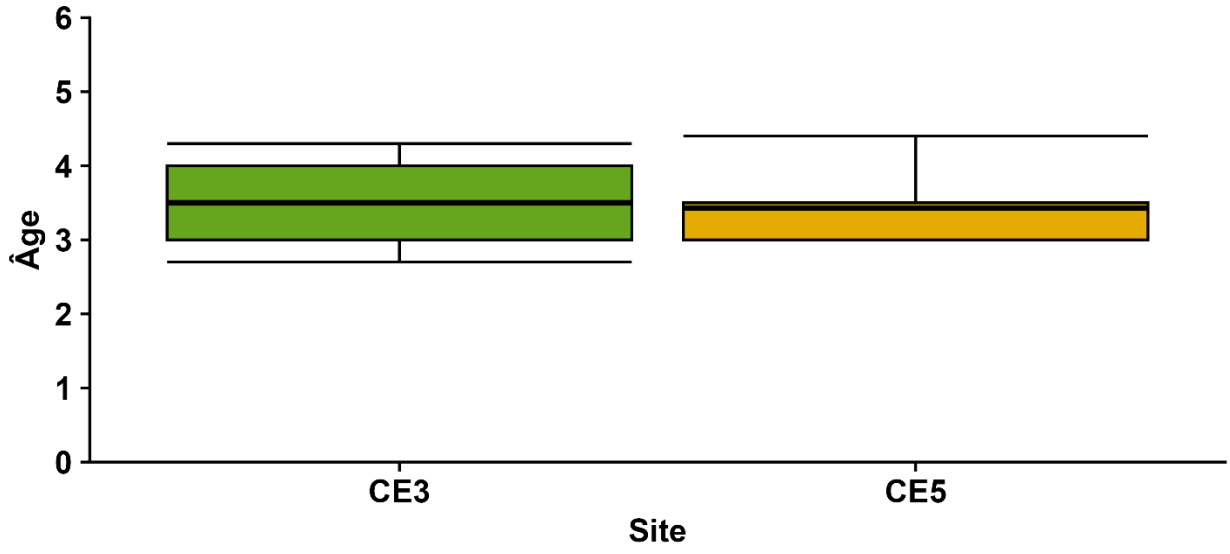


Figure 11 Age of northern pike, by site

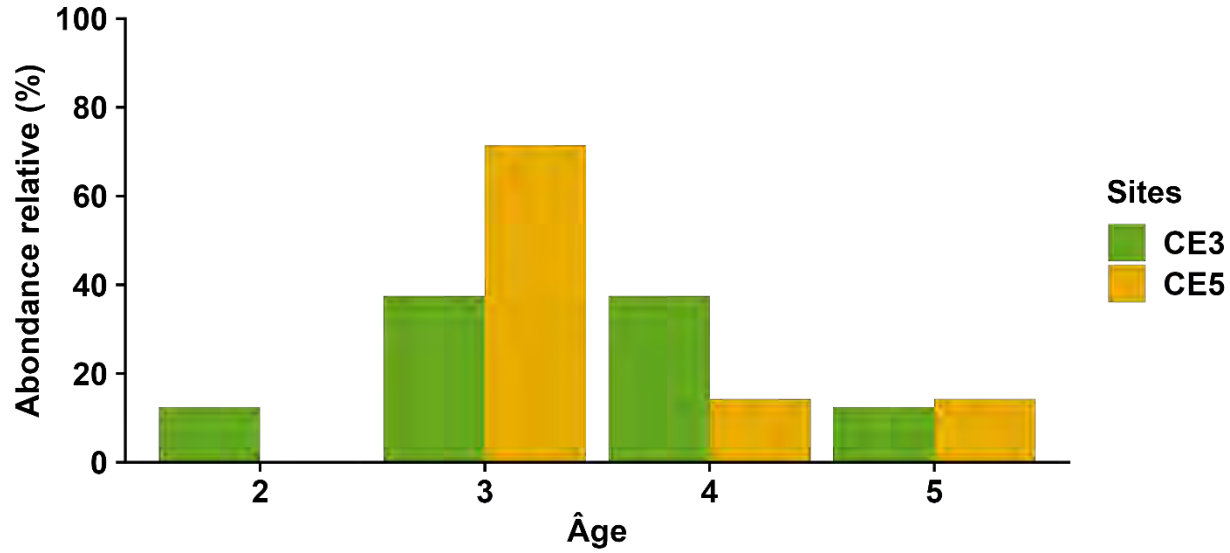


Figure 12 Relative abundance of different ages of northern pike, by site

3.4 Metal Content

Of the 30 metals analyzed, 13 were not recorded because their concentrations were below the detection limit: aluminum (Al), antimony (Sb), silver (Ag), beryllium (Be), boron (B), cadmium (Cd), chromium (Cr), lithium (Li), molybdenum (Mo), nickel (Ni), lead (Pb), uranium (U), and vanadium (V). Concentrations were detectable and above the detection limit for the remaining metals (Appendix D): arsenic (As), barium (Ba), calcium (Ca), cobalt (Co), copper (Cu), tin (Sn), iron (Fe), magnesium (Mg), manganese (Mn), mercury (Hg), phosphorus (P), selenium (Se), sodium (Na), strontium (Sr), thallium (Tl), titanium (Ti), and zinc (Zn).

In order of concentration, the metals detected in fish flesh were: phosphorus > sodium > magnesium > calcium > iron > zinc > titanium > strontium > copper > selenium > manganese > mercury > tin > arsenic > barium > cobalt > thallium with phosphorus, sodium, magnesium, and calcium that were the metals present in the highest concentrations in the two species of interest.

Without accounting for sampling sites, comparisons of mean concentrations of bioaccumulated metals between the two species showed differences for certain metals (Table 8). Brook trout had higher concentrations of most detected metals. However, magnesium, manganese, mercury, and thallium concentrations were higher in northern pike.

Given differences in biology and food chain position for brook trout and northern pike, inter-site metal concentrations comparisons were carried out separately for each species. To begin with, the sites where only brook trout were caught (CE1+CE2, CE2-AV, CE2, and CE4) were compared with each other. Significantly different brook trout flesh concentrations were found for most of the metals analyzed, with the exception of copper, iron, selenium, sodium, and titanium. For these sites, the highest concentrations tended to be in fish caught at site CE4 (Appendix D). Next, sites CE3 and CE5, where only northern pike were caught, were compared with each other. In this case, significantly different northern pike flesh concentrations were observed for copper, iron, manganese, selenium, and zinc (Appendix D).

Table 8 Analysis of statistical differences in tissue concentrations for metals, by species and between sites for each species

Parameters	Differences between species*	Differences between sites	
		Brook trout (SAFO)	Northern pike (ESLU)
Arsenic (As)	**< .0001**	**< .0001**	0.1925
Barium (Ba)	**0.0153**	**0.0269**	0.3381
Calcium (Ca)	0.9783	**0.0181**	0.5
Cobalt (Co)	0.4131	**< .0001**	
Copper (Cu)	**< .0001**	0.5079	**0.008**
Tin (Sn)	0.4084	**0.0156**	0.5
Iron (Fe)	**< .0001**	0.0556	**0.0375**
Magnesium (Mg)	**0.0031**	**0.0045**	0.4535
Manganese (Mn)	**0.0089**	**0.0037**	**0.0345**
Mercury (Hg)	**0.0042**	**0.0019**	0.8361
Total phosphorus (P)	**0.0177**	**0.0005**	0.0564
Selenium (Se)	0.1546	0.2769	**0.007**
Sodium (Na)	0.6637	0.1487	0.6285
Strontium (Sr)	0.3366	**0.0348**	0.4769
Thallium (Tl)	**0.0055**	**0.0148**	0.4307
Titanium (Ti)	**0.0066**	0.1882	0.5
Zinc (Zn)	**0.0033**	**0.0003**	**0.0271**

Notes: * Interspecies comparisons were made for each stations combined for each species.
Statistically significant results ($p < 0.05$) are shown in bold.

To provide a better visualization of the distribution of metals across the different sites, a principal component analysis (PCA) was performed on the following variables: detected metal concentrations (above the detection limit), different calculated indices (condition, gonadosomatic, hepatosomatic index) as well as the age, total weight, liver weight, and gonad weight (Figure 13).

PCA results explained 40.2% of total variance, with the first principal component accounting for 27% and the second accounting for 20.2%. The results also identified three distinct groups:

1. A first group where a certain set of variables (age, total weight, liver weight, gonad weight, and hepatosomatic index) and concentrations of certain metals (mercury, thallium, and tin) were associated with northern pike from sites CE3 and CE5;
2. A second group, where concentrations of certain other metals (arsenic, magnesium, manganese, barium, calcium, cobalt, strontium, zinc, and phosphorus) were associated with brook trout from site CE4;

3. A third group, where concentrations of another series of metals (iron, copper, sodium, and titanium), the condition and the gonadosomatic indices were associated with brook trout from sites CE1+CE2, CE2, and CE2-AV.

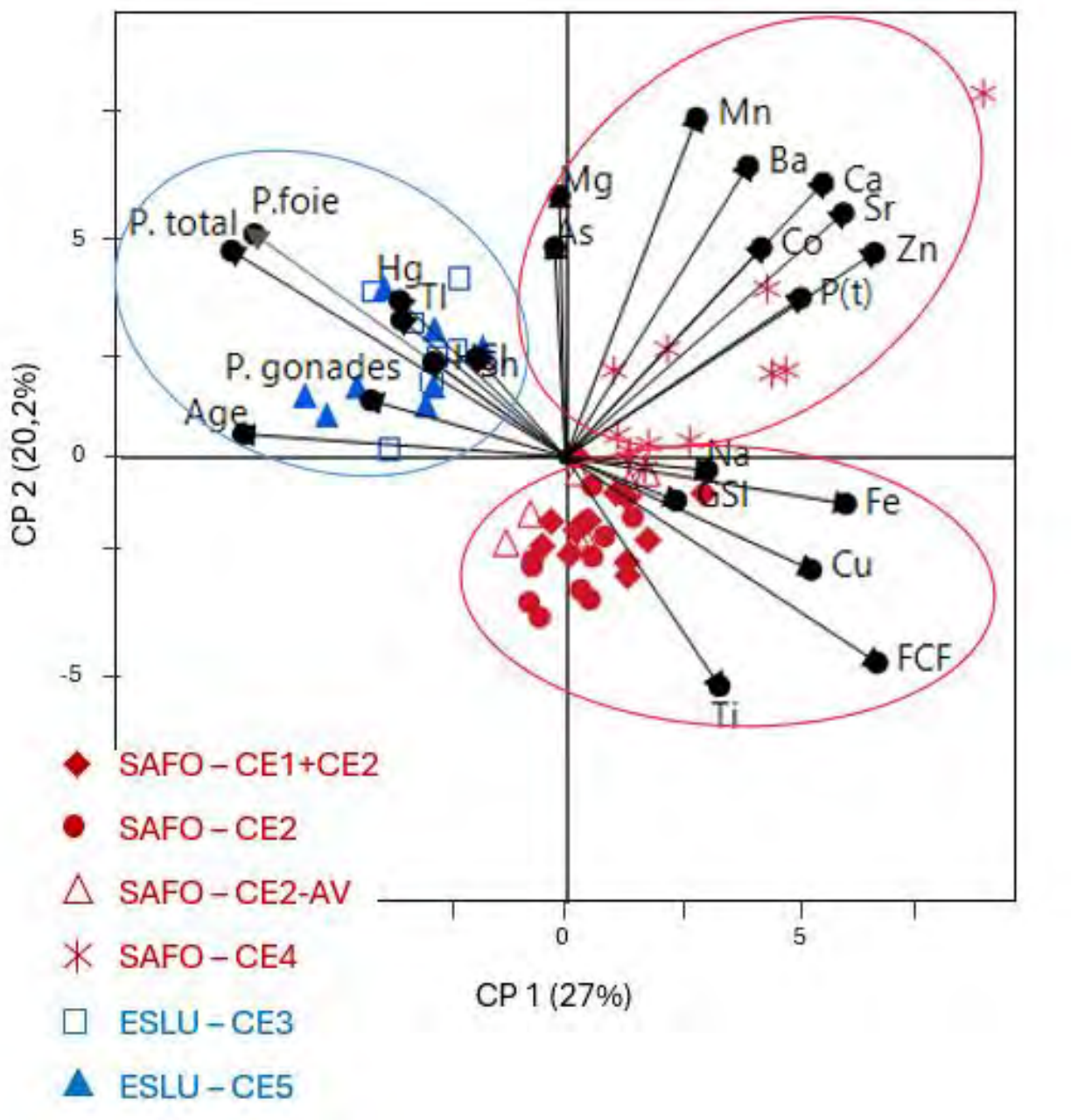


Figure 13 **Principal component analysis of tissue metal concentrations in brook trout and northern pike flesh, of morphometric parameters, and of indices calculated for the various sites**

4 Discussion

4.1 Fish

The fish habitats observed in the vicinity of the Galaxy project were found to be of fairly low quality. In fact, dissolved oxygen levels were either nil or low in almost all of the surveyed watercourses. Water in the watercourses was particularly opaque, with a brownish tint in the water at sites CE2, CE3, and CE4 which suggested it would be difficult to catch the species of interest for the study. Nevertheless, fishing went relatively smoothly. CE1 was the only site where it proved impossible to catch any brook trout or northern pike, despite installing fishing gear over more than 500 m in length of the watercourse.

Brook trout and northern pike catches at the other sites were generally comparable in terms of biological characteristics. However, brook trout caught at site CE4 were significantly younger and smaller (total length and weight) than those caught at other sites. This may reflect the fact that CE4 is a small, narrow, and shallow watercourse, and is therefore more suitable as a habitat for younger individuals.

Furthermore, the aquatic study based on field data collected in 2017 (WSP, 2018) found wide pH variations for individual watercourses in the vicinity of the Galaxy project. Given that pH can influence bioaccumulation, it will be important to continue monitoring this parameter, which seems to vary greatly over the years, and to integrate it into metal content analysis.

4.2 Metal Content

Analysis of flesh from the two sampled fish species detected 17 out of a possible 30 metals: arsenic (As), barium (Ba), calcium (Ca), cobalt (Co), copper (Cu), tin (Sn), iron (Fe), magnesium (Mg), manganese (Mn), mercury (Hg), phosphorus (P), selenium (Se), sodium (Na), strontium (Sr), thallium (Tl), titanium (Ti), and zinc (Zn). The metals found in the highest concentrations were phosphorus, sodium, magnesium, and calcium. High concentrations of these metals and minerals are naturally present in high concentrations in fish tissue, regardless of the concentrations found in the surrounding environment. The metals in question support various physiological and metabolic functions, including cell structure maintenance, enzymatic reactions, and muscle activity (Lall and Kaushik, 2021).

A comparison of metal levels between the two species found that concentrations tended to be higher in brook trout. Magnesium, manganese, mercury, and thallium were the only metals found in higher concentrations in northern pike. This species is a predator that feeds mainly on smaller fish. Due to biomagnification, mercury, present in its prey, becomes more concentrated at each successive trophic level, leading to higher levels in the tissues of northern pike (Finley, M.L.D. *et al.,* 2016). Furthermore, northern pike can grow very large, further promoting the accumulation of mercury. It should be noted that sampling conducted in the same watercourses in August 2024 (WSP, 2024, unpublished results) found relatively low concentrations of mercury in surface water (0.000003 mg/L in CE3 and 0.0000029 mg/L in CE5). Accordingly, this observation confirms that the high levels observed in northern pike flesh can be attributed mainly to biomagnification through food webs, given that the diet of the species mainly consists of fish from the same environment. At sites where brook trout were caught, significantly different flesh concentrations were observed for most of the metals analyzed, with the exception of copper, iron, selenium, sodium, and titanium.

These high tissue concentrations may be linked to the high concentrations of metals measured in the water during the same field visit (WSP, 2024, unpublished results), some of which exceeded environmental criteria. For example, the concentration of iron was 18 mg/L in CE4 and 4.4 mg/L in CE5, calcium concentrations ranged from 4.1 mg/L (CE3) to 9 mg/L (CE2), and copper concentrations from 0.0043 mg/L (CE4) to 0.0011 mg/L (CE3).

The main objective of this study was to assess concentrations of metals in fish from different watercourses, for species used as a food source by local populations. Principal component analysis (PCA) results also made it possible to identify three distinct groups of variables. The first group was associated with sites CE3 and CE5 where northern pike was captured. In this case, high mercury concentrations could be linked to the age, size and diet of this species, highlighting a process of biomagnification through food webs (Finley, M.L.D. *et al*. 2016). The second group was associated with higher concentrations of iron, copper, and titanium in brook trout caught at sites CE1+CE2, CE2, and CE2-AV. These sites had been identified as potential habitats for the species, suggesting the presence of food in which the metals concerned may have accumulated. The observed concentrations may also be associated with the water at these stations or the diet of the fish caught there. However, the final group, associated with site CE4, showed higher concentrations of most metals. The brook trout caught at this site tended to be younger (i.e., juveniles), a fact that could partially explain the high metal concentrations observed. Studies have shown that juvenile fish accumulate more metals in their muscles, due to a relatively fast metabolic rate and an underdeveloped detoxification system (Nyeste, K. *et al*. 2016). Accordingly, the higher values observed at site CE4 could be linked to both juvenile fish physiology and metal concentrations in the water.

5 Conclusion

Two fish species were caught as part of this study: brook trout and northern pike. The brook trout caught at site CE4 were generally younger than those caught at sites CE1+CE2, CE2, and CE2-AV. No significant differences in morphometric parameters were observed between northern pike caught at sites CE3 and CE5.

The initial year of the monitoring program provided an opportunity to develop a profile of the metals accumulated in the tissues of both species. Due to the low abundance of the species of interest, certain sites had to be excluded from the analysis. The differences observed between sites, and especially the higher metal concentrations found in fish caught at site CE4, cannot be directly attributed to environmental conditions alone. For instance, the age of the brook trout caught may have been a major factor, insofar as the higher metabolism of juvenile fish favours metal bioaccumulation. Likewise, the higher mercury concentrations observed in northern pike (compared to brook trout) can be explained in terms of biomagnification from prey in which mercury had already accumulated.

It will be essential for future monitoring efforts to pay close attention to the age of the fish caught. As observed in CE4, age may have an impact on the bioaccumulation of metals. It will also be important to focus on pH levels, which appear to vary significantly over the years. This parameter has a major impact on the bioavailability of metals in aquatic environments, and therefore on the bioaccumulation of metals in fish. Finally, future monitoring should be carried out at the same times of the year. Such an approach will facilitate comparisons over time and limit temperature variations that can directly influence the bioaccumulation of metals, a process that tends to accelerate at higher temperatures.

References

FINLEY, M.L.D., KIDD, K.A., CURRY, R.A., LESCORD, G.L., CLAYDEN, M.G., AND O'DRISCOLL, N.J. 2016. *A comparison of mercury biomagnification through lacustrine food webs supporting Brook Trout (Salvelinus fontinalis) and other salmonid fishes*. Front. Environ. Sci. 4(23): 1-13.

LALL, S.P., KAUSHIK, S.J. 2021. *Nutrition and Metabolism of Minerals in Fish*. Animals: An open access journal from MDPI. Nyeste, K. Dobrocsi, P. Czeglédi, I. Czédli, H. Harangi, S. Baranyai, E. Simon, E. Alex Nagy, S. Antal, L. Age and diet-specific trace element accumulation patterns in different tissues of chub (*Squalius cephalus*): Juveniles are useful bioindicators of recent pollution. *Ecol. Indic.* 101, 1–10 (2019).

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APPENDIX

A PHOTOGRAPHIC APPENDIX

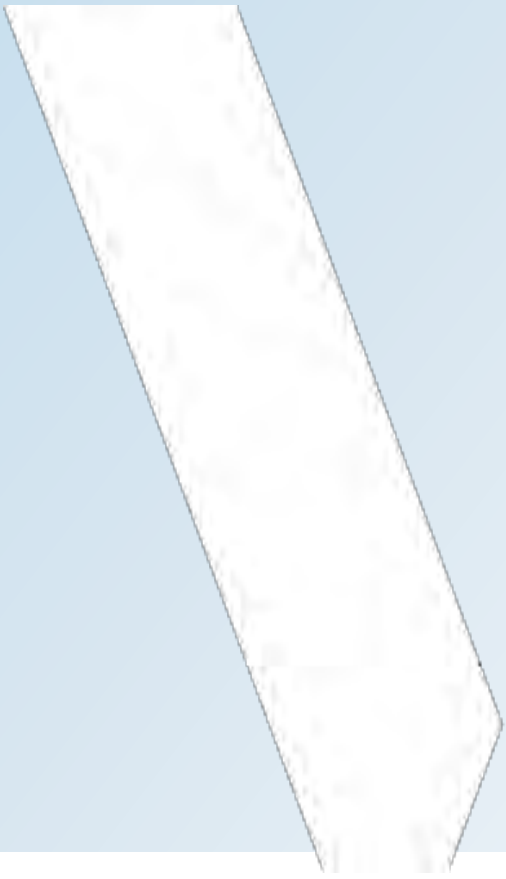




Photo 1. Cours d’eau CE1 — amont ponceau route Billy-Diamond



Photo 2. Cours d’eau CE1 — aval ponceau route Billy-Diamond — mini verveux installé



Photo 3. Cours d'eau CE1 — ponceau route Billy-Diamond — filet maillant expérimental installé sur la photo — pêche électrique réalisée dans ce secteur



Photo 4. Cours d'eau CE1+CE2 — mini verveux installé



Photo 5. Cours d’eau CE1+CE2



Photo 6. Cours d’eau CE2 — amont ponceau route Billy-Diamond



Photo 7. Cours d’eau CE2 — aval ponceau route Billy-Diamond — grand verveux installé



Photo 8. Cours d’eau CE2 — ponceau route Billy-Diamond



Photo 9. Cours d’eau CE2 en aval de l’effluent projeté



Photo 10. Cours d’eau CE2 en aval de l’effluent projeté

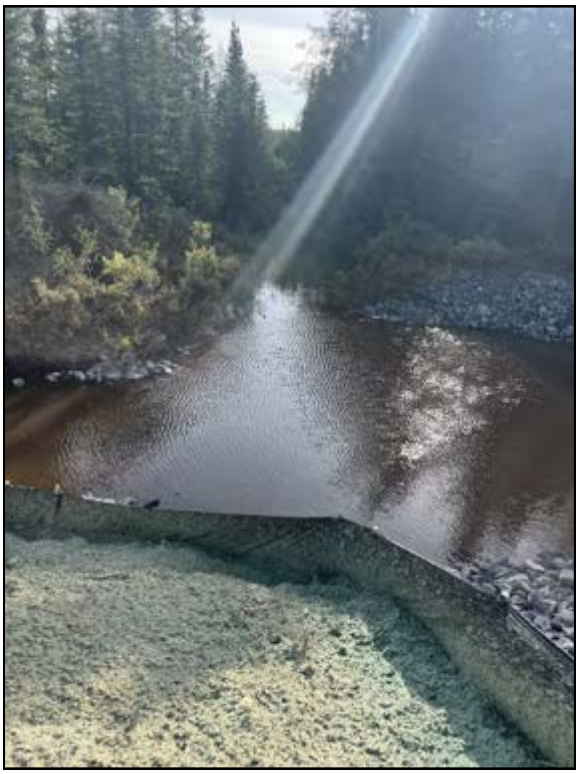


Photo 11. Cours d’eau CE3 — ponceau route Billy-Diamond



Photo 12. Cours d’eau CE3 — aval ponceau route Billy-Diamond



Photo 13. Cours d’eau CE3



Photo 14. Cours d’eau CE4 — ponceau route Billy-Diamond



Photo 15. Cours d’eau CE4 — aval ponceau route Billy-Diamond



Photo 16. Cours d’eau CE4 — aval ponceau route Billy-Diamond — pêche électrique réalisée dans ce secteur



Photo 17. Cours d’eau CE5



Photo 18. Cours d’eau CE5



Photo 19. Filet maillant près du ponceau dans le cours d'eau CE2



Photo 20. Filet maillant dans le cours d'eau CE1+CE2



Photo 21. Grand verveux dans le cours d’eau CE1



Photo 22. Grand verveux dans le cours d’eau CE3



Photo 23. Mini verveux dans le cours d’eau CE2

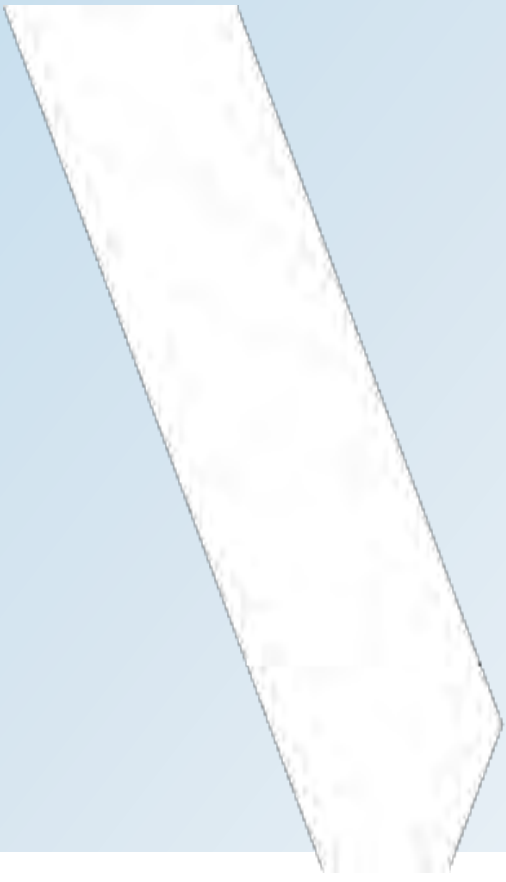


Photo 24. Mini verveux dans le cours d’eau CE3

APPENDIX

B

RAW DATA FROM FISHING STATIONS AND FISH



APPENDIX

B-1 *RAW FISHING STATIONS DATA*

Station	Site	Cours d'eau	Type d'engin	Direction	Coordonnées GPS début LAT	Coordonnées GPS début LONG	Coordonnées GPS fin LAT	Coordonnées GPS fin LONG	Profondeur (m)	Date pose	Heure pose	Date levée	Heure levée	Température (°C)	Conductivité (us/cm)	Oxygène dissous (%)	Oxygène dissous (mg/L)	pH	Espèce capturée	Nombre de captrures	Nombre de remise à l'eau	Temps de pêche pour la pêche électrique (sec)	Paramètres pêcheuse électrique	Remarque
CE1-GV1	CE1	CE1	Grand verveux	Vers aval	52,27058	-77,09011			1	2024-08-20	14:04:00	2024-08-21	08:00:00	14,08	82	0,0	0,00	5,14	CUIN	27	24			3 CUIN morts possiblement prédatés par puce d'eau
CE1-MV1	CE1	CE1	Mini verveux	Vers aval	52,27150	-77,08867			1	2024-08-20	14:25:00	2024-08-21	08:15:00	13,10	71	0,0	0,00	5,52	CUIN	17	17			
CE1-MV2	CE1	CE1	Mini verveux	Vers amont	52,27249	-77,08796			0,5	2024-08-20	14:49:00	2024-08-21	08:25:00						CUIN	8	8			
CE1-MV3	CE1	CE1	Mini verveux	Vers amont	52,27009	-77,09040			1	2024-08-20	15:13:00	2024-08-21	07:45:00	14,82	94	8,0	0,78	5,3	CUIN	35	35			
CE2-GV1	CE2	CE2	Grand verveux	Vers aval	52,22593	-77,07607			0,7	2024-08-20	12:35:00	2024-08-21	10:35:00	12,77	262	19,9	2,12	6,27	-	0	0			
CE2-MV1	CE2	CE2	Mini verveux	Vers amont	52,25528	-77,07711			0,4	2024-08-20	13:03:00	2024-08-21	10:45:00						CUIN	35	35			
CE2-GV1	CE2	CE2	Grand verveux	Vers amont	52,22593	-77,07607			0,7	2024-08-21	11:36:00	2024-08-22	10:20:00						-	0	0			
CE2-MV1	CE2	CE2	Mini verveux	Vers amont	52,25528	-77,07711			0,4	2024-08-21	10:55:00	2024-08-22	09:50:00						CUIN	10	10			
CE1-FE1	CE1	CE1	Filet expérimental		52,27042	-77,09031			1	2024-08-21	09:10:00	2024-08-22	10:50:00						-	0	0			
CE1-MV4	CE1	CE1	Mini verveux	Vers aval	52,26910	-77,09432			0,7	2024-08-21	09:40:00	2024-08-22	11:15:00	14,41	85	0,0	0,00	5,43	CUIN	120	120			
CE1-MV5	CE1	CE1	Mini verveux	Vers aval	52,26806	-77,09728			1,3	2024-08-21	09:55:00	2024-08-22	11:30:00						CUIN	3	3			
CE2-FE1	CE2	CE2	Filet expérimental		52,25616	-77,07557			-	2024-08-21	11:20:00	2024-08-22	10:00:00						SAFO	10	0			75% du filet dans l'eau
CE5-GV1	CE5	CE5	Grand verveux		52,22436	-77,04539			1	2024-08-21	13:30:00	2024-08-22	07:45:00						CUIN	20	20			
CE5-GV1	CE5	CE5	Grand verveux		52,22436	-77,04539			1	2024-08-21	13:30:00	2024-08-22	07:45:00						COPL	5	5			
CE5-GV1	CE5	CE5	Grand verveux		52,22436	-77,04539			1	2024-08-21	13:30:00	2024-08-22	07:45:00						PEOM	4	4			
CE5-GV1	CE5	CE5	Grand verveux		52,22436	-77,04539			1	2024-08-21	13:30:00	2024-08-22	07:45:00						CACO	1	1			
CE5-MV1	CE5	CE5	Mini verveux		52,22502	-77,04339			1,75	2024-08-21	14:11:00	2024-08-22	08:00:00						-	0	0			Derrière à derrière / Gros trou dans le filet et ralingue flottante sectionnée (possiblement par un castor)
CE5-MV2	CE5	CE5	Mini verveux		52,22502	-77,04339			1,75	2024-08-21	14:11:00	2024-08-22	08:00:00						COPL	5	5			Derrière à derrière
CE5-MV2	CE5	CE5	Mini verveux		52,22502	-77,04339			1,75	2024-08-21	14:11:00	2024-08-22	08:00:00						CACO	3	3			
CE5-GV1	CE5	CE5	Grand verveux		52,22436	-77,04539			1	2024-08-22	08:30:00	2024-08-23	07:30:00						CACO	11	11			
CE5-GV1	CE5	CE5	Grand verveux		52,22436	-77,04539			1	2024-08-22	08:30:00	2024-08-23	07:30:00						COPL	8	8			
CE5-GV1	CE5	CE5	Grand verveux		52,22436	-77,04539			1	2024-08-22	08:30:00	2024-08-23	07:30:00						CUIN	35	35			
CE5-GV1	CE5	CE5	Grand verveux		52,22436	-77,04539			1	2024-08-22	08:30:00	2024-08-23	07:30:00						PEOM	1	1			
CE1-FE1	CE1	CE1	Filet expérimental		52,27042	-77,09031				2024-08-22	10:52:00	2024-08-23	08:10:00						-	0	0			Filet installé dans le bassin en amont de la route
CE1-FE2	CE1	CE1	Filet expérimental		52,27010	-77,09045				2024-08-22	11:00:00	2024-08-23	08:15:00						-	0	0			Filet installé dans le bassin en aval de la route
CE1-FE1	CE1	CE1	Filet expérimental		52,27042	-77,09031				2024-08-23	08:11:00	2024-08-24	07:30:00						-	0	0			Filet installé dans le bassin en amont de la route
CE1-FE2	CE1	CE1	Filet expérimental		52,27010	-77,09045				2024-08-23	08:16:00	2024-08-24	07:32:00						-	0	0			Filet installé dans le bassin en aval de la route
CE1+CE2-MV1	CE1+CE2	CE1+CE2	Mini verveux		52,25543	-77,14093			0,6	2024-08-23	09:50:00	2024-08-24	08:45:00						-	0	0			
CE1+CE2-FE1	CE1+CE2	CE1+CE2	Filet expérimental		52,25538	-77,14116			0,4	2024-08-23	10:20:00	2024-08-24	08:50:00						-	0	0			
CE1+CE2-FE2	CE1+CE2	CE1+CE2	Filet expérimental		52,25540	-77,14256			1	2024-08-23	11:47:00	2024-08-24	08:55:00						SAFO	1	0			
CE1+CE2-MV2	CE1+CE2	CE1+CE2	Mini verveux		52,25538	-77,14313			0,7	2024-08-23	11:00:00	2024-08-24	12:20:00						COPL	10	10			
CE1+CE2-MV2	CE1+CE2	CE1+CE2	Mini verveux		52,25538	-77,14313			0,7	2024-08-23	11:00:00	2024-08-24	12:20:00						SAFO	1	0			
CE2Av-MV1	CE2Av	CE2Av	Mini verveux		52,25531	-77,10503			0,6	2024-08-23	13:32:00	2024-08-24	11:10:00						-					Trous dans le filet assez gros pour que les poissons puissent s'échappé
CE2Av-FE2	CE2Av	CE2Av	Filet expérimental		52,25191	-77,13446			1,7	2024-08-23	14:20:00	2024-08-24	10:40:00						SAFO	3	0			1 limite petit mais gardé tout de mpeme vu le faible taux de capture
CE2Av-MV2	CE2Av	CE2Av	Mini verveux		52,25211	-77,13459			1,5	2024-08-23	14:40:00	2024-08-24	10:50:00						-	0	0			
CE2Av-MV3	CE2Av	CE2Av	Mini verveux		52,25211	-77,13459			1,5	2024-08-23	14:40:00	2024-08-24	10:50:00						-	0	0			
CE2Av-FE1	CE2Av	CE2Av	Filet expérimental		52,25340	-77,13585				2024-08-22	14:20:00	2024-08-23	09:10:00	13,99	73	0,0	0,00	5,35	-	0	0			
CE2Av-FE1	CE2Av	CE2Av	Filet expérimental							2024-08-23	09:11:00	2024-08-24	10:20:00						-	0	0			
CE2Av-FE2	CE2Av	CE2Av	Filet expérimental							2024-08-24	10:45:00	2024-08-25	09:20:00						SAFO	4	0			
CE2Av-FE3	CE2Av	CE2Av	Filet expérimental		52,25134	-77,13337			1,5	2024-08-24	12:00:00	2024-08-25	09:40:00						-	0	0			
CE1+CE2-MV2	CE1+CE2	CE1+CE2	Mini verveux		52,35380	-77,14313			0,7	2024-08-23	12:25:00	2024-08-24	09:00:00						SAFO	22	11			Garder les plus grosses pour l'étude
CE1+CE2-MV2	CE1+CE2	CE1+CE2	Mini verveux		52,35380	-77,14313			0,7	2024-08-23	12:25:00	2024-08-24	09:00:00						COPL	6	6			
CE2Av-MV1	CE2Av	CE2Av	Mini verveux							2024-08-24	11:30:00	2024-08-25	10:30:00						CUIN	7	7			
CE2Av-MV4	CE2Av	CE2Av	Mini verveux						0,8	2024-08-24	11:30:00	2024-08-25	10:45:00						CUIN	5	5			
CE1-FE2	CE1	CE1	Filet expérimental							2024-08-24	07:31:00	2024-08-25	07:40:00						-	0	0			
CE1-FE2	CE1	CE1	Filet expérimental							2024-08-24	07:33:00	2024-08-25	07:45:00						-	0	0			
CE3-MV1	CE3	CE3	Mini verveux	Vers amont	52,24923	-77,06340			0,6	2024-08-25	13:35:00	2024-08-26	09:10:00						CACO	3	3			
CE3-MV1	CE3	CE3	Mini verveux	Vers amont	52,24923	-77,06340			0,6	2024-08-25	13:35:00	2024-08-26	09:10:00						CUIN	10	10			
CE3-MV2	CE3	CE3	Mini verveux	Vers amont	52,24954	-77,06309			0,8	2024-08-25	12:50:00	2024-08-26	09:20:00						CACO	23	23			
CE3-MV2	CE3	CE3	Mini verveux	Vers amont	52,24954	-77,06309			0,8	2024-08-25	12:50:00	2024-08-26	09:20:00						COPL	15	15			
CE3-MV2	CE3	CE3	Mini verveux	Vers amont	52,24954	-77,06309			0,8	2024-08-25	12:50:00	2024-08-26	09:20:00						CUIN	11	11			
CE3-MV3	CE3	CE3	Mini verveux	Vers aval	52,25150	-77,06032			1,2	2024-08-25	14:30:00	2024-08-26	10:05:00						-	0	0			
CE3-FE1	CE3	CE3	Filet expérimental		52,27843	-77,06567			1,5	2024-08-24	13:40:00	2024-08-25	07:20:00						CACO	1	0			Mort dans le filet / Filet installé dans le bassin artificielle du ponceau de la route Billy D.
CE3-FE1	CE3	CE3	Filet expérimental		52,27843	-77,06567			1,5	2024-08-25	07:25:00	2024-08-26	07:20:00						-	0	0			Filet installé dans le bassin artificielle du ponceau de la route Billy D.
CE3-FE2	CE2	CE2	Filet expérimental		52,24942	-77,06316			1	2024-08-25	13:20:00	2024-08-25	13:40:00	15,76	61	24,2	2,22	6,08	CACO	8	8			Les 8 CACO se sont pris lors de l'installaiton du filet et on été retiré afin de limiter les mortalités
CE3-MV1	CE3	CE3	Mini verveux							2024-08-26	09:40:00	2024-08-27	08:10:00						CUIN	10	10			
CE3-MV2	CE3	CE3	Mini verveux							2024-08-26	09:30:00	2024-08-27	08:20:00						CUIN	15	15			
CE3-FE2	CE3	CE3	Filet expérimental		52,25277	-77,03249	52,25296	-77,03243		2024-08-26	11:40:00	2024-08-27	10:20:00	16,71	42	85,9	8,05	5,88	ESLU	2	0			
CE3-FE2	CE3	CE3	Filet expérimental		52,25277	-77,03249	52,25296	-77,03243		2024-08-26	11:40:00	2024-08-27	10:20:00	16,71	42	85,9	8,05	5,88	CACO	24	14			Remis les vivants à l'eau
CE3-FE3	CE3	CE3	Filet expérimental		52,25377	-77,04969	52,25388	-77,04938		2024-08-26	12:30:00	2024-08-27	09:10:00						ESLU	4	0			
CE3-FE3	CE3	CE3	Filet expérimental		52,25377	-77,04969	52,25388	-77,04938		2024-08-26	12:30:00	2024-08-27	09:10:00						CACO	24	11			Remis les vivants à l'eau
CE3-GV1	CE3	CE3	Grand verveux	Vers amont	52,25363	-77,05045				2024-08-26	13:10:00	2024-08-27	08:45:00						ESLU	2	0			
CE3-GV1	CE3	CE3	Grand verveux	Vers amont	52,25363	-77,05045				2024-08-26	13:10:00	2024-08-27	08:45:00						CACO	14	14			
CE4-PE1	CE4	CE4	Pêche électrique	Vers amont	52,24355	-77,04572	52,24263	-77,04744		2024-08-28				12,67	89	0,0	0,00	5,75	CUIN	34	34	1793	350V, 25% duty, 20 Hz freq	~160m linéaire de cours d'eau pêcher / CE 0,5m de large, vitesse de courant très faible, 100% MO peu compacte, chenal lentique
CE4-PE1	CE4	CE4	Pêche électrique	Vers amont	52,24355	-77,04572	52,24263	-77,04744		2024-08-28				12,67	89	0,0	0,00	5,75	SAFO	1	0	1793	350V, 25% duty, 20 Hz freq	
CE4-PE2	CE4	CE4	Pêche électrique		52,24282	-77,05907	52,24279	-77,06007		2024-08-28									-	0	0	463	350V, 25% duty, 20 Hz freq	Pêche en amont et en aval de la route Billy Diamond dans les bassin de roche artificielle crée lors du changementde ponceau. Peu profond, eau orange avec beaucoup de MO orange e suspension et collé sir les roches

Station	Site	Cours d'eau	Type d'engin	Direction	Coordonnées GPS début LAT	Coordonnées GPS début LONG	Coordonnées GPS fin LAT	Coordonnées GPS fin LONG	Profondeur (m)	Date pose	Heure pose	Date levée	Heure levée	Température (°C)	Conductivité (us/cm)	Oxygène dissous (%)	Oxygène dissous (mg/L)	pH	Espèce capturée	Nombre de captrures	Nombre de remise à l'eau	Temps de pêche pour la pêche électrique (sec)	Paramètres pêcheuse électrique	Remarque
CE5-GV2	CE5	CE5	Grand verveux	Vers amont	52,22473	-77,06116				2024-08-28	09:25:00	2024-08-29	09:00:00	11,90	492	42,8	4,48	6,32	PEOM	27	27			
CE5-GV2	CE5	CE5	Grand verveux	Vers amont	52,22473	-77,06116				2024-08-28	09:25:00	2024-08-29	09:00:00	11,90	492	42,8	4,48	6,32	COPL	2	2			
CE5-GV2	CE5	CE5	Grand verveux	Vers amont	52,22473	-77,06116				2024-08-28	09:25:00	2024-08-29	09:00:00	11,90	492	42,8	4,48	6,32	CUIN	2	2			
CE5-GV2	CE5	CE5	Grand verveux	Vers amont	52,22473	-77,06116				2024-08-28	09:25:00	2024-08-29	09:00:00	11,90	492	42,8	4,48	6,32	CACO	3	3			
CE5-FE1	CE5	CE5	Filet expérimental		52,22490	-77,05978	52,22469	-77,05973		2024-08-28	09:40:00	2024-08-29	08:25:00						CACO	8	8			
CE5-FE1	CE5	CE5	Filet expérimental		52,22490	-77,05978	52,22469	-77,05973		2024-08-28	09:40:00	2024-08-29	08:25:00						ESLU	2	0			
CE5-GV3	CE5	CE5	Grand verveux	Vers amont	52,22371	-77,05315				2024-08-28	10:05:00	2024-08-29	08:15:00						ESLU	1	0			
CE5-GV3	CE5	CE5	Grand verveux	Vers amont	52,22371	-77,05315				2024-08-28	10:05:00	2024-08-29	08:15:00						PEOM	1	1			
CE5-GV3	CE5	CE5	Grand verveux	Vers amont	52,22371	-77,05315				2024-08-28	10:05:00	2024-08-29	08:15:00						CACO	7	7			
CE5-GV3	CE5	CE5	Grand verveux	Vers amont	52,22371	-77,05315				2024-08-28	10:05:00	2024-08-29	08:15:00						CUIN	8	8			
CE5-FE2	CE5	CE5	Filet expérimental		52,22507	-77,04799	52,22498	-77,04771		2024-08-28	10:20:00	2024-08-29	07:45:00						ESLU	4	0			
CE5-FE2	CE5	CE5	Filet expérimental		52,22507	-77,04799	52,22498	-77,04771		2024-08-28	10:20:00	2024-08-29	07:45:00						CACO	5	4			1 mort
CE1-PE1	CE1	CE1	Pêche électrique	Vers amont	52,27005	-77,09062	52,27046	-77,09043		2024-08-30				12,25	92	0,0	0,00	5,04	CUIN	20	20	300	350V, 25% duty, 20 Hz freq	Pêcher les bassins amont et aval de la route
CE4-PE3	CE4	CE4	Pêche électrique	Vers amont	52,24282	-77,05907	52,24279	-77,06007		2024-08-30				9,17	240	4,0	0,45	5,72	SAFO	3	0	608	350V, 25% duty, 20 Hz freq	
CE4-PE4	CE4	CE4	Pêche électrique	Vesr amont	52,24259	-77,04748	52,24202	-77,04843		2024-08-30									SAFO	7	0	843	350V, 30% duty, 40 Hz freq	
CE4-PE4	CE4	CE4	Pêche électrique	Vesr amont	52,24259	-77,04748	52,24202	-77,04843		2024-08-30									CUIN	4	4	843	350V, 30% duty, 40 Hz freq	

APPENDIX

B-2 *RAW FISH DATA*

Num	Date_Levee	Station	Site	CoursEau	Specimen	Espèce	Longueur totale (mm)	Longueur fourche (mm)	Poids total (g)	Poids gonades (g)	Poids foie (g)	Sexe	Maturité	Coefficient de Fulton	Structure prélèvée pour lecture d'âge	Age 1er lecteur	Age 2e lecteur	Age	Observation au terrain	Commentaire en lien avec la lecture d'âge
1	2024-08-22	CE2-FE1	CE2	CE2	SAFO-001	SAFO	246	238	130,1	1,836	0,934	M	4	0,873920597	Otolithes	3	3	3	Encore vivant dans le filet	
2	2024-08-22	CE2-FE1	CE2	CE2	SAFO-002	SAFO	190	178	66,4	0,171	0,375	M	3	0,968071147	Otolithes	2	2	2	Encore vivant dans le filet	mauvaise coupe
3	2024-08-22	CE2-FE1	CE2	CE2	SAFO-003	SAFO	186	175	57,2		0,345	M	1	0,888908781	Otolithes	2	2	2	Encore vivant dans le filet	
4	2024-08-22	CE2-FE1	CE2	CE2	SAFO-004	SAFO	190	183	58,1		0,418	X	1	0,847062254	Otolithes	2	2	2	Encore vivant dans le filet	
5	2024-08-22	CE2-FE1	CE2	CE2	SAFO-005	SAFO	190	183	59,7		0,338	X	1	0,87038927	Otolithes	2	2	2	Encore vivant dans le filet	info sur la formation
6	2024-08-22	CE2-FE1	CE2	CE2	SAFO-006	SAFO	202	193	68,3	3,117	0,77	F	4	0,828641339	Otolithes	3	3	3		
7	2024-08-22	CE2-FE1	CE2	CE2	SAFO-007	SAFO	197	188	72,1	1,288	0,362	M	4	0,943054054	Otolithes	2	2	2		
8	2024-08-22	CE2-FE1	CE2	CE2	SAFO-008	SAFO	201	193	68,3	0,863	0,622	F	3	0,841070753	Otolithes	3	3	3		
9	2024-08-22	CE2-FE1	CE2	CE2	SAFO-009	SAFO	200	190	67,5		0,489	X	1	0,84375	Otolithes	2	2	2		
10	2024-08-22	CE2-FE1	CE2	CE2	SAFO-010	SAFO	179	171	48	0,55	0,487	F	3	0,836916528	Otolithes	3	3	3		
11	2024-08-23	CE1+CE2-MV2	CE1+CE2	CE1+CE2	SAFO-011	SAFO	222	214	87,2	2,649	0,58	M	4	0,796998606	Otolithes	4	4	4	Capturé vivant	
12	2024-08-24	CE1+CE2-MV2	CE1+CE2	CE1+CE2	SAFO-012	SAFO	198	189	67	1,637	0,609	M	4	0,863136002	Otolithes	3	3	3	1 otolithe	
13	2024-08-24	CE1+CE2-MV2	CE1+CE2	CE1+CE2	SAFO-013	SAFO	200	193	72,6	4,586	1,008	F	4	0,9075	Otolithes	3	3	3		
14	2024-08-24	CE1+CE2-MV2	CE1+CE2	CE1+CE2	SAFO-014	SAFO	206	196	78	2,314	0,572	M	4	0,892263118	Otolithes	2	2	2		
15	2024-08-24	CE1+CE2-MV2	CE1+CE2	CE1+CE2	SAFO-015	SAFO	200	191	71,1	2,203	0,649	M	4	0,88875	Otolithes	3	3	3		
16	2024-08-24	CE1+CE2-MV2	CE1+CE2	CE1+CE2	SAFO-016	SAFO	176	166	49,8	1,606	0,266	M	4	0,913463796	Otolithes	2	2	2		
17	2024-08-24	CE1+CE2-MV2	CE1+CE2	CE1+CE2	SAFO-017	SAFO	184	177	54,2	4,377	0,946	F	4	0,870053218	Otolithes					
18	2024-08-24	CE1+CE2-MV2	CE1+CE2	CE1+CE2	SAFO-018	SAFO	171	164	43,2	2,839	0,661	F	4	0,863963541	Otolithes	3	3	3		
19	2024-08-24	CE1+CE2-MV2	CE1+CE2	CE1+CE2	SAFO-019	SAFO	173	165	43,4	0,942	0,505	F	3	0,838207264	Otolithes	2	3	2		
20	2024-08-24	CE1+CE2-MV2	CE1+CE2	CE1+CE2	SAFO-020	SAFO	172	164	42,2		0,261	X	1	0,829329493	Otolithes	2	2	2		
21	2024-08-24	CE1+CE2-MV2	CE1+CE2	CE1+CE2	SAFO-021	SAFO	186	176	58,5	2,191	0,385	M	4	0,909111253	Otolithes	3	3	3		
22	2024-08-24	CE1+CE2-MV2	CE1+CE2	CE1+CE2	SAFO-022	SAFO	200	192	73,6	3,588	0,971	F	4	0,92	Otolithes	3	3	3		
23	2024-08-24	CE1+CE2-FE2	CE1+CE2	CE1+CE2	SAFO-023	SAFO	232	221	105,5	2,709	0,641	M	4	0,844867307	Otolithes	3	3	3		
24	2024-08-24	CE2-AV-FE2	CE2-AV	CE2	SAFO-024	SAFO	261	250	154,5	2,81	0,948	M	3	0,868974359	Otolithes	4	4	4		err poss +1,1
25	2024-08-24	CE2-AV-FE2	CE2-AV	CE2	SAFO-025	SAFO	205	198	72,9		0,669	M	3	0,846186213	Otolithes	2	2	2		
26	2024-08-24	CE2-AV-FE2	CE2-AV	CE2	SAFO-026	SAFO	147	139	26,1		0,226	X	1	0,821653109	Otolithes	2	2	2		
27	2024-08-25	CE2-AV-FE2	CE2-AV	CE2	SAFO-027	SAFO	215	208	92	13,425	0,563	F	4	0,925704655	Otolithes	3	3	3		
28	2024-08-25	CE2-AV-FE2	CE2-AV	CE2	SAFO-028	SAFO	234	225	124,3	4,071	1,334	F	3	0,970115752	Otolithes	3	3	3		
29	2024-08-25	CE2-AV-FE2	CE2-AV	CE2	SAFO-029	SAFO	221	213	96,8	6,926	0,213	F	4	0,896806064	Otolithes	3	3	3		
30	2024-08-25	CE2-AV-FE2	CE2-AV	CE2	SAFO-030	SAFO	184	175	53,6	0,325	0,372	M	3	0,860421632	Otolithes	2	2	2		
31	2024-08-27	CE3-FE2	CE3	CE3	ESLU-031	ESLU	460	430	540,6	3,447	4,028	F	3	0,555395743	Cleithrum	3	3	3		
32	2024-08-27	CE3-FE2	CE3	CE3	ESLU-032	ESLU	525	498	803	5,023	7,488	F	3	0,554929273	Cleithrum	4	4	4		
33	2024-08-27	CE3-GV1	CE3	CE3	ESLU-033	ESLU	504	482	622,5	3,859	4,877	F	3	0,486236712	Cleithrum	3	3	3		
34	2024-08-27	CE3-GV1	CE3	CE3	ESLU-034	ESLU	357	335	215,2	1,399	1,824	F	2	0,472974382	Cleithrum	2	2	2		
35	2024-08-27	CE3-FE3	CE3	CE3	ESLU-035	ESLU	476	445	607,4	4,75	6,091	F	3	0,563188696	Cleithrum	4	4	4		
36	2024-08-27	CE3-FE3	CE3	CE3	ESLU-036	ESLU	535	513	804,6	6,467	6,601	F	3	0,525434617	Cleithrum	5	5	5		err poss. -1,4
37	2024-08-27	CE3-FE3	CE3	CE3	ESLU-037	ESLU	450	426	518,3	3,552	7,383	F	3	0,56877915	Cleithrum	4	4	4		
38	2024-08-27	CE3-FE3	CE3	CE3	ESLU-038	ESLU	416	394	375,8	4,219	2,963	M	3	0,522007549	Cleithrum	3	3	3		
39	2024-08-28	CE4-PE1	CE4	CE4	SAFO-039	SAFO	181	175	54,7	2,594	0,837	F	3	0,92246862	Otolithes	2	2	2		
40	2024-08-28	CE4-PE2	CE4	CE4	SAFO-040	SAFO	120	114	13,1		0,106	X	1	0,758101852	Otolithes	1	1	1		
41	2024-08-29	CE5-FE2	CE5	CE5	ESLU-041	ESLU	430	410	442,7	2,406	7,248	F	3	0,556806319	Cleithrum	3	3	3		pratiquement illisible
42	2024-08-29	CE5-FE2	CE5	CE5	ESLU-042	ESLU	439	422	431,6	6,253	6,319	M	3	0,510138235	Cleithrum	3	3	3		
43	2024-08-29	CE5-FE2	CE5	CE5	ESLU-043	ESLU	431	412	431	8,913	5,885	M	3	0,538326129	Cleithrum	4	4	4		
44	2024-08-29	CE5-FE2	CE5	CE5	ESLU-044	ESLU	436	423	437,5	2,468	5,534	F	3	0,527859801	Cleithrum	3	3	3		pratiquement illisible
45	2024-08-29	CE5-GV3	CE5	CE5	ESLU-045	ESLU	436	425	421,2	1,729	7,086	F	3	0,508193253	Cleithrum	3	3	3		
46	2024-08-29	CE5-FE1	CE5	CE5	ESLU-046	ESLU	435	413	411,5	9,765	5,246	M	3	0,499921792	Cleithrum	3	3	3		
47	2024-08-29	CE5-FE1	CE5	CE5	ESLU-047	ESLU	536	523	846,1	4,916	12,489	F	3	0,549448922	Cleithrum	5	5	5		
48	2024-08-30	CE4-PE3	CE4	CE4	SAFO-048	SAFO	160	154	36,1	0,153	0,333	F	3	0,881347656	Otolithes	2	2	2		
49	2024-08-30	CE4-PE3	CE4	CE4	SAFO-049	SAFO	114	107	12,1		0,071	X	1	0,816715535	Otolithes	1	1	1		
50	2024-08-30	CE4-PE3	CE4	CE4	SAFO-050	SAFO	135	129	20,2	1,483	0,148	M	4	0,821013057	Otolithes	1	1	1	1 otolithe	
51	2024-08-30	CE4-PE4	CE4	CE4	SAFO-051	SAFO	172	163	52,2	1,832	0,455	M	4	1,02585307	Otolithes	2	2	2		
52	2024-08-30	CE4-PE4	CE4	CE4	SAFO-052	SAFO	148	141	31,3	1,164	0,143	M	4	0,965515369	Otolithes	1	1	1		
53	2024-08-30	CE4-PE4	CE4	CE4	SAFO-053	SAFO	166	160	42,6	1,669	0,53	F	3	0,931290848	Otolithes	2	2	2		
54	2024-08-30	CE4-PE4	CE4	CE4	SAFO-054	SAFO	144	139	30,1	1,348	0,47	F	3	1,00804291	Otolithes	2	2	2		
55	2024-08-30	CE4-PE4	CE4	CE4	SAFO-055	SAFO	152	144	32	1,431	0,598	F	3	0,911211547	Otolithes	1	2	1		
56	2024-08-30	CE4-PE4	CE4	CE4	SAFO-056	SAFO	125	120	18,3	0,897	0,114	M	4	0,93696	Otolithes	1	1	1		err poss -1,1
57	2024-08-30	CE4-PE4	CE4	CE4	SAFO-057	SAFO	127	119	17,6	0,127	0,064	F	3	0,859214317	Otolithes	1	1	1		
58	2024-08-27	CE3-FE3	CE3	CE3	CACO-01	CACO	265		165,8											
59	2024-08-27	CE3-FE3	CE3	CE3	CACO-02	CACO	333		406,7											
60	2024-08-27	CE3-FE3	CE3	CE3	CACO-03	CACO	350		445,9											
61	2024-08-27	CE3-FE3	CE3	CE3	CACO-04	CACO	344		416,2											
62	2024-08-27	CE3-FE3	CE3	CE3	CACO-05	CACO	270		182,1											
63	2024-08-27	CE3-FE3	CE3	CE3	CACO-06	CACO	330		372											
64	2024-08-27	CE3-FE3	CE3	CE3	CACO-07	CACO	326		292,3											
65	2024-08-27	CE3-FE3	CE3	CE3	CACO-08	CACO	294		245											
66	2024-08-27	CE3-FE3	CE3	CE3	CACO-09	CACO	307		275,7											

Num	Date_Levee	Station	Site	CoursEau	Specimen	Espèce	Longueur totale (mm)	Longueur fourche (mm)	Poids total (g)	Poids gonades (g)	Poids foie (g)	Sexe	Maturité	Coefficient de Fulton	Structure prélèvée pour lecture d'âge	Age 1er lecteur	Age 2^{e} lecteur	Age	Observation au terrain	Commentaire en lien avec la lecture d'âge
67	2024-08-27	CE3-FE3	CE3	CE3	CACO-10	CACO	280		178,9											
68	2024-08-27	CE3-FE3	CE3	CE3	CACO-11	CACO	331		375,7											
69	2024-08-27	CE3-FE3	CE3	CE3	CACO-12	CACO	308		283,2											
70	2024-08-27	CE3-FE3	CE3	CE3	CACO-13	CACO	355		501,4											
71	2024-08-27	CE3-FE2	CE3	CE3	CACO-14	CACO	357		471											
72	2024-08-27	CE3-FE2	CE3	CE3	CACO-15	CACO	231		95,1											
73	2024-08-27	CE3-FE2	CE3	CE3	CACO-16	CACO	352		441,2											
74	2024-08-27	CE3-FE2	CE3	CE3	CACO-17	CACO	375		563,5											
75	2024-08-27	CE3-FE2	CE3	CE3	CACO-18	CACO	396		637,7											
76	2024-08-27	CE3-FE2	CE3	CE3	CACO-19	CACO	267		171											
77	2024-08-27	CE3-FE2	CE3	CE3	CACO-20	CACO	372		556,6											
78	2024-08-27	CE3-FE2	CE3	CE3	CACO-21	CACO	216		81,5											
79	2024-08-27	CE3-FE2	CE3	CE3	CACO-22	CACO	375		579,1											
80	2024-08-27	CE3-FE2	CE3	CE3	CACO-23	CACO	343		405,3											
81	2024-08-29	CE3-FE2	CE3	CE3	CACO-24	CACO	300		217,3											

APPENDIX

C

STATISTICAL ANALYSIS OF BIOLOGICAL CHARACTERISTICS

APPENDIX

C-1 *BROOK TROUT*

Shapiro-Wilk Test

Total Length

```
> ## CE2
> shapvaleur_SAFO_CE2_Long = shapiro.test(SAFO_CE2$Long_totale)
> shapvaleur_SAFO_CE2_Long

        Shapiro-Wilk normality test

data:  SAFO_CE2$Long_totale
W = 0.74657, p-value = 0.003242

> ## CE2 log
> shapvaleur_SAFO_CE2_logLong = shapiro.test(SAFO_CE2$log_long_totale)
> shapvaleur_SAFO_CE2_logLong

        Shapiro-Wilk normality test

data:  SAFO_CE2$log_long_totale
W = 0.7856, p-value = 0.009686

> ## CE1+CE2
> shapvaleur_SAFO_CE1_CE2_Long = shapiro.test(SAFO_CE1_CE2$Long_totale)
> shapvaleur_SAFO_CE1_CE2_Long

        Shapiro-Wilk normality test

data:  SAFO_CE1_CE2$Long_totale
W = 0.91967, p-value = 0.2483

> ## CE1+CE2 log
> shapvaleur_SAFO_CE1_CE2_logLong = shapiro.test(SAFO_CE1_CE2$log_long_totale)
> shapvaleur_SAFO_CE1_CE2_logLong

        Shapiro-Wilk normality test

data:  SAFO_CE1_CE2$log_long_totale
W = 0.92676, p-value = 0.3089

> ## CE2-AV
> shapvaleur_SAFO_CE2_AV_Long = shapiro.test(SAFO_CE2_AV$Long_totale)
> shapvaleur_SAFO_CE2_AV_Long

        Shapiro-Wilk normality test

data:  SAFO_CE2_AV$Long_totale
W = 0.97879, p-value = 0.9535

> ## CE2-AV log
> shapvaleur_SAFO_CE2_AV_logLong = shapiro.test(SAFO_CE2_AV$log_long_totale)
> shapvaleur_SAFO_CE2_AV_logLong

        Shapiro-Wilk normality test

data:  SAFO_CE2_AV$log_long_totale
W = 0.94667, p-value = 0.6994

> ## SAFO_CE4
> shapvaleur_SAFO_CE4_Long = shapiro.test(SAFO_CE4$Long_totale)
> shapvaleur_SAFO_CE4_Long

        Shapiro-Wilk normality test

data:  SAFO_CE4$Long_totale
W = 0.96411, p-value = 0.8405

> ## SAFO_CE4 log
> shapvaleur_SAFO_CE4_logLong = shapiro.test(SAFO_CE4$log_long_totale)
> shapvaleur_SAFO_CE4_logLong

        Shapiro-Wilk normality test

data:  SAFO_CE4$log_long_totale
W = 0.96491, p-value = 0.8509
```

Total Weight

```
> shapvaleur_SAFO_CE2_Poids = shapiro.test(SAFO_CE2$Poids_total)
> shapvaleur_SAFO_CE2_Poids

        Shapiro-Wilk normality test

data:  SAFO_CE2$Poids_total
W = 0.67407, p-value = 0.0004279

> ## CE2 log
> shapvaleur_SAFO_CE2_logPoids = shapiro.test(SAFO_CE2$log_poids_total)
> shapvaleur_SAFO_CE2_logPoids

        Shapiro-Wilk normality test

data:  SAFO_CE2$log_poids_total
W = 0.79505, p-value = 0.01262

> ## CE1+CE2
> shapvaleur_SAFO_CE1_CE2_Poids = shapiro.test(SAFO_CE1_CE2$Poids_total)
> shapvaleur_SAFO_CE1_CE2_Poids

        Shapiro-Wilk normality test

data:  SAFO_CE1_CE2$Poids_total
W = 0.93672, p-value = 0.4158

> ## CE1+CE2 log
> shapvaleur_SAFO_CE1_CE2_logPoids = shapiro.test(SAFO_CE1_CE2$log_poids_total)
> shapvaleur_SAFO_CE1_CE2_logPoids

        Shapiro-Wilk normality test

data:  SAFO_CE1_CE2$log_poids_total
W = 0.94681, p-value = 0.5508

> ## CE2-AV
> shapvaleur_SAFO_CE2_AV_Poids = shapiro.test(SAFO_CE2_AV$Poids_total)
> shapvaleur_SAFO_CE2_AV_Poids

        Shapiro-Wilk normality test

data:  SAFO_CE2_AV$Poids_total
W = 0.99186, p-value = 0.9962

> ## CE2-AV log
> shapvaleur_SAFO_CE2_AV_logPoids = shapiro.test(SAFO_CE2_AV$log_poids_total)
> shapvaleur_SAFO_CE2_AV_logPoids

        Shapiro-Wilk normality test

data:  SAFO_CE2_AV$log_poids_total
W = 0.93637, p-value = 0.6063


> ## SAFO_CE4
> shapvaleur_SAFO_CE4_Poids = shapiro.test(SAFO_CE4$Poids_total)
> shapvaleur_SAFO_CE4_Poids

        Shapiro-Wilk normality test

data:  SAFO_CE4$Poids_total
W = 0.9268, p-value = 0.3474

> ## SAFO_CE4 log
> shapvaleur_SAFO_CE4_logPoids = shapiro.test(SAFO_CE4$log_poids_total)
> shapvaleur_SAFO_CE4_logPoids

        Shapiro-Wilk normality test

data:  SAFO_CE4$log_poids_total
W = 0.94144, p-value = 0.517
```

Fulton's Coefficient

```
> ## CE2
> shapValeur_SAFO_CE2_Fulton = shapiro.test(SAFO_CE2$Coefficient_Fulton)
> shapValeur_SAFO_CE2_Fulton

        Shapiro-Wilk normality test

data:  SAFO_CE2$Coefficient_Fulton
W = 0.842, p-value = 0.04662

> ## CE2 log
> shapValeur_SAFO_CE2_logFulton = shapiro.test(SAFO_CE2$log_coef_Fulton)
> shapValeur_SAFO_CE2_logFulton

        Shapiro-Wilk normality test

data:  SAFO_CE2$log_coef_Fulton
W = 0.85191, p-value = 0.06121

> ## CE1+CE2
> shapValeur_SAFO_CE1_CE2_Fulton = shapiro.test(SAFO_CE1_CE2$Coefficient_Fulton)
> shapValeur_SAFO_CE1_CE2_Fulton

        Shapiro-Wilk normality test

data:  SAFO_CE1_CE2$Coefficient_Fulton
W = 0.94701, p-value = 0.5538

> ## CE1+CE2 log
> shapValeur_SAFO_CE1_CE2_logFulton = shapiro.test(SAFO_CE1_CE2$log_coef_Fulton)
> shapValeur_SAFO_CE1_CE2_logFulton

        Shapiro-Wilk normality test

data:  SAFO_CE1_CE2$log_coef_Fulton
W = 0.94307, p-value = 0.4978

> ## CE2-AV
> shapValeur_SAFO_CE2_AV_Fulton = shapiro.test(SAFO_CE2_AV$Coefficient_Fulton)
> shapValeur_SAFO_CE2_AV_Fulton

        Shapiro-Wilk normality test

data:  SAFO_CE2_AV$Coefficient_Fulton
W = 0.96127, p-value = 0.8295

> ## CE2-AV log
> shapValeur_SAFO_CE2_AV_logFulton = shapiro.test(SAFO_CE2_AV$log_coef_Fulton)
> shapValeur_SAFO_CE2_AV_logFulton

        Shapiro-Wilk normality test

data:  SAFO_CE2_AV$log_coef_Fulton
W = 0.96871, p-value = 0.889

> ## SAFO_CE4
> shapValeur_SAFO_CE4_Fulton = shapiro.test(SAFO_CE4$Coefficient_Fulton)
> shapValeur_SAFO_CE4_Fulton

        Shapiro-Wilk normality test

data:  SAFO_CE4$Coefficient_Fulton
W = 0.97643, p-value = 0.9653

> ## SAFO_CE4 log
> shapValeur_SAFO_CE4_logFulton = shapiro.test(SAFO_CE4$log_coef_Fulton)
> shapValeur_SAFO_CE4_logFulton

        Shapiro-Wilk normality test

data:  SAFO_CE4$log_coef_Fulton
W = 0.9704, p-value = 0.9149
```

Age

```
> ## CE2
> shapvaleur_SAFO_CE2_Age = shapiro.test(SAFO_CE2$Age)
> shapvaleur_SAFO_CE2_Age

        Shapiro-Wilk normality test

data:  SAFO_CE2$Age
W = 0.64049, p-value = 0.0001687

> ## CE2 log
> shapvaleur_SAFO_CE2_logAge = shapiro.test(SAFO_CE2$log_Age)
> shapvaleur_SAFO_CE2_logAge

        Shapiro-Wilk normality test

data:  SAFO_CE2$log_Age
W = 0.64049, p-value = 0.0001687

> ## CE1+CE2
> shapvaleur_SAFO_CE1_CE2_Age = shapiro.test(SAFO_CE1_CE2$Age)
> shapvaleur_SAFO_CE1_CE2_Age

        Shapiro-Wilk normality test

data:  SAFO_CE1_CE2$Age
W = 0.78011, p-value = 0.005616

> ## CE1+CE2 log
> shapvaleur_SAFO_CE1_CE2_logAge = shapiro.test(SAFO_CE1_CE2$log_Age)
> shapvaleur_SAFO_CE1_CE2_logAge

        Shapiro-Wilk normality test

data:  SAFO_CE1_CE2$log_Age
W = 0.76688, p-value = 0.004034

> ## CE2-AV
> shapvaleur_SAFO_CE2_AV_Age = shapiro.test(SAFO_CE2_AV$Age)
> shapvaleur_SAFO_CE2_AV_Age

        Shapiro-Wilk normality test

data:  SAFO_CE2_AV$Age
W = 0.83338, p-value = 0.08614

> ## CE2-AV log
> shapvaleur_SAFO_CE2_AV_logAge = shapiro.test(SAFO_CE2_AV$log_Age)
> shapvaleur_SAFO_CE2_AV_logAge

        Shapiro-Wilk normality test

data:  SAFO_CE2_AV$log_Age
W = 0.82724, p-value = 0.07533

> ## SAFO_CE4
> shapvaleur_SAFO_CE4_Age = shapiro.test(SAFO_CE4$Age)
> shapvaleur_SAFO_CE4_Age

        Shapiro-Wilk normality test

data:  SAFO_CE4$Age
W = 0.63959, p-value = 0.0002342

> ## SAFO_CE4 log
> shapvaleur_SAFO_CE4_logAge = shapiro.test(SAFO_CE4$log_Age)
> shapvaleur_SAFO_CE4_logAge

        Shapiro-Wilk normality test

data:  SAFO_CE4$log_Age
W = 0.63959, p-value = 0.0002342
```

Levene's Test

Total Length

```
> ### Conditions ANOVA - SAFO Long
> ## Homogénéité de la variance - Test de Levene
> levvaleur_SAFO_Long <- leveneTest(SAFO$Long_totale, SAFO$Site, center = mean)
> levvaleur_SAFO_Long
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value Pr(>F)
group  3  1.6774 0.1881
      38
> levvaleur_SAFO_logLong <- leveneTest(SAFO$log_long_totale, SAFO$Site, center = mean)
> levvaleur_SAFO_logLong
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value  Pr(>F)
group  3   2.316 0.09114 .
      38
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Total Weight

```
> ### Conditions ANOVA - SAFO Poids
> ## Homogénéité de la variance - Test de Levene
> levvaleur_SAFO_Poids <- leveneTest(SAFO$Poids_total, SAFO$Site, center = mean)
> levvaleur_SAFO_Poids
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value  Pr(>F)
group  3  3.2452 0.03219 *
      38
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
> levvaleur_SAFO_logPoids <- leveneTest(SAFO$log_poids_total, SAFO$Site, center = mean)
> levvaleur_SAFO_logPoids
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value  Pr(>F)
group  3  3.7674 0.01839 *
      38
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Fulton's Coefficient

```
> ### Conditions ANOVA - SAFO Poids
> ## Homogénéité de la variance - Test de Levene
> levvaleur_SAFO_Fulton <- leveneTest(SAFO$Coefficient_Fulton, SAFO$Site, center = mean)
> levvaleur_SAFO_Fulton
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value  Pr(>F)
group  3  2.4929 0.07468 .
      38
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
> levvaleur_SAFO_logFulton <- leveneTest(SAFO$log_coef_Fulton, SAFO$Site, center = mean)
> levvaleur_SAFO_logFulton
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value  Pr(>F)
group  3  2.4459 0.07873 .
      38
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Age

```
> ### Conditions ANOVA - SAFO Age
> ## Homogénéité de la variance - Test de Levene
> levValeur_SAFO_Age <- leveneTest(SAFO$Age, SAFO$Site, center = mean)
> levValeur_SAFO_Age
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value Pr(>F)
group  3  0.4986 0.6855
      37
> levValeur_SAFO_logAge <- leveneTest(SAFO$log_Age, SAFO$Site, center = mean)
> levValeur_SAFO_logAge
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value    Pr(>F)
group  3  7.5573 0.0004589 ***
      37
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

ANOVA or Kruskal-Wallis

Total Length

```
> ### kruskal wallis - SAFO Long
> Kw_SAFO_Long <-  kruskal.test(SAFO$Long_totale ~ SAFO$Site)
> Kw_SAFO_Long

        Kruskal-Wallis rank sum test

data:  SAFO$Long_totale by SAFO$Site
Kruskal-Wallis chi-squared = 22.794, df = 3, p-value = 4.458e-05

> table(SAFO$Site)

CE1+CE2     CE2  CE2-AV     CE4
     13      10       7      12
> #Dunn test
> DT_SAFO_Long <- dunnTest(SAFO$Long_totale ~ SAFO$Site, method = "bh") #ajuste pvalues pour comparaisons multiples
> DT_SAFO_Long
Dunn (1964) Kruskal-Wallis multiple comparison
  p-values adjusted with the Benjamini-Hochberg method.

        Comparison          Z      P.unadj        P.adj
1    CE1+CE2 - CE2 -0.4266400 6.696416e-01 0.6696415945
2 CE1+CE2 - CE2-AV -1.0066854 3.140860e-01 0.4711289826
3     CE2 - CE2-AV -0.5935145 5.528369e-01 0.6634042709
4    CE1+CE2 - CE4  3.5573464 3.746200e-04 0.0007492400
5       CE2 - CE4  3.7450452 1.803613e-04 0.0005410840
6     CE2-AV - CE4  3.9866277 6.701906e-05 0.0004021144
```

Total Weigth

```
> ######
> ### kruskal wallis - SAFO poids
> Kw_SAFO_poids <-  kruskal.test(SAFO$Poids_total ~ SAFO$Site)
> Kw_SAFO_poids

        Kruskal-Wallis rank sum test

data:  SAFO$Poids_total by SAFO$Site
Kruskal-Wallis chi-squared = 20.737, df = 3, p-value = 0.0001194

> table(SAFO$site)

CE1+CE2     CE2  CE2-AV     CE4
     13      10       7      12
> #Dunn test
> DT_SAFO_poids <- dunnTest(SAFO$Poids_total ~ SAFO$Site, method = "bh") #ajuste pvalues pour comparaisons multiples
> DT_SAFO_poids
Dunn (1964) Kruskal-Wallis multiple comparison
  p-values adjusted with the Benjamini-Hochberg method.

        Comparison          Z      P.unadj        P.adj
1    CE1+CE2 - CE2 -0.2072185 0.8358392100 0.8358392100
2 CE1+CE2 - CE2-AV -0.9286454 0.3530728746 0.5296093118
3     CE2 - CE2-AV -0.7065568 0.4798419699 0.5758103639
4    CE1+CE2 - CE4  3.4747622 0.0005113063 0.0015339189
5       CE2 - CE4  3.4522821 0.0005558663 0.0011117326
6     CE2-AV - CE4  3.8401883 0.0001229400 0.0007376398
```

Fulton's Coefficient

```
> ### ANOVA sur les log10 des Fulton
> ANOVA_SAFO_logFulton <- aov(SAFO$log_coef_Fulton~SAFO$Site)
> summary(ANOVA_SAFO_logFulton)
             Df   Sum Sq   Mean Sq F value Pr(>F)
SAFO$Site     3 0.001466 0.0004888   0.635  0.597
Residuals    38 0.029265 0.0007701
> table(SAFO$Site)

CE1+CE2     CE2  CE2-AV     CE4
     13      10       7      12
```

Age

```
> ######
> ### kruskal wallis - SAFO Age
> Kw_SAFO_Age <-  kruskal.test(SAFO$Age ~ SAFO$Site)
> Kw_SAFO_Age

        Kruskal-Wallis rank sum test

data:  SAFO$Age by SAFO$Site
Kruskal-Wallis chi-squared = 19.996, df = 3, p-value = 0.0001701

> table(SAFO$Site)

CE1+CE2     CE2  CE2-AV     CE4
     13      10       7      12
> #Dunn test
> DT_SAFO_Age <- dunnTest(SAFO$Age ~ SAFO$Site, method = "bh") #ajuste pvalues pour comparaisons multiples
Message d'avis :
Some rows deleted from 'x' and 'g' because missing data.
> DT_SAFO_Age
Dunn (1964) Kruskal-Wallis multiple comparison
  p-values adjusted with the Benjamini-Hochberg method.

        Comparison          Z      P.unadj        P.adj
1    CE1+CE2 - CE2  1.0305913 3.027325e-01 0.4540988087
2 CE1+CE2 - CE2-AV  0.1970303 8.438039e-01 0.8438038552
3     CE2 - CE2-AV -0.7052809 4.806354e-01 0.5767625211
4    CE1+CE2 - CE4  4.0807371 4.489311e-05 0.0002693587
5       CE2 - CE4  2.8602389 4.233220e-03 0.0084664395
6    CE2-AV - CE4  3.3058544 9.468729e-04 0.0028406187
```

APPENDIX

C-2 *NORTHERN PIKE*

Shapiro-Wilk's Test

Total Length

```
> ## CE3
> shapValeur_ESLU_CE3_Long = shapiro.test(ESLU_CE3$Long_totale)
> shapValeur_ESLU_CE3_Long

        Shapiro-Wilk normality test

data:  ESLU_CE3$Long_totale
W = 0.95142, p-value = 0.7255

> ## CE3 log
> shapValeur_ESLU_CE3_logLong = shapiro.test(ESLU_CE3$log_long_totale)
> shapValeur_ESLU_CE3_logLong

        Shapiro-Wilk normality test

data:  ESLU_CE3$log_long_totale
W = 0.92925, p-value = 0.5092

> ## ESLU_CE5
> shapValeur_ESLU_CE5_Long = shapiro.test(ESLU_CE5$Long_totale)
> shapValeur_ESLU_CE5_Long

        Shapiro-Wilk normality test

data:  ESLU_CE5$Long_totale
W = 0.5297, p-value = 3.873e-05

> ## ESLU_CE4 log
> shapValeur_ESLU_CE5_logLong = shapiro.test(ESLU_CE5$log_long_totale)
> shapValeur_ESLU_CE5_logLong

        Shapiro-Wilk normality test

data:  ESLU_CE5$log_long_totale
W = 0.53832, p-value = 4.944e-05
```

Total Weight

```
> ## CE3
> shapvaleur_ESLU_CE3_Poids = shapiro.test(ESLU_CE3$Poids_total)
> shapvaleur_ESLU_CE3_Poids

        Shapiro-Wilk normality test

data:  ESLU_CE3$Poids_total
W = 0.94285, p-value = 0.6393

> ## CE3 log
> shapvaleur_ESLU_CE3_logPoids = shapiro.test(ESLU_CE3$log_poids_total)
> shapvaleur_ESLU_CE3_logPoids

        Shapiro-Wilk normality test

data:  ESLU_CE3$log_poids_total
W = 0.87763, p-value = 0.1787

> ## ESLU_CE5
> shapvaleur_ESLU_CE5_Poids = shapiro.test(ESLU_CE5$Poids_total)
> shapvaleur_ESLU_CE5_Poids

        Shapiro-Wilk normality test

data:  ESLU_CE5$Poids_total
W = 0.51755, p-value = 2.739e-05

> ## ESLU_CE4 log
> shapvaleur_ESLU_CE5_logPoids = shapiro.test(ESLU_CE5$log_poids_total)
> shapvaleur_ESLU_CE5_logPoids

        Shapiro-Wilk normality test

data:  ESLU_CE5$log_poids_total
W = 0.54569, p-value = 6.085e-05
```

Fulton's Coefficient

```
> ## CE3
> shapvaleur_ESLU_CE3_Fulton = shapiro.test(ESLU_CE3$Coefficient_Fulton)
> shapvaleur_ESLU_CE3_Fulton

        Shapiro-Wilk normality test

data:  ESLU_CE3$Coefficient_Fulton
W = 0.88524, p-value = 0.2112

> ## CE3 log
> shapvaleur_ESLU_CE3_logFulton = shapiro.test(ESLU_CE3$log_coef_Fulton)
> shapvaleur_ESLU_CE3_logFulton

        Shapiro-Wilk normality test

data:  ESLU_CE3$log_coef_Fulton
W = 0.8788, p-value = 0.1834

> ## ESLU_CE5
> shapvaleur_ESLU_CE5_Fulton = shapiro.test(ESLU_CE5$Coefficient_Fulton)
> shapvaleur_ESLU_CE5_Fulton

        Shapiro-Wilk normality test

data:  ESLU_CE5$Coefficient_Fulton
W = 0.93221, p-value = 0.5698

> ## ESLU_CE4 log
> shapvaleur_ESLU_CE5_logFulton = shapiro.test(ESLU_CE5$log_coef_Fulton)
> shapvaleur_ESLU_CE5_logFulton

        Shapiro-Wilk normality test

data:  ESLU_CE5$log_coef_Fulton
W = 0.9325, p-value = 0.5724
```

Age

```
> ## CE3
> shapvaleur_ESLU_CE3_Age = shapiro.test(ESLU_CE3$Age)
> shapvaleur_ESLU_CE3_Age

        Shapiro-Wilk normality test

data:  ESLU_CE3$Age
W = 0.93069, p-value = 0.5224

> ## CE3 log
> shapvaleur_ESLU_CE3_logAge = shapiro.test(ESLU_CE3$log_Age)
> shapvaleur_ESLU_CE3_logAge

        Shapiro-Wilk normality test

data:  ESLU_CE3$log_Age
W = 0.91119, p-value = 0.3625

> ## ESLU_CE5
> shapvaleur_ESLU_CE5_Age = shapiro.test(ESLU_CE5$Age)
> shapvaleur_ESLU_CE5_Age

        Shapiro-Wilk normality test

data:  ESLU_CE5$Age
W = 0.64619, p-value = 0.0009314

> ## ESLU_CE4 log
> shapvaleur_ESLU_CE5_logAge = shapiro.test(ESLU_CE5$log_Age)
> shapvaleur_ESLU_CE5_logAge

        Shapiro-Wilk normality test

data:  ESLU_CE5$log_Age
W = 0.65082, p-value = 0.001051
```

Levene's Test

Total Length

```
> ### Conditions ANOVA - ESLU Long
> ## Homogénéité de la variance - Test de Levene
> levValeur_ESLU_Long <- leveneTest(ESLU$Long_totale, ESLU$Site, center = mean)
> levValeur_ESLU_Long
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value Pr(>F)
group  1  1.4491 0.2501
      13
> levValeur_ESLU_logLong <- leveneTest(ESLU$log_long_totale, ESLU$Site, center = mean)
> levValeur_ESLU_logLong
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value Pr(>F)
group  1  1.5755 0.2315
      13
```

Total Weigth

```
> ### Conditions ANOVA - ESLU Poids
> ## Homogénéité de la variance - Test de Levene
> levValeur_ESLU_Poids <- leveneTest(ESLU$Poids_total, ESLU$Site, center = mean)
> levValeur_ESLU_Poids
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value Pr(>F)
group  1  0.5787 0.4604
      13
> levValeur_ESLU_logPoids <- leveneTest(ESLU$log_poids_total, ESLU$Site, center = mean)
> levValeur_ESLU_logPoids
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value Pr(>F)
group  1  1.2158 0.2902
      13
>
```

Fulton's Coefficient

```
> ### Conditions ANOVA - ESLU Fulton
> ## Homogénéité de la variance - Test de Levene
> levValeur_ESLU_Fulton <- leveneTest(ESLU$Coefficient_Fulton, ESLU$Site, center = mean)
> levValeur_ESLU_Fulton
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value Pr(>F)
group  1  2.2509 0.1574
      13
> levValeur_ESLU_logFulton <- leveneTest(ESLU$log_coef_Fulton, ESLU$Site, center = mean)
> levValeur_ESLU_logFulton
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value Pr(>F)
group  1  2.1091 0.1701
      13
```

Age

```
> ### Conditions ANOVA - ESLU Age
> ## Homogénéité de la variance - Test de Levene
> levValeur_ESLU_Age <- leveneTest(ESLU$Age, ESLU$Site, center = mean)
> levValeur_ESLU_Age
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value Pr(>F)
group  1  0.3555 0.5612
      13
> levValeur_ESLU_logAge <- leveneTest(ESLU$log_Age, ESLU$Site, center = mean)
> levValeur_ESLU_logAge
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value Pr(>F)
group  1  0.7546 0.4008
      13
```

ANOVA or Kruskal-Wallis

Total Length

```
> ######
> ### kruskal wallis - ESLU Long
> KW_ESLU_Long <-  kruskal.test(ESLU$Long_totale ~ ESLU$Site)
> KW_ESLU_Long

        Kruskal-Wallis rank sum test

data:  ESLU$Long_totale by ESLU$Site
Kruskal-Wallis chi-squared = 0.85868, df = 1, p-value = 0.3541

> table(ESLU$Site)

CE3 CE5
  8   7
```

Total Weight

```
> ######
> ### kruskal wallis - ESLU poids
> KW_ESLU_poids <-  kruskal.test(ESLU$Poids_total ~ ESLU$Site)
> KW_ESLU_poids

        Kruskal-Wallis rank sum test

data:  ESLU$Poids_total by ESLU$Site
Kruskal-Wallis chi-squared = 0.85714, df = 1, p-value = 0.3545

> table(ESLU$Site)

CE3 CE5
  8   7
```

Fulton's Coefficient

```
> ### ANOVA sur Fulton
> ANOVA_ESLU_Fulton <- aov(ESLU$Coefficient_Fulton~ESLU$Site)
> summary(ANOVA_ESLU_Fulton)
             Df   Sum Sq   Mean Sq F value Pr(>F)
ESLU$Site     1 0.000056 0.0000561   0.061  0.809
Residuals    13 0.012006 0.0009235
> table(ESLU$Site)

CE3 CE5
  8   7
```

Age

```
> ######
> ### kruskal wallis - ESLU Long
> KW_ESLU_Age <-  kruskal.test(ESLU$Age ~ ESLU$Site)
> KW_ESLU_Age

        Kruskal-Wallis rank sum test

data:  ESLU$Age by ESLU$Site
Kruskal-Wallis chi-squared = 0.10081, df = 1, p-value = 0.7509

> table(ESLU$Site)

CE3 CE5
  8   7
```

APPENDIX

D

GRAPHS OF ANALYSED METALS

Figure D-1 **Arsenic (As) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

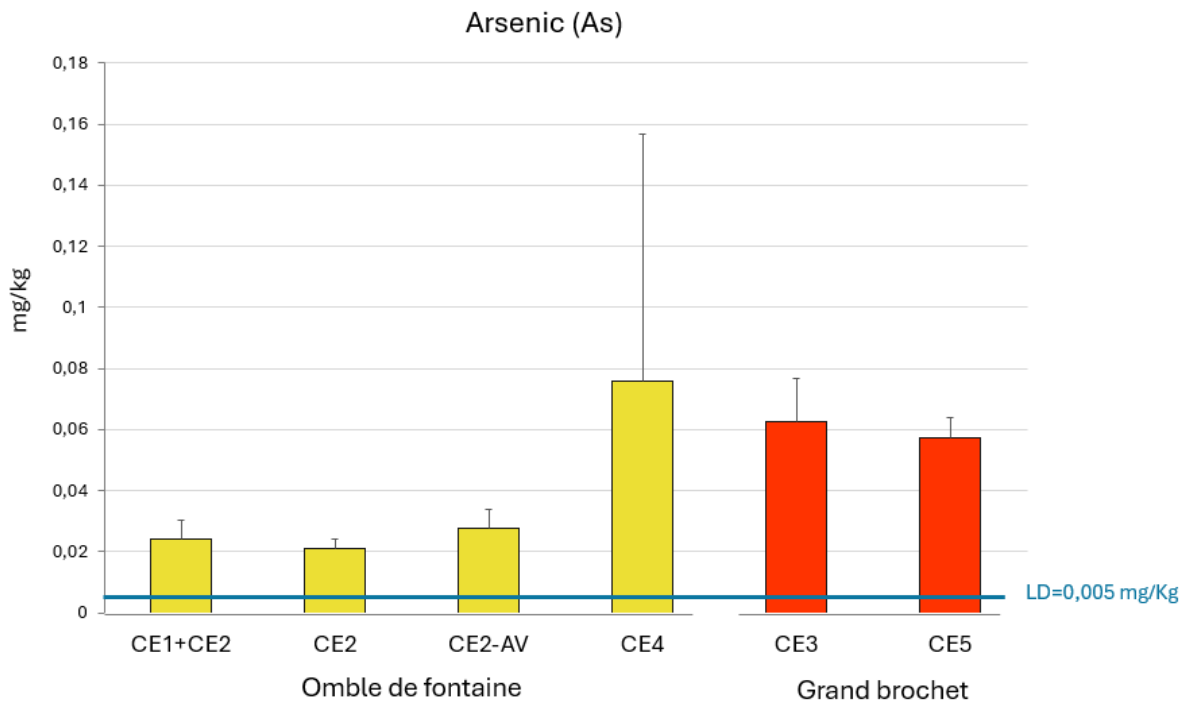


Figure D-2 **Barium (Ba) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

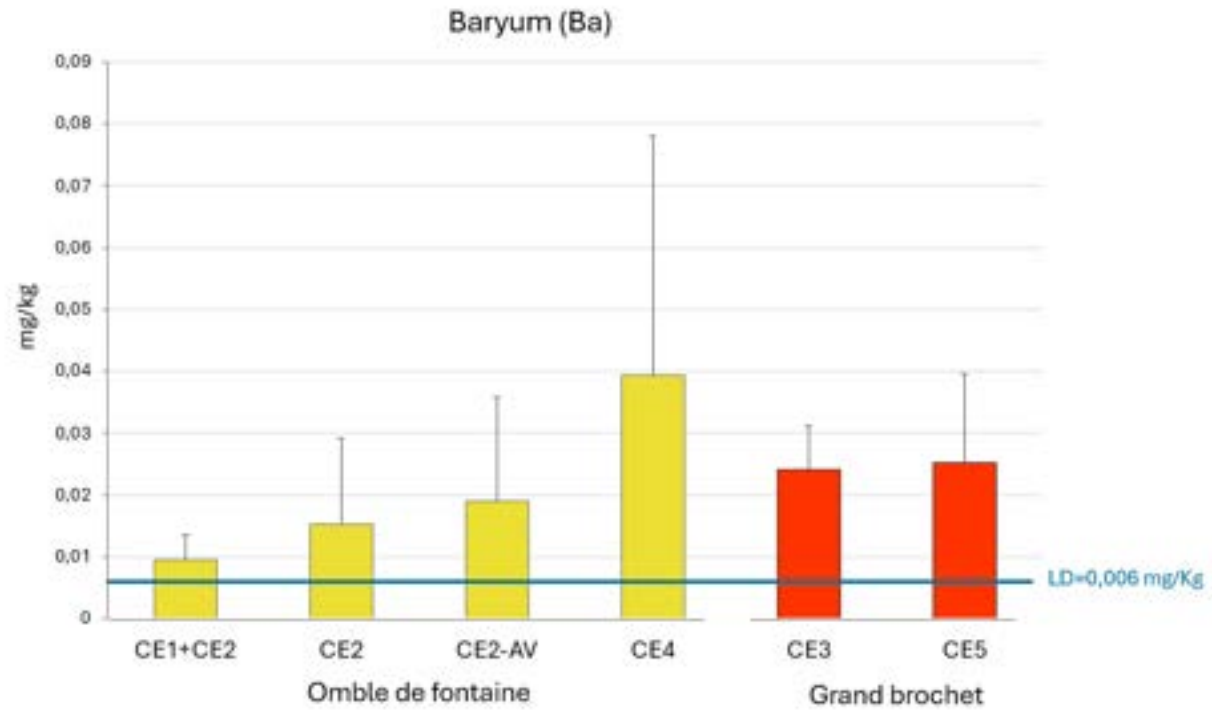


Figure D-3 **Calcium (Ca) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

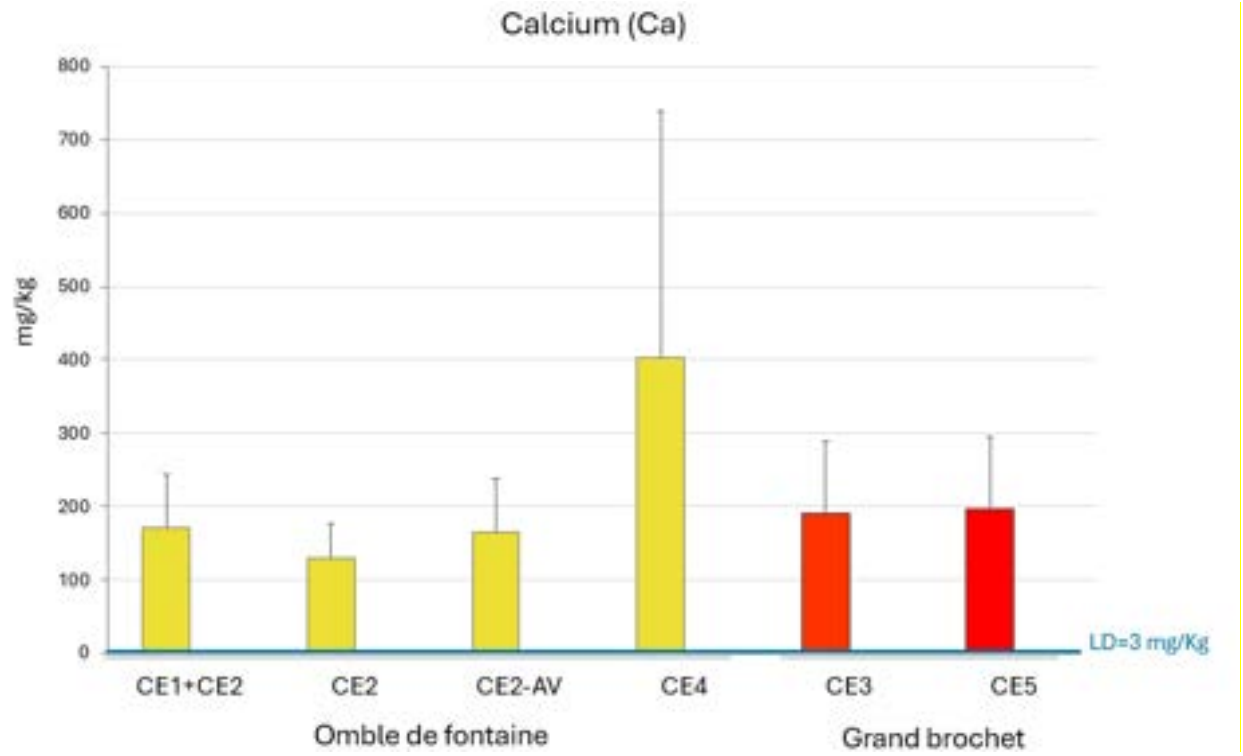


Figure D-4 **Cobalt (Co) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

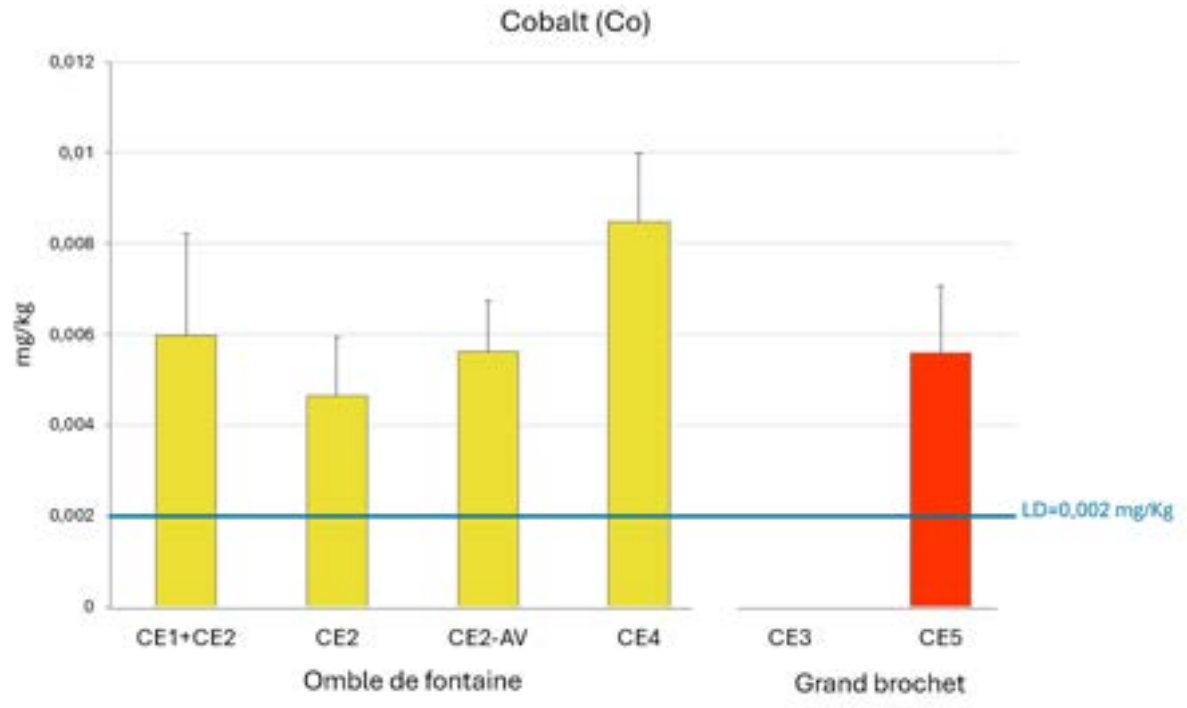


Figure D-5 **Copper (Cu) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

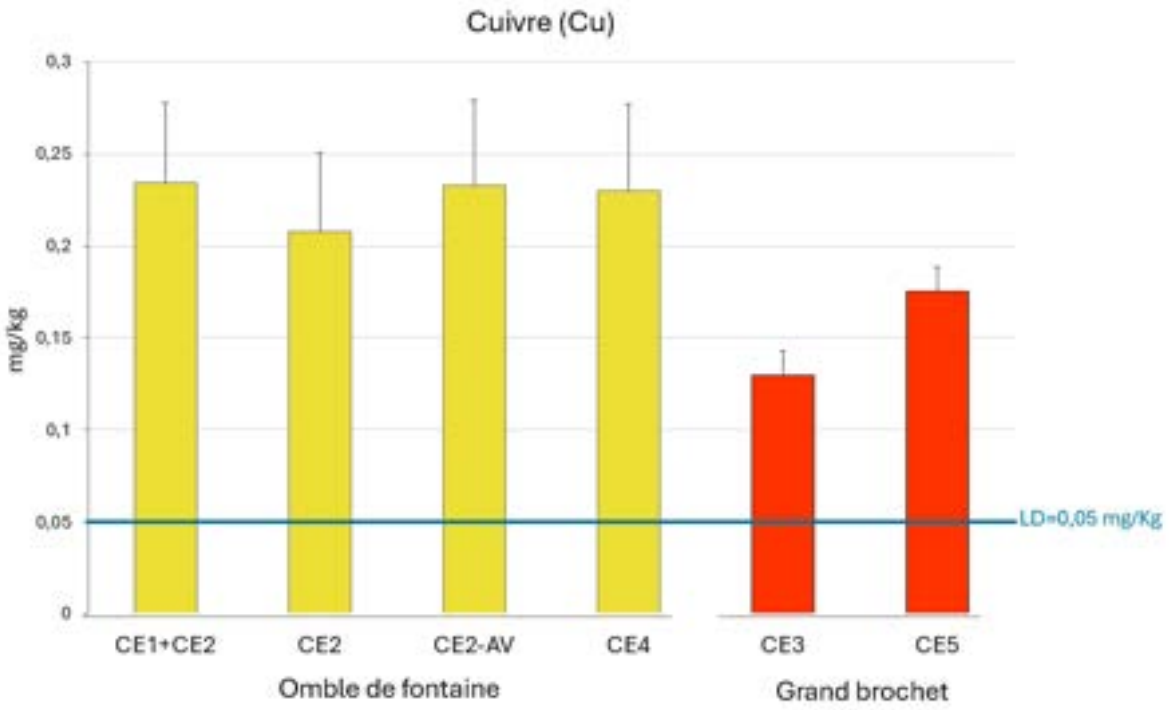


Figure D-6 **Tin (Sn) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

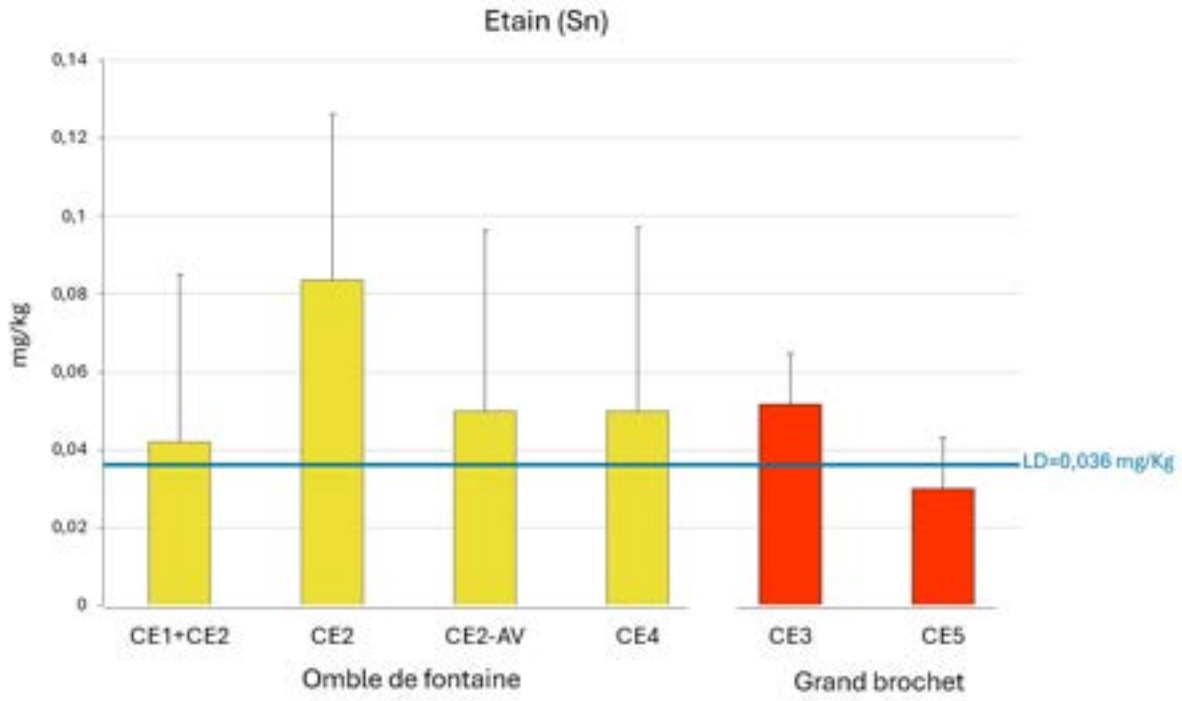


Figure D-7 **Iron (Fe) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

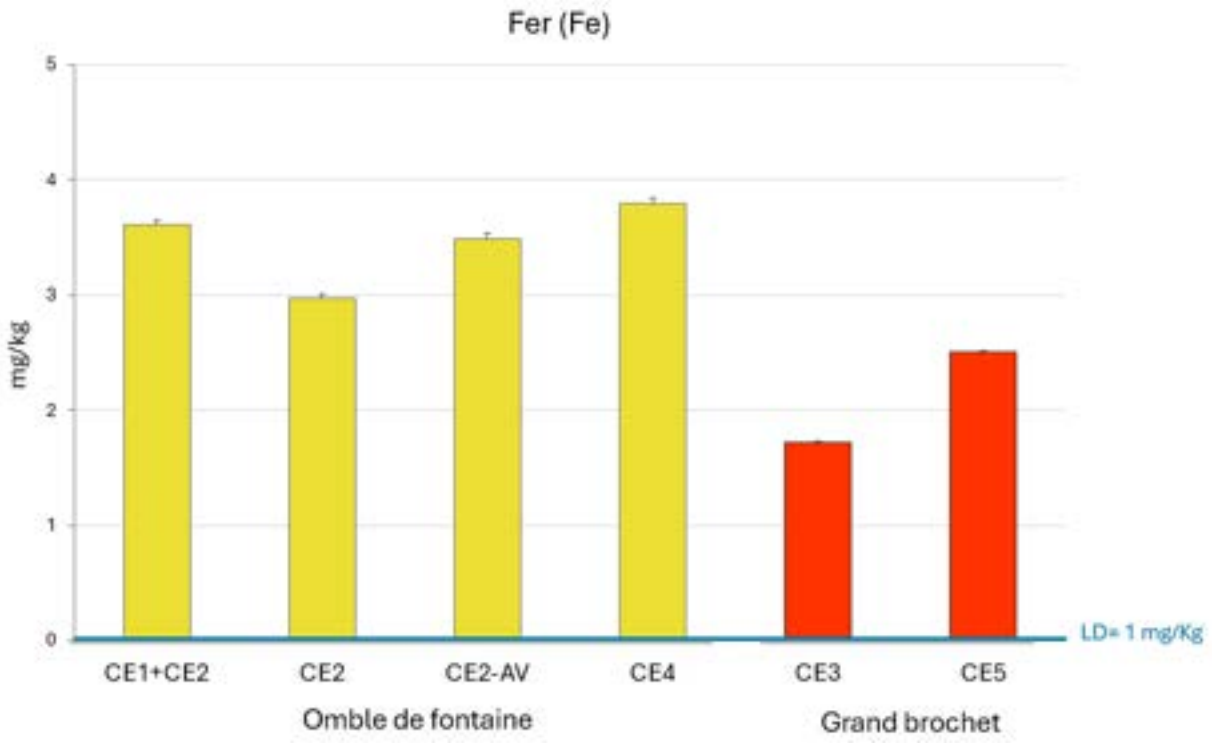


Figure D-8 **Magnesium (Mg) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

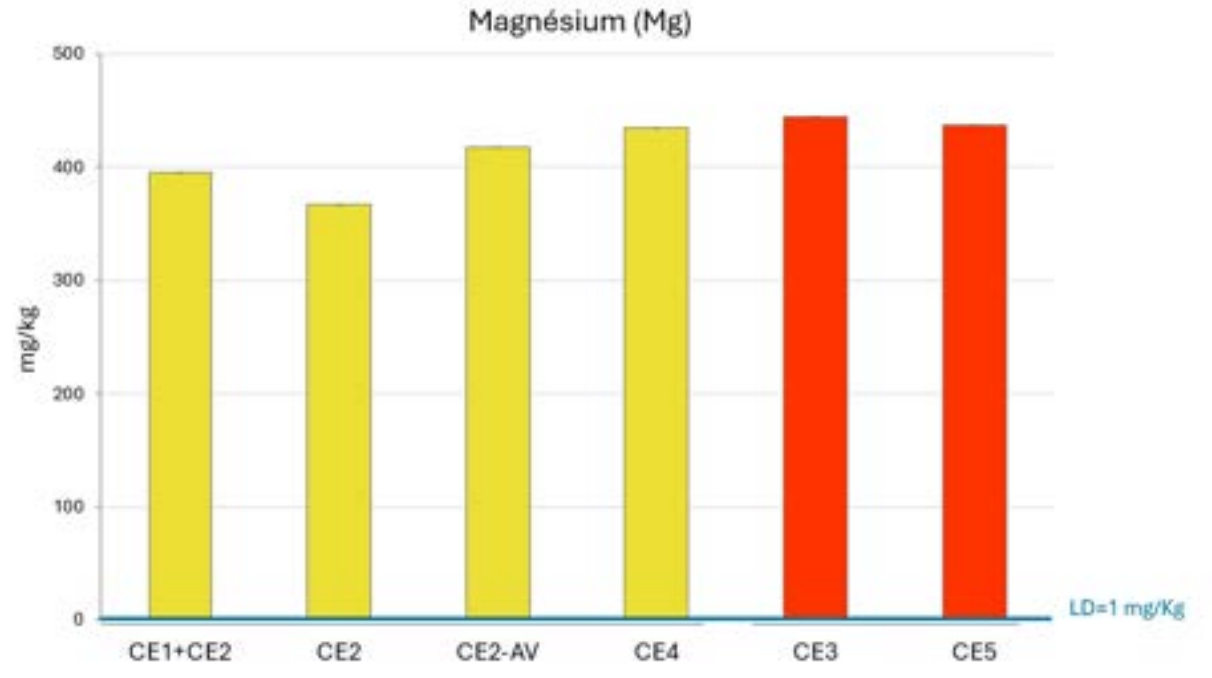


Figure D-9 **Manganese (Mn) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

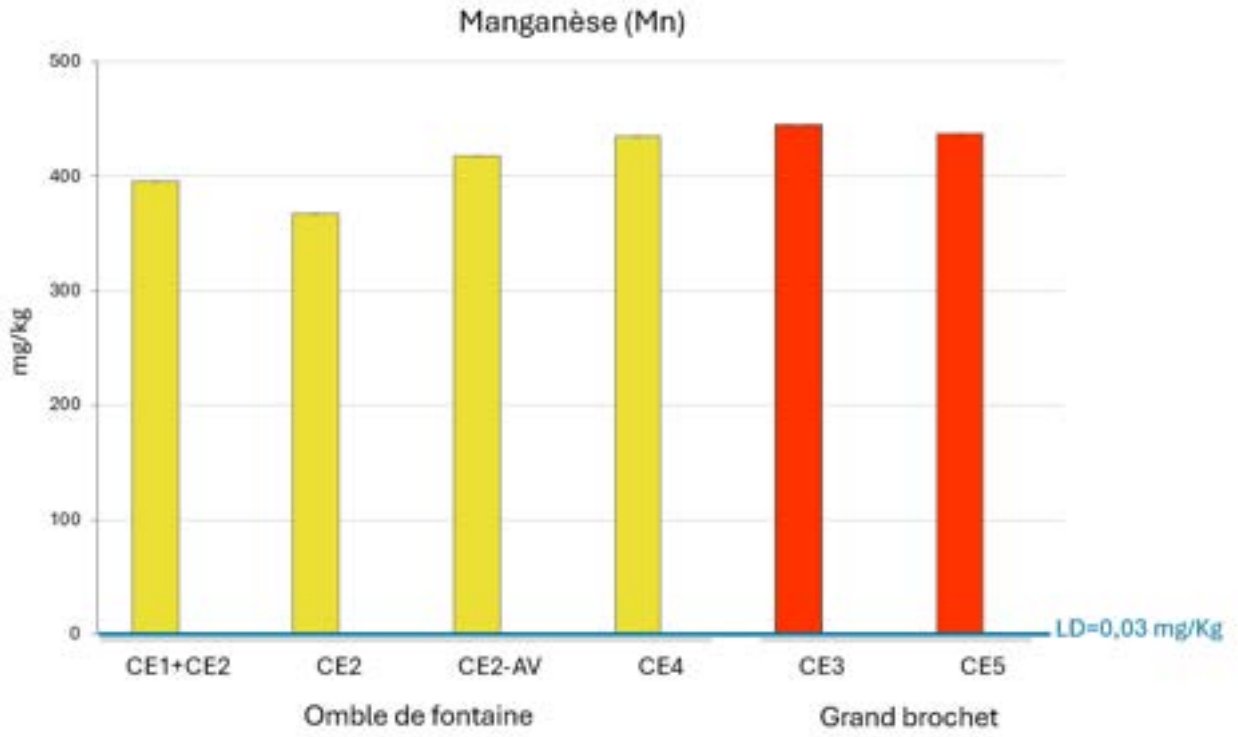


Figure D-10 **Mercury (Hg) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

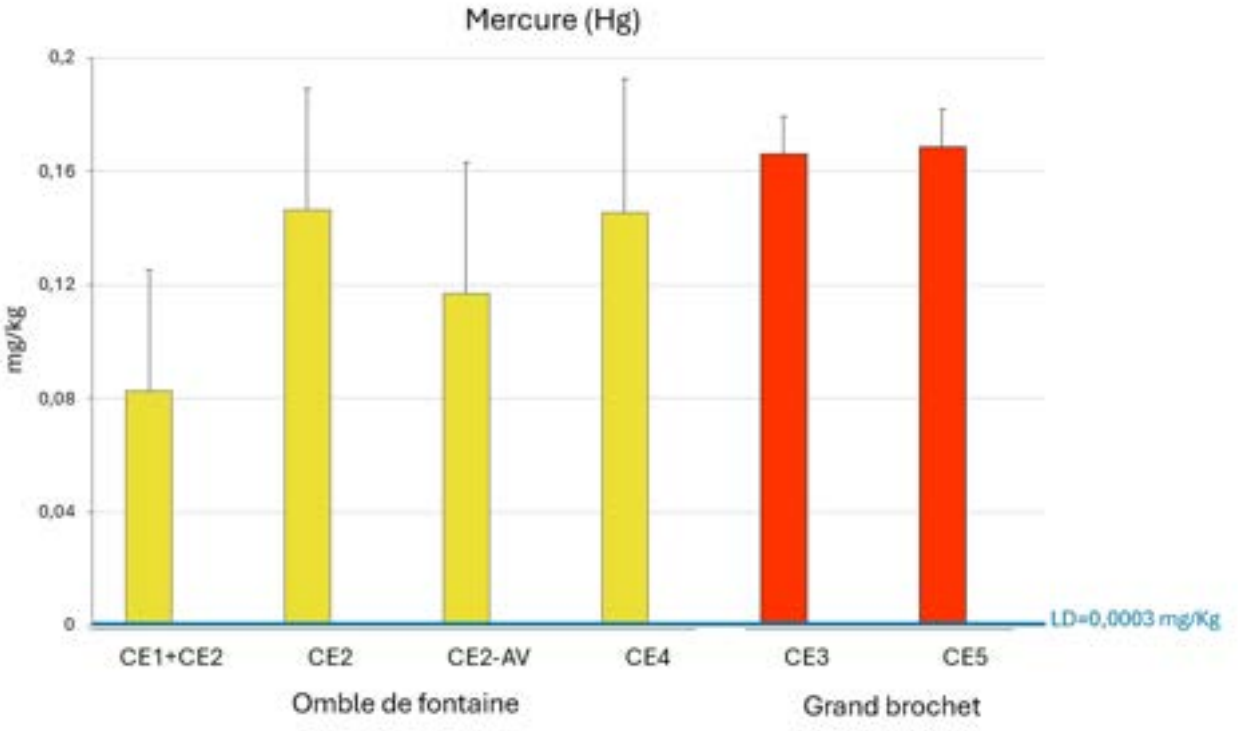


Figure D-11 **Phosphorus (P) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

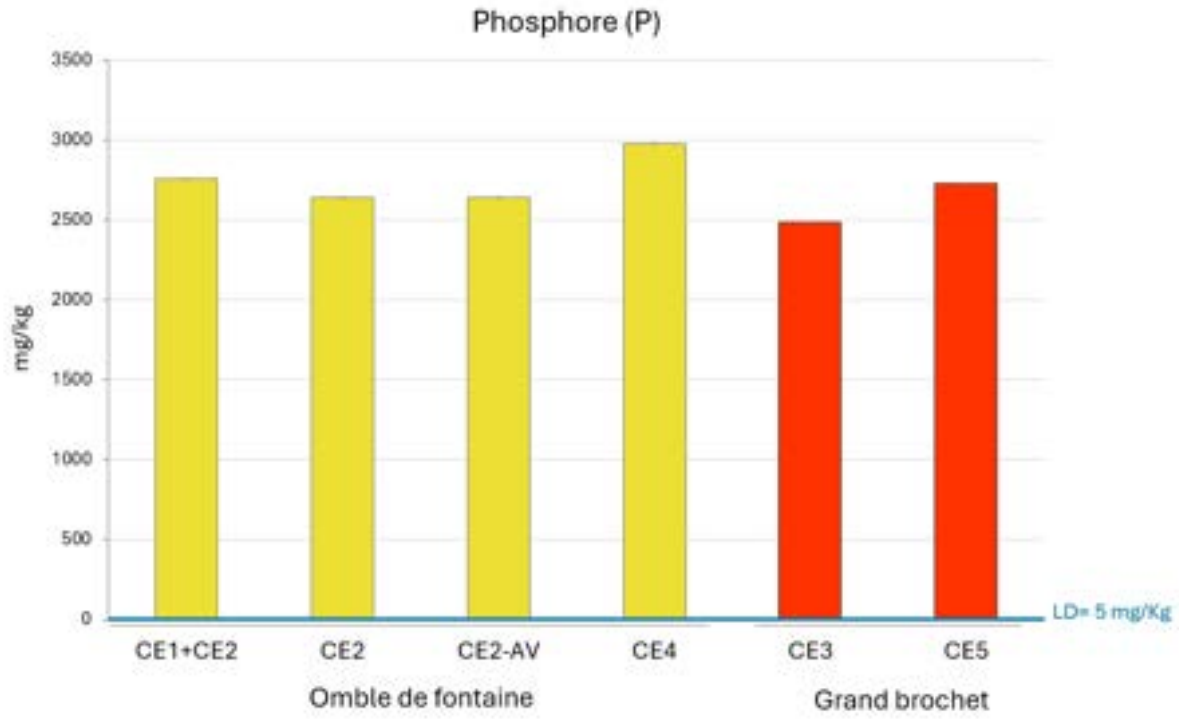


Figure D-12 **Selenium (Se) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

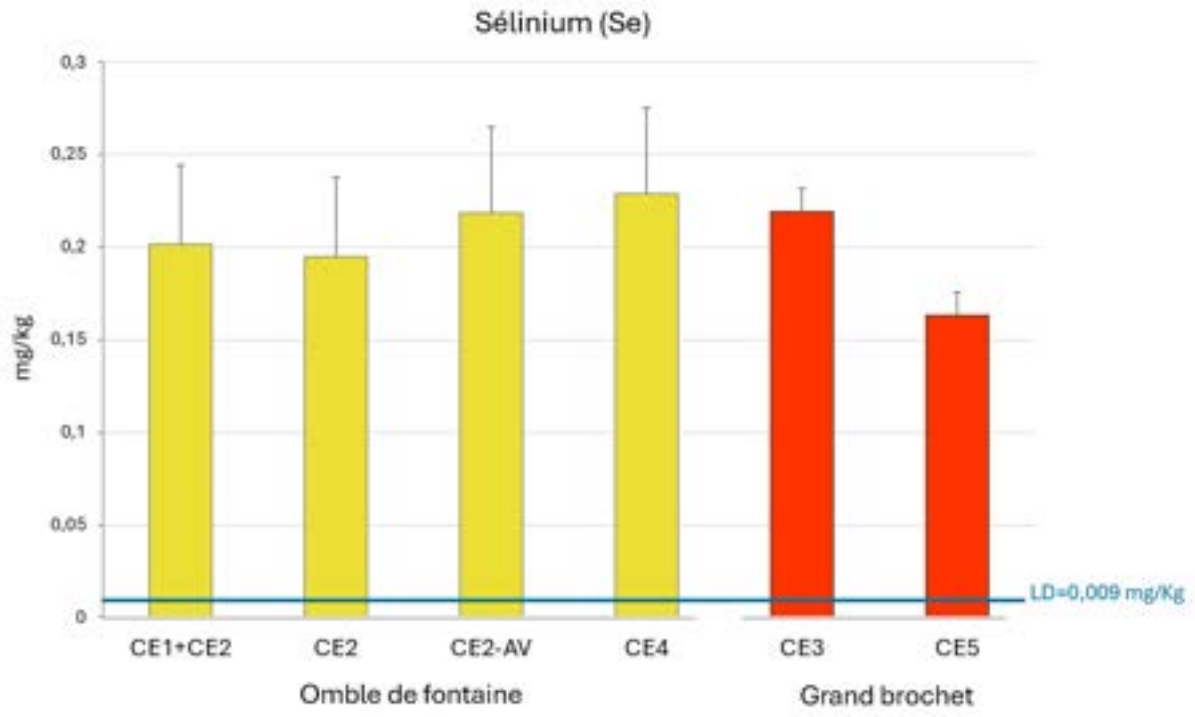


Figure D-13 Sodium (Na) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024

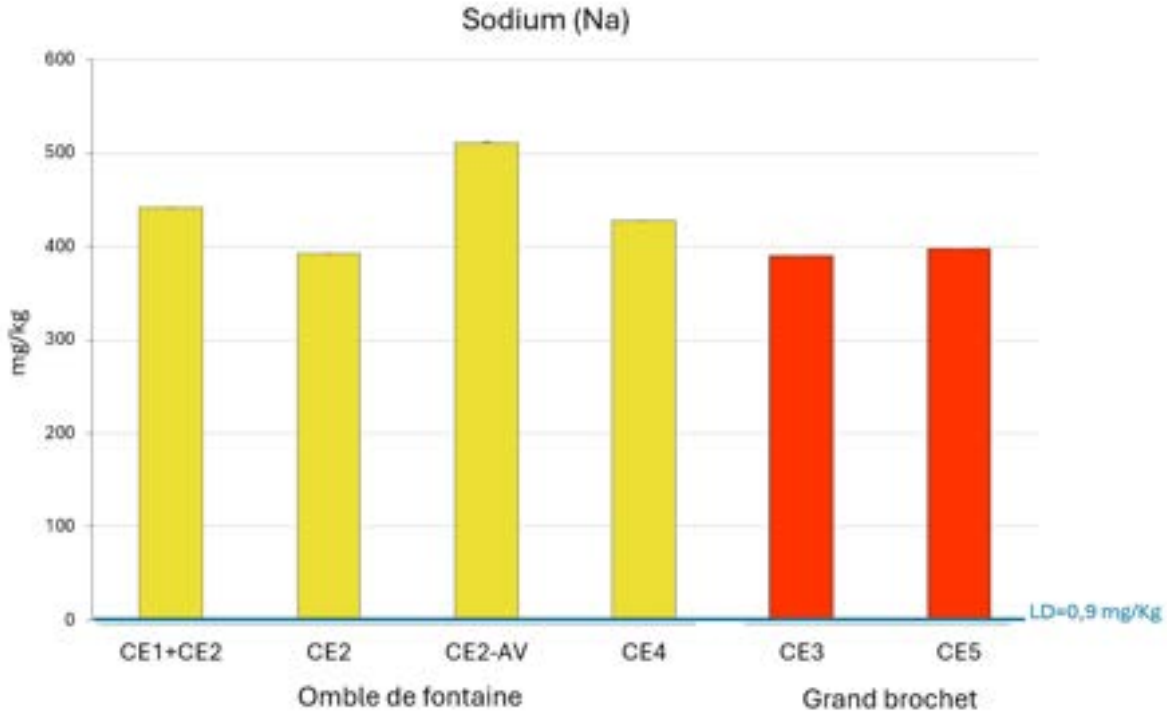


Figure D-14 Strontium (Sr) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024

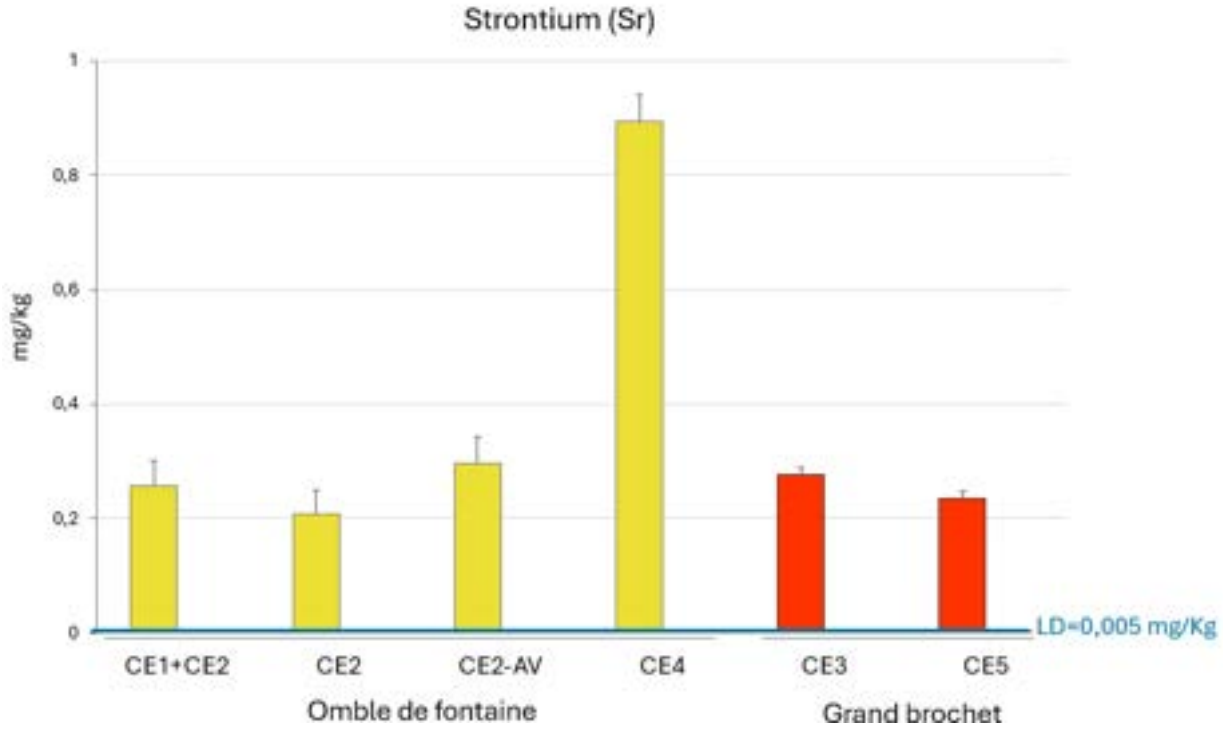


Figure D-15 **Thallium (Th) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

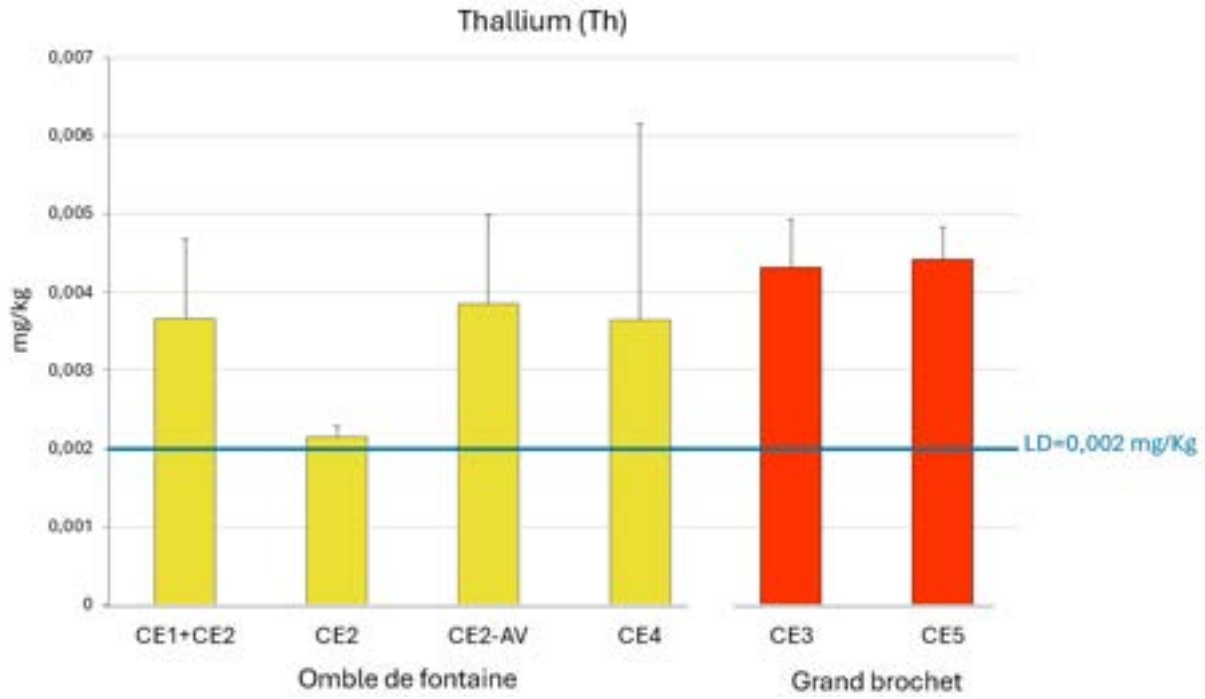


Figure D-16 **Titanium (Ti) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**

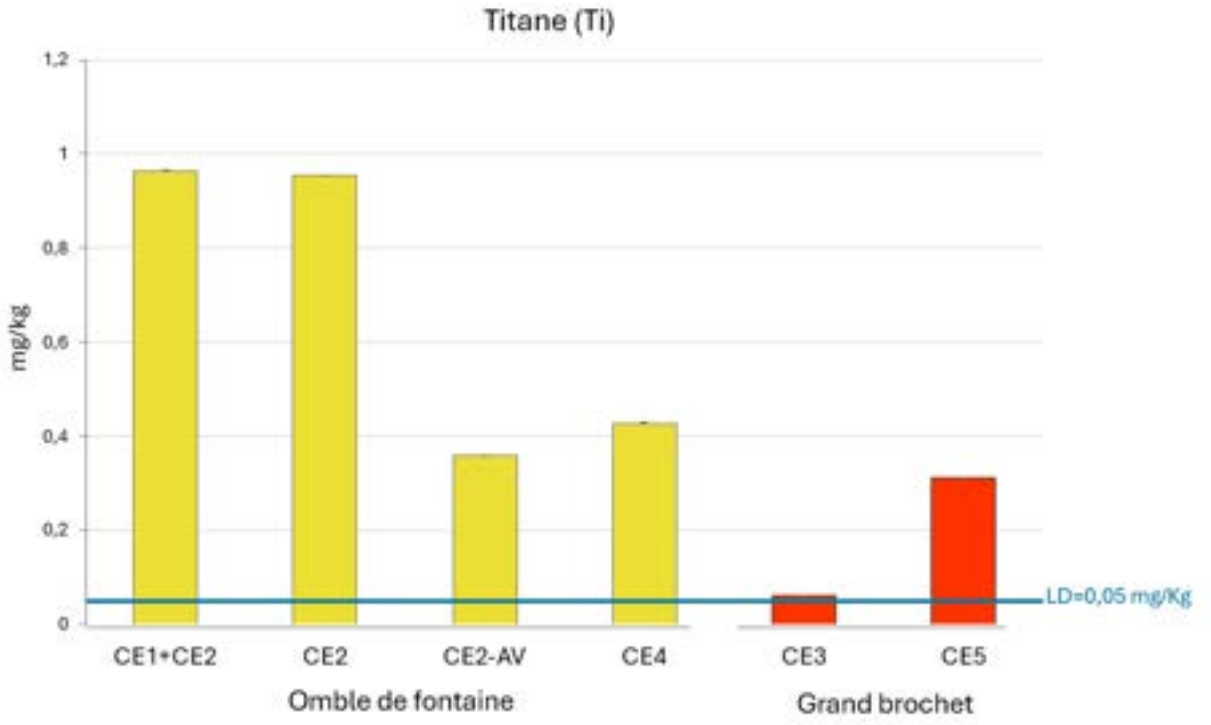
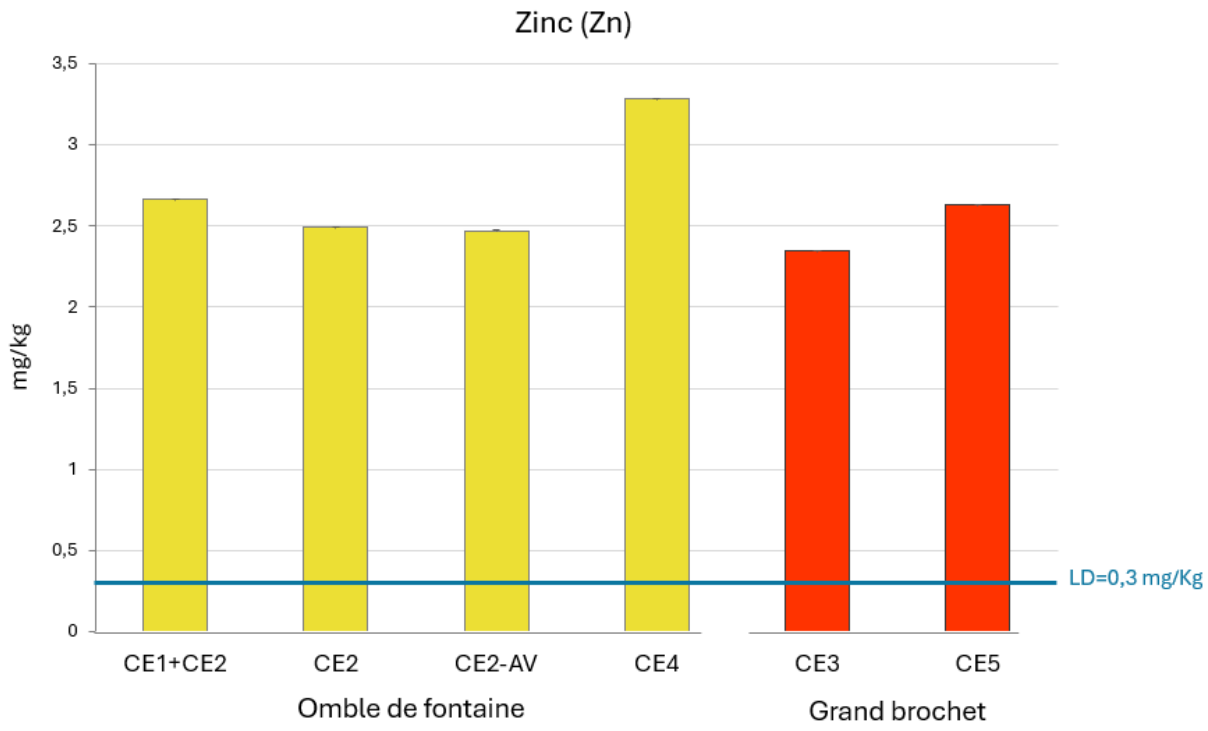


Figure D-17 **Zinc (Zn) concentration accumulated in the flesh of fish (brook trout and northern pike) caught in 2024**



APPENDIX

E LABORATORY RESULTS

Code	Station	Site	Cours d'eau	N° Specimen	Espece	Aluminium (Al)	Antimoine (Sb)	Argent (Ag)	Arsenic (As)	Baryum (Ba)	Béryllium (Be)	Bore (B)	Cadmium (Cd)	Calcium (Ca)	Chrome (Cr)	Cobalt (Co)	Cuivre (Cu)	Etain (Sn)	Fer (Fe)	Lithium (Li)	Magnésium (Mg)	Manganèse (Mn)	Mercure (Hg)	Molybdène (Mo)	Nickel (Ni)	Phosphore total	Plomb (Pb)	Sélénium (Se)	Sodium (Na)	Strontium (Sr)	Thallium (Tl)	Titane (Ti)	Uranium (U)	Vanadium (V)	Zinc (Zn)
CE2-FE1/SAFO/1	CE2-FE1	CE2	CE2	SAFO-001	SAFO	<0.40	<0.040	<0.0010	0.020	0.014	<0.0030	<0.070	<0.0010	110	<0.050	0.0038	0.18	0.040 (1)	3.0	<0.020	380	0.073	0.19	<0.0030	<0.010	2800	<0.0070	0.20	230	0.16	0.0020	1.0	<0.0010	<0.0090	2.3
CE2-FE1/SAFO/2	CE2-FE1	CE2	CE2	SAFO-002	SAFO	<0.40	<0.040	<0.0010	0.022	0.0067	<0.0030	<0.070	<0.0010	130	<0.050	0.0039	0.21	0.043 (3)	3.2	<0.020	360	0.10	0.20	<0.0030	<0.010	2500	<0.0070	0.21	390	0.18	0.0021	0.97	<0.0010	<0.0090	2.5
CE2-FE1/SAFO/3	CE2-FE1	CE2	CE2	SAFO-003	SAFO	<0.40	<0.040	<0.0010	0.018	<0.0060	<0.0030	<0.070	<0.0010	52	<0.050	0.0033	0.19	0.058 (1)	2.8	<0.020	310	0.073	0.13	<0.0030	<0.010	2600	<0.0070	0.15	170	0.039	<0.0020	0.89	<0.0010	<0.0090	2.4
CE2-FE1/SAFO/4	CE2-FE1	CE2	CE2	SAFO-004	SAFO	<0.40	<0.040	<0.0010	0.024	0.011	<0.0030	<0.070	<0.0010	100	<0.050	0.0056	0.21	0.053 (1)	3.1	<0.020	370	0.094	0.13	<0.0030	<0.010	2700	<0.0070	0.23	390	0.14	<0.0020	0.95	<0.0010	<0.0090	2.8
CE2-FE1/SAFO/5	CE2-FE1	CE2	CE2	SAFO-005	SAFO	<0.40	<0.040	<0.0010	0.023	0.013	<0.0030	<0.070	<0.0010	190	<0.050	0.0040	0.21	0.046 (1)	2.9	<0.020	420	0.13	0.065	<0.0030	<0.010	2800	<0.0070	0.21	310	0.34	<0.0020	0.97	<0.0010	<0.0090	2.6
CE2-FE1/SAFO/6	CE2-FE1	CE2	CE2	SAFO-006	SAFO	<0.40	<0.040	<0.0010	0.022	0.0081	<0.0030	<0.070	<0.0010	140	<0.050	0.0044	0.19	0.060 (1)	3.2	<0.020	330	0.12	0.17	<0.0030	<0.010	2600	<0.0070	0.22	380	0.29	<0.0020	0.90	<0.0010	<0.0090	2.2
CE2-FE1/SAFO/7	CE2-FE1	CE2	CE2	SAFO-007	SAFO	<0.40	<0.040	<0.0010	0.019	<0.0060	<0.0030	<0.070	<0.0010	110	<0.050	0.0058	0.21	0.051 (1)	2.9	<0.020	310	0.078	0.13	<0.0030	<0.010	2400	<0.0070	0.14	480	0.20	<0.0020	0.85	<0.0010	<0.0090	2.4
CE2-FE1/SAFO/8	CE2-FE1	CE2	CE2	SAFO-008	SAFO	<0.40	<0.040	<0.0010	0.025	0.013	<0.0030	<0.070	<0.0010	220	<0.050	0.0071	0.20	0.052 (1)	2.3	<0.020	440	0.14	0.16	<0.0030	<0.010	2900	<0.0070	0.20	460	0.38	0.0024	1.0	<0.0010	<0.0090	2.6
CE2-FE1/SAFO/9	CE2-FE1	CE2	CE2	SAFO-009	SAFO	<0.40	<0.040	<0.0010	0.016	0.049 (4)	<0.0030	<0.070	<0.0010	110	<0.050	0.0055	0.32	0.39 (4)	3.9	<0.020	420	0.083	0.17	<0.0030	<0.010	2700	<0.0070	0.22	580	0.15	0.0021	1.1	<0.0010	<0.0090	2.9
CE2-FE1/SAFO/10	CE2-FE1	CE2	CE2	SAFO-010	SAFO	<0.40	<0.040	<0.0010	0.024	0.0070	<0.0030	<0.070	<0.0010	130	<0.050	0.0031	0.16	0.041 (1)	2.4	<0.020	330	0.097	0.12	<0.0030	<0.010	2400	<0.0070	0.17	530	0.20	0.0021	0.90	<0.0010	<0.0090	2.2
CE1+CE2 MV2/SAFO/1	CE1-CE2-MV2	CE1+CE2	CE1+CE2	SAFO-011	SAFO	0.40	<0.040	<0.0010	0.028	0.013	<0.0030	<0.070	<0.0010	96	<0.050	0.0097	0.19	0.042 (1)	3.7	<0.020	330	0.096	0.086	<0.0030	<0.010	2600	<0.0070	0.28	390	0.074	0.0049	0.92	<0.0010	<0.0090	2.2
CE1+CE2 MV2/SAFO/1	CE1-CE2-MV2	CE1+CE2	CE1+CE2	SAFO-012	SAFO	<0.40	<0.040	<0.0010	0.031	0.0069	<0.0030	<0.070	<0.0010	190	<0.050	0.0050	0.20	0.043 (1)	2.8	<0.020	410	0.11	0.077	<0.0030	<0.010	2800	<0.0070	0.20	400	0.29	0.0038	0.98	<0.0010	<0.0090	2.6
CE1+CE2 MV2/SAFO/1	CE1-CE2-MV2	CE1+CE2	CE1+CE2	SAFO-013	SAFO	<0.40	<0.040	<0.0010	0.020	0.0069	<0.0030	<0.070	<0.0010	120	<0.050	0.0034	0.24	0.040 (1)	3.6	<0.020	390	0.12	0.12	<0.0030	<0.010	2800	<0.0070	0.25	440	0.18	0.0033	0.96	<0.0010	<0.0090	2.5
CE1+CE2 MV2/SAFO/1	CE1-CE2-MV2	CE1+CE2	CE1+CE2	SAFO-014	SAFO	<0.40	<0.040	<0.0010	0.025	0.017	<0.0030	<0.070	<0.0010	370	<0.050	0.0045	0.31	0.040 (1)	4.6	<0.020	410	0.21	0.087	<0.0030	<0.010	2800	<0.0070	0.19	460	0.77	0.0025	1.0	<0.0010	<0.0090	3.0
CE1+CE2 MV2/SAFO/1	CE1-CE2-MV2	CE1+CE2	CE1+CE2	SAFO-015	SAFO	<0.40	<0.040	<0.0010	0.037	<0.0060	<0.0030	<0.070	<0.0010	150	<0.050	0.0060	0.19	0.040 (1)	3.0	<0.020	400	0.11	0.13	<0.0030	<0.010	2700	<0.0070	0.22	400	0.17	0.0049	0.95	<0.0010	<0.0090	2.5
CE1+CE2 MV2/SAFO/1	CE1-CE2-MV2	CE1+CE2	CE1+CE2	SAFO-016	SAFO	<0.40	<0.040	<0.0010	0.017	0.0073	<0.0030	<0.070	<0.0010	170	<0.050	0.0025	0.20	0.041 (1)	2.8	<0.020	400	0.13	0.062	<0.0030	<0.010	2900	<0.0070	0.20	450	0.29	0.0025	1.0	<0.0010	<0.0090	2.9
CE1+CE2 MV2/SAFO/1	CE1-CE2-MV2	CE1+CE2	CE1+CE2	SAFO-017	SAFO	<0.40	<0.040	<0.0010	0.021	0.0063	<0.0030	<0.070	<0.0010	170	<0.050	0.0046	0.28	0.041 (1)	3.0	<0.020	410	0.14	0.080	<0.0030	<0.010	2700	<0.0070	0.20	480	0.27	<0.0020	0.95	<0.0010	<0.0090	2.7
CE1+CE2 MV2/SAFO/1	CE1-CE2-MV2	CE1+CE2	CE1+CE2	SAFO-018	SAFO	<0.40	<0.040	<0.0010	0.019	<0.0060	<0.0030	<0.070	<0.0010	94	<0.050	0.0083	0.30	0.042 (1)	5.2	<0.020	380	0.11	0.071	0.0035	<0.010	2700	<0.0070	0.18	530	0.11	0.0034	0.94	<0.0010	<0.0090	2.7
CE1+CE2 MV2/SAFO/1	CE1-CE2-MV2	CE1+CE2	CE1+CE2	SAFO-019	SAFO	<0.40	<0.040	<0.0010	0.020	0.012	<0.0030	<0.070	<0.0010	210	<0.050	0.0063	0.18	0.041 (1)	3.7	<0.020	420	0.15	0.069	<0.0030	<0.010	2800	<0.0070	0.18	440	0.38	0.0037	1.0	<0.0010	<0.0090	2.9
CE1+CE2 MV2/SAFO/2	CE1-CE2-MV2	CE1+CE2	CE1+CE2	SAFO-020	SAFO	<0.40	<0.040	<0.0010	0.022	<0.0060	<0.0030	<0.070	<0.0010	100	<0.050	0.0038	0.25	0.041 (1)	3.4	<0.020	360	0.12	0.050	<0.0030	<0.010	2700	<0.0070	0.20	430	0.12	0.0022	0.94	<0.0010	<0.0090	3.0
CE1+CE2 MV2/SAFO/2	CE1-CE2-MV2	CE1+CE2	CE1+CE2	SAFO-021	SAFO	<0.40	<0.040	<0.0010	0.020	0.0072	<0.0030	<0.070	<0.0010	210	<0.050	0.0070	0.24	<0.050 (4)	3.0	<0.020	460	0.13	0.072	<0.0030	<0.030 (4)	2900	0.034	0.18	470	0.29	0.0031	<0.050	<0.0010	<0.0090	2.7
CE1+CE2 MV2/SAFO/2	CE1-CE2-MV2	CE1+CE2	CE1+CE2	SAFO-022	SAFO	<0.40	<0.040	<0.0010	0.033	<0.0060	<0.0030	<0.070	<0.0010	190	<0.050	0.0072	0.22	0.050 (4)	3.8	<0.020	440	0.12	0.11	<0.0030	<0.030 (4)	2900	<0.0070	0.17	420	0.23	0.0052	<0.050	<0.0010	<0.0090	2.8
CE1+CE2 MV2/SAFO/2	CE1-CE2-FE2	CE1+CE2	CE1+CE2	SAFO-023	SAFO	<0.40	<0.040	<0.0010	0.021	<0.0060	<0.0030	<0.070	<0.0010	150	<0.050	0.0092	0.25	<0.050 (4)	4.3	<0.020	390	0.13	0.058	<0.0030	<0.030 (4)	2500	<0.0070	0.17	430	0.18	0.0044	<0.050	<0.0010	<0.0090	2.1
CE2-AV-FE2/SAFO/24	CE2-AV-FE2	CE2 aval	CE2	SAFO-024	SAFO	<0.40	<0.040	<0.0010	0.020	<0.0060	<0.0030	<0.070	<0.0010	85	<0.050	0.0043	0.23	0.050 (4)	3.7	<0.020	430	0.071	0.12	<0.0030	<0.030 (4)	2800	<0.0070	0.22	490	0.10	0.0044	0.053	<0.0010	<0.0090	2.5
CE2-AV-FE2/SAFO/25	CE2-AV-FE2	CE2 aval	CE2	SAFO-025	SAFO	<0.40	<0.040	<0.0010	0.037	<0.0060	<0.0030	<0.070	<0.0010	160	<0.050	0.0055	0.27	<0.050 (4)	3.8	<0.020	460	0.13	0.083	<0.0030	<0.030 (4)	3000	<0.0070	0.20	580	0.22	0.0034	<0.050	<0.0010	<0.0090	3.0
CE2-AV-FE2/SAFO/26	CE2-AV-FE2	CE2 aval	CE2	SAFO-026	SAFO	<0.40	<0.040	<0.0010	0.034	0.013	<0.0030	<0.070	<0.0010	170	<0.050	0.0066	0.31	<0.050 (4)	3.1	<0.020	440	0.17	0.080	<0.0030	<0.030 (4)	2700	<0.0070	0.30	440	0.32	0.0056	<0.050	<0.0010	<0.0090	3.1
CE2-AV-FE2/SAFO/27	CE2-AV-FE2	CE2 aval	CE2	SAFO-027	SAFO	<0.40	<0.040	<0.0010	0.023	0.013	<0.0030	<0.070	<0.0010	250	<0.050	0.0071	0.24	<0.050 (4)	4.0	<0.020	410	0.14	0.16	<0.0030	<0.030 (4)	2700	<0.0070	0.21	620	0.45	0.0040	0.051	<0.0010	<0.0090	2.3
CE2-AV-FE2/SAFO/28	CE2-AV-FE2	CE2 aval	CE2	SAFO-028	SAFO	<0.40	<0.040	<0.0010	0.022	0.049 (4)	<0.0030	<0.070	<0.0010	57	0.057	0.0042	0.17	0.39 (5)	3.8	<0.020	370	0.075	0.12	<0.0030	<0.010	2400	<0.0070	0.17	330	0.072	0.0043	0.97	<0.0010	<0.0090	2.0
CE2-AV-FE2/SAFO/29	CE2-AV-FE2	CE2 aval	CE2	SAFO-029	SAFO	<0.40	<0.040	<0.0010	0.030	0.0090	<0.0030	<0.070	0.0013	240	<0.050	0.0055	0.20	0.050 (4)	3.3	<0.020	410	0.12	0.16	<0.0030	<0.030 (4)	2600	<0.0070	0.21	600	0.48	0.0020	<0.050	<0.0010	<0.0090	2.0
CE2-AV-FE2/SAFO/30	CE2-AV-FE2	CE2 aval	CE2	SAFO-030	SAFO	<0.40	<0.040	<0.0010	0.028	0.011	<0.0030	<0.070	<0.0010	190	<0.050	0.0062	0.21	<0.050 (4)	2.7	<0.020	400	0.13	0.095	<0.0030	<0.030 (4)	2300	<0.0070	0.22	520	0.43	0.0033	<0.050	<0.0010	<0.0090	2.4
CE3-FE2/ESLU/31	CE3-FE2	CE3	CE3	ESLU-031	ESLU	<0.40	<0.040	<0.0010	0.067	0.027	<0.0030	<0.070	<0.0010	240	<0.050	<0.0020	0.12	<0.050 (4)	1.9	<0.020	420	0.19	0.16	<0.0030	<0.030 (4)	2400	<0.0070	0.20	480	0.36	0.0033	0.059	<0.0010	<0.0090	2.1
CE3-FE2/ESLU/32	CE3-FE2	CE3	CE3	ESLU-032	ESLU	<0.40	<0.040	<0.0010	0.053	0.031	<0.0030	<0.070	<0.0010	350	<0.050	<0.0020	0.13	<0.050 (4)	1.6	<0.020	460	0.19	0.17	<0.0030	<0.030 (4)	2600	<0.0070	0.21	530	0.59	0.0041	<0.050	<0.0010	<0.0090	2.7
CE3-GV1/ESLU/33	CE3-GV1	CE3	CE3	ESLU-033	ESLU	<0.40	<0.040	<0.0010	0.069	<0.0060	<0.0030	<0.070	<0.0010	92	<0.050	<0.0020	0.13	<0.050 (4)	1.7	<0.020	450	0.11	0.19	<0.0030	<0.030 (4)	2400	<0.0070	0.24	270	0.082	0.0046	<0.050	<0.0010	<0.0090	2.1
CE3-GV1/ESLU/34	CE3-GV1	CE3	CE3	ESLU-034	ESLU	<0.40	<0.040	<0.0010	0.091	0.022	<0.0030	<0.070	<0.0010	190	<0.050	<0.0020	0.14	0.051 (4)	1.8	<0.020	480	0.19	0.16	<0.0030	<0.030 (4)	2800	<0.0070	0.19	300	0.25	0.0052	0.064	<0.0010	<0.0090	2.4
CE3-FE3/ESLU/35	CE3-FE3	CE3	CE3	ESLU-035	ESLU	<0.40	<0.040	<0.0010	0.041	0.013	<0.0030	<0.070	<0.0010	160	<0.050	<0.0020	0.11	<0.050 (4)	1.6	<0.020	400	0.13	0.15	<0.0030	<0.030 (4)	2200	<0.0070	0.21	260	0.25	0.0041	0.057	<0.0010	<0.0090	2.2
CE3-FE3/ESLU/36	CE3-FE3	CE3	CE3	ESLU-036	ESLU	<0.40	<0.040	<0.0010	0.056	<0.0060	<0.0030	<0.070	<0.0010	88	<0.050	<0.0020	0.12	<0.050 (4)	1.7	<0.020	450	0.11	0.17	<0.0030	<0.030 (4)	2500	<0.0070	0.25	370	0.045	0.0041	<0.050	<0.0010	<0.0090	2.2
CE3-FE3/ESLU/37	CE3-FE3	CE3	CE3	ESLU-037	ESLU	<0.40	<0.040	<0.0010	0.061	0.028	<0.0030	<0.070	<0.0010	300	<0.050	<0.0020	0.15	0.052 (4)	1.6	<0.020	460	0.19	0.15	<0.0030	<0.030 (4)	2600	<0.0070	0.24	460	0.55	0.0040	<0.050	<0.0010	<0.0090	2.7
CE3-FE3/ESLU/38	CE3-FE3	CE3	CE3	ESLU-038	ESLU	<0.40	<0.040	<0.0010	0.062	<0.0060	<0.0030	<0.070	<0.0010	110	<0.050	<0.0020	0.14	<0.050 (4)	1.9	<0.020	440	0.11	0.18	<0.0030	<0.030 (4)	2400	<0.0070	0.21	450	0.088	0.0051	<0.050	<0.0010	<0.0090	2.4
CE4-PE1/SAFO/39	CE4-PE1	CE4	CE4	SAFO-039	SAFO	<0.40	<0.040	<0.0010	0.027	0.0080	<0.0030	<0.070	<0.0010	170	<0.050	0.0072	0.31	<0.050 (4)	3.6	<0.020	490	0.10	0.20	<0.0030	<0.030 (4)	3200	<0.0070	0.22	300	0.25	0.0042	0.053	<0.0010	<0.0090	3.1
CE4-PE2/SAFO/40	CE4-PE2	CE4	CE4	SAFO-040	SAFO	<0.40	<0.040	<0.0010	0.19	0.049	<0.0030	<0.070	0.0028	620	<0.050	0.0085	0.20	0.050 (4)	3.8	<0.020	410	0.27	0.063	0.0034	<0.030 (4)	2800	<0.0070	0.40	700	1.4	<0.0020	<0.050	<0.0010	<0.0090	3.8
CE5-FE2/ESLU/41	CE5-FE2	CE5	CE5	ESLU-041	ESLU	<0.40	<0.040	<0.0010	0.058	0.021	<0.0030	<0.070	<0.0010	270	<0.050	0.0086	0.14	<0.030 (4)	2.8	<0.020	460	0.25	0.15	<0.0030	<0.010	2800	<0.0070	0.14	320	0.34	0.0045	0.061	<0.0010	<0.0090	2.8
CE5-FE2/ESLU/42	CE5-FE2	CE5	CE5	ESLU-042	ESLU	<0.40	<0.040	<0.0010	0.047	<0.0060	<0.0030	<0.070	<0.0010	86	<0.050	0.0045	0.16	<0.030 (4)	1.7	<0.020	420	0.14	0.16	<0.0030	<0.010	2400	<0.0070	0.15	370	0.060	0.0039	<0.050	<0.0010	<0.0090	2.4
CE5-FE2/ESLU/43	CE5-FE2	CE5	CE5	ESLU-043	ESLU	<0.40	<0.040	<0.0010	0.051	0.016	<0.0030	<0.070	<0.0010	280	<0.050	0.0045	0.18	<0.030 (4)	2.1	<0.020	480	0.21	0.19	<0.0030	<0.010	2800	<0.0070	0.18	450	0.37	0.0047	0.053	<0.0010	<0.0090	2.6
CE5-FE2/ESLU/44	CE5-FE2	CE5	CE5	ESLU-044	ESLU	<0.40	<0.040	<0.0010	0.059	0.024	<0.0030	<0.070	<0.0010	320	<0.050	0.0052	0.16	<0.030 (4)	1.8	<0.020	420	0.23	0.14	<0.0030	<0.010	2500	<0.0070	0.16	500	0.44	0.0042	<0.050	<0.0010	<0.0090	2.6
CE5-GV3/ESLU/45	CE5-GV3	CE5	CE5	ESLU-045	ESLU	<0.40	<0.040	<0.0010	0.068	<0.0060	<0.0030	<0.070	<0.0010	99	<0.050	0.0062	0.16	0.030 (4)	1.6	<0.020	490	0.18	0.16	<0.0030	<0.010	2800	<0.0070	0.17	350	0.069	0.0040	<0.050	<0.0010	<0.0090	2.5
CE5-FE1/ESLU/46	CE5-FE1	CE5	CE5	ESLU-046	ESLU	<0.40	<0.040	<0.0010	0.059	0.015	<0.0030	<0.070	<0.0010	210	<0.050	0.0047	0.26	<0.030 (4)	3.7	<0.020	430	0.23	0.16	<0.0030	<0.010	2600	<0.0070	0.17	280	0.27	0.0045	<0.050	<0.0010	<0.0090	2.5
CE5-FE1/ESLU/47	CE5-FE1	CE5	CE5	ESLU-047	ESLU	<0.40	<0.040	<0.0010	0.060	0.050 (4)	<0.0030	<0.070	<0.0010	110	0.15	0.0055	0.17	0.43 (5)	3.8	<0.020	360	0.17	0.22	<0.0030	<0.010	3200	<0.0070	0.17	290	0.10	0.0051	0.82	<0.0010	<0.0090	3.0
CE4-PE3/SAFO/48	CE4-PE3	CE4	CE4	SAFO-048	SAFO	<0.40	<0.040	<0.0010	0.29	0.0089	<0.0030	<0.070	<0.0010	170	<0.050	0.0083	0.19	<0.030 (4)	2.8	<0.020	450	0.17	0.15	<0.0030	<0.010	3100	<0.0070	0.27	320	0.31	0.0025	<0.050	<0.0010	<0.0090	2.9
CE4-PE3/SAFO/49	CE4-PE3	CE4	CE4	SAFO-049	SAFO	<0.40	<0.040	<0.0010	0.032	0.025	<0.0030	<0.070	0.0017	320	<0.050	0.0075	0.14	<0.030 (4)	2.4	<0.020	390	0.17	0.069	<0.0030	<0.010	2500	<0.0070	0.21	640	0.60	<0.0020	<0.050	<0.0010	<0.0090	3.0
CE4-PE3/SAFO/50	CE4-PE3	CE4	CE4	SAFO-050	SAFO	<0.40	<0.040	<0.0010	0.080	0.020	<0.0030	<0.070	<0.0010	270	<0.050	0.0068	0.24	<0.030 (4)	3.1	<0.020	440	0.24	0.094	<0.0030	<0.010	2900	<0.0070	0.22	360	0.49	<0.0020	<0.050	<0.0010	<0.0090	3.0
CE4-PE4/SAFO/51	CE4-PE4	CE4	CE4	SAFO-051	SAFO	<0.40	<0.040	<0.0010	0.045	0.037	<0.0030	<0.070	<0.0010	570	<0.050	0.0084	0.21	<0.030 (4)	3.4	<0.020	420	0.19	0.26	<0.0030	<0.010	3100	<0.0070	0.20	400	1.2	0.0041	<0.050	<0.0010	<0.0090	2.7
CE4-PE4/SAFO/52	CE4-PE4	CE4	CE4	SAFO-052	SAFO	<0.40	<0.040	<0.0010	0.038	0.062	<0.0030	<0.070	<0.0010	500	<0.050	0.010	0.21	<0.030 (4)	4.4	<0.020	410	0.22	0.11	<0.0030	<0.010	2900	<0.0070	0.22	450	1.2	0.0033	<0.050	<0.0010	<0.0090	3.7
CE4-PE4/SAFO/53	CE4-PE4	CE4	CE4	SAFO-053	SAFO	<0.40	<0.040	<0.0010	0.044	<0.0060	<0.0030	<0.070	<0.0010	89	<0.050	0.0076	0.28	<0.030 (4)	4.7	<0.020	430	0.085	0.23	<0.0030	<0.010	3000	<0.0070	0.20	310	0.084	0.0043	0.40	<0.0010	<0.0090	3.1
CE4-PE4/SAFO/54	CE4-PE4	CE4	CE4	SAFO-054	SAFO	<0.40	<0.040	<0.0010	0.049	<0.0060	<0.0030	<0.070	<0.0010	120	<0.050	0.0083	0.29	<0.030 (4)	5.6	<0.020	440	0.12	0.17	0.0035	<0.010	3000	<0.0070	0.23	360	0.13	<0.0020	0.056	<0.0010	<0.0090	2.7
CE4-PE4/SAFO/55	CE4-PE4	CE4	CE4	SAFO-055	SAFO	<0.40	<0.040	<0.0010	0.033	0.014	<0.0030	<0.070	<0.0010	220	<0.050	0.0071	0.24	<0.030 (4)	3.5	<0.020	420	0.14	0.16	<0.0030	<0.010	2800	<0.0070	0.19	380	0.35	0.0047	<0.050	<0.0010	<0.0090	3.1
CE4-PE4/SAFO/56	CE4-PE4	CE4	CE4	SAFO-056	SAFO	<0.40	<0.040	<0.0010	0.050	0.13	<0.0030	<0.070	0.0016	1300	<0.050	0.010	0.23	<0.030 (4)	4.5	<0.020	460	0.37	0.13	0.0033	<0.010	3400	<0.0070	0.19	430	3.6	0.0032	<0.050	<0.0010	<0.0090	4.5
CE4-PE4/SAFO/57	CE4-PE4	CE4	CE4	SAFO-057	SAFO	<0.40	N/A	<0.0010	0.032	N/A	<0.0030	<0.070	<0.0010	490	<0.050	0.012	0.22	N/A	3.7	<0.020	460	0.21	0.11	<0.0030	<0.010	3000	<0.0070	0.19	480	1.1	0.0029	1.2	<0.0010	<0.0090	3.8

APPENDIX

F

BUREAU VERITAS
CERTIFICATES OF ANALYSIS

Votre # du projet: CA0036076.5537
No. de site: Galaxy
Adresse du site: Galaxy-Lithium
Votre # Bordereau: 145713

Attention: Mariem Fadhlaoui

WSP CANADA Inc.
1135 boulevard Lebourgneuf
Québec, QC
CANADA G2K 0M5

Date du rapport: 2024/10/30
Rapport: R2994074
Version: 2 - Révisé

CERTIFICAT D'ANALYSE – RÉVISÉ

 # DE DOSSIER BUREAU VERITAS: C451139
Reçu: 2024/09/10, 12:00

Matrice: Tissu Biologique
Nombre d'échantillons reçus: 57

Analyses	Quantité	Date de l' extraction	Date Analysé	Méthode de laboratoire	Méthode d'analyse
Métaux trace dans tissu (base humide)	1	N/A	2024/10/03	STL SOP-00006	MA.203–Mét Tra 1.1 m
Métaux trace dans tissu (base humide)	21	N/A	2024/09/27	STL SOP-00006	MA.203–Mét Tra 1.1 m
Métaux trace dans tissu (base humide)	35	N/A	2024/09/28	STL SOP-00006	MA.203–Mét Tra 1.1 m

Remarques:

Bureau Veritas est certifié ISO/IEC 17025 pour certains paramètres précis des portées d'accréditation. Sauf indication contraire, les méthodes d'analyses utilisées par Bureau Veritas s'inspirent des méthodes de référence d'organismes provinciaux, fédéraux et américains, tels que le CCME, l'EPA, l'APHA ou le ministère de l'environnement du Québec.

Toutes les analyses présentées ont été réalisées conformément aux procédures et aux pratiques relatives à la méthodologie, à l'assurance qualité et au contrôle de la qualité généralement appliqués par les employés de Bureau Veritas (sauf s'il en a été convenu autrement par écrit entre le client et Bureau Veritas). Toutes les données de laboratoire rencontrent les contrôles statistiques et respectent tous les critères de CQ et les critères de performance des méthodes, sauf s'il en a été signalé autrement. Tous les blancs de méthode sont rapportés, toutefois, les données des échantillons correspondants ne sont pas corrigées pour la valeur du blanc, sauf indication contraire. Le cas échéant, sauf indication contraire, l'incertitude de mesure n'a pas été prise en considération lors de la déclaration de la conformité à la norme de référence.

Les responsabilités de Bureau Veritas sont restreintes au coût réel de l'analyse, sauf s'il en a été convenu autrement par écrit. Il n'existe aucune autre garantie, explicite ou implicite. Le client a fait appel à Bureau Veritas pour l'analyse de ses échantillons conformément aux méthodes de référence mentionnées dans ce rapport. L'interprétation et l'utilisation des résultats sont sous l'entière responsabilité du client et ne font pas partie des services offerts par Bureau Veritas, sauf si convenu autrement par écrit. Bureau Veritas ne peut pas garantir l'exactitude des résultats qui dépendent des renseignements fournis par le client ou son représentant.

Les résultats des échantillons solides, sauf les biotes, sont rapportés en fonction de la masse sèche, sauf indication contraire. Les analyses organiques ne sont pas corrigées en fonction de la récupération, sauf pour les méthodes de dilution isotopique.
Les résultats s'appliquent seulement aux échantillons analysés. Si l'échantillonnage n'est pas effectué par Bureau Veritas, les résultats se rapportent aux échantillons fournis pour analyse.
Le présent rapport ne doit pas être reproduit, sinon dans son intégralité, sans le consentement écrit du laboratoire.
Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.
Notez: Les données brutes sont utilisées pour le calcul du RPD (% d'écart relatif). L'arrondissement des résultats finaux peut expliquer la variation apparente.

Note : Les paramètres inclus dans le présent certificat sont accrédités par le ministère de l'environnement du Québec, à moins d'indication contraire.

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

Votre # du projet: CA0036076.5537
No. de site: Galaxy
Adresse du site: Galaxy-Lithium
Votre # Bordereau: 145713

Attention: Mariem Fadhlaoui

WSP CANADA Inc.
1135 boulevard Lebourgneuf
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CANADA G2K 0M5

Date du rapport: 2024/10/30
Rapport: R2994074
Version: 2 - Révisé

CERTIFICAT D'ANALYSE – RÉVISÉ

 # DE DOSSIER BUREAU VERITAS: C451139
Reçu: 2024/09/10, 12:00

clé de cryptage 

Veuillez adresser toute question concernant ce certificat d' analyse à:
Sarah Beaudry, Chargée de projets
Courriel: Sarah.Beaudry@bureauveritas.com
Téléphone (438)355-7268
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Bureau Veritas a mis en place des procédures qui protègent contre l'utilisation non autorisée de la signature électronique et emploie les «signataires» requis, conformément à l'ISO/CEI17025. Pour la validation spécifique à un groupe de services, veuillez vous référer à la page des Signatures de validation si elle est incluse, sinon disponible sur demande. Pour les noms de validation des analystes/superviseurs spécifiques à un service, veuillez vous référer à la section Résumé de l'analyse si elle est incluse, sinon disponible sur demande. Ce rapport est autorisé par Aglaia Yannakis, Directrice générale, responsable des opérations du laboratoire Environnementale - Québec.

MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1103	NM1103	NM1104	NM1105		
Date d'échantillonnage		2024/08/22	2024/08/22	2024/08/22	2024/08/22		
# Bordereau		145713	145713	145713	145713		
	Unités	CE2-FE1/SAFO/1	CE2-FE1/SAFO/1 Dup. de Lab.	CE2-FE1/SAFO/2	CE2-FE1/SAFO/3	LDR	Lot CQ
MÉTAUX							
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	2571113
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	2571113
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571113
Arsenic (As) Extractible Total †	mg/kg	0.020	0.021	0.022	0.018	0.0050	2571113
Baryum (Ba) Extractible Total †	mg/kg	0.014	0.038 (1)	0.0067	<0.0060	0.0060	2571113
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571113
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	2571113
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571113
Calcium (Ca) Extractible Total †	mg/kg	110	430 (1)	130	52	3.0	2571113
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	2571113
Cobalt (Co) Extractible Total †	mg/kg	0.0038	0.0040	0.0039	0.0033	0.0020	2571113
Cuivre (Cu) Extractible Total †	mg/kg	0.18	0.18	0.21	0.19	0.050	2571113
Etain (Sn) Extractible Total †	mg/kg	0.040 (2)	0.044 (2)	0.043 (3)	0.058 (2)	0.036	2571113
Fer (Fe) Extractible Total †	mg/kg	3.0	3.3	3.2	2.8	1.0	2571113
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	2571113
Magnésium (Mg) Extractible Total †	mg/kg	380	380	360	310	1.0	2571113
Manganèse (Mn) Extractible Total †	mg/kg	0.073	0.12	0.10	0.073	0.030	2571113
Mercure (Hg) Extractible Total †	mg/kg	0.19	0.19	0.20	0.13	0.00030	2571113
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571113
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	2571113
Phosphore total Extractible Total †	mg/kg	2800	2700	2500	2600	5.0	2571113
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	<0.0070	0.0070	2571113
Sélénium (Se) Extractible Total †	mg/kg	0.20	0.20	0.21	0.15	0.0090	2571113
Sodium (Na) Extractible Total †	mg/kg	230	290	390	170	0.90	2571113
Strontium (Sr) Extractible Total †	mg/kg	0.16	1.0 (1)	0.18	0.039	0.0050	2571113
Thallium (Tl) Extractible Total †	mg/kg	0.0020	<0.0020	0.0021	<0.0020	0.0020	2571113
Titane (Ti) Extractible Total †	mg/kg	1.0	1.1	0.97	0.89	0.050	2571113
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571113

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre
(1) La récupération ou l'écart relatif (RPD) pour ce composé est en dehors des limites de contrôle, mais l'ensemble du contrôle qualité rencontre les critères d'acceptabilité pour cette analyse
(2) La limite de détection a été augmentée dû à contamination de blanc.
(3) La limite de détection a été augmentée dû à une contamination du blanc.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1103	NM1103	NM1104	NM1105		
Date d'échantillonnage		2024/08/22	2024/08/22	2024/08/22	2024/08/22		
# Bordereau		145713	145713	145713	145713		
	Unités	**CE2-FE1/SAFO/1**	**CE2-FE1/SAFO/1 Dup. de Lab.**	**CE2-FE1/SAFO/2**	**CE2-FE1/SAFO/3**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	2571113
Zinc (Zn) Extractible Total †	mg/kg	2.3	2.5	2.5	2.4	0.30	2571113

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1106	NM1107	NM1108	NM1109		
Date d'échantillonnage		2024/08/22	2024/08/22	2024/08/22	2024/08/22		
# Bordereau		145713	145713	145713	145713		
	Unités	CE2-FE1/SAFO/4	CE2-FE1/SAFO/5	CE2-FE1/SAFO/6	CE2-FE1/SAFO/7	LDR	Lot CQ
MÉTAUX							
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	2571113
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	2571113
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571113
Arsenic (As) Extractible Total †	mg/kg	0.024	0.023	0.022	0.019	0.0050	2571113
Baryum (Ba) Extractible Total †	mg/kg	0.011	0.013	0.0081	<0.0060	0.0060	2571113
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571113
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	2571113
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571113
Calcium (Ca) Extractible Total †	mg/kg	100	190	140	110	3.0	2571113
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	2571113
Cobalt (Co) Extractible Total †	mg/kg	0.0056	0.0040	0.0044	0.0058	0.0020	2571113
Cuivre (Cu) Extractible Total †	mg/kg	0.21	0.21	0.19	0.21	0.050	2571113
Etain (Sn) Extractible Total †	mg/kg	0.053 (1)	0.046 (1)	0.060 (1)	0.051 (1)	0.036	2571113
Fer (Fe) Extractible Total †	mg/kg	3.1	2.9	3.2	2.9	1.0	2571113
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	2571113
Magnésium (Mg) Extractible Total †	mg/kg	370	420	330	310	1.0	2571113
Manganèse (Mn) Extractible Total †	mg/kg	0.094	0.13	0.12	0.078	0.030	2571113
Mercure (Hg) Extractible Total †	mg/kg	0.13	0.065	0.17	0.13	0.00030	2571113
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571113
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	2571113
Phosphore total Extractible Total †	mg/kg	2700	2800	2600	2400	5.0	2571113
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	<0.0070	0.0070	2571113
Sélénium (Se) Extractible Total †	mg/kg	0.23	0.21	0.22	0.14	0.0090	2571113
Sodium (Na) Extractible Total †	mg/kg	390	310	380	480	0.90	2571113
Strontium (Sr) Extractible Total †	mg/kg	0.14	0.34	0.29	0.20	0.0050	2571113
Thallium (Tl) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	2571113
Titane (Ti) Extractible Total †	mg/kg	0.95	0.97	0.90	0.85	0.050	2571113
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571113
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	2571113
Zinc (Zn) Extractible Total †	mg/kg	2.8	2.6	2.2	2.4	0.30	2571113

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à contamination de blanc.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1110			NM1111	NM1111		
Date d'échantillonnage		2024/08/22			2024/08/22	2024/08/22		
# Bordereau		145713			145713	145713		
	Unités	CE2-FE1/SAFO/8	LDR	Lot CQ	CE2-FE1/SAFO/9	CE2-FE1/SAFO/9 Dup. de Lab.	LDR	Lot CQ
MÉTAUX								
Aluminium (Al) Extractible Total †	mg/kg	<0.40	0.40	2571113	<0.40	<0.40	0.40	2572091
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	0.040	2571113	<0.040	<0.040	0.040	2573968
Argent (Ag) Extractible Total †	mg/kg	<0.0010	0.0010	2571113	<0.0010	<0.0010	0.0010	2572091
Arsenic (As) Extractible Total †	mg/kg	0.025	0.0050	2571113	0.016	0.015	0.0050	2572091
Baryum (Ba) Extractible Total †	mg/kg	0.013	0.0060	2571113	0.049 (1)	0.047 (1)	0.030	2573968
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	0.0030	2571113	<0.0030	<0.0030	0.0030	2572091
Bore (B) Extractible Total †	mg/kg	<0.070	0.070	2571113	<0.070	<0.070	0.070	2572091
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	0.0010	2571113	<0.0010	<0.0010	0.0010	2572091
Calcium (Ca) Extractible Total †	mg/kg	220	3.0	2571113	110	110	3.0	2572091
Chrome (Cr) Extractible Total †	mg/kg	<0.050	0.050	2571113	<0.050	<0.050	0.050	2572091
Cobalt (Co) Extractible Total †	mg/kg	0.0071	0.0020	2571113	0.0055	0.0051	0.0020	2572091
Cuivre (Cu) Extractible Total †	mg/kg	0.20	0.050	2571113	0.32	0.21 (2)	0.050	2572091
Etain (Sn) Extractible Total †	mg/kg	0.052 (3)	0.036	2571113	0.39 (1)	0.37 (4)	0.23	2573968
Fer (Fe) Extractible Total †	mg/kg	2.3	1.0	2571113	3.9	3.2	1.0	2572091
Lithium (Li) Extractible Total †	mg/kg	<0.020	0.020	2571113	<0.020	<0.020	0.020	2572091
Magnésium (Mg) Extractible Total †	mg/kg	440	1.0	2571113	420	410	1.0	2572091
Manganèse (Mn) Extractible Total †	mg/kg	0.14	0.030	2571113	0.083	0.083	0.030	2572091
Mercure (Hg) Extractible Total †	mg/kg	0.16	0.00030	2571113	0.17	0.14	0.00030	2572091
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	0.0030	2571113	<0.0030	<0.0030	0.0030	2572091
Nickel (Ni) Extractible Total †	mg/kg	<0.010	0.010	2571113	<0.010	<0.010	0.010	2572091
Phosphore total Extractible Total †	mg/kg	2900	5.0	2571113	2700	2700	5.0	2572091
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	0.0070	2571113	<0.0070	<0.0070	0.0070	2572091
Sélénium (Se) Extractible Total †	mg/kg	0.20	0.0090	2571113	0.22	0.20	0.0090	2572091
Sodium (Na) Extractible Total †	mg/kg	460	0.90	2571113	580	560	0.90	2572091
Strontium (Sr) Extractible Total †	mg/kg	0.38	0.0050	2571113	0.15	0.15	0.0050	2572091
Thallium (Tl) Extractible Total †	mg/kg	0.0024	0.0020	2571113	0.0021	<0.0020	0.0020	2572091
Titane (Ti) Extractible Total †	mg/kg	1.0	0.050	2571113	1.1	1.1	0.050	2572091

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à l'instrumentation.
(2) La récupération ou l'écart relatif (RPD) pour ce composé est en dehors des limites de contrôle, mais l'ensemble du contrôle qualité rencontre les critères d'acceptabilité pour cette analyse
(3) La limite de détection a été augmentée dû à contamination de blanc.
(4) La limite de détection a été augmentée dû à la contamination du blanc.

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WSP CANADA Inc.
Votre # du projet: CA0036076.5537
Adresse du site: Galaxy-Lithium

MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1110			NM1111	NM1111		
Date d'échantillonnage		2024/08/22			2024/08/22	2024/08/22		
# Bordereau		145713			145713	145713		
	Unités	**CE2-FE1/SAFO/8**	**LDR**	**Lot CQ**	**CE2-FE1/SAFO/9**	**CE2-FE1/SAFO/9 Dup. de Lab.**	**LDR**	**Lot CQ**
Uranium (U) Extractible Total †	mg/kg	<0.0010	0.0010	2571113	<0.0010	<0.0010	0.0010	2572091
Vanadium (V) Extractible Total †	mg/kg	<0.0090	0.0090	2571113	<0.0090	<0.0090	0.0090	2572091
Zinc (Zn) Extractible Total †	mg/kg	2.6	0.30	2571113	2.9	2.5	0.30	2572091

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1112	NM1113	NM1114		
Date d'échantillonnage		2024/08/22	2024/08/23	2024/08/24		
# Bordereau		145713	145713	145713		
	Unités	CE2-FE1/SAFO/10	CE1+CE2 MV2/SAFO/11	CE1+CE2 MV2/SAFO/12	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	<0.40	0.40	<0.40	0.40	2571113
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2571113
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571113
Arsenic (As) Extractible Total †	mg/kg	0.024	0.028	0.031	0.0050	2571113
Baryum (Ba) Extractible Total †	mg/kg	0.0070	0.013	0.0069	0.0060	2571113
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2571113
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	0.070	2571113
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571113
Calcium (Ca) Extractible Total †	mg/kg	130	96	190	3.0	2571113
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2571113
Cobalt (Co) Extractible Total †	mg/kg	0.0031	0.0097	0.0050	0.0020	2571113
Cuivre (Cu) Extractible Total †	mg/kg	0.16	0.19	0.20	0.050	2571113
Etain (Sn) Extractible Total †	mg/kg	0.041 (1)	0.042 (1)	0.043 (1)	0.036	2571113
Fer (Fe) Extractible Total †	mg/kg	2.4	3.7	2.8	1.0	2571113
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	0.020	2571113
Magnésium (Mg) Extractible Total †	mg/kg	330	330	410	1.0	2571113
Manganèse (Mn) Extractible Total †	mg/kg	0.097	0.096	0.11	0.030	2571113
Mercure (Hg) Extractible Total †	mg/kg	0.12	0.086	0.077	0.00030	2571113
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2571113
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	<0.010	0.010	2571113
Phosphore total Extractible Total †	mg/kg	2400	2600	2800	5.0	2571113
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	0.0070	2571113
Sélénium (Se) Extractible Total †	mg/kg	0.17	0.28	0.20	0.0090	2571113
Sodium (Na) Extractible Total †	mg/kg	530	390	400	0.90	2571113
Strontium (Sr) Extractible Total †	mg/kg	0.20	0.074	0.29	0.0050	2571113
Thallium (Tl) Extractible Total †	mg/kg	0.0021	0.0049	0.0038	0.0020	2571113
Titane (Ti) Extractible Total †	mg/kg	0.90	0.92	0.98	0.050	2571113
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571113
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	0.0090	2571113
Zinc (Zn) Extractible Total †	mg/kg	2.2	2.2	2.6	0.30	2571113

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à contamination de blanc.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1115	NM1116	NM1117		
Date d'échantillonnage		2024/08/24	2024/08/24	2024/08/24		
# Bordereau		145713	145713	145713		
	Unités	CE1+CE2 MV2/SAFO/13	CE1+CE2 MV2/SAFO/14	CE1+CE2 MV2/SAFO/15	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	0.40	2571113
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2571113
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571113
Arsenic (As) Extractible Total †	mg/kg	0.020	0.025	0.037	0.0050	2571113
Baryum (Ba) Extractible Total †	mg/kg	0.0069	0.017	<0.0060	0.0060	2571113
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2571113
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	0.070	2571113
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571113
Calcium (Ca) Extractible Total †	mg/kg	120	370	150	3.0	2571113
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2571113
Cobalt (Co) Extractible Total †	mg/kg	0.0034	0.0045	0.0060	0.0020	2571113
Cuivre (Cu) Extractible Total †	mg/kg	0.24	0.31	0.19	0.050	2571113
Etain (Sn) Extractible Total †	mg/kg	0.040 (1)	0.040 (1)	0.040 (1)	0.036	2571113
Fer (Fe) Extractible Total †	mg/kg	3.6	4.6	3.0	1.0	2571113
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	0.020	2571113
Magnésium (Mg) Extractible Total †	mg/kg	390	410	400	1.0	2571113
Manganèse (Mn) Extractible Total †	mg/kg	0.12	0.21	0.11	0.030	2571113
Mercure (Hg) Extractible Total †	mg/kg	0.12	0.087	0.13	0.00030	2571113
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2571113
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	<0.010	0.010	2571113
Phosphore total Extractible Total †	mg/kg	2800	2800	2700	5.0	2571113
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	0.0070	2571113
Sélénium (Se) Extractible Total †	mg/kg	0.25	0.19	0.22	0.0090	2571113
Sodium (Na) Extractible Total †	mg/kg	440	460	400	0.90	2571113
Strontium (Sr) Extractible Total †	mg/kg	0.18	0.77	0.17	0.0050	2571113
Thallium (Tl) Extractible Total †	mg/kg	0.0033	0.0025	0.0049	0.0020	2571113
Titane (Ti) Extractible Total †	mg/kg	0.96	1.0	0.95	0.050	2571113
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571113
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	0.0090	2571113
Zinc (Zn) Extractible Total †	mg/kg	2.5	3.0	2.5	0.30	2571113

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à contamination de blanc.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1118	NM1119	NM1120		
Date d'échantillonnage		2024/08/24	2024/08/24	2024/08/24		
# Bordereau		145713	145713	145713		
	Unités	CE1+CE2 MV2/SAFO/16	CE1+CE2 MV2/SAFO/17	CE1+CE2 MV2/SAFO/18	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	0.40	2571113
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2571113
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571113
Arsenic (As) Extractible Total †	mg/kg	0.017	0.021	0.019	0.0050	2571113
Baryum (Ba) Extractible Total †	mg/kg	0.0073	0.0063	<0.0060	0.0060	2571113
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2571113
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	0.070	2571113
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571113
Calcium (Ca) Extractible Total †	mg/kg	170	170	94	3.0	2571113
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2571113
Cobalt (Co) Extractible Total †	mg/kg	0.0025	0.0046	0.0083	0.0020	2571113
Cuivre (Cu) Extractible Total †	mg/kg	0.20	0.28	0.30	0.050	2571113
Etain (Sn) Extractible Total †	mg/kg	0.041 (1)	0.041 (1)	0.042 (1)	0.036	2571113
Fer (Fe) Extractible Total †	mg/kg	2.8	3.0	5.2	1.0	2571113
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	0.020	2571113
Magnésium (Mg) Extractible Total †	mg/kg	400	410	380	1.0	2571113
Manganèse (Mn) Extractible Total †	mg/kg	0.13	0.14	0.11	0.030	2571113
Mercure (Hg) Extractible Total †	mg/kg	0.062	0.080	0.071	0.00030	2571113
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	0.0035	0.0030	2571113
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	<0.010	0.010	2571113
Phosphore total Extractible Total †	mg/kg	2900	2700	2700	5.0	2571113
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	0.0070	2571113
Sélénium (Se) Extractible Total †	mg/kg	0.20	0.20	0.18	0.0090	2571113
Sodium (Na) Extractible Total †	mg/kg	450	480	530	0.90	2571113
Strontium (Sr) Extractible Total †	mg/kg	0.29	0.27	0.11	0.0050	2571113
Thallium (Tl) Extractible Total †	mg/kg	0.0025	<0.0020	0.0034	0.0020	2571113
Titane (Ti) Extractible Total †	mg/kg	1.0	0.95	0.94	0.050	2571113
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571113
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	0.0090	2571113
Zinc (Zn) Extractible Total †	mg/kg	2.9	2.7	2.7	0.30	2571113

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à contamination de blanc.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1121	NM1122		
Date d'échantillonnage		2024/08/24	2024/08/24		
# Bordereau		145713	145713		
	Unités	CE1+CE2 MV2/SAFO/19	CE1+CE2 MV2/SAFO/20	LDR	Lot CQ
MÉTAUX					
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	0.40	2571113
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	0.040	2571113
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2571113
Arsenic (As) Extractible Total †	mg/kg	0.020	0.022	0.0050	2571113
Baryum (Ba) Extractible Total †	mg/kg	0.012	<0.0060	0.0060	2571113
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	0.0030	2571113
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	0.070	2571113
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2571113
Calcium (Ca) Extractible Total †	mg/kg	210	100	3.0	2571113
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	0.050	2571113
Cobalt (Co) Extractible Total †	mg/kg	0.0063	0.0038	0.0020	2571113
Cuivre (Cu) Extractible Total †	mg/kg	0.18	0.25	0.050	2571113
Etain (Sn) Extractible Total †	mg/kg	0.041 (1)	0.041 (1)	0.036	2571113
Fer (Fe) Extractible Total †	mg/kg	3.7	3.4	1.0	2571113
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	0.020	2571113
Magnésium (Mg) Extractible Total †	mg/kg	420	360	1.0	2571113
Manganèse (Mn) Extractible Total †	mg/kg	0.15	0.12	0.030	2571113
Mercure (Hg) Extractible Total †	mg/kg	0.069	0.050	0.00030	2571113
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	0.0030	2571113
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	0.010	2571113
Phosphore total Extractible Total †	mg/kg	2800	2700	5.0	2571113
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	0.0070	2571113
Sélénium (Se) Extractible Total †	mg/kg	0.18	0.20	0.0090	2571113
Sodium (Na) Extractible Total †	mg/kg	440	430	0.90	2571113
Strontium (Sr) Extractible Total †	mg/kg	0.38	0.12	0.0050	2571113
Thallium (Tl) Extractible Total †	mg/kg	0.0037	0.0022	0.0020	2571113
Titane (Ti) Extractible Total †	mg/kg	1.0	0.94	0.050	2571113
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2571113
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	0.0090	2571113
Zinc (Zn) Extractible Total †	mg/kg	2.9	3.0	0.30	2571113

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à contamination de blanc.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1123	NM1123	NM1124		
Date d'échantillonnage		2024/08/24	2024/08/24	2024/08/24		
# Bordereau		145713	145713	145713		
	Unités	CE1+CE2 MV2/SAFO/21	CE1+CE2 MV2/SAFO/21 Dup. de Lab.	CE1+CE2 MV2/SAFO/22	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	0.40	2571150
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2571150
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571150
Arsenic (As) Extractible Total †	mg/kg	0.020	0.020	0.033	0.0050	2571150
Baryum (Ba) Extractible Total †	mg/kg	0.0072	<0.0060	<0.0060	0.0060	2571150
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2571150
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	0.070	2571150
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571150
Calcium (Ca) Extractible Total †	mg/kg	210	130 (1)	190	3.0	2571150
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2571150
Cobalt (Co) Extractible Total †	mg/kg	0.0070	0.0071	0.0072	0.0020	2571150
Cuivre (Cu) Extractible Total †	mg/kg	0.24	0.24	0.22	0.050	2571150
Etain (Sn) Extractible Total †	mg/kg	<0.050 (2)	0.052 (2)	0.050 (2)	0.050	2571150
Fer (Fe) Extractible Total †	mg/kg	3.0	3.4	3.8	1.0	2571150
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	0.020	2571150
Magnésium (Mg) Extractible Total †	mg/kg	460	480	440	1.0	2571150
Manganèse (Mn) Extractible Total †	mg/kg	0.13	0.095	0.12	0.030	2571150
Mercure (Hg) Extractible Total †	mg/kg	0.072	0.073	0.11	0.00030	2571150
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2571150
Nickel (Ni) Extractible Total †	mg/kg	<0.030 (2)	<0.030 (2)	<0.030 (2)	0.030	2571150
Phosphore total Extractible Total †	mg/kg	2900	2900	2900	5.0	2571150
Plomb (Pb) Extractible Total †	mg/kg	0.034	<0.0070 (1)	<0.0070	0.0070	2571150
Sélénium (Se) Extractible Total †	mg/kg	0.18	0.18	0.17	0.0090	2571150
Sodium (Na) Extractible Total †	mg/kg	470	500	420	0.90	2571150
Strontium (Sr) Extractible Total †	mg/kg	0.29	0.10 (1)	0.23	0.0050	2571150
Thallium (Tl) Extractible Total †	mg/kg	0.0031	0.0031	0.0052	0.0020	2571150
Titane (Ti) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2571150
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571150
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	0.0090	2571150

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre
(1) La récupération ou l'écart relatif (RPD) pour ce composé est en dehors des limites de contrôle, mais l'ensemble du contrôle qualité rencontre les critères d'acceptabilité pour cette analyse
(2) La limite de détection a été augmentée dû à l'instrumentation.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1123	NM1123	NM1124		
Date d'échantillonnage		2024/08/24	2024/08/24	2024/08/24		
# Bordereau		145713	145713	145713		
	Unités	**CE1+CE2 MV2/SAFO/21**	**CE1+CE2 MV2/SAFO/21 Dup. de Lab.**	**CE1+CE2 MV2/SAFO/22**	**LDR**	**Lot CQ**
Zinc (Zn) Extractible Total †	mg/kg	2.7	2.7	2.8	0.30	2571150

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1125	NM1126	NM1127		
Date d'échantillonnage		2024/08/24	2024/08/24	2024/08/24		
# Bordereau		145713	145713	145713		
	Unités	CE1+CE2 MV2/SAFO/23	CE2-AV-FE2/SAFO/24	CE2-AV-FE2/SAFO/25	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	0.40	2571150
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2571150
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571150
Arsenic (As) Extractible Total †	mg/kg	0.021	0.020	0.037	0.0050	2571150
Baryum (Ba) Extractible Total †	mg/kg	<0.0060	<0.0060	<0.0060	0.0060	2571150
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2571150
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	0.070	2571150
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571150
Calcium (Ca) Extractible Total †	mg/kg	150	85	160	3.0	2571150
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2571150
Cobalt (Co) Extractible Total †	mg/kg	0.0092	0.0043	0.0055	0.0020	2571150
Cuivre (Cu) Extractible Total †	mg/kg	0.25	0.23	0.27	0.050	2571150
Etain (Sn) Extractible Total †	mg/kg	<0.050 (1)	0.050 (1)	<0.050 (1)	0.050	2571150
Fer (Fe) Extractible Total †	mg/kg	4.3	3.7	3.8	1.0	2571150
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	0.020	2571150
Magnésium (Mg) Extractible Total †	mg/kg	390	430	460	1.0	2571150
Manganèse (Mn) Extractible Total †	mg/kg	0.13	0.071	0.13	0.030	2571150
Mercure (Hg) Extractible Total †	mg/kg	0.058	0.12	0.083	0.00030	2571150
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2571150
Nickel (Ni) Extractible Total †	mg/kg	<0.030 (1)	<0.030 (1)	<0.030 (1)	0.030	2571150
Phosphore total Extractible Total †	mg/kg	2500	2800	3000	5.0	2571150
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	0.0070	2571150
Sélénium (Se) Extractible Total †	mg/kg	0.17	0.22	0.20	0.0090	2571150
Sodium (Na) Extractible Total †	mg/kg	430	490	580	0.90	2571150
Strontium (Sr) Extractible Total †	mg/kg	0.18	0.10	0.22	0.0050	2571150
Thallium (Tl) Extractible Total †	mg/kg	0.0044	0.0044	0.0034	0.0020	2571150
Titane (Ti) Extractible Total †	mg/kg	<0.050	0.053	<0.050	0.050	2571150
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571150
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	0.0090	2571150
Zinc (Zn) Extractible Total †	mg/kg	2.1	2.5	3.0	0.30	2571150

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à l'instrumentation.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1128	NM1129		
Date d'échantillonnage		2024/08/24	2024/08/25		
# Bordereau		145713	145713		
	Unités	CE2-AV-FE2/SAFO/26	CE2-AV-FE2/SAFO/27	LDR	Lot CQ
MÉTAUX					
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	0.40	2571150
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	0.040	2571150
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2571150
Arsenic (As) Extractible Total †	mg/kg	0.034	0.023	0.0050	2571150
Baryum (Ba) Extractible Total †	mg/kg	0.013	0.013	0.0060	2571150
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	0.0030	2571150
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	0.070	2571150
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2571150
Calcium (Ca) Extractible Total †	mg/kg	170	250	3.0	2571150
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	0.050	2571150
Cobalt (Co) Extractible Total †	mg/kg	0.0066	0.0071	0.0020	2571150
Cuivre (Cu) Extractible Total †	mg/kg	0.31	0.24	0.050	2571150
Etain (Sn) Extractible Total †	mg/kg	<0.050 (1)	<0.050 (1)	0.050	2571150
Fer (Fe) Extractible Total †	mg/kg	3.1	4.0	1.0	2571150
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	0.020	2571150
Magnésium (Mg) Extractible Total †	mg/kg	440	410	1.0	2571150
Manganèse (Mn) Extractible Total †	mg/kg	0.17	0.14	0.030	2571150
Mercure (Hg) Extractible Total †	mg/kg	0.080	0.16	0.00030	2571150
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	0.0030	2571150
Nickel (Ni) Extractible Total †	mg/kg	<0.030 (1)	<0.030 (1)	0.030	2571150
Phosphore total Extractible Total †	mg/kg	2700	2700	5.0	2571150
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	0.0070	2571150
Sélénium (Se) Extractible Total †	mg/kg	0.30	0.21	0.0090	2571150
Sodium (Na) Extractible Total †	mg/kg	440	620	0.90	2571150
Strontium (Sr) Extractible Total †	mg/kg	0.32	0.45	0.0050	2571150
Thallium (Tl) Extractible Total †	mg/kg	0.0056	0.0040	0.0020	2571150
Titane (Ti) Extractible Total †	mg/kg	<0.050	0.051	0.050	2571150
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2571150
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	0.0090	2571150
Zinc (Zn) Extractible Total †	mg/kg	3.1	2.3	0.30	2571150

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à l'instrumentation.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1130	NM1130		
Date d'échantillonnage		2024/08/25	2024/08/25		
# Bordereau		145713	145713		
	Unités	CE2-AV-FE2/SAFO/28	CE2-AV-FE2/SAFO/28 Dup. de Lab.	LDR	Lot CQ
MÉTAUX					
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	0.40	2572091
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	0.040	2573968
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2572091
Arsenic (As) Extractible Total †	mg/kg	0.022	0.028	0.0050	2572091
Baryum (Ba) Extractible Total †	mg/kg	0.049 (1)	0.047 (1)	0.030	2573968
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	0.0030	2572091
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	0.070	2572091
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2572091
Calcium (Ca) Extractible Total †	mg/kg	57	130 (2)	3.0	2572091
Chrome (Cr) Extractible Total †	mg/kg	0.057	<0.050	0.050	2572091
Cobalt (Co) Extractible Total †	mg/kg	0.0042	0.0042	0.0020	2572091
Cuivre (Cu) Extractible Total †	mg/kg	0.17	0.16	0.050	2572091
Etain (Sn) Extractible Total †	mg/kg	0.39 (3)	0.41 (3)	0.23	2573968
Fer (Fe) Extractible Total †	mg/kg	3.8	3.3	1.0	2572091
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	0.020	2572091
Magnésium (Mg) Extractible Total †	mg/kg	370	370	1.0	2572091
Manganèse (Mn) Extractible Total †	mg/kg	0.075	0.090	0.030	2572091
Mercure (Hg) Extractible Total †	mg/kg	0.12	0.11	0.00030	2572091
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	0.0030	2572091
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	0.010	2572091
Phosphore total Extractible Total †	mg/kg	2400	2500	5.0	2572091
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	0.0070	2572091
Sélénium (Se) Extractible Total †	mg/kg	0.17	0.18	0.0090	2572091
Sodium (Na) Extractible Total †	mg/kg	330	350	0.90	2572091
Strontium (Sr) Extractible Total †	mg/kg	0.072	0.23 (2)	0.0050	2572091
Thallium (Tl) Extractible Total †	mg/kg	0.0043	0.0045	0.0020	2572091
Titane (Ti) Extractible Total †	mg/kg	0.97	1.0	0.050	2572091

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à l'instrumentation.
(2) La récupération ou l'écart relatif (RPD) pour ce composé est en dehors des limites de contrôle, mais l'ensemble du contrôle qualité rencontre les critères d'acceptabilité pour cette analyse
(3) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1130	NM1130		
Date d'échantillonnage		2024/08/25	2024/08/25		
# Bordereau		145713	145713		
	Unités	CE2-AV-FE2/SAFO/28	CE2-AV-FE2/SAFO/28 Dup. de Lab.	LDR	Lot CQ
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2572091
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	0.0090	2572091
Zinc (Zn) Extractible Total †	mg/kg	2.0	2.0	0.30	2572091

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1131	NM1132	NM1133	NM1134		
Date d'échantillonnage		2024/08/25	2024/08/25	2024/08/27	2024/08/27		
# Bordereau		145713	145713	145713	145713		
	Unités	CE2-AV-FE2/SAFO/29	CE2-AV-FE2/SAFO/30	CE3-FE2/ESLU/31	CE3-FE2/ESLU/32	LDR	Lot CQ
MÉTAUX							
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	2571150
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	2571150
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571150
Arsenic (As) Extractible Total †	mg/kg	0.030	0.028	0.067	0.053	0.0050	2571150
Baryum (Ba) Extractible Total †	mg/kg	0.0090	0.011	0.027	0.031	0.0060	2571150
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571150
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	2571150
Cadmium (Cd) Extractible Total †	mg/kg	0.0013	<0.0010	<0.0010	<0.0010	0.0010	2571150
Calcium (Ca) Extractible Total †	mg/kg	240	190	240	350	3.0	2571150
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	2571150
Cobalt (Co) Extractible Total †	mg/kg	0.0055	0.0062	<0.0020	<0.0020	0.0020	2571150
Cuivre (Cu) Extractible Total †	mg/kg	0.20	0.21	0.12	0.13	0.050	2571150
Etain (Sn) Extractible Total †	mg/kg	0.050 (1)	<0.050 (1)	<0.050 (1)	<0.050 (1)	0.050	2571150
Fer (Fe) Extractible Total †	mg/kg	3.3	2.7	1.9	1.6	1.0	2571150
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	2571150
Magnésium (Mg) Extractible Total †	mg/kg	410	400	420	460	1.0	2571150
Manganèse (Mn) Extractible Total †	mg/kg	0.12	0.13	0.19	0.19	0.030	2571150
Mercure (Hg) Extractible Total †	mg/kg	0.16	0.095	0.16	0.17	0.00030	2571150
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571150
Nickel (Ni) Extractible Total †	mg/kg	<0.030 (1)	<0.030 (1)	<0.030 (1)	<0.030 (1)	0.030	2571150
Phosphore total Extractible Total †	mg/kg	2600	2300	2400	2600	5.0	2571150
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	<0.0070	0.0070	2571150
Sélénium (Se) Extractible Total †	mg/kg	0.21	0.22	0.20	0.21	0.0090	2571150
Sodium (Na) Extractible Total †	mg/kg	600	520	480	530	0.90	2571150
Strontium (Sr) Extractible Total †	mg/kg	0.48	0.43	0.36	0.59	0.0050	2571150
Thallium (Tl) Extractible Total †	mg/kg	0.0020	0.0033	0.0033	0.0041	0.0020	2571150
Titane (Ti) Extractible Total †	mg/kg	<0.050	<0.050	0.059	<0.050	0.050	2571150
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571150
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	2571150
Zinc (Zn) Extractible Total †	mg/kg	2.0	2.4	2.1	2.7	0.30	2571150

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à l'instrumentation.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1135	NM1136	NM1137	NM1138		
Date d'échantillonnage		2024/08/27	2024/08/27	2024/08/27	2024/08/27		
# Bordereau		145713	145713	145713	145713		
	Unités	CE3-GV1/ESLU/33	CE3-GV1/ESLU/34	CE3-FE3/ESLU/35	CE3-FE3/ESLU/36	LDR	Lot CQ
MÉTAUX							
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	2571150
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	2571150
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571150
Arsenic (As) Extractible Total †	mg/kg	0.069	0.091	0.041	0.056	0.0050	2571150
Baryum (Ba) Extractible Total †	mg/kg	<0.0060	0.022	0.013	<0.0060	0.0060	2571150
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571150
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	2571150
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571150
Calcium (Ca) Extractible Total †	mg/kg	92	190	160	88	3.0	2571150
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	2571150
Cobalt (Co) Extractible Total †	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	2571150
Cuivre (Cu) Extractible Total †	mg/kg	0.13	0.14	0.11	0.12	0.050	2571150
Etain (Sn) Extractible Total †	mg/kg	<0.050 (1)	0.051 (1)	<0.050 (1)	<0.050 (1)	0.050	2571150
Fer (Fe) Extractible Total †	mg/kg	1.7	1.8	1.6	1.7	1.0	2571150
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	2571150
Magnésium (Mg) Extractible Total †	mg/kg	450	480	400	450	1.0	2571150
Manganèse (Mn) Extractible Total †	mg/kg	0.11	0.19	0.13	0.11	0.030	2571150
Mercure (Hg) Extractible Total †	mg/kg	0.19	0.16	0.15	0.17	0.00030	2571150
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571150
Nickel (Ni) Extractible Total †	mg/kg	<0.030 (1)	<0.030 (1)	<0.030 (1)	<0.030 (1)	0.030	2571150
Phosphore total Extractible Total †	mg/kg	2400	2800	2200	2500	5.0	2571150
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	<0.0070	0.0070	2571150
Sélénium (Se) Extractible Total †	mg/kg	0.24	0.19	0.21	0.25	0.0090	2571150
Sodium (Na) Extractible Total †	mg/kg	270	300	260	370	0.90	2571150
Strontium (Sr) Extractible Total †	mg/kg	0.082	0.25	0.25	0.045	0.0050	2571150
Thallium (Tl) Extractible Total †	mg/kg	0.0046	0.0052	0.0041	0.0041	0.0020	2571150
Titane (Ti) Extractible Total †	mg/kg	<0.050	0.064	0.057	<0.050	0.050	2571150
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571150
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	2571150
Zinc (Zn) Extractible Total †	mg/kg	2.1	2.4	2.2	2.2	0.30	2571150

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à l'instrumentation.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1139	NM1140	NM1141	NM1142		
Date d'échantillonnage		2024/08/27	2024/08/27	2024/08/28	2024/08/28		
# Bordereau		145713	145713	145713	145713		
	Unités	CE3-FE3/ESLU/37	CE3-FE3/ESLU/38	CE4-PE1/SAFO/39	CE4-PE2/SAFO/40	LDR	Lot CQ
MÉTAUX							
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	2571150
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	2571150
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571150
Arsenic (As) Extractible Total †	mg/kg	0.061	0.062	0.027	0.19	0.0050	2571150
Baryum (Ba) Extractible Total †	mg/kg	0.028	<0.0060	0.0080	0.049	0.0060	2571150
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571150
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	2571150
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0028	0.0010	2571150
Calcium (Ca) Extractible Total †	mg/kg	300	110	170	620	3.0	2571150
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	2571150
Cobalt (Co) Extractible Total †	mg/kg	<0.0020	<0.0020	0.0072	0.0085	0.0020	2571150
Cuivre (Cu) Extractible Total †	mg/kg	0.15	0.14	0.31	0.20	0.050	2571150
Etain (Sn) Extractible Total †	mg/kg	0.052 (1)	<0.050 (1)	<0.050 (1)	0.050 (1)	0.050	2571150
Fer (Fe) Extractible Total †	mg/kg	1.6	1.9	3.6	3.8	1.0	2571150
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	2571150
Magnésium (Mg) Extractible Total †	mg/kg	460	440	490	410	1.0	2571150
Manganèse (Mn) Extractible Total †	mg/kg	0.19	0.11	0.10	0.27	0.030	2571150
Mercure (Hg) Extractible Total †	mg/kg	0.15	0.18	0.20	0.063	0.00030	2571150
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0034	0.0030	2571150
Nickel (Ni) Extractible Total †	mg/kg	<0.030 (1)	<0.030 (1)	<0.030 (1)	<0.030 (1)	0.030	2571150
Phosphore total Extractible Total †	mg/kg	2600	2400	3200	2800	5.0	2571150
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	<0.0070	0.0070	2571150
Sélénium (Se) Extractible Total †	mg/kg	0.24	0.21	0.22	0.40	0.0090	2571150
Sodium (Na) Extractible Total †	mg/kg	460	450	300	700	0.90	2571150
Strontium (Sr) Extractible Total †	mg/kg	0.55	0.088	0.25	1.4	0.0050	2571150
Thallium (Tl) Extractible Total †	mg/kg	0.0040	0.0051	0.0042	<0.0020	0.0020	2571150
Titane (Ti) Extractible Total †	mg/kg	<0.050	<0.050	0.053	<0.050	0.050	2571150
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571150
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	2571150
Zinc (Zn) Extractible Total †	mg/kg	2.7	2.4	3.1	3.8	0.30	2571150

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à l'instrumentation.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1143	NM1143	NM1144	NM1145		
Date d'échantillonnage		2024/08/29	2024/08/29	2024/08/29	2024/08/29		
# Bordereau		145713	145713	145713	145713		
	Unités	CE5-FE2/ESLU/41	CE5-FE2/ESLU/41 Dup. de Lab.	CE5-FE2/ESLU/42	CE5-FE2/ESLU/43	LDR	Lot CQ
MÉTAUX							
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	2571193
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	2571193
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571193
Arsenic (As) Extractible Total †	mg/kg	0.058	0.058	0.047	0.051	0.0050	2571193
Baryum (Ba) Extractible Total †	mg/kg	0.021	0.0072 (1)	<0.0060	0.016	0.0060	2571193
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571193
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	2571193
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571193
Calcium (Ca) Extractible Total †	mg/kg	270	120 (1)	86	280	3.0	2571193
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	2571193
Cobalt (Co) Extractible Total †	mg/kg	0.0086	0.0085	0.0045	0.0045	0.0020	2571193
Cuivre (Cu) Extractible Total †	mg/kg	0.14	0.14	0.16	0.18	0.050	2571193
Etain (Sn) Extractible Total †	mg/kg	<0.030 (2)	<0.030 (2)	<0.030 (2)	<0.030 (2)	0.030	2571193
Fer (Fe) Extractible Total †	mg/kg	2.8	2.5	1.7	2.1	1.0	2571193
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	2571193
Magnésium (Mg) Extractible Total †	mg/kg	460	480	420	480	1.0	2571193
Manganèse (Mn) Extractible Total †	mg/kg	0.25	0.18 (1)	0.14	0.21	0.030	2571193
Mercure (Hg) Extractible Total †	mg/kg	0.15	0.15	0.16	0.19	0.00030	2571193
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571193
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	2571193
Phosphore total Extractible Total †	mg/kg	2800	2700	2400	2800	5.0	2571193
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	<0.0070	0.0070	2571193
Sélénium (Se) Extractible Total †	mg/kg	0.14	0.15	0.15	0.18	0.0090	2571193
Sodium (Na) Extractible Total †	mg/kg	320	330	370	450	0.90	2571193
Strontium (Sr) Extractible Total †	mg/kg	0.34	0.094 (1)	0.060	0.37	0.0050	2571193
Thallium (Tl) Extractible Total †	mg/kg	0.0045	0.0043	0.0039	0.0047	0.0020	2571193
Titane (Ti) Extractible Total †	mg/kg	0.061	0.051	<0.050	0.053	0.050	2571193
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571193
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	2571193

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre
(1) La récupération ou l'écart relatif (RPD) pour ce composé est en dehors des limites de contrôle, mais l'ensemble du contrôle qualité rencontre les critères d'acceptabilité pour cette analyse
(2) La limite de détection a été augmentée dû à l'instrumentation.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1143	NM1143	NM1144	NM1145		
Date d'échantillonnage		2024/08/29	2024/08/29	2024/08/29	2024/08/29		
# Bordereau		145713	145713	145713	145713		
	Unités	**CE5-FE2/ESLU/41**	**CE5-FE2/ESLU/41 Dup. de Lab.**	**CE5-FE2/ESLU/42**	**CE5-FE2/ESLU/43**	**LDR**	**Lot CQ**
Zinc (Zn) Extractible Total †	mg/kg	2.8	2.6	2.4	2.6	0.30	2571193

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1146	NM1147	NM1148		
Date d'échantillonnage		2024/08/29	2024/08/29	2024/08/29		
# Bordereau		145713	145713	145713		
	Unités	CE5-FE2/ESLU/44	CE5-GV3/ESLU/45	CE5-FE1/ESLU/46	LDR	Lot CQ
MÉTAUX						
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	0.40	2571193
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	0.040	2571193
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571193
Arsenic (As) Extractible Total †	mg/kg	0.059	0.068	0.059	0.0050	2571193
Baryum (Ba) Extractible Total †	mg/kg	0.024	<0.0060	0.015	0.0060	2571193
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2571193
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	0.070	2571193
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571193
Calcium (Ca) Extractible Total †	mg/kg	320	99	210	3.0	2571193
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2571193
Cobalt (Co) Extractible Total †	mg/kg	0.0052	0.0062	0.0047	0.0020	2571193
Cuivre (Cu) Extractible Total †	mg/kg	0.16	0.16	0.26	0.050	2571193
Etain (Sn) Extractible Total †	mg/kg	<0.030 (1)	0.030 (1)	<0.030 (1)	0.030	2571193
Fer (Fe) Extractible Total †	mg/kg	1.8	1.6	3.7	1.0	2571193
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	0.020	2571193
Magnésium (Mg) Extractible Total †	mg/kg	420	490	430	1.0	2571193
Manganèse (Mn) Extractible Total †	mg/kg	0.23	0.18	0.23	0.030	2571193
Mercure (Hg) Extractible Total †	mg/kg	0.14	0.16	0.16	0.00030	2571193
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	0.0030	2571193
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	<0.010	0.010	2571193
Phosphore total Extractible Total †	mg/kg	2500	2800	2600	5.0	2571193
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	0.0070	2571193
Sélénium (Se) Extractible Total †	mg/kg	0.16	0.17	0.17	0.0090	2571193
Sodium (Na) Extractible Total †	mg/kg	500	350	280	0.90	2571193
Strontium (Sr) Extractible Total †	mg/kg	0.44	0.069	0.27	0.0050	2571193
Thallium (Tl) Extractible Total †	mg/kg	0.0042	0.0040	0.0045	0.0020	2571193
Titane (Ti) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	0.050	2571193
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	2571193
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	0.0090	2571193
Zinc (Zn) Extractible Total †	mg/kg	2.6	2.5	2.5	0.30	2571193

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à l'instrumentation.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1149	NM1149			NM1150		
Date d'échantillonnage		2024/08/29	2024/08/29			2024/08/30		
# Bordereau		145713	145713			145713		
	Unités	CE5-FE1/ESLU/47	CE5-FE1/ESLU/47 Dup. de Lab.	LDR	Lot CQ	CE4-PE3/SAFO/48	LDR	Lot CQ
MÉTAUX								
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	0.40	2573968	<0.40	0.40	2571193
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	0.040	2573968	<0.040	0.040	2571193
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2573968	<0.0010	0.0010	2571193
Arsenic (As) Extractible Total †	mg/kg	0.060	0.061	0.0050	2573968	0.29	0.0050	2571193
Baryum (Ba) Extractible Total †	mg/kg	0.050 (1)	0.066 (1)	0.030	2573968	0.0089	0.0060	2571193
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	0.0030	2573968	<0.0030	0.0030	2571193
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	0.070	2573968	<0.070	0.070	2571193
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2573968	<0.0010	0.0010	2571193
Calcium (Ca) Extractible Total †	mg/kg	110	260 (2)	3.0	2573968	170	3.0	2571193
Chrome (Cr) Extractible Total †	mg/kg	0.15	<0.050	0.050	2573968	<0.050	0.050	2571193
Cobalt (Co) Extractible Total †	mg/kg	0.0055	0.0049	0.0020	2573968	0.0083	0.0020	2571193
Cuivre (Cu) Extractible Total †	mg/kg	0.17	0.17	0.050	2573968	0.19	0.050	2571193
Etain (Sn) Extractible Total †	mg/kg	0.43 (3)	0.42 (3)	0.23	2573968	<0.030 (1)	0.030	2571193
Fer (Fe) Extractible Total †	mg/kg	3.8	2.5	1.0	2573968	2.8	1.0	2571193
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	0.020	2573968	<0.020	0.020	2571193
Magnésium (Mg) Extractible Total †	mg/kg	360	360	1.0	2573968	450	1.0	2571193
Manganèse (Mn) Extractible Total †	mg/kg	0.17	0.22	0.030	2573968	0.17	0.030	2571193
Mercure (Hg) Extractible Total †	mg/kg	0.22	0.21	0.00030	2573968	0.15	0.00030	2571193
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	0.0030	2573968	<0.0030	0.0030	2571193
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	0.010	2573968	<0.010	0.010	2571193
Phosphore total Extractible Total †	mg/kg	3200	3300	5.0	2573968	3100	5.0	2571193
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	0.0070	2573968	<0.0070	0.0070	2571193
Sélénium (Se) Extractible Total †	mg/kg	0.17	0.16	0.0090	2573968	0.27	0.0090	2571193
Sodium (Na) Extractible Total †	mg/kg	290	280	0.90	2573968	320	0.90	2571193
Strontium (Sr) Extractible Total †	mg/kg	0.10	0.41 (2)	0.0050	2573968	0.31	0.0050	2571193
Thallium (Tl) Extractible Total †	mg/kg	0.0051	0.0050	0.0020	2573968	0.0025	0.0020	2571193
Titane (Ti) Extractible Total †	mg/kg	0.82	0.81	0.050	2573968	<0.050	0.050	2571193
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2573968	<0.0010	0.0010	2571193

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à l'instrumentation.
(2) La récupération ou l'écart relatif (RPD) pour ce composé est en dehors des limites de contrôle, mais l'ensemble du contrôle qualité rencontre les critères d'acceptabilité pour cette analyse
(3) La limite de détection a été augmentée dû à la contamination du blanc.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1149	NM1149			NM1150		
Date d'échantillonnage		2024/08/29	2024/08/29			2024/08/30		
# Bordereau		145713	145713			145713		
	Unités	**CE5-FE1/ESLU/47**	**CE5-FE1/ESLU/47 Dup. de Lab.**	**LDR**	**Lot CQ**	**CE4-PE3/SAFO/48**	**LDR**	**Lot CQ**
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	0.0090	2573968	<0.0090	0.0090	2571193
Zinc (Zn) Extractible Total †	mg/kg	3.0	2.9	0.30	2573968	2.9	0.30	2571193

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1151	NM1152	NM1153	NM1154		
Date d'échantillonnage		2024/08/30	2024/08/30	2024/08/30	2024/08/30		
# Bordereau		145713	145713	145713	145713		
	Unités	CE4-PE3/SAFO/49	CE4-PE3/SAFO/50	CE4-PE4/SAFO/51	CE4-PE4/SAFO/52	LDR	Lot CQ
MÉTAUX							
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	2571193
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	2571193
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571193
Arsenic (As) Extractible Total †	mg/kg	0.032	0.080	0.045	0.038	0.0050	2571193
Baryum (Ba) Extractible Total †	mg/kg	0.025	0.020	0.037	0.062	0.0060	2571193
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571193
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	2571193
Cadmium (Cd) Extractible Total †	mg/kg	0.0017	<0.0010	<0.0010	<0.0010	0.0010	2571193
Calcium (Ca) Extractible Total †	mg/kg	320	270	570	500	3.0	2571193
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	2571193
Cobalt (Co) Extractible Total †	mg/kg	0.0075	0.0068	0.0084	0.010	0.0020	2571193
Cuivre (Cu) Extractible Total †	mg/kg	0.14	0.24	0.21	0.21	0.050	2571193
Etain (Sn) Extractible Total †	mg/kg	<0.030 (1)	<0.030 (1)	<0.030 (1)	<0.030 (1)	0.030	2571193
Fer (Fe) Extractible Total †	mg/kg	2.4	3.1	3.4	4.4	1.0	2571193
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	2571193
Magnésium (Mg) Extractible Total †	mg/kg	390	440	420	410	1.0	2571193
Manganèse (Mn) Extractible Total †	mg/kg	0.17	0.24	0.19	0.22	0.030	2571193
Mercure (Hg) Extractible Total †	mg/kg	0.069	0.094	0.26	0.11	0.00030	2571193
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571193
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	2571193
Phosphore total Extractible Total †	mg/kg	2500	2900	3100	2900	5.0	2571193
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	<0.0070	0.0070	2571193
Sélénium (Se) Extractible Total †	mg/kg	0.21	0.22	0.20	0.22	0.0090	2571193
Sodium (Na) Extractible Total †	mg/kg	640	360	400	450	0.90	2571193
Strontium (Sr) Extractible Total †	mg/kg	0.60	0.49	1.2	1.2	0.0050	2571193
Thallium (Tl) Extractible Total †	mg/kg	<0.0020	<0.0020	0.0041	0.0033	0.0020	2571193
Titane (Ti) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	2571193
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571193
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	2571193
Zinc (Zn) Extractible Total †	mg/kg	3.0	3.0	2.7	3.7	0.30	2571193

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à l'instrumentation.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1155	NM1156	NM1157	NM1158		
Date d'échantillonnage		2024/08/30	2024/08/30	2024/08/30	2024/08/30		
# Bordereau		145713	145713	145713	145713		
	Unités	CE4-PE4/SAFO/53	CE4-PE4/SAFO/54	CE4-PE4/SAFO/55	CE4-PE4/SAFO/56	LDR	Lot CQ
MÉTAUX							
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	2571193
Antimoine (Sb) Extractible Total †	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	2571193
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571193
Arsenic (As) Extractible Total †	mg/kg	0.044	0.049	0.033	0.050	0.0050	2571193
Baryum (Ba) Extractible Total †	mg/kg	<0.0060	<0.0060	0.014	0.13	0.0060	2571193
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	2571193
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	<0.070	<0.070	0.070	2571193
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	0.0016	0.0010	2571193
Calcium (Ca) Extractible Total †	mg/kg	89	120	220	1300	3.0	2571193
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	2571193
Cobalt (Co) Extractible Total †	mg/kg	0.0076	0.0083	0.0071	0.010	0.0020	2571193
Cuivre (Cu) Extractible Total †	mg/kg	0.28	0.29	0.24	0.23	0.050	2571193
Etain (Sn) Extractible Total †	mg/kg	<0.030 (1)	<0.030 (1)	<0.030 (1)	<0.030 (1)	0.030	2571193
Fer (Fe) Extractible Total †	mg/kg	4.7	5.6	3.5	4.5	1.0	2571193
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	2571193
Magnésium (Mg) Extractible Total †	mg/kg	430	440	420	460	1.0	2571193
Manganèse (Mn) Extractible Total †	mg/kg	0.085	0.12	0.14	0.37	0.030	2571193
Mercure (Hg) Extractible Total †	mg/kg	0.23	0.17	0.16	0.13	0.00030	2571193
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	0.0035	<0.0030	0.0033	0.0030	2571193
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	2571193
Phosphore total Extractible Total †	mg/kg	3000	3000	2800	3400	5.0	2571193
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	<0.0070	<0.0070	0.0070	2571193
Sélénium (Se) Extractible Total †	mg/kg	0.20	0.23	0.19	0.19	0.0090	2571193
Sodium (Na) Extractible Total †	mg/kg	310	360	380	430	0.90	2571193
Strontium (Sr) Extractible Total †	mg/kg	0.084	0.13	0.35	3.6	0.0050	2571193
Thallium (Tl) Extractible Total †	mg/kg	0.0043	<0.0020	0.0047	0.0032	0.0020	2571193
Titane (Ti) Extractible Total †	mg/kg	0.40	0.056	<0.050	<0.050	0.050	2571193
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2571193
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	2571193
Zinc (Zn) Extractible Total †	mg/kg	3.1	2.7	3.1	4.5	0.30	2571193

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
† Accréditation non existante pour ce paramètre
(1) La limite de détection a été augmentée dû à l'instrumentation.

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MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

ID Bureau Veritas		NM1159	NM1159		
Date d'échantillonnage		2024/08/30	2024/08/30		
# Bordereau		145713	145713		
	Unités	CE4-PE4/SAFO/57	CE4-PE4/SAFO/57 Dup. de Lab.	LDR	Lot CQ
MÉTAUX					
Aluminium (Al) Extractible Total †	mg/kg	<0.40	<0.40	0.40	2572091
Argent (Ag) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2572091
Arsenic (As) Extractible Total †	mg/kg	0.032	0.029	0.0050	2572091
Béryllium (Be) Extractible Total †	mg/kg	<0.0030	<0.0030	0.0030	2572091
Bore (B) Extractible Total †	mg/kg	<0.070	<0.070	0.070	2572091
Cadmium (Cd) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2572091
Calcium (Ca) Extractible Total †	mg/kg	490	300 (1)	3.0	2572091
Chrome (Cr) Extractible Total †	mg/kg	<0.050	<0.050	0.050	2572091
Cobalt (Co) Extractible Total †	mg/kg	0.012	0.0099	0.0020	2572091
Cuivre (Cu) Extractible Total †	mg/kg	0.22	0.26	0.050	2572091
Fer (Fe) Extractible Total †	mg/kg	3.7	4.3	1.0	2572091
Lithium (Li) Extractible Total †	mg/kg	<0.020	<0.020	0.020	2572091
Magnésium (Mg) Extractible Total †	mg/kg	460	460	1.0	2572091
Manganèse (Mn) Extractible Total †	mg/kg	0.21	0.15	0.030	2572091
Mercure (Hg) Extractible Total †	mg/kg	0.11	0.11	0.00030	2572091
Molybdène (Mo) Extractible Total †	mg/kg	<0.0030	<0.0030	0.0030	2572091
Nickel (Ni) Extractible Total †	mg/kg	<0.010	<0.010	0.010	2572091
Phosphore total Extractible Total †	mg/kg	3000	3000	5.0	2572091
Plomb (Pb) Extractible Total †	mg/kg	<0.0070	<0.0070	0.0070	2572091
Sélénium (Se) Extractible Total †	mg/kg	0.19	0.19	0.0090	2572091
Sodium (Na) Extractible Total †	mg/kg	480	440	0.90	2572091
Strontium (Sr) Extractible Total †	mg/kg	1.1	0.65 (1)	0.0050	2572091
Thallium (Tl) Extractible Total †	mg/kg	0.0029	0.0030	0.0020	2572091
Titane (Ti) Extractible Total †	mg/kg	1.2	1.2	0.050	2572091
Uranium (U) Extractible Total †	mg/kg	<0.0010	<0.0010	0.0010	2572091
Vanadium (V) Extractible Total †	mg/kg	<0.0090	<0.0090	0.0090	2572091
Zinc (Zn) Extractible Total †	mg/kg	3.8	3.4	0.30	2572091

LDR = Limite de détection rapportée
Lot CQ = Lot contrôle qualité
Duplicata de laboratoire
† Accréditation non existante pour ce paramètre
(1) La récupération ou l'écart relatif (RPD) pour ce composé est en dehors des limites de contrôle, mais l'ensemble du contrôle qualité rencontre les critères d'acceptabilité pour cette analyse

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REMARQUES GÉNÉRALES

Métaux trace dans tissu (base humide): Échantillon reçu congelé.: NM1103, NM1104, NM1105, NM1106, NM1107, NM1108, NM1109, NM1110, NM1111, NM1112, NM1113, NM1114, NM1115, NM1116, NM1117, NM1118, NM1119, NM1120, NM1121, NM1122, NM1123, NM1124, NM1125, NM1126, NM1127, NM1128, NM1129, NM1130, NM1131, NM1132, NM1133, NM1134, NM1135, NM1136, NM1137, NM1138, NM1139, NM1140, NM1141, NM1142, NM1143, NM1144, NM1145, NM1146, NM1147, NM1148, NM1149, NM1150, NM1151, NM1152, NM1153, NM1154, NM1155, NM1156, NM1157, NM1158, NM1159

Rapport révisé: À la demande du client, les identifiants des échantillons ont été modifiés.

MÉTAUX EXTRACTIBLES TOTAUX (TISSU BIOLOGIQUE)

Noter que les échantillons NM1103, NM1123, NM1130, NM1143, NM1149 et NM1159 sont non homogènes.

Échantillon NM1111, Métaux trace dans tissu (base humide): Test répété.
Échantillon NM1130, Métaux trace dans tissu (base humide): Test répété.

Les résultats ne se rapportent qu'aux échantillons soumis pour analyse

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RAPPORT ASSURANCE QUALITÉ

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
2571113	DMI	Blanc fortifié	Aluminium (Al) Extractible Total	2024/09/27		106	%
			Antimoine (Sb) Extractible Total	2024/09/27		70 (1)	%
			Argent (Ag) Extractible Total	2024/09/27		83	%
			Arsenic (As) Extractible Total	2024/09/27		79	%
			Baryum (Ba) Extractible Total	2024/09/27		103	%
			Béryllium (Be) Extractible Total	2024/09/27		80	%
			Bore (B) Extractible Total	2024/09/27		79	%
			Cadmium (Cd) Extractible Total	2024/09/27		81	%
			Calcium (Ca) Extractible Total	2024/09/27		94	%
			Chrome (Cr) Extractible Total	2024/09/27		98	%
			Cobalt (Co) Extractible Total	2024/09/27		95	%
			Cuivre (Cu) Extractible Total	2024/09/27		87	%
			Etain (Sn) Extractible Total	2024/09/27		108	%
			Fer (Fe) Extractible Total	2024/09/27		96	%
			Lithium (Li) Extractible Total	2024/09/27		102	%
			Magnésium (Mg) Extractible Total	2024/09/27		106	%
			Manganèse (Mn) Extractible Total	2024/09/27		96	%
			Mercure (Hg) Extractible Total	2024/09/27		73 (1)	%
			Molybdène (Mo) Extractible Total	2024/09/27		100	%
			Nickel (Ni) Extractible Total	2024/09/27		92	%
			Phosphore total Extractible Total	2024/09/27		85	%
			Plomb (Pb) Extractible Total	2024/09/27		95	%
			Sélénium (Se) Extractible Total	2024/09/27		69 (1)	%
			Sodium (Na) Extractible Total	2024/09/27		105	%
			Strontium (Sr) Extractible Total	2024/09/27		105	%
			Thallium (Tl) Extractible Total	2024/09/27		70 (1)	%
			Titane (Ti) Extractible Total	2024/09/27		113	%
			Uranium (U) Extractible Total	2024/09/27		95	%
			Vanadium (V) Extractible Total	2024/09/27		102	%
			Zinc (Zn) Extractible Total	2024/09/27		67 (1)	%
2571113	DMI	Blanc de méthode	Aluminium (Al) Extractible Total	2024/09/27	<0.40		mg/kg
			Antimoine (Sb) Extractible Total	2024/09/27	<0.040		mg/kg
			Argent (Ag) Extractible Total	2024/09/27	<0.0010		mg/kg
			Arsenic (As) Extractible Total	2024/09/27	<0.0050		mg/kg
			Baryum (Ba) Extractible Total	2024/09/27	<0.0060		mg/kg
			Béryllium (Be) Extractible Total	2024/09/27	<0.0030		mg/kg
			Bore (B) Extractible Total	2024/09/27	<0.070		mg/kg
			Cadmium (Cd) Extractible Total	2024/09/27	<0.0010		mg/kg
			Calcium (Ca) Extractible Total	2024/09/27	<3.0		mg/kg
			Chrome (Cr) Extractible Total	2024/09/27	<0.050		mg/kg
			Cobalt (Co) Extractible Total	2024/09/27	<0.0020		mg/kg
			Cuivre (Cu) Extractible Total	2024/09/27	<0.050		mg/kg
			Etain (Sn) Extractible Total	2024/09/27	<0.036		mg/kg
			Fer (Fe) Extractible Total	2024/09/27	<1.0		mg/kg
			Lithium (Li) Extractible Total	2024/09/27	<0.020		mg/kg
			Magnésium (Mg) Extractible Total	2024/09/27	<1.0		mg/kg
			Manganèse (Mn) Extractible Total	2024/09/27	<0.030		mg/kg
			Mercure (Hg) Extractible Total	2024/09/27	0.0017, LDR=0.00030		mg/kg
			Molybdène (Mo) Extractible Total	2024/09/27	<0.0030		mg/kg
			Nickel (Ni) Extractible Total	2024/09/27	<0.010		mg/kg
			Phosphore total Extractible Total	2024/09/27	<5.0		mg/kg

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RAPPORT ASSURANCE QUALITÉ (SUITE)

Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Plomb (Pb) Extractible Total	2024/09/27	<0.0070		mg/kg
			Sélénium (Se) Extractible Total	2024/09/27	<0.0090		mg/kg
			Sodium (Na) Extractible Total	2024/09/27	2.5, LDR=0.90		mg/kg
			Strontium (Sr) Extractible Total	2024/09/27	<0.0050		mg/kg
			Thallium (Tl) Extractible Total	2024/09/27	<0.0020		mg/kg
			Titane (Ti) Extractible Total	2024/09/27	<0.050		mg/kg
			Uranium (U) Extractible Total	2024/09/27	<0.0010		mg/kg
			Vanadium (V) Extractible Total	2024/09/27	<0.0090		mg/kg
			Zinc (Zn) Extractible Total	2024/09/27	<0.30		mg/kg
2571150	DMI	Blanc fortifié	Aluminium (Al) Extractible Total	2024/09/28		99	%
			Antimoine (Sb) Extractible Total	2024/09/28		69 (1)	%
			Argent (Ag) Extractible Total	2024/09/28		83	%
			Arsenic (As) Extractible Total	2024/09/28		80	%
			Baryum (Ba) Extractible Total	2024/09/28		100	%
			Béryllium (Be) Extractible Total	2024/09/28		78	%
			Bore (B) Extractible Total	2024/09/28		75	%
			Cadmium (Cd) Extractible Total	2024/09/28		79	%
			Calcium (Ca) Extractible Total	2024/09/28		95	%
			Chrome (Cr) Extractible Total	2024/09/28		103	%
			Cobalt (Co) Extractible Total	2024/09/28		97	%
			Cuivre (Cu) Extractible Total	2024/09/28		88	%
			Etain (Sn) Extractible Total	2024/09/28		109	%
			Fer (Fe) Extractible Total	2024/09/28		96	%
			Lithium (Li) Extractible Total	2024/09/28		95	%
			Magnésium (Mg) Extractible Total	2024/09/28		110	%
			Manganèse (Mn) Extractible Total	2024/09/28		99	%
			Mercure (Hg) Extractible Total	2024/09/28		69 (1)	%
			Molybdène (Mo) Extractible Total	2024/09/28		100	%
			Nickel (Ni) Extractible Total	2024/09/28		93	%
			Phosphore total Extractible Total	2024/09/28		81	%
			Plomb (Pb) Extractible Total	2024/09/28		92	%
			Sélénium (Se) Extractible Total	2024/09/28		67 (1)	%
			Sodium (Na) Extractible Total	2024/09/28		108	%
			Strontium (Sr) Extractible Total	2024/09/28		103	%
			Thallium (Tl) Extractible Total	2024/09/28		72 (1)	%
			Titane (Ti) Extractible Total	2024/09/28		106	%
			Uranium (U) Extractible Total	2024/09/28		99	%
			Vanadium (V) Extractible Total	2024/09/28		105	%
			Zinc (Zn) Extractible Total	2024/09/28		67 (1)	%
2571150	DMI	Blanc de méthode	Aluminium (Al) Extractible Total	2024/09/28	<0.40		mg/kg
			Antimoine (Sb) Extractible Total	2024/09/28	<0.040		mg/kg
			Argent (Ag) Extractible Total	2024/09/28	<0.0010		mg/kg
			Arsenic (As) Extractible Total	2024/09/28	<0.0050		mg/kg
			Baryum (Ba) Extractible Total	2024/09/28	<0.0060		mg/kg
			Béryllium (Be) Extractible Total	2024/09/28	<0.0030		mg/kg
			Bore (B) Extractible Total	2024/09/28	<0.070		mg/kg
			Cadmium (Cd) Extractible Total	2024/09/28	<0.0010		mg/kg
			Calcium (Ca) Extractible Total	2024/09/28	<3.0		mg/kg
			Chrome (Cr) Extractible Total	2024/09/28	<0.050		mg/kg
			Cobalt (Co) Extractible Total	2024/09/28	<0.0020		mg/kg
			Cuivre (Cu) Extractible Total	2024/09/28	<0.050		mg/kg

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Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Etain (Sn) Extractible Total	2024/09/28	<0.050		mg/kg
			Fer (Fe) Extractible Total	2024/09/28	<1.0		mg/kg
			Lithium (Li) Extractible Total	2024/09/28	<0.020		mg/kg
			Magnésium (Mg) Extractible Total	2024/09/28	<1.0		mg/kg
			Manganèse (Mn) Extractible Total	2024/09/28	<0.030		mg/kg
			Mercure (Hg) Extractible Total	2024/09/28	<0.00030		mg/kg
			Molybdène (Mo) Extractible Total	2024/09/28	<0.0030		mg/kg
			Nickel (Ni) Extractible Total	2024/09/28	<0.030		mg/kg
			Phosphore total Extractible Total	2024/09/28	<5.0		mg/kg
			Plomb (Pb) Extractible Total	2024/09/28	<0.0070		mg/kg
			Sélénium (Se) Extractible Total	2024/09/28	<0.0090		mg/kg
			Sodium (Na) Extractible Total	2024/09/28	2.7, LDR=0.90		mg/kg
			Strontium (Sr) Extractible Total	2024/09/28	<0.0050		mg/kg
			Thallium (Tl) Extractible Total	2024/09/28	<0.0020		mg/kg
			Titane (Ti) Extractible Total	2024/09/28	<0.050		mg/kg
			Uranium (U) Extractible Total	2024/09/28	<0.0010		mg/kg
			Vanadium (V) Extractible Total	2024/09/28	<0.0090		mg/kg
			Zinc (Zn) Extractible Total	2024/09/28	<0.30		mg/kg
2571193	DMI	Blanc fortifié	Aluminium (Al) Extractible Total	2024/09/28		108	%
			Antimoine (Sb) Extractible Total	2024/09/28		69 (1)	%
			Argent (Ag) Extractible Total	2024/09/28		88	%
			Arsenic (As) Extractible Total	2024/09/28		80	%
			Baryum (Ba) Extractible Total	2024/09/28		105	%
			Béryllium (Be) Extractible Total	2024/09/28		80	%
			Bore (B) Extractible Total	2024/09/28		74 (1)	%
			Cadmium (Cd) Extractible Total	2024/09/28		80	%
			Calcium (Ca) Extractible Total	2024/09/28		97	%
			Chrome (Cr) Extractible Total	2024/09/28		102	%
			Cobalt (Co) Extractible Total	2024/09/28		97	%
			Cuivre (Cu) Extractible Total	2024/09/28		88	%
			Etain (Sn) Extractible Total	2024/09/28		105	%
			Fer (Fe) Extractible Total	2024/09/28		95	%
			Lithium (Li) Extractible Total	2024/09/28		99	%
			Magnésium (Mg) Extractible Total	2024/09/28		114	%
			Manganèse (Mn) Extractible Total	2024/09/28		102	%
			Mercure (Hg) Extractible Total	2024/09/28		67 (1)	%
			Molybdène (Mo) Extractible Total	2024/09/28		100	%
			Nickel (Ni) Extractible Total	2024/09/28		98	%
			Phosphore total Extractible Total	2024/09/28		80	%
			Plomb (Pb) Extractible Total	2024/09/28		93	%
			Sélénium (Se) Extractible Total	2024/09/28		69 (1)	%
			Sodium (Na) Extractible Total	2024/09/28		107	%
			Strontium (Sr) Extractible Total	2024/09/28		106	%
			Thallium (Tl) Extractible Total	2024/09/28		69 (1)	%
			Titane (Ti) Extractible Total	2024/09/28		105	%
			Uranium (U) Extractible Total	2024/09/28		96	%
			Vanadium (V) Extractible Total	2024/09/28		103	%
			Zinc (Zn) Extractible Total	2024/09/28		67 (1)	%
2571193	DMI	Blanc de méthode	Aluminium (Al) Extractible Total	2024/09/28	<0.40		mg/kg
			Antimoine (Sb) Extractible Total	2024/09/28	<0.040		mg/kg
			Argent (Ag) Extractible Total	2024/09/28	<0.0010		mg/kg

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Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Arsenic (As) Extractible Total	2024/09/28	<0.0050		mg/kg
			Baryum (Ba) Extractible Total	2024/09/28	<0.0060		mg/kg
			Béryllium (Be) Extractible Total	2024/09/28	<0.0030		mg/kg
			Bore (B) Extractible Total	2024/09/28	<0.070		mg/kg
			Cadmium (Cd) Extractible Total	2024/09/28	<0.0010		mg/kg
			Calcium (Ca) Extractible Total	2024/09/28	<3.0		mg/kg
			Chrome (Cr) Extractible Total	2024/09/28	<0.050		mg/kg
			Cobalt (Co) Extractible Total	2024/09/28	<0.0020		mg/kg
			Cuivre (Cu) Extractible Total	2024/09/28	<0.050		mg/kg
			Etain (Sn) Extractible Total	2024/09/28	<0.030		mg/kg
			Fer (Fe) Extractible Total	2024/09/28	<1.0		mg/kg
			Lithium (Li) Extractible Total	2024/09/28	<0.020		mg/kg
			Magnésium (Mg) Extractible Total	2024/09/28	<1.0		mg/kg
			Manganèse (Mn) Extractible Total	2024/09/28	<0.030		mg/kg
			Mercure (Hg) Extractible Total	2024/09/28	<0.00030		mg/kg
			Molybdène (Mo) Extractible Total	2024/09/28	<0.0030		mg/kg
			Nickel (Ni) Extractible Total	2024/09/28	<0.010		mg/kg
			Phosphore total Extractible Total	2024/09/28	<5.0		mg/kg
			Plomb (Pb) Extractible Total	2024/09/28	<0.0070		mg/kg
			Sélénium (Se) Extractible Total	2024/09/28	<0.0090		mg/kg
			Sodium (Na) Extractible Total	2024/09/28	2.6, LDR=0.90		mg/kg
			Strontium (Sr) Extractible Total	2024/09/28	<0.0050		mg/kg
			Thallium (Tl) Extractible Total	2024/09/28	<0.0020		mg/kg
			Titane (Ti) Extractible Total	2024/09/28	<0.050		mg/kg
			Uranium (U) Extractible Total	2024/09/28	<0.0010		mg/kg
			Vanadium (V) Extractible Total	2024/09/28	<0.0090		mg/kg
			Zinc (Zn) Extractible Total	2024/09/28	<0.30		mg/kg
2572091	DMI	Blanc fortifié	Aluminium (Al) Extractible Total	2024/09/27		100	%
			Argent (Ag) Extractible Total	2024/09/27		84	%
			Arsenic (As) Extractible Total	2024/09/27		82	%
			Béryllium (Be) Extractible Total	2024/09/27		81	%
			Bore (B) Extractible Total	2024/09/27		78	%
			Cadmium (Cd) Extractible Total	2024/09/27		79	%
			Calcium (Ca) Extractible Total	2024/09/27		99	%
			Chrome (Cr) Extractible Total	2024/09/27		104	%
			Cobalt (Co) Extractible Total	2024/09/27		100	%
			Cuivre (Cu) Extractible Total	2024/09/27		89	%
			Fer (Fe) Extractible Total	2024/09/27		100	%
			Lithium (Li) Extractible Total	2024/09/27		100	%
			Magnésium (Mg) Extractible Total	2024/09/27		112	%
			Manganèse (Mn) Extractible Total	2024/09/27		100	%
			Mercure (Hg) Extractible Total	2024/09/27		73 (1)	%
			Molybdène (Mo) Extractible Total	2024/09/27		102	%
			Nickel (Ni) Extractible Total	2024/09/27		97	%
			Phosphore total Extractible Total	2024/09/27		82	%
			Plomb (Pb) Extractible Total	2024/09/27		94	%
			Sélénium (Se) Extractible Total	2024/09/27		69 (1)	%
			Sodium (Na) Extractible Total	2024/09/27		109	%
			Strontium (Sr) Extractible Total	2024/09/27		105	%
			Thallium (Tl) Extractible Total	2024/09/27		83	%
			Titane (Ti) Extractible Total	2024/09/27		109	%

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Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Uranium (U) Extractible Total	2024/09/27		104	%
			Vanadium (V) Extractible Total	2024/09/27		108	%
			Zinc (Zn) Extractible Total	2024/09/27		68 (1)	%
2572091	DMI	Blanc de méthode	Aluminium (Al) Extractible Total	2024/09/27	<0.40		mg/kg
			Argent (Ag) Extractible Total	2024/09/27	<0.0010		mg/kg
			Arsenic (As) Extractible Total	2024/09/27	<0.0050		mg/kg
			Béryllium (Be) Extractible Total	2024/09/27	<0.0030		mg/kg
			Bore (B) Extractible Total	2024/09/27	<0.070		mg/kg
			Cadmium (Cd) Extractible Total	2024/09/27	<0.0010		mg/kg
			Calcium (Ca) Extractible Total	2024/09/27	<3.0		mg/kg
			Chrome (Cr) Extractible Total	2024/09/27	<0.050		mg/kg
			Cobalt (Co) Extractible Total	2024/09/27	<0.0020		mg/kg
			Cuivre (Cu) Extractible Total	2024/09/27	<0.050		mg/kg
			Fer (Fe) Extractible Total	2024/09/27	<1.0		mg/kg
			Lithium (Li) Extractible Total	2024/09/27	<0.020		mg/kg
			Magnésium (Mg) Extractible Total	2024/09/27	<1.0		mg/kg
			Manganèse (Mn) Extractible Total	2024/09/27	<0.030		mg/kg
			Mercure (Hg) Extractible Total	2024/09/27	0.00035, LDR=0.00030		mg/kg
			Molybdène (Mo) Extractible Total	2024/09/27	<0.0030		mg/kg
			Nickel (Ni) Extractible Total	2024/09/27	<0.010		mg/kg
			Phosphore total Extractible Total	2024/09/27	<5.0		mg/kg
			Plomb (Pb) Extractible Total	2024/09/27	<0.0070		mg/kg
			Sélénium (Se) Extractible Total	2024/09/27	<0.0090		mg/kg
			Sodium (Na) Extractible Total	2024/09/27	1.8, LDR=0.90		mg/kg
			Strontium (Sr) Extractible Total	2024/09/27	<0.0050		mg/kg
			Thallium (Tl) Extractible Total	2024/09/27	<0.0020		mg/kg
			Titane (Ti) Extractible Total	2024/09/27	<0.050		mg/kg
			Uranium (U) Extractible Total	2024/09/27	<0.0010		mg/kg
			Vanadium (V) Extractible Total	2024/09/27	<0.0090		mg/kg
			Zinc (Zn) Extractible Total	2024/09/27	<0.30		mg/kg
2573968	WWO	Blanc fortifié	Aluminium (Al) Extractible Total	2024/10/03		97	%
			Antimoine (Sb) Extractible Total	2024/10/03		70 (1)	%
			Argent (Ag) Extractible Total	2024/10/03		87	%
			Arsenic (As) Extractible Total	2024/10/03		83	%
			Baryum (Ba) Extractible Total	2024/10/03		106	%
			Béryllium (Be) Extractible Total	2024/10/03		90	%
			Bore (B) Extractible Total	2024/10/03		88	%
			Cadmium (Cd) Extractible Total	2024/10/03		87	%
			Calcium (Ca) Extractible Total	2024/10/03		98	%
			Chrome (Cr) Extractible Total	2024/10/03		98	%
			Cobalt (Co) Extractible Total	2024/10/03		97	%
			Cuivre (Cu) Extractible Total	2024/10/03		92	%
			Etain (Sn) Extractible Total	2024/10/03		96	%
			Fer (Fe) Extractible Total	2024/10/03		98	%
			Lithium (Li) Extractible Total	2024/10/03		102	%
			Magnésium (Mg) Extractible Total	2024/10/03		109	%
			Manganèse (Mn) Extractible Total	2024/10/03		98	%
			Mercure (Hg) Extractible Total	2024/10/03		81	%
			Molybdène (Mo) Extractible Total	2024/10/03		100	%
			Nickel (Ni) Extractible Total	2024/10/03		95	%

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Lot AQ/CQ	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités
			Phosphore total Extractible Total	2024/10/03		79	%
			Plomb (Pb) Extractible Total	2024/10/03		97	%
			Sélénium (Se) Extractible Total	2024/10/03		72 (1)	%
			Sodium (Na) Extractible Total	2024/10/03		105	%
			Strontium (Sr) Extractible Total	2024/10/03		105	%
			Thallium (Tl) Extractible Total	2024/10/03		86	%
			Titane (Ti) Extractible Total	2024/10/03		103	%
			Uranium (U) Extractible Total	2024/10/03		97	%
			Vanadium (V) Extractible Total	2024/10/03		101	%
			Zinc (Zn) Extractible Total	2024/10/03		75	%
2573968	WWO	Blanc de méthode	Aluminium (Al) Extractible Total	2024/10/03	<0.40		mg/kg
			Antimoine (Sb) Extractible Total	2024/10/03	<0.040		mg/kg
			Argent (Ag) Extractible Total	2024/10/03	<0.0010		mg/kg
			Arsenic (As) Extractible Total	2024/10/03	<0.0050		mg/kg
			Baryum (Ba) Extractible Total	2024/10/03	<0.030		mg/kg
			Béryllium (Be) Extractible Total	2024/10/03	<0.0030		mg/kg
			Bore (B) Extractible Total	2024/10/03	<0.070		mg/kg
			Cadmium (Cd) Extractible Total	2024/10/03	<0.0010		mg/kg
			Calcium (Ca) Extractible Total	2024/10/03	<3.0		mg/kg
			Chrome (Cr) Extractible Total	2024/10/03	<0.050		mg/kg
			Cobalt (Co) Extractible Total	2024/10/03	<0.0020		mg/kg
			Cuivre (Cu) Extractible Total	2024/10/03	<0.050		mg/kg
			Etain (Sn) Extractible Total	2024/10/03	<0.23		mg/kg
			Fer (Fe) Extractible Total	2024/10/03	<1.0		mg/kg
			Lithium (Li) Extractible Total	2024/10/03	<0.020		mg/kg
			Magnésium (Mg) Extractible Total	2024/10/03	<1.0		mg/kg
			Manganèse (Mn) Extractible Total	2024/10/03	<0.030		mg/kg
			Mercure (Hg) Extractible Total	2024/10/03	<0.00030		mg/kg
			Molybdène (Mo) Extractible Total	2024/10/03	<0.0030		mg/kg
			Nickel (Ni) Extractible Total	2024/10/03	<0.010		mg/kg
			Phosphore total Extractible Total	2024/10/03	<5.0		mg/kg
			Plomb (Pb) Extractible Total	2024/10/03	<0.0070		mg/kg
			Sélénium (Se) Extractible Total	2024/10/03	<0.0090		mg/kg
			Sodium (Na) Extractible Total	2024/10/03	2.0, LDR=0.90		mg/kg
			Strontium (Sr) Extractible Total	2024/10/03	<0.0050		mg/kg
			Thallium (Tl) Extractible Total	2024/10/03	<0.0020		mg/kg
			Titane (Ti) Extractible Total	2024/10/03	<0.050		mg/kg
			Uranium (U) Extractible Total	2024/10/03	<0.0010		mg/kg
			Vanadium (V) Extractible Total	2024/10/03	<0.0090		mg/kg
			Zinc (Zn) Extractible Total	2024/10/03	<0.30		mg/kg

LDR = Limite de détection rapportée

Blanc fortifié: Un blanc, d'une matrice exempte de contaminants, auquel a été ajouté une quantité connue d'analyte provenant généralement d'une deuxième source. Utilisé pour évaluer la précision de la méthode.

Blanc de méthode: Une partie aliquote de matrice pure soumise au même processus analytique que les échantillons, du prétraitement au dosage. Sert à évaluer toutes contaminations du laboratoire.

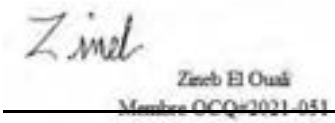
Réc = Récupération

(1) La récupération ou l'écart relatif (RPD) pour ce composé est en dehors des limites de contrôle, mais l'ensemble du contrôle qualité rencontre les critères d'acceptabilité pour cette analyse

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PAGE DES SIGNATURES DE VALIDATION

Les résultats analytiques ainsi que les données de contrôle-qualité contenus dans ce rapport ont été vérifiés et validés par:



Zineb El Ouali, M.Sc.,Chimiste, Montréal, Analyste II

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Chaîne de responsabilité

Q145713

Veuillez utiliser ce formulaire en guise de référence de suivi des envois lorsque les instructions concernant le dossier sont transmises électroniquement via l'eCDR (chaîne de responsabilité électronique). Assurez-vous que votre formulaire contient un code-barres ou qu'un numéro de confirmation d'eCDR de Bureau Veritas est inscrit dans le coin supérieur droit. Ce numéro permet de lier votre envoi électronique avec vos échantillons. Ce formulaire doit être placé dans la glacière avec vos échantillons.

Premier échantillon: CE2-FE1/SAFO/1
Dernier échantillon: CE4-PE3/SAFO/57
Nombre d' échantillons: 57

Désaisi par				Reçu par			
Mariem Fadhloui (WSP)		Date	2024/09/09	Sandrad Saudcar		Date	2024-09-10
		Heure (24 h)	17h			Heure (24 h)	1200
		Date				Date	
		Heure (24 h)				Heure (24 h)	
		Date				Date	
		Heure (24 h)				Heure (24 h)	

À moins d'entente contraire, l'envoi d'echantillons et l'utilisation de nos services sont soumis à des conditions générales qui se trouvent au www.bvna.com.

Information pour le tri des échantillons

Échantillonneur

d'emballages/glacières :

Urgent ☐ Analyse immédiate ☐ Résidus alimentaires ☐

Micro ☐ Chimie alimentaire ☐

***** LABORATOIRE SEULEMENT *****

C451139_COC

ommentaires:

NOVA-2024-09-1224

Scellé légal		Présence de glace	Température °C		
Présent (O/N)	Intact (O/N)	(O/N)	1	2	3
N	N	Y	-25	-25	-25
Vérification de la preservation des métaux dans l'eau potable effectuée (encerclez)				OUI	NON

Vérifié par

10-Sep-24 12:00

Sarah Beaudry

C451139

AVE

dinner

WT526

COR FCD-00383/4

Chaîne de responsabilité

Q145713

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Premier échantillon: CE2-FE1/SAFO/1
Dernier échantillon: CE4-PE3/SAFO/57
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Désaisi par				Reçu par			
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		Heure (24 h)	17h			Heure (24 h)	1200
		Date				Date	
		Heure (24 h)				Heure (24 h)	
		Date				Date	
		Heure (24 h)				Heure (24 h)	

À moins d'entente contraire, l'envoi d'echantillons et l'utilisation de nos services sont soumis à des conditions générales qui se trouvent au www.bvna.com.

Information pour le tri des échantillons

Échantillonneur

d'emballages/glacières :

Urgent ☐ Analyse immédiate ☐ Résidus alimentaires ☐

Micro ☐ Chimie alimentaire ☐

***** LABORATOIRE SEULEMENT *****

C451139_COC

ommentaires:

NOVA-2024-09-1224

Scellé légal		Présence de glace	Température °C		
Présent (O/N)	Intact (O/N)	(O/N)	1	2	3
N	N	Y	-25	-25	-25
Vérification de la preservation des métaux dans l'eau potable effectuée (encerclez)				OUI	NON

Vérifié par

10-Sep-24 12:00

Sarah Beaudry

C451139

AVE

dinner

WT526

COR FCD-00383/4

APPENDIX V –COMMUNICATION PLAN

Galaxy Lithium (Canada) Inc.

Galaxy

(A member of the Arcadium Lithium group of companies)

Communication Plan

Plan de communication

DOC NUMBER / NUMÉRO DOCUMENT :	JB1-COM-PLN-001
REVISION / RÉVISION :	3
DATE :	14/05/2024
DOCUMENT OWNER / PROPRIÉTAIRE :	Community Relations
REVIEWED BY / RÉVISÉ PAR :	Catherine Lagacé
AUTHORISED BY / AUTORISÉ PAR :	Gillian Roy
TRANSLATION / TRADUCTION:	Free / Libre

Révision / Revision	Date de révision / Revision Date	Mises à jour de cette révision / Updates to this Revision
A	2023-03-01	Première ébauche pour les consultations auprès des premières nations / First draft for consultations with First Nations
1	2023-12-19	Version finale / Final Version
2	2024-03-19	Révision par Gillian Roy pour le rapport annuel / Revision by Gillian Roy for the Annual Report.
3	2024-05-14	Modification à la condition 8.1.3 / Modification to condition 8.1.3

COMMUNICATION PLAN

Activities	Types of activities	When	Frequency	Key Messages or Goals	Targeted Audience	Means of Communication
JAC condition 2.7 - **Development and updates of Follow-up programs**	Inform on follow-up programs or updates	Prior to implementation or 30 days following updates	Once prior to implementation / when update	Inform on the follow-up programs or changes made to the follow-up programs : 3.17 Surface water quality 3.18 Ground water quality 3.19 Water levels and water discharge rates 3.20 Physicochemical characterization of the mining materials 3.21 Acid rock drainage and metal leaching 4.8 Migratory birds and birds that are listed species at risk 5.6 Caribou (Rangifer tarandus) 5.7 Little brown myotis (Myotis lucifugus) and Northern myotis (Myotis septentrionalis) 6.5 Wetland functions, including the invasive alien plant species 7.13 Air Quality 7.14 Noise 7.15 To verify the accuracy of the environmental assessment on the water quality of the drinking water supply well at the kilometre 381 roadstop. 7.16 Concentration of contaminants of potential concern in plants and game animal tissues likely to be consumed by the Cree as traditional foods 8.17 Current use of lands and resources for traditional purposes 8.18 Effectiveness of the progressive reclamation	A- Impact Assessment Agency of Canada B- Cree Nation Government (CNG) C - Consulted parties during the development of follow-up programs	Email
JAC conditions 2.10/2.11/2.12/2.13 - **Annual Report**	Produce a yearly report on environmental activities	Before March 31st	Yearly	Report on the compliance of each JAC Conditions, including executive summary in French and English.	A- Impact Assessment Agency of Canada B- Cree Nation Government (CNG)	1. Email to IAAC and CNG 2. Publish on Project website (JAC 2.13)
JAC condition 2.15 - **Change of Proponent**	Notification	30 days after the transfer of ownership	When required	Information of any transfer of ownership, care, control or management of the Designated Project in whole or in part.	1- Impact Assessment Agency of Canada (IAAC) 2- Cree Nation Government (CNG) 3- First Nations (Eastmain, Waswanipi, Waskaganish)	1. Email 2. Letter

COMMUNICATION PLAN

Activities	Types of activities	When	Frequency	Key Messages or Goals	Targeted Audience	Means of Communication
JAC conditions 2.16/2.17 - **Change to the Project**	Information	When modification to initial Project, in advance - before implementation	When required	Information of the Project changes, potential environmental effects, mitigation measures, results of consultations with First Nations (Eastmain, Waswanipi, Waskaganish and relevant authorities)	A- Impact Assessment Agency of Canada B- Cree Nation Government (CNG)	1. Email
JAC conditions 5.1 / 8.1.4 - **Action plan for caribou (Rangifer tarandus)**	Report presence of Caribous in the **4km Radius from the project**	During Construction, Operation and Closure	Continue	1-Inform of the presence of Caribou within 4 km Radius from the project site to GLCI 2-GLCI reports any presence of caribou to the employees and contractors associated with the Project, including the ore transport truck drivers. 3-Consult authorities (Cree and Federal) on any additionnal or modified mitigation measures if needed.	A-Employee, B-Contractors on site C-Ore transport truck drivers D- Tallyman RE02 E- CNG, CNE, ECCC, SDBJ F- Landusers (through CTA) G - First Nations (Eastmain, Waskaganish, Waswanipi) - JAC 8.1.4	1. Employee and Contractors sensitization via environmental induction / caribou sensitization session 2. Prevention Memo for all transporters 3. Inform by radio the Ore transport truck drivers / the on-site employees and contractors of the presence of caribou 4. Inform by e-mail of the caribou presence / mitigation measures (Targeted audience D, E, F and G) 5. Publish Action Plan on the **project website** (JAC 2.13)
JAC condition 8.1.1 **Schedule of mine construction, operation and closure activities**	Send the schedule and any updates (of main activities)	Before and during Construction, Operation and Closure phases	Beggining of each phase (Construction, Operation and Closure) and when any updates are made to the schedule	Inform on the schedule of mine construction, operation and closure activities and any updates to the schedule of these activities.	A-Cree First Nations (Eastmain, Waswanipi, Waskaganish) B-Kilometre 381 roadstop staff (SDBJ) C-Land users (through CTA) D-Project Employees and contractors E-Any other potential affected parties	1.Official letter to the First Nations (Chiefs) 2.Radio announcements of the start main activities 3.Email to tallymen RE02, VC33, VC35 4.Internal communications to employees and contractors (e-mail, Townhall) 5.Poster of main activities in each community and Truck stop 381 6.Publish on the **project website** (JAC 2.13)

COMMUNICATION PLAN

Activities	Types of activities	When	Frequency	Key Messages or Goals	Targeted Audience	Means of Communication
JAC condition 8.1.2 **Blasting**	Inform of dates and hours of planned blasting activities	Continuously during the blasting activities	Weekly (schedule of the upcoming week) Day prior to blasting	The dates and times of all **scheduled blasting activities** that will be carried out by the Proponent, and any update to the schedule of blasting activities in the open-pit mine	A-Cree First Nations (Eastmain, Waswanipi, Waskaganish) B-Kilometre 381 roadstop staff (SDBJ) C-Land users (through CTA) D-Project Employees and contractors E-Any other potential affected parties	1. E-mail for weekly blasting schedule (poster) 2. CTA radio (land users of Eastmain) - daily 3. Community Radio announcements daily 4. Project website (JAC 2.13) (Weekly and daily schedules) 5. Internal communications to employees and contractors
JAC condition 8.1.3 **Results from follow-up programs**	Report results	During Construction, Operation and Closure	Once per year	The results of the follow-up programs referred to in conditions: 3.17 Surface water quality 3.18 Ground water quality 3.19 Water levels and water discharge rates 3.20 Physicochemical characterization of the mining materials 3.21 Acid rock drainage and metal leaching 4.8 Migratory birds and birds that are listed species at risk 5.6 Caribou (Rangifer tarandus) 5.7 Little brown myotis (Myotis lucifugus) and Northern myotis (Myotis septentrionalis) 6.5 Wetland functions, including the invasive alien plant species 7.13 Air Quality 7.14 Noise 7.15 To verify the accuracy of the environmental assessment on the water quality of the drinking water supply well at the kilometre 381 roadstop. 7.16 Concentration of contaminants of potential concern in plants and game animal tissues likely to be consumed by the Cree as traditional foods 8.17 Current use of lands and resources for traditional purposes 8.18 Effectiveness of the progressive reclamation	The Cree First Nations (Eastmain, Waswanipi and Waskaganish)	1. Meeting through the IBA Environnmenal Committee in Eastmain - Frequency to define 2. Follow-up Comittee (Mining act) for relevant matters, when necessary 3. Tallymen environment committee 4. Publish on the project website (JAC 2.13) 5. Information Session to the community of the Cree Nation of Eastmain 6. Meeting with the Waswanipi and Waskaganish respective Mining Coordinators

COMMUNICATION PLAN

Activities	Types of activities	When	Frequency	Key Messages or Goals	Targeted Audience	Means of Communication
JAC conditions 7.10/8.1.5/8.1.6/8.11.4 - **Complaint Management**	1 - Share the Complaints Management of External Stakeholders Protocole pertaining to noise exposition, land and resource uses, quality of the resources used for traditionnal purposes 2- Present results of the implementation of the protocol for complaints pertaining to noise to First Nations 3- Present results of the implementation of the protocol for complaints pertaining to land and resource uses, quality of the resources used for traditionnal purposes.	1-Before Construction 2-During Construction, Operation and Closure	1-Once 2 and 3- Every 3 months	1 - The details of the protocol for receiving and manage complaints 2 - Results of the implementation of the protocol for complaints pertaining to noise to First Nations 3- Results of the implementation of the protocol for complaints pertaining to land and resource uses, quality of the resources used for traditionnal purposes.	1 A-Cree First Nations (Eastmain, Waswanipi, Waskaganish) 2 and 3 A-Cree First Nations (Eastmain, Waswanipi, Waskaganish) B-Impact Assessment Agency of Canada C-Cree Nation Government (CNG) D-Kilometre 381 roadstop staff (SDBJ) E-Land users (through CTA) F-Project Employees and contractors G-Any other potential affected parties	1.Share Complaint protocole by e-mail to First Nations 2.Publish complaint Protocole and Results of the implementation of the protocole on the Project Web site. 3.Share the results of the implementation of the protocole with the IBA Environment Committee 4. Memo to employees and contractors
JAC condition 8.1.7/8.16 - **Progressive reclamation**	Information	During operations, when progressive reclamation is initiated	Once a year	Information on progressive reclamation activities.	A- Impact Assessment Agency of Canada B- Cree Nation Government (CNG) C- First Nation of Eastmain	1. Summary of progressive reclamation in annual report to send by email to IAAC and CNG and publish on the project website (JAC 2.13) 2. Through IBA Environment Committee
JAC condition 8.3 **Hunting seasons**	1. Prepare a schedule of annual hunting periods for the goose hunt (spring) and the moose hunt (fall). 2. Hold feedback session	1. Before each moose and goose hunting periods 2. Following each moose and goose hunting periods	During Construction: - Fall 2024 (to be discussed in Q1 2024) - Spring 2025 (to be discussed in Q3 2024) During Operations : In July/August	1. Hunting Schedule 2. Determine if mitigation measures are sufficient.	1. A- Cree Nation of Eastmain (CNE), 2. A- Cree Nation of Eastmain (CNE), B- Cree Nation Government (CNG) C- Tallyman of trapline RE02	2. - Through IBA Environment Committee - Meeting with Tallyman of trapline RE02 - Email to CNG

COMMUNICATION PLAN

Activities	Types of activities	When	Frequency	Key Messages or Goals	Targeted Audience	Means of Communication
JAC conditions 12.3/12.4 - **Accident and malfunction response plan**	Publish on website the Crisis & Emergency Response Plan	Construction	Once or when modified	N/A	N/A	Project Website (JAC condition 2.13)
JAC conditions 12.5.3 /12.5.4 **Environmental Incident**	Report environmental accidents and malfunctions	1. No later than 30 days on which the accident or malfunction occurred (12.5.3) / 2. No later than 90 days after the accident or malfunction occurs (12.5.4)	When environmental accident or malfunction occurs	1. Communicate the report on specific environmental incident 2. Communicate of the changes made to prevent a recurrence or additional mitigation measures.	A- Impact Assessment Agency of Canada (IAAC) B- Cree Nation Governement (CNG) C- Cree Board of Health and Social Services of James Bay (CBHSSJB)	Publish on the Project Website (JAC condition 2.13) Report sent by email
JAC condition 12.6 **Environmental Incident Communication Plan**	Publish Environmental Incident Communication Plan	Construction	Once or when modified	N/A	N/A	Project Website (JAC condition 2.13)
JAC condition 13.1 **Schedule of JAC Conditions Implementation**	Send the schedule	60 days prior to the start of Construction	Once	Inform on the schedule of JAC conditions implementation.	A-IAAC B-Cree Nation Government	E-mail Publish on the project website (JAC condition 2.13)

COMMUNICATION PLAN

Activities	Types of activities	When	Frequency	Key Messages or Goals	Targeted Audience	Means of Communication
JAC condition 13.2 **Schedule of mine construction, operation and closure activities**	Send the schedule	60 days prior to the start of Construction	Once	Inform on the schedule of mine construction, operation and closure activities.	A-IAAC B-Cree Nation Government	E-mail Publish on the project website (JAC condition 2.13)
JAC condition 13.3 **Updates on the Schedules 13.1 and 13.2**	Send the updated schedules	Every year, no later than March 31st	Once a year	Inform on the updated schedules of JAC conditions implementation and mine construction, operation and closure activities.	A-IAAC B-Cree Nation Government	Annual Report sent by E-mail Publish on the project website (JAC condition 2.13)

This Communication Plan must be published on the Project website at the start of the construction or when updated

version du 14 mai 2024

APPENDIX W – CREE CULTURE AWARENESS PROGRAM

CREE CULTURE AWARENESS PROGRAM

DOC NUMBER: JB1-COM-PRG-EN-REV2
REVISION: 2
DATE: December 18, 2024
DOCUMENT OWNER: Community Relations
REVIEWED BY: Catherine Lagacé
AUTHORIZED BY: Gillian Roy

REVISION CONTROL

Revision	Revision Date	Updates to this Revision
0	17 Dec 2023	JAC Condition 8.9
1	15 Feb 2024	COMEX Condition 34 and IBA Commitments
2	18 Dec 2024	In response to the COMEX's questions regarding Condition 34 received on August 07, 2024.

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1. CONTEXT

The Cree Culture Awareness Program for the Galaxy project was initially developed by Galaxy Lithium (Canada) Inc. (GLCI) in response to the Condition 8.9 of the Decision Statement issued on January 13, 2023, by the Minister of Environment and Climate Change Canada. The latter was revised following the reception of the Certificate of Authorization and its Condition 34, issued on December 27, 2023, by the Ministry of Environment, the Fight against Climate Change, Wildlife and Parks (MELCCFP) of the Government of Quebec. The Cultural Awareness Program reflects all relevant commitments included in the Kapisikama Impact and Benefits Agreement (IBA) signed on December 14, 2023, by GLCI, the Cree Nation of Eastmain and the Cree Nation Government. Finally, this program has been revised in response to questions and comments from the MELCCFP received by e-mail on August 7, 2024.

This program aims to promote a better understanding of different realities, deepen relationships and foster greater cohesion between project workers. The GLCI project management team, including the General Manager of Canadian Operations, Project Director and Mine Manager, is committed to providing a safe and inclusive working environment for all employees on site throughout all stages of the Project. Our company understands that change, respect and cultural inclusivity begin at the senior management level.

2. PRESENTATION OF THE PROGRAM

The Cree Culture Awareness Program is meant for all employees and contractors working on or for, the Galaxy Project. It was developed in 2023 by the GLCI Community Relations team, in collaboration with the Cree Community Liaison Officer from the Cree Nation of Eastmain. The revised version can be found in the Appendix A.

This Program contains several actions which are implemented at different stages of the project life. For example, there is a one-hour online training course entitled “Cultural Sensitivity” offered in French or English to all new GLCI employees and contractors. Its transcript can be found in the Appendix B. This training presents different aspects of Cree culture, its history, its governance, beliefs and its worldviews. Other tools have already been developed and deployed to ensure good intercultural integration of GLCI employees and entrepreneurs, such as the online training of approximately 15 minutes entitled “Cultural diversity.” During the operations of the Mine, a “Workforce Integration Guide” will be distributed to all managers in which a sponsorship program will be put in place.

Several other projects are planned as part of this Program, including the creation of a Cree Cultural Center on the mine site which we intend to design and build, in collaboration with the project Tallyman and the Cree Nation of Eastmain. Cultural activities can be observed, such as holding biannual thematic cultural meetings with mine employees, and the presentation of Cree artifacts, art, etc. Cree art will be displayed and can be available for purchase. Site visits will also be organized with Eastmain community members and students, and with other communities as requested. An important element of our program is the hiring of a full time Cree Community Liaison Officer from Eastmain, as well as a Cree employee in human resources capacity that are available in the community and on site for any questions relating to the project or working conditions.

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Finally, the Community Relations team is responsible for monitoring its implementation in collaboration with the relevant GLCI departments, if applicable (human resources, etc.). It may be revised if necessary and its monitoring will be carried out annually in the environmental and social monitoring report.

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Appendix

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Appendix A: Cree Culture Awareness Program – Action Plan

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CREE CULTURE AWARENESS PROGRAM - ACTION PLAN

Activities	When	Frequency	Goals	Targeted audience	How/Method	Responsible to Organize	Responsible to Communicate	Indicators/ Evaluation Methods	Follow-up/Results
Cultural Sensitivity Online Training	Once (Integration)	Once (All new employees and Contractors)	Educate new employees and contractors on Cree culture including, location, history, culture, food, prejudice, etc.	All employees and contractors	Online training course that was developed and approved by the Cree.	Community Relations Team	Online	Annual training completion rate for new employees and contractors.	To be completed 2024-12-31 as of Q1 2025.
Induction Training on Cree Culture - On site	Once (Integration)	Once (All new employees and Contractors)	During the on site induction training, all contractors and employees will listen to a section dedicated to the Cree culture.	All employees and contractors	On site induction training	Community Relations Team	In person - during the construction phase: H&S Coordinator on site / During Operations: HR Coordinator	The "Cree culture" component is included in the induction training by the start of the construction phase / Annual training completion rate	To be completed 2024-12-31 as of Q1 2025.
Cultual Diversity Online Training	Once (Integration)	Once (All new employees and Contractors)	Educate all new employees and contractors on different aspects of diversity and how to avoid cultural conflicts. This training presents a number of definitions such as racism, discrimination, prejudice, etc. using examples and steps to follow if there is an incident.	All employees and contractors	Online training	Community Relations Team	Online	Annual training completion rate for new GLCI employees and contractors.	To be completed 2024-12-31 as of Q1 2025.
Ethics and Compliance Investigations Procedure (in case of racial conflict)	Once and when relevant	Ongoing	Provide all employees and contractors with the Ethics and Compliance Investigations Procedure, which details the steps to follow if there is an harassment incident, including any racial conflicts.	All employees and contractors	Procedure	Legal and human resources departments	Legal and human resources departments	The procedure is distributed to all employees and contractors / the procedure is available online	To be completed at the end of the first year of Construction.

Ground Breaking Ceremony	Before start of construction	Once	Ground Breaking Ceremony	Executive Team and the CNE, Tallyman Family and whomever they wish to invite	Ceremony on site	Community Liaison Officer (Eastmain) / Community Relations Team	Community Relations Team	The ceremony took place / number of attendees	The ceremony marking the start of construction took place on June 6, 2024. Around 60 people attended, including 10 from the GLCI team.
Sponsorship/Pairing Program	Deployed in the first year of operation phase, then continuously thereafter	Once, during the 1st week of work	Contribute to the successful integration of all new workers on the site, ensuring they feel welcome, informed, supported and safe during their first week on the job. This program aims to forge links between new and existing employees and to foster a sense of belonging and reduce anxiety.	For all new employees at the Galaxy mine, whether Cree or non-Cree	Provide a bilingual sponsor's guide or training session.	HR Director in collaboration with the Community Relations Team and with the Cree Nation of Eastmain	HR Coordinator on site	Date sponsorship program rolled out / number of sponsors / participation rate of new employees in sponsorship program / average annual satisfaction level (evaluation form completed by each participant)	To be completed at the end of the first year of Operation.
Workforce Integration Guide	During Operations	Ongoing	The Human Resources Integration Guide is meant for new employees and contrators to be implemented by the management and supervisors.	Employees and contractors	Workers (including Cree) Integration Best Practices Guide	HR Director	HR Coordinator on site	Date of the Integration guide is drawn up and distributed to the management team and supervisors	To be completed at the end of the first year of Operation.
Construction of the Cultural Centre on the Mine Site	During Construction	Once built, in continue	Working with the RE02 family, and CNE to design and building a Cultural Center on site.	Mine workers, Chief of Eastmain, elders, Tallyman Family, CNE	Participation of the Cree in terms of the design and use.	GLCI, CNE (through the IBA Implementation Committee) and Tallyman family	Community Relations Team	Opening date of the Galaxy Mine Cree Cultural Center	To be completed at the end of the first year of Construction.

Use of the Galaxy Mine Cultural Center	During Operation	Ongoing during Operations	The Cree Cultural Centre will provide Cree and and non-Cree employees a space to practice tradional activites. In addition to being a place of peace for Cree workers, activities such as cultural information sharing, traditional culinary workshops, traditional meal preparation, etc. will be held in the Center.	For all Cree and non Cree mine workers / Tallyman and his family	Cree participation in the use of the cultural center	Community Liaison Officer (Eastmain) / Community Relations Team	Community Relations Team	Number and list of activities held at the cultural center per year	To be completed at the end of the first year of Operation.
Cultural Awareness and Diversity Activities	During Operation	TBD with the Cultural Committee	In collaboration with the Cree, organize cultural awareness and diversity activities related to Cree culture including, presentation of artifacts, Cree crafts, traditional music and dance, history, etc. These could be held at the Cree Cultural Centre.	For all Cree and non Cree mine workers	In-person activities with all Galaxy mine workers	Community Liaison Officer (Eastmain) / Community Relations Team	Community Liaison Officer (Eastmain) / Community Relations Team	Dates and list of activites held / Number of employees who participated in each activity	To be completed at the end of the first year of Operation.
Traditional Meals	During Operation	TBD with the Cultural Comittee	In collaboration with the community, host a traditional meals at the cultural center, during which Cree can speak to their traditonal values, land use, or a topic relevant to their culture.	All mine employees and contractors, Tallyman Family, and by invitation Community members from Eastmain including elders	Meal	Community Relations Team	Community Relations Coordinator / CLO	Dates of traditional meals / Number and percentage of employees who attended each meal	To be completed at the end of the first year of Operation.

Cree Art Available on Site	During Operation	When the Cultural Center Built	Ensure Cree artwork is incorporated at the site as development and design move forward. When possible, artwork will be available for sale.	GLCI and contractors workers, Tallyman Family, Community members from Eastmain including elders	Expositions and art sales at the Cree Cultural Center / display of Cree art work in offices on site.	Community Relations Team	Community Relations Coordinator / CLO	Cree artworks are displayed at the Mine / provenance of the works	To be completed at the end of the first year of Operation.
National Indigenous Day and Truth and Reconciliation Day awareness activities	During Construction & Operation	Annually, June 21 and September 30	Ensure awareness for the National Indigenous Day and for the Truth and Reconcillation Day is organized with the site, and administrative offices.	GLCI and contractor workers	Posters, memos to all employees, testimonies, mini-conferences, minutes of silence	Community Relations Team	Community Relations Coordinator / CLO	List of activities carried out	On June 21, 2024, a communication was sent by e-mail to all employees to educate them about the meaning of this day. / On September 30, 2024, awareness-raising posters were put up and 100 orange pins were distributed to workers and employees in the Montreal office / On site, on September 29, 2024, workers attended 2 Cree worker testimonials.

Other intercultural activities at the Galaxy project site	During Pre-construction and Construction Phases	Ongoing	Other cross-cultural activity initiatives undertaken by contractors at the Galaxy project site during the pre-construction and construction period include: *Cree word capsule at the daily health and safety meeting on site *Cree radio frequency *Cree and non-Cree employees eat together.	Contractors workers on Galaxy Site	N/A	Site manager (Gmining) and site contractors	Site manager (Gmining) and site contractors	List of intercultural activities carried out	*Cree word capsule at the daily health and safety meeting on site *Cree radio frequency *Cree and non-Cree site workers eat together at lunchtime
Community Visits to the Mine Site (IBA Commitment)	During Construction & Operation	Ongoing	Visitation options to the mine for the Cree communities, including Eastmain and its students	Cree Communities, Cree nation of Eastmain Cree School Board	Organised site visit	Community Relations Team / Environmental Director / School of Eastmain	Community Relations Coordinator / CLO	Number of visits organized per year / # of visitors, their origin and age	To be completed at the end of the first year of Construction.
Employment Officer in Eastmain (IBA Commitment)	When determined by CNE	Ongoing	Make sure a Cree Human Ressources Employee is available to the Eastmain community to discuss any issues with the Cree Workers. The role is also to find and train Cree employees for the project.	Cree Workers and Communities	N/A	CNE	CNE	The Cree Employement Officer is hired and on duty in Eastmain	The Cree Employement Officer was hired by the WEDC in February 2024.
Cree Community Liaison Officer (CLO)	Before start of construction	Ongoing	Hire a Community Liaison Officer (CLO) from Eastmain to ensure there is a contact person within the community. The CLO's respnsibilities include responding to any concerns about the project.	Eastmain and Cree Communities	N/A	Community Relations Director	Community Relations Director	The Cree Community Liaison Officer (CLO) is hired and on duty in Eastmain	The new CLO was hired during the Spring 2024

Kapisikama Agreement Cultural Commitments	During Construction & Operations	On going	Ensure Cultural leaves (Goose Break and Moose Break) as well as bereavement leave are observed per the Kapisikama Agreement.	GLCI and contractor Cree workers	To be determined	Mining Director / Human Resources	GLCI Human Ressources / Contractors Managers	Cultural leave granted to Cree workers / percentage of Cree employees who took leave	To be completed at the end of the first year of Construction.
Internal Committees to include Cree Representation (IBA Commitment)	When relevant	At all times	When new internal committees are put in place, the company will ensure Cree representation is observed.	Cree workers	N/A	GLCI relevant department	Community Liaison Officer and Community Relation Coordinator	Percentage representation and number of Cree employees on internal Galaxy project committees	To be completed at the end of the first year of Construction.
Educating the project's Billy Diamond Road users about Cree land use along and near the Billy Diamond Road (JAC Conditions 8.9.3 and 8.9.4)	Thoughout Project Life Cycle	At all times	Ensure that all Billy Diamond Road users, contractors and Galaxy project employers, are aware of Cree land use in the vicinity of the Billy Diamond Road. (JB1-HSS-PRO-031 and JB1-HSS-PRO-032)	GLCI and contractors employees that are road users	Road Traffic Memo included in the "Traffic Management Plan (Onsite & Offsite)" (JB1-HSS-PRO-031 and JB1-HSS-PRO-032)	GLCI - Health Safety and Security Department	GLCI- Health Safety and Security Department	List of awareness activities with the Billy Diamond road user of the Galaxy project	To be completed 2024-12-31 as of Q1 2025.

Date: Reviewed Nov 20, 2024

Appendix B: Online Training – Cultural Sensitivity (transcript)

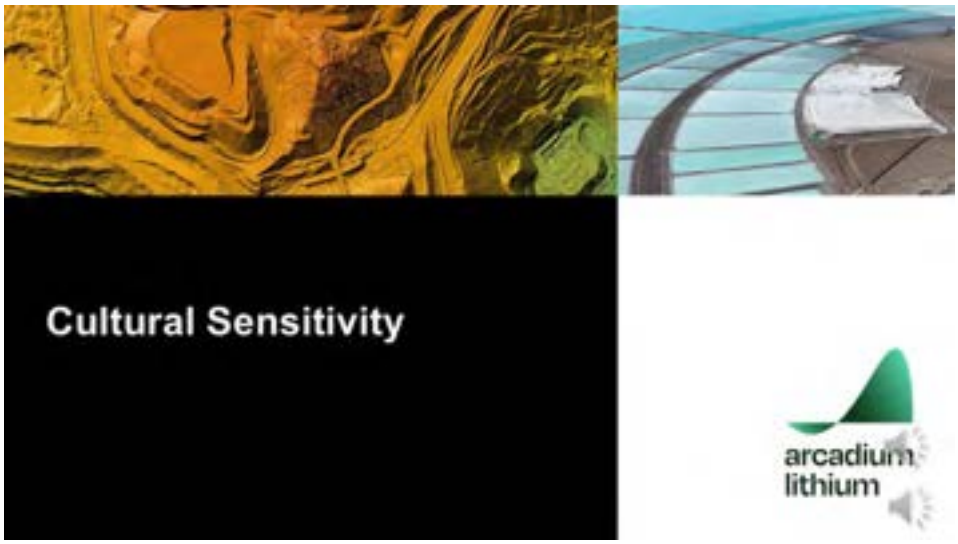
Note: Here is the transcript of the training session. The content has been adjusted following the questions and comments from Comex received on August 7, 2024.

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Cultural Sensitivity – ENGLISH VERSION

PART 1

Diapo-1



Hello everyone. Welcome to this training. Have you ever heard about the amazing story of the Cree Nation and the people of Eastmain?

They are people of the land. They are Eeyou Istchee. Let's go together on this journey and discover who they are. Let's check this video to start with.

Diapo-2



Eeyou Istchee means the people's land. We Eeyouch have prospered here for thousands of years.

Eeyou Istchee has shaped our identity and way of life, and we as Eeyouch have a deep connection to the land. For centuries and to this day the territory has been organized into family Traplines and do Eeyou Istchee. These traplines were later associated with trading posts which led to the formation of our modern-day communities. Even with this modernity, Cree culture is alive and thriving. Families still go out on the land to practice centuries old traditional activities. Year round. Our presence on the land is everywhere, and nothing happens in us without our people knowing about it.

Eeyou Istchee is located on the northeastern coast of James Bay. It extends over 400,000km². The Cree Nation is connected through its communities, each with their own histories and dialects. In the north, we have Whapmagoostui, which is not accessible by road and is shared with the Inuit of Nunavik. Along the coast to the south, we have the communities of Chisasibi, Wemindji, Eastmain and Waskaganish. Inland, we have Nemaska, the capital of Eeyou Istchee, along with the southern communities of Mistissini, Oujé-Bougoumou and Waswanipi. Washaw Sibi and MoCreebec are communities recognized by the Cree Nation Government. We have always traveled extensively through the network of rivers in Eeyou Istchee. The rivers are the veins of the land that have connected our communities and people since time immemorial.

Let's take a ride together on James Bay Road and drive up to Eastmain.

Diapo-3



the Purpose of this awareness is to: Getting to know the Cree Nations history ; Getting to know the Eastmain community ; and The representation of work.

Diapo-4



During this training, we will learn about the Cree Nation and the people of Eastmain, its governance, their history and land. And finally, I will take you on a tour of Eastmain to see how the people there live.

Diapo-5



Let's start with definition.

Diapo-6



Here in Canada, we use the terms Indigenous or Aboriginal to describe the collective of First Nations, Métis and Inuit people.

Diapo-7



The First Nations people are the earliest inhabitants of the land that is now Canada. They were the first to be confronted with sustained European contact, settlement and trade.

Diapo-8



The 634 First Nations in Canada speak more than 50 distinct languages.

Diapo-9



There are a few expressions that can no longer be used nowadays, such as Indians, Reserve, Eskimo. Instead, today it's better to use indigenous, territory, community, Inuit.

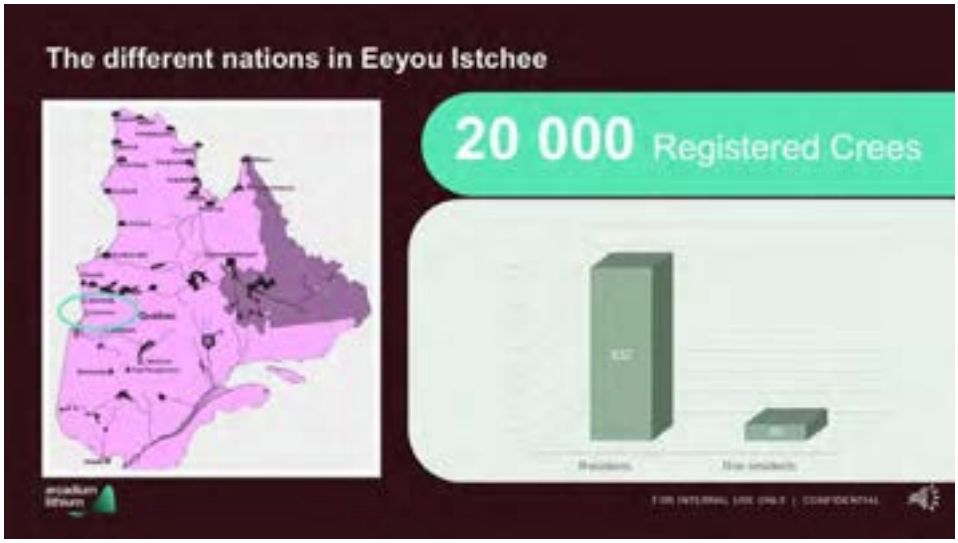
PART 2

Diapo-1



Now, let's talk a little bit about the governance structure.

Diapo-2



As we can see on the map, the Cree Nation is a huge territory, hosting over nine Cree communities. And Eastmain is one of the nine Cree First Nations that make up Eeyou Istchee territory. There are over 20,000 Crees under the registration system. In 2021, Eastmain consisted of 832 residents and 80 nonresidents.

Diapo-3



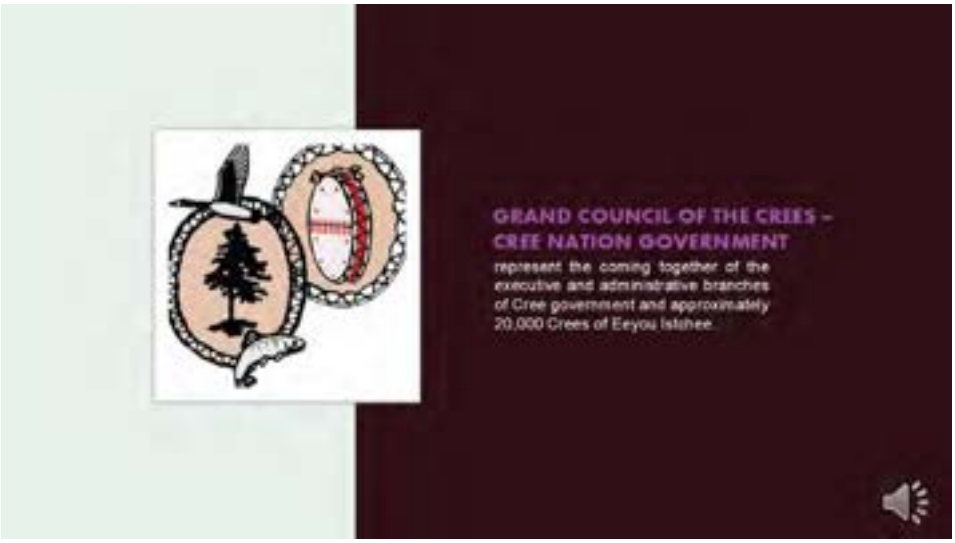
The Grand Council was formed in 1974 as a response to the James Bay Cree hydroelectric conflict, which had already been underway since 1971, when the James Bay project was first announced. Eeyou Istchee was still governed by a traditional political structure.

Diapo-4



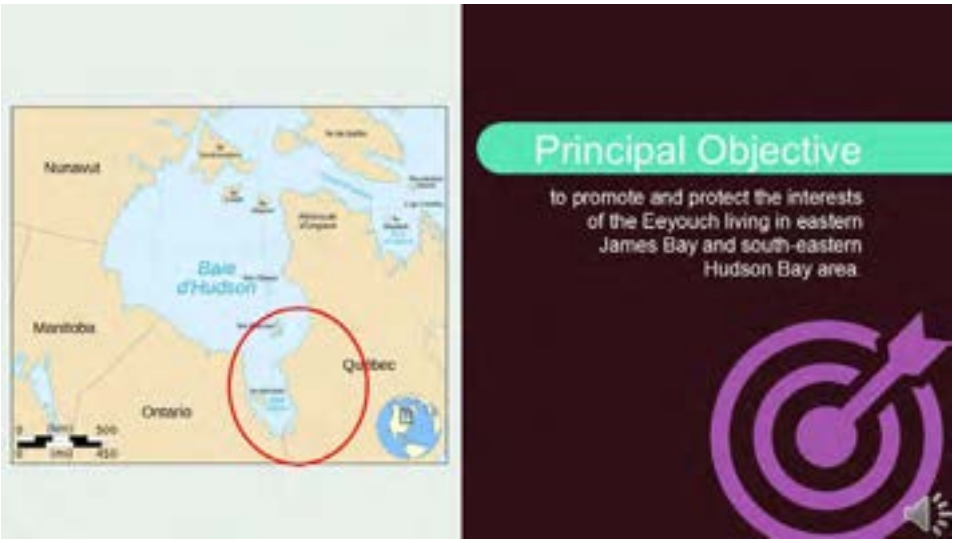
The Cree Nation head office is located in the community of Nemaska, although there are also satellite offices in other communities and Montreal.

Diapo-5



The Grand Council of the Crees, Eeyou Istchee and Cree Nation government represent the coming together of the executive and administrative branches of Cree government and approximately 20,000 Crees of Eeyou Istchee.

Diapo-6



Their principal objective is to promote and protect the interests of the Eeyouch living in eastern James Bay and south-eastern Hudson Bay area.

Diapo-7



There are 10 departement, as an example: Human Resources, Finances, Environmental, Apitisiiwin Skills Development, Child and Family Services, Health care system, Cree school board.

Diapo-8



How about explaining a little bit how the Cree Nations are actually governed?

Sure, First Nation communities are led by a Chief who is elected every four years.

Chiefs are in a position of authority in their communities, and their responsibilities include:

- Managing the administration and services; and, being the primarily as a link between their population and municipal, provincial and federal governments.

- Chiefs also have the role of cultural and spiritual leaders for their community members.

Diapo-9



The current Chief of the Cree Nation of Eastmain is Raymond Shanoush, he will be at that position until 2027.

Through the years, the First Nations have been governed by legendary leaders such as: Abel Bosum who has worked for the Grand Council of the Crees of Quebec since 1977. He has also been village Chief and Negotiator and ended up being Grand Chief in 2019.

There is also Billy Diamond who was the Chief of the Waskaganish, between 1970 and 1976. And the Grand Chief between 1974 and 1984. But he is mostly known for founding Air Creebec in 1982, which is the regional Cree airline.

Diapo-10



And now we have since 2021, Mandy Gull-Masty is a member of the Cree First Nation of Waswanipi and made history as the first woman elected as Grand Chief of the Cree Nation.

She was also the second woman to serve as Deputy Grand Chief. Her public service began in 2014 when she became Deputy Chief of her home community, where she managed finance, administration, housing, and mining negotiations. Mandy played a key role in financial management, strategic planning, and building strong relationships with the mining industry within the Cree territory.

PART 3

Diapo-1



Now, shall we dive into the History of the Crees?

Of course, let’s do that.

Diapo-2



The Cree have organized their lives by following the seasonal migrations of animals in order to obtain meat for food as well as animal skins and bones to make tools and clothing.

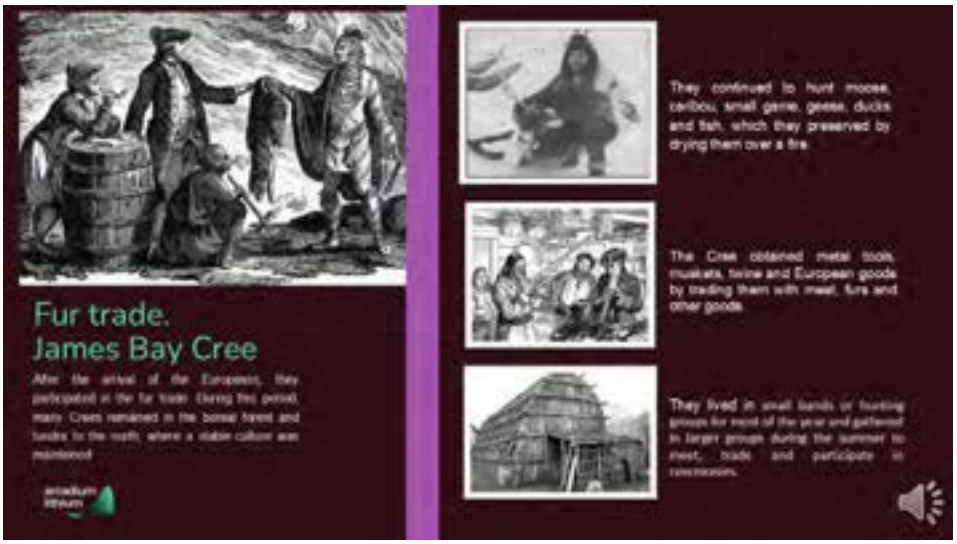
To do so, they travelled by canoe in summer, and by snowshoes and toboggan in winter, living in teepees covered in animal skins.

Diapo-3



The ancestors of today's First Nations occupied the James Bay area for more than 7000 years. According to artifacts dating from 3000 to 3500 years ago.

Diapo-4



After the arrival of the Europeans, they participated in the fur trade. During this period, many Crees remained in the boreal forest and tundra to the north, where a stable culture was maintained. They continued to hunt moose, caribou, small game, geese, ducks and fish, which they preserved by drying them over a fire.

The Cree obtained metal tools, muskets, twine and European goods by trading them with meat, furs and other goods.

They lived in small bands or hunting groups for most of the year and gathered in larger groups during the summer to meet, trade and participate in ceremonies.

Diapo-5

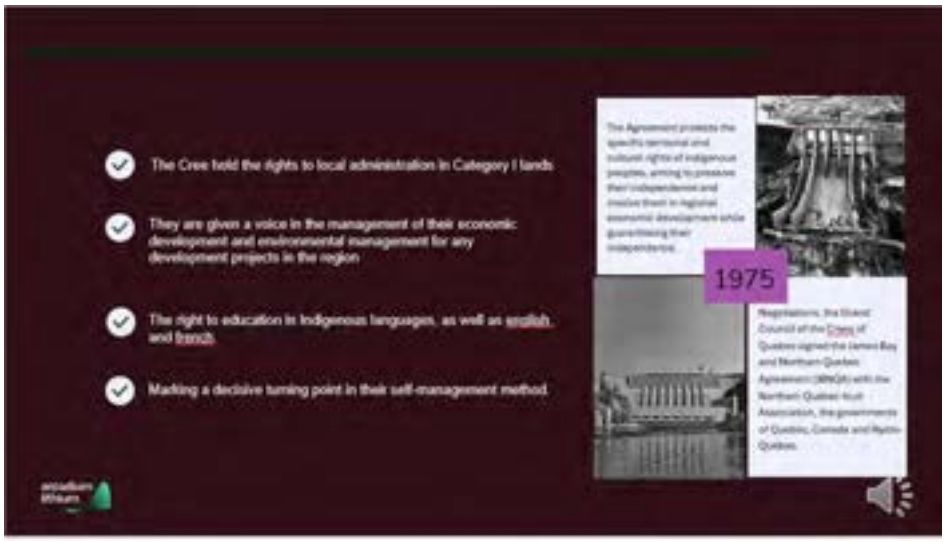


Do you know when did the mining industry take off in the Cree First Nations?

Yes, it started with the opening of roads and the advent of the railway after the Second World War. A few years later, in 1950, a dozen mines came into operation. This gave birth to the cities of Chibougamau, Chapais, and a little later, Matagami. But it doesn't end there. Thanks to the infrastructures put in place by the mining industry, another natural wealth becomes accessible to the boreal forest. Spruce provided excellent lumber, and its pulp was used to increase the strength of certain papers.

This led to the 1960s being the years of forestry exploitation. Here, as elsewhere in Quebec, many companies were established and their needs continued to grow.

Diapo-6



In November 1975, after 4 years of negotiations, the Grand Council of the Crees of Quebec signed the James Bay and Northern Quebec Agreement (JBNQA) with the Northern Quebec Inuit Association, the governments of Quebec, Canada and Hydro-Québec.

The Agreement details the specific rights of the Indigenous peoples, whether territorial or cultural. The core intention was to preserve their independence and include them in the region's economic development, at the same time protecting their traditional rights.

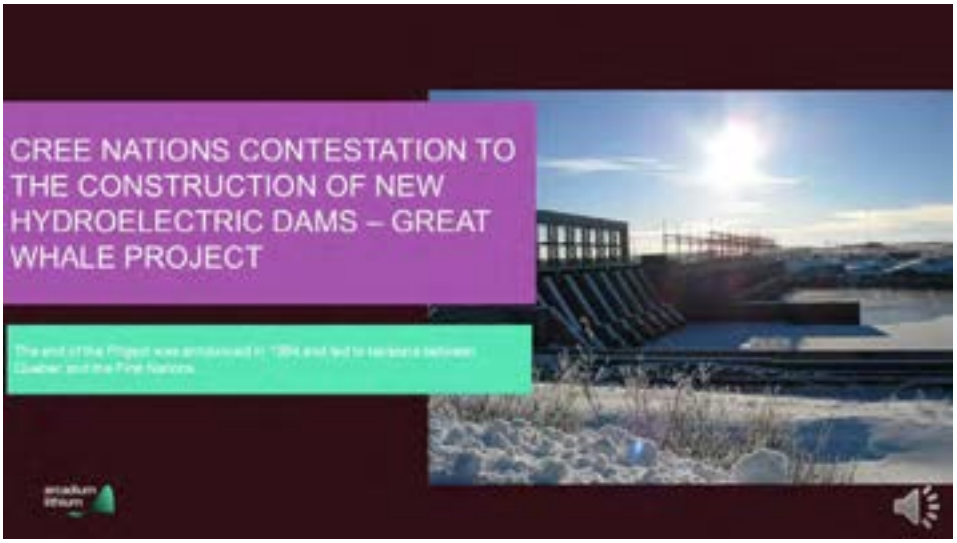
Under the Agreement, the Cree hold the rights to local administration in Category I lands. They are given a voice in the management of their economic development and environmental management for any development projects in the region. Also, the right to education in Indigenous languages, as well as english and french. marking a decisive turning point in their self-management method.

Diapo-7



The signature of the James Bay and Northern Quebec Agreement allowed the Crees to set up administrative structures. Including: the Cree Regional Administration, the Cree Regional Health and Social Services Board, the Cree School Board, and the Cree Hunters and Trappers Revenue Security Board.

Diapo-8



However, there was also some controversy. The Cree nations were opposed to the construction of new hydroelectric dams on James Bay territory and the Great Whale Project, which implied the exploitation of 1000MW of electricity in the US. The end of the project was announced in 1994 and led to tensions between Quebec and the First Nations.

The period of tension between the Quebec government and the Grand Council of the Crees of Quebec, came to an end in 2002 with the signing of the ‘Peace of the Braves’, which gave the Crees a significant amount of money, but also increased independence. However, the impacts are still present.

Diapo-9



How about the school for children?

Residential schools for Indigenous children existed in Canada from the 17th century until the late 1990.

The system was imposed on Indigenous peoples as part of a broad set of assimilation efforts to destroy their rich cultures and identities and to suppress their language and history.

Throughout the history of the system, Indigenous peoples have fought it in many ways. During the years the system was in place, children were forcibly removed from their homes and in school were often subjected to harsh discipline, malnutrition and starvation, poor health care, physical, emotional and sexual abuse, neglect and the deliberate suppression of their culture and language.

Thousands of children died while attending residential schools, and the gravesites of many remain unknown.

The Truth and Reconciliation Commission of Canada has described the residential school system as cultural genocide. The intergenerational effects of this trauma are reflected in lower levels of education and social achievement, interpersonal violence and broken relationships between parents and children.

Diapo-10



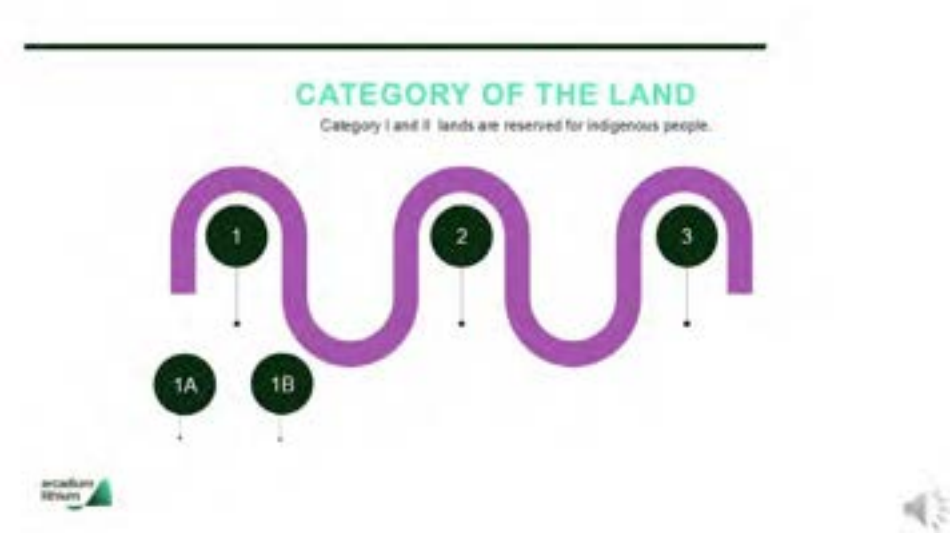
The Cree participated in a variety of cultural ceremonies and rituals, including the sun dance, powwows, goose dance, vision quests, feasts, pipe ceremonies, sweat lodges, snowshoes, walk ceremony, walking out ceremonies, and more. Many of such rituals were banned by the Indian Act until 1951. However, the traditions survived to this day.

Diapo-11



Now let’s talk about the land.

Diapo-12



About the land, the Category I and II lands are reserved for indigenous people. The Cree communities.

Category 1: These lands are allocated to the Cree communities, within the Eeyou Istchee James Bay territory. For the Cree.

Category 1A: Quebec retains the ownership of these lands administered by the Government of Canada is for the exclusive use and benefit of Cree First Nations.

Category 1B: is owned and administered by the Cree Land Holding corporations. These lands may not, however, be sold receded except to Quebec.

Category 2: public lands. In the domain of the state. The Crees have exclusive hunting, fishing and trapping rights.

Category III: the regional government manages it. Cree have exclusive trapping rights except in the southern zone, as well as non-exclusive hunting and fishing rights.

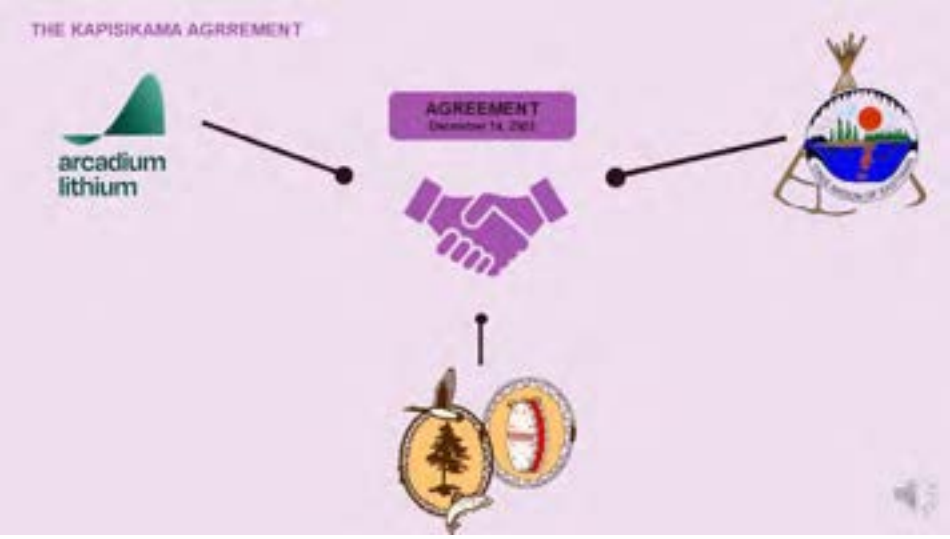
Diapo-13



TRAPLINE MANAGEMENT IS A DIFFERENT KIND OF BUSINESS

Managing a trapline is in many ways a lot like managing any other business. The Cree tallyman integrates ecology with economics, business with society, and self-interest with the needs of the larger community and the local ecosystem. Galaxy lithium project is on the territory considered for the project and its surroundings is currently frequented by members of the family of the trapping master of the field, in particular for moose, hunting, fishing and trapping. Brian Weapenicappo holds the field since he replaced his uncle Clarence Mayappo as trap master in 2014. Several members of his extended family are users of the land.

Diapo-14



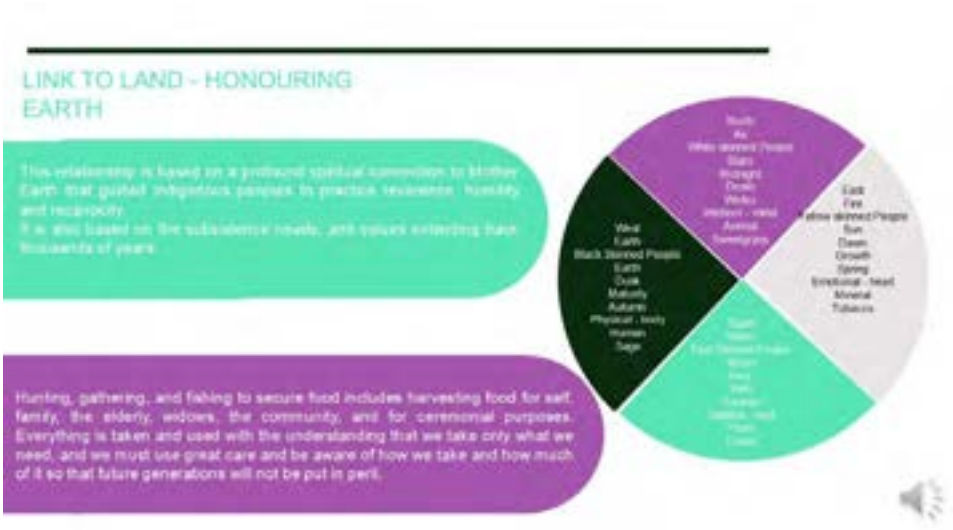
Working in collaboration with local and indigenous communities is critical to the success of any development project in Canada. The agreement that outlines how the community and a development company will respectfully work together is called an Impact and Benefits Agreement, and in this case the Kapisikama Agreement.

Diapo-15



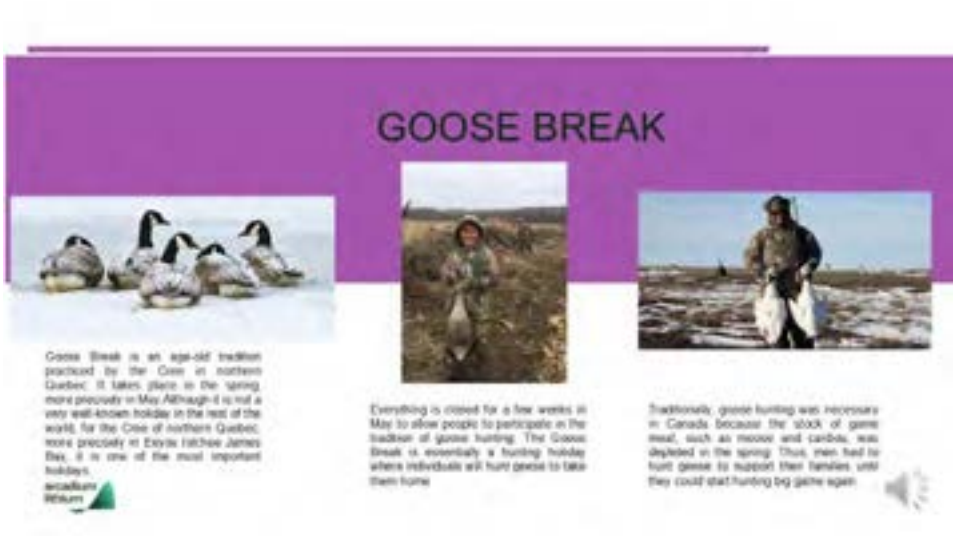
The Kapasikama Agreement is also known as “The Impact and Benefits Agreement” in Canada, sets a milestone for a collaborative and respectful partnership between the company and the Cree parties. It aims to establish a framework for communication, ensure opportunities for the Cree, involve them in environmental monitoring, foster a constructive relationship, gain social acceptance, and support efficient and sustainable project operations “.

Diapo-16



They honor the Earth a lot. This relationship is based on a profound spiritual connection to Mother Earth that guided indigenous peoples to practice reverence, humility, and reciprocity. It is also based on the subsistence needs and values extending back thousands of years. Hunting, gathering, and fishing to secure food includes harvesting food for self, family, the elderly, widows, the community and for ceremonial Purposes. Everything is taken and used with the understanding that we take only what we need, and we must use great care and be aware of how we take and how much of it, so that future generations will not be put in peril.

Diapo-17



Goose break is an age-old tradition practiced by the Cree in northern Quebec. It takes place in the spring, more precisely in May, although it is not a very well-known holiday in the rest of the world for the Cree of northern Quebec, more precisely in EU Istchee James Bay. It is one of the most important holidays. Everything is closed for a few weeks in May to allow people to participate in the tradition of goose hunting. The goose break is essentially a hunting holiday where individuals will hunt geese to take them home. Traditionally, goose hunting was necessary in Canada because the stock of game meat such as moose and caribou was depleted in the spring. Thus, men had to hunt geese to support their families until they could start hunting big game again. Recently, women can participate in hunts to.

PART 4

Diapo-1



Now let's visit with us. Eastmain.

Diapo-2



Like many other coastal villages in James Bay and Hudson Bay, Eastmain was originally a Hudson's Bay Company fur trading post and was known at the time as the East Main House.

Eastmain got its name in 1730 by the local Hudson Bay trading post that had become the company's trading headquarters for the east coast of James Bay and Hudson Bay. The town was originally located on the north shore of the Eastmain River, but in 1762, Eastmain was re-located to the south shore because it provided easier access to the town from the James Bay.

Diapo-3



The territory of Eastmain, designated as Category 1 land, is comprised of 489.53 square kilometers.

In majority, Residents don’t have their own house. To be an owner, they need to request via band office.

Diapo-4



For the Transport, Eastmain community has its own Airport use by Air Creebec and we can travel with vehicles via a gravel road connecting the village to the Billy Diamond road.

Diapo-5



Eastmain Lodge: 20 rooms, modern and comfortable. The name was chosen because the coastline near the hotel is an originals location of the community. It was the place where people traveling by canoe disembarked and were welcomed by the community.

Diapo-6



Cree school board offers elementary and High School education at Eastmain.

Diapo-7



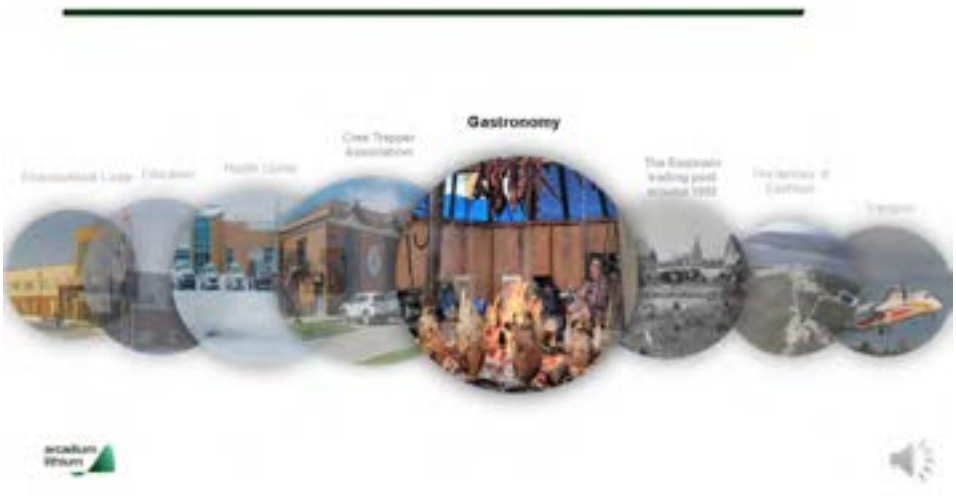
This is the health center.

Diapo-8



And then the Cree Trapper Association.

Diapo-9



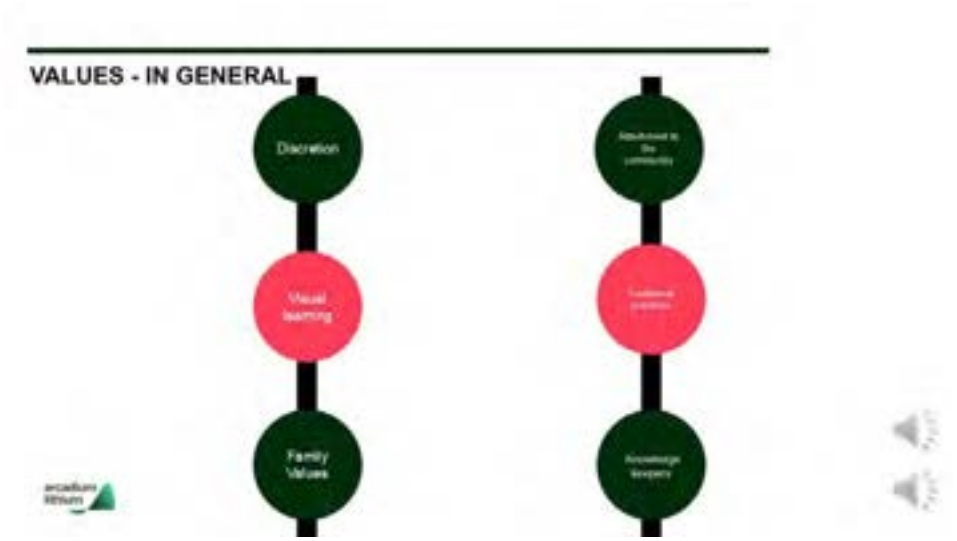
And finally, Eastmain’s gastronomy offers amazing food such as, salted goose, and the many other specialities.

Diapo-10



Now let's see their work in life.

Diapo-11



What are the general characteristics and values of the cree people?

They are discreet, they use visual learning skills, they are family oriented with great attachment to the community, they value traditional practices such as hunting and gathering and finally, the role of the elders in the community is to educate the new generation, they are the knowledge keepers.

Diapo-12



To sum up this informative training, remember that it's important to create a link in time with the Cree people. Go and know your neighbor. Take a lunch. Share a task, a conversation. Once you understand and appreciate other people's cultural backgrounds, then you can also connect more with them. Meegwetch. Thank you for this informative training.

APPENDIX X – MANAGEMENT PROTOCOL WITH BLACK BEAR - WOLF - FOX

Galaxy Lithium (Canada)
Projet de la Baie-James
(Un membre du groupe de sociétés Allkem)

Galaxy Lithium (Canada)
James Bay Project
(A member of the Allkem group of companies)

PROTOCOLE DE GESTION DE L'OURS NOIR-LOUP-RENARD

MANAGEMENT PROTOCOL WITH BLACK BEAR-WOLF-FOX

NUMÉRO DE DOCUMENT :	06-HSE-PRO-517
RÉVISION :	REV1
DATE :	11/03/2024
PROPRIÉTAIRE DU DOCUMENT :	HSE
RÉVISÉ PAR :	Maryse Godin
AUTORISÉ PAR :	MH Turgeon
TRADUIT PAR :	

RÉVISION/ REVIEW	DATE DE RÉVISION / REVISION DATE	MISE À JOUR DE CETTE RÉVISION / UPDATE OF THIS REVISION
A		Version préliminaire / Preliminary version
REV1	2024/03/11	Version finale

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1. PORTÉE ET INSTRUCTIONS	1. SCOPE AND INSTRUCTIONS
Activités visées par la procédure : Toute activité réalisée sur la zone d'influence de la mine et sur la route Billy-Diamond, soit où les promoteurs, travailleurs et chauffeurs risquent d'avoir une interaction avec la faune.	Activities covered by the procedure : Any activity carried out in the mine's area of influence and on the Billy-Diamond road, where promoters, workers and drivers are likely to interact with wildlife.
Objectif : Cette procédure a pour objectif de communiquer les lignes directrices en matière de pratiques sécuritaires en présence d'animaux sauvages, en particulier des ours noirs et des loups, pouvant se retrouver près des sites d'opération d'Allkem Galaxy Lithium Inc. Elle traite de la prévention, de l'identification des risques et de l'intervention en cas de rencontre importune.	Purpose : The purpose of this procedure is to communicate guidelines for safe practices in the presence of wild animals, particularly black bears and wolves, which may be found near Allkem Galaxy Lithium Inc. operating sites. It covers prevention, risk identification and response to unwelcome encounters.
Exclusions : S/O	Exclusions: N/A
Personnel visé : Tout employé, entrepreneur, sous-traitant et consultant qui prépare, supervise et exécute des tâches en lien avec les activités ci-haut mentionnées.	Personnel concerned : All employees, contractors, subcontractors and consultants who prepare, supervise and carry out tasks related to the above-mentioned activities.
Risques : Nourrir les animaux, s'approcher trop prêt, une mauvaise gestion des déchets, ne pas rapporter la présence de bêtes	Risk : Feeding animals, getting too close, poor waste management, not reporting the presence of animals
Pour chaque section et sous-section : S/O	For each section and subsection: S/O
Avant d'utiliser cette procédure : S/O	Before using this procedure: S/O

2. DÉFINITIONS

MOTS, TERMES, ACRONYMES OU ABRÉVIATIONS	DÉFINITION
Dispositif de répulsion sonore	Dispositif émettant un son qui aura pour effet de faire fuir l'animal sauvage. Il peut s'agir d'un sifflet, d'une sirène, d'une cloche ou d'un "Bear Banger" consistant en un dispositif émettant une détonation. Ce dispositif informe par la même occasion les autres membres du personnel à proximité.
Dispositif de répulsion visuelle	Dispositifs émettant une lumière comme celle d'une lampe de poche ou un Mini Flare (fusée éclairante) qui, lorsqu'activé, produit des étincelles semblables à celles d'un feu d'artifice. En période de

2. AUTHORIZED WORK AREAS

WORDS, TERMS, ACRONYMS AND ABBREVIATIONS	DEFINITION
Sound repellent device	A device that emits a sound that will effectively scare away wild animals. It can be a whistle, siren, bell or "Bear Banger" with a detonation device. This device will also inform the personnel nearby of the presence of an animal.
Visual repellent device	Light emitting device such as a flashlight or a Mini Flare that produces sparks like fireworks when activated. In times of drought, the latter device may present a forest

	sècheresse, ce dernier dispositif peut présenter un risque d'incendie de forêt.		fire risk.
Dispositif de répulsion actif	Dispositif à propulsion gazeuse de poivre de Cayenne pouvant atteindre une distance prédéterminée.	Repellent device	Device used to project gaseous Cayenne pepper that can reach a pre-established distance.

3. RÔLES ET RESPONSABILITÉS

En plus des rôles et des responsabilités globaux prévus à la procédure-cadre du système de gestion 06-HSE-PRO-0230 la présente procédure prévoit des rôles et des responsabilités spécifiques pour les intervenants suivants :

3.1. Chef.fe des Opérations canadiennes

- S'assure que ses gestionnaires sont au fait des exigences de la présente procédure et de son application au niveau des opérations.

3.2. Directeur.trice Environnement/Directeur.trice du site

- S'assure que les gestionnaires sont au fait des exigences de la présente procédure et de son application au niveau des opérations.
- Assume la responsabilité de s'assurer que les incidents impliquant la faune sont gérés conformément aux exigences de la présente procédure.

3.3. Surintendant.e Environnement

- S'assure que la formation sur la prévention et l'utilisation des techniques d'intervention en présence d'animaux sauvages est transmise à tous les intervenants.
- S'assure que les dispositifs de répulsion sonores et actifs sont installés par les services surface aux endroits stratégiques au printemps et retirés à l'automne.

3.4. Gestionnaire Santé & Sécurité et sûreté

- Révise la procédure.
- S'assure que la formation sur la prévention et l'utilisation des techniques d'intervention en présence d'animaux sauvages est transmise à tous les intervenants**.**
- S'assure que les dispositifs de répulsion sonores et actifs sont installés par les services surface sont installés aux endroits stratégiques au printemps et retirés à l'automne.

3.5. Surintendant.e opérations minières

3. ROLES AND RESPONSIBILITIES

Within the overall roles and responsibilities established in the Main HHSMS Procedure 06-HSE-PRO-0230, the specific roles and responsibilities of the various stakeholders are the following:

3.1. Head of Canadian operation

- Ensures that its managers are aware of the requirements of this procedure and its application at the operational level.

3.2. Director Environment/Site Director

- Ensures that managers are aware of the requirements of this procedure and its application at the operational level.
- Assumes responsibility for ensuring that wildlife incidents are managed in accordance with the requirements of this procedure.

3.3. Environmental Superintendent

- Ensures that training in the prevention and use of wild animal intervention techniques is provided to all operators.
- Ensures that active and audible repellent devices are installed by surface services at strategic locations in the spring and removed in the fall.

3.4. Health & Safety and Security Manager

- Review the procedure.
- Ensures that training in the prevention and use of wild animal intervention techniques is provided to all responders.
- Ensures that active and audible repellent devices are installed by surface services are installed at strategic locations in spring and removed in autumn.

3.5. Mining Operations Superintendent

• Installe les dispositifs de répulsion sonores et actifs aux endroits stratégiques au printemps et retirés à l'automne tel que précisé sur le plan d'installation.	• Install sound and active repellent devices at strategic locations in the spring and remove them in the fall as specified on the installation plan.
3.6. Agent.e de sûreté • Effectue sur une base quotidienne des observations terrain et relève et documente toute activité impliquant des animaux sauvages. • Rapporte au département SST et au département environnement l'information sur les zones où la présence d'animaux sauvages a été remarquée. • Informer par radio tout le personnel de la présence d'un ours sur la propriété et le secteur ou l'ours a été aperçue la dernière fois. • Avise le gérant en devoir.	**3.6. Safety officer** • Carries out daily field observations and records and documents any activity involving wild animals. • Report information on areas where wild animals have been spotted to the OHS and Environment departments. • Inform all personnel by radio of the presence of a bear on the property and the area where the bear was last seen. • Notifies the manager on duty.
3.7. Surintendant.e des départements • S'assure que ses gestionnaires sont au fait de la présente procédure et de son application dans le cadre du travail. • Informe le département SST de tout incident ou situation pouvant compromettre la sécurité du personnel à cause de la proximité d'animaux sauvages.	**3.7. Department Superintendent** • Ensures that its managers are familiar with this procedure and its application in the workplace. • Informs the OHS department of any incident or situation that may compromise employee safety due to the proximity of wild animals.
3.8. Employés.es • Participe aux séances de formation sur l'application de la présente procédure et les mesures de prévention applicables. • Respecte les mesures de prévention établies et les moyens de contrôle prescrits. • Lors de déplacement hors campement ou du site s'assure de disposer des équipements ou du matériel nécessaire advenant la rencontre d'animaux sauvage. • Rapporte à son supérieur immédiat toute observation d'animaux sauvages à proximité du camp et du site minier, rempli le formulaire d'observation « 06-HSE-FORM-0501 Observation de la faune » et le fait parvenir au département environnement.	**3.8. Employees** • Participates in training sessions on the application of this procedure and applicable preventive measures. • Adhere to established preventive measures and prescribed means of control. • When traveling off-camp or off-site, make sure you have the necessary equipment and supplies in case of wild animal encounters. • Reports all wildlife sightings in the vicinity of the camp and mine site to his or her immediate supervisor, fills out observation form "06-HSE-FORM-0501 Wildlife Observation" and forwards it to the Environment Department.
3.9. Entrepreneur.es • S'assure que ses gestionnaires et employés sont au fait de la présente procédure. • S'assure que ses superviseurs fournissent les équipements et accessoires nécessaires pour intervenir	**3.9. Entrepreneur.es** • Ensures that its managers and employees are familiar with this procedure. • Ensures that supervisors provide the necessary equipment and accessories to intervene in the event of a chance encounter with a wild animal.

advenant une rencontre fortuite avec un animal sauvage. • S'assure que soit communiquée toute observation de la présence d'animaux sauvage dans les zones de travail via le formulaire « 06-HSE-FORM-0501 Observation de la faune ». • Rapporte au chargé de projet tout problème découlant de l'application de la présente procédure.	• Ensures that all observations of wildlife in work areas are reported using the "06-HSE-FORM-0501 Wildlife Observation" form. • Reports any problems arising from the application of this procedure to the Project Manager.

4. PROCESSUS

Afin d'assurer la sécurité des employés, des entrepreneurs et des visiteurs, des mesures de prévention et d'intervention sont établies pour composer avec la présence d'animaux sauvages et particulièrement celle d'ours noirs et de loups. Ces mesures s'appliquent de différentes façons et à différentes fréquences dans le but premier de prévenir les accidents potentiels. L'ensemble des moyens de prévention et les mécanismes de communication développés visent à réduire les risques de présence d'animaux sauvages en périphérie des zones de travail et d'hébergement. Les étapes suivantes doivent être mises en place pour assurer la sécurité individuelle et collective des intervenants sur le site minier.

4.1. Prévention

Les installations sont situées dans un territoire sauvage où la faune caractéristique de ces régions abonde. Les activités d'exploration, de construction et par la suite d'opération vont perturber cet environnement. Règle générale, l'activité humaine dans un secteur éloigne les animaux sauvages. Cependant les dérangements apportés à leurs habitudes alimentaires par l'activité humaine combinés à la présence de nouvelles sources de nourriture potentielle attirent les animaux sauvages, particulièrement lorsque leur nourriture habituelle se fait rare.

Des mesures de prévention ont été établies afin de réduire l'attrait des animaux sauvages pour les sites d'hébergement et de construction. Voici certaines informations qui permettront de mieux comprendre le mode de vie de ces animaux. Il peut cependant y avoir des variantes comportementales selon les circonstances.

4.1.1. Ours noir/Loup/Renard

Des loups et des ours noirs sont fréquemment observés au lieu d'enfouissement près du site minier. Une attention particulière doit donc être portée à ces animaux qui dans certaines circonstances peuvent compromettre la sécurité des travailleurs.

Quelques observations sur les ours noirs:

La période de l'année où ils sont le plus actifs est de mai à novembre;

Règle générale, les ours noirs n'attaquent pas les humains, mais une attention est toujours requise, car exceptionnellement ils peuvent toujours attaquer;

Même si les attaques et blessures par un ours sont rares, il

4. PROCESS

To ensure the safety of employees, contractors and visitors, prevention and intervention measures have been established to deal with the presence of wild animals, particularly black bears and wolves. These measures are applied in different ways and at different frequencies, with the primary aim of preventing potential accidents. All the preventive measures and communication mechanisms we have developed are designed to reduce the risk of wild animals being present in the vicinity of work and accommodation areas. The following steps must be taken to ensure the individual and collective safety of those working on the mine site.

4.1. Prevention

The facilities are located in a wilderness area with abundant wildlife. Exploration, construction and subsequent operations will disturb this environment. As a general rule, human activity in an area keeps wild animals away. However, the disturbance to their feeding habits caused by human activity, combined with the presence of new potential food sources, attracts wild animals, particularly when their usual food is scarce.

Preventive measures have been put in place to reduce the attraction of wild animals to lodging and construction sites. Here is some information to help you better understand how these animals live. There may, however, be behavioral variations depending on the circumstances.

4.1.1. Black bear/wolf/fox

Wolves and black bears are frequently observed at the landfill near the mine site. Special attention must therefore be paid to these animals, which under certain circumstances can compromise worker safety.

A few observations on black bears:

They are most active from May to November;

As a general rule, black bears do not attack humans, but care is always required, as exceptionally they can still attack;

Although bear attacks and injuries are rare, it is essential to remember that :

est essentiel de se rappeler que :

- Les ours sont facilement attirés par les endroits où l'humain vit ;
- Ils sont attirés par les vidanges, les oiseaux, l'odeur de graisse et de résidus de nourriture;
- Ces sources de nourriture non naturelles pour eux les incitent à se rapprocher des sites d'activité humaine ;
- Si l'ours a du succès, il reviendra encore et encore ;
- Il perdra progressivement sa peur naturelle de l'être humain et fréquentera régulièrement les lieux où l'être humain vit, habite ou travaille.

- La présence d'ourson peut rendre la mère très protectrice et modifier son comportement habituel; cela peut présenter un danger supplémentaire pour l'humain.

- Les ours noirs attaquent rarement, mais son comportement peut être influencé par différents facteurs tels que mâle ou femelle, en période de reproduction ou femelle avec ses oursons, ours adulte avec territoire établi, son état physique (âgé, blessé) et finalement le type d'expérience que l'ours a eue dans le passé avec les humains. Par conséquent les ours ne sont pas entièrement prévisibles.

- Plusieurs raisons poussent un ours à devenir menaçant ou à attaquer un humain et se résument comme suit:
  - Certains ours n'ont plus peur des humains, car ils sont habitués à eux;
  - L'ours est surpris ou approché de trop près et se sent coincé ou menacé;
  - La femelle et ses oursons sont approchés de trop près;
  - Un ours défend une source de nourriture abondante;
  - Un ours est blessé, est souffrant ou affamé;
  - Un ours considère un humain comme une proie;
- Un ours qui se tient sur ses pattes arrière n'est pas agressif, mais tente plutôt de chercher à identifier une odeur ou vérifier si vous représentez une menace pour lui.

- Bears are easily attracted to places where humans live;
- They are attracted by garbage, birds, the smell of grease and food residues;
- These unnatural food sources encourage them to move closer to sites of human activity;
- If the bear is successful, it will come back again and again;
- It will gradually lose its natural fear of human beings, and regularly visit places where people live or work.

- The presence of a cub can make the mother very protective and modify her usual behavior; this can present an additional danger to humans.

- Black bears rarely attack, but their behavior can be influenced by various factors, such as whether they are male or female, mating or with cubs, an adult bear with an established territory, their physical condition (old, injured) and finally the type of experience they have had with humans in the past. As a result, bears are not entirely predictable.

- There are many reasons why a bear may become threatening or attack a human, and they can be summed up as follows:
  - Some bears are no longer afraid of humans, as they are used to them;
  - The bear is surprised or approached too closely and feels cornered or threatened;
  - The female and her cubs get too close;
  - A bear defends an abundant food source;
  - A bear is injured, suffering or starving;
  - A bear sees a human as prey;
- A bear standing on its hind legs is not aggressive, but rather trying to identify a scent or check whether you represent a threat to it.

4.2. Précaution et mesures de sécurité Des mesures de sécurité sont en place pour prévenir les incidents avec les animaux sauvages et particulièrement les ours noirs. Des dispositifs de répulsion sont disponibles et les personnes circulant en dehors des zones protégées doivent avoir de ces moyens sur soi. Des bornes de sécurité sont installées sur le site et contienne des dispositifs de répulsion sonore. Ces dispositifs sont complémentaires aux dispositifs de répulsion personnelle cités au paragraphe précédent.	**4.2. . Precautions and Safety Measures** Safety measures are in place to prevent incidents with wild animals, particularly black bears. Repellent devices are available, and people travelling outside protected areas should carry these with them. Safety bollards are installed on site and contain sound repulsion devices. These devices complement the personal repulsion devices mentioned in the previous paragraph.
4.2.1. Nourriture Les mesures suivantes doivent être respectées : • La nourriture doit être consommée dans les salles à manger du complexe d'hébergement ; • Toute nourriture sortie pour la pause du matin ou de l'après-midi doit être rangée dans un lieu sécuritaire et à l'abri des animaux sauvages ; • Tout déchet de nourriture ou excédant de nourriture sortie des aires de repas prévus doit être rapporté au camp pour être disposé dans les contenants appropriés ; • Tout déchet du camp doit être conservé dans un local approprié et dans des contenants prévus à cet effet. **4.2.2. Comportement sécuritaire** La présence d'êtres humains sur des territoires sauvages requiert des précautions particulières pour assurer sa propre sécurité et ne pas compromettre celle des autres membres de l'équipe. Les règles suivantes doivent être observées : • Ne pas nourrir ou tenter d'approcher un ours ou un ourson. • Ne pas tenter de prendre de photos ou de vidéos si vous êtes à découvert. • Comprendre le comportement de l'ours noir et les moyens de reconnaitre sa présence dans son secteur de travail;	**4.2.1. Food** The following measures must be respected: • Food must be eaten in the cafeterias of the housing complex. • All food taken out during the morning or afternoon breaks must be put away in a safe place that is inaccessible to wild animals. • All food waste and excess food taken out of the designated meal areas must be returned to the camp and disposed of in appropriate containers. • All camp waste must be kept in an appropriate place and in the containers provided for that purpose. **4.2.2. Safe Behaviour** The presence of humans in wild areas requires specific precautions to ensure individual safety without compromising the safety of other team members. The following rules must be observed: • Do not feed or attempt to approach a bear or bear cub. • Do not try to take photos or video if you are in the open. • Understand black bears' behaviour and the ways to recognize their presence in your work area. • Learn techniques for prevention, for using the available repellents, and for appropriately reacting in the case of a chance encounter with a bear;

- Apprendre les techniques pour prévenir, pour utiliser les moyens de répulsion disponibles et pour réagir adéquatement advenant la rencontre fortuite d'un ours;
- Toujours être en alerte, garder les yeux ouverts et être à l'écoute de son entourage; Effectuer fréquemment un tour d'horizon pour déceler la présence d'ours;
- Prendre toutes les précautions nécessaires avec la nourriture et les déchets de nourriture. Utiliser le plus possible des contenants résistant aux ours et sécuriser le couvercle en tout temps;
- Lors de travaux, repérer dans votre secteur la borne de sécurité identifiée où se trouve des dispositifs de répulsion sonore tel que sifflet et sirène à air comprimé ;
- Lors de déplacement en milieu éloigné :
- toujours être accompagné d'au moins une personne;
- avoir des dispositifs de répulsion sur soi;
- avoir au moins un moyen pour communiquer avec la sûreté et le superviseur;
- le soir, avoir également une lampe de poche en bonne condition;
- Lors de déplacement hors site, s'assurer d'informer quelqu'un de la direction du déplacement et du lieu de travail prévu. Advenant une modification, en cours de route en aviser son superviseur.
- Si un ours ou un loup est en vue dans votre secteur, ne pas l'approcher et contacter immédiatement votre responsable et le service de sûreté pour l'en informer et communiquer votre localisation.
- Utiliser au besoin un sifflet ou une sirène à air comprimé pour éloigner l'ours.

4.2.3. Information et communication

Afin de tenir le personnel informé de la présence et de l'activité d'animaux sauvages en particulier l'ours noir et le loup, des moyens de communication seront mis en place tels que:

- Un communiqué sera publié lors de rencontre hebdomadaire ou quotidienne de santé et sécurité.
- Des séances d'information seront données aux gestionnaires et une formation sera donnée pour tous les employés sur la faune et les animaux dangereux se trouvant dans les secteurs de travail.

- Always be alert, keep your eyes open and listen to your surroundings; frequently scan for bears.
- Take all necessary precautions with food and food waste. Use bear-resistant containers wherever possible and secure the lid at all times.
- When working in your area, locate the identified safety terminal where there are sound repelling devices such as whistles and compressed air sirens.
- When travelling in remote areas:
- always be accompanied by at least one other person.
- have repulsion devices on you.
- have at least one means of communicating with safety and the supervisor.
- a flashlight in good condition.
- When traveling off-site, be sure to inform someone from the direction of travel and the planned work location. In the event of a change, notify your supervisor en route.
- If a bear or wolf is in sight in your area, do not approach it and immediately contact your supervisor and the safety department to inform them of your location.
- If necessary, use a whistle or compressed-air siren to scare the bear away.

4.2.3. Information and Communication

In order to keep personnel informed of the presence and activity of wild animals, in particular black bears and wolves, the following means of communication will be put in place:

- A communiqué will be issued at weekly or daily health and safety meetings.
- Information sessions will be given to managers, and training will be provided for all employees on wildlife and dangerous animals in work areas.

4.3. Intervention en présence d'un ours

Malgré la mise en place des mesures de sécurité visant à réduire la présence d'ours ou d'animaux sauvages aux abords du camp, du site de travail et de construction, des incidents peuvent survenir.

Des bornes de sécurité contenant des dispositifs de répulsion additionnelle sont disponibles sur le site. Lors de son usage, celui-ci doit être rapporté au service surface pour être remplacé.

Compte tenu du niveau d'imprévisibilité d'un ours il n'y a pas qu'une méthode de réagir en sa présence. Advenant une rencontre avec un ours, les mesures suivantes sont recommandées :

4.3.1. Si l'ours est loin et ne semble pas avoir constaté votre présence

- Reculez lentement sans faire de bruit sans le regarder directement dans les yeux. Lorsque vous êtes à l'abri, contactez immédiatement votre responsable et le service de sûreté, en mentionnant votre localisation ;
- Suivez les directives qui vous seront transmises par votre responsable et/ou le service de sûreté ;
- La reprise des activités sera permise qu'avec l'autorisation de votre supérieur une fois que l'ours aura quitté les lieux et que des moyens additionnels auront été pris pour assurer la sécurité du personnel.

4.3. Response in the Presence of a Bear

Despite the safety measures implemented to reduce the presence of bears or wild animals surrounding the camp and the work and construction site, incidents could happen.

Safety markers containing additional repellents are available at the site. After use, repellents must be returned to the surface service for replacement.

Given the unpredictability of bears, there is no single way to react in their presence. If you encounter a bear, the following measures are recommended:

4.3.1. If the bear is far away and does not seem to have noticed you

- Back away slowly without making noise and without making eye contact. When you are in a safe location, contact your supervisor and the security service immediately and inform them of your location.
- Follow the instructions given to you by your supervisor and/or the security service.
- You may only continue your activities with the authorization of your supervisor once the bear has left the area and additional measures have been taken to ensure personnel safety.

4.3.2. Si l'ours semble avoir constaté votre présence • Identifiez-vous comme un humain ; • Agitez lentement les bras et parlez lentement sans le regarder directement dans les yeux ; • Reculer lentement sans lui montrer le dos, faites un détour pour s'éloigner du secteur où il se trouve ; • Si vous ne pouvez rebrousser chemin, rester immobile et attendez sans bouger, laissez-lui de la place. NE LE COINCEZ PAS. Lorsque l'ours s'éloignera, quittez lentement le secteur. NE PAS COURIR ; • Lorsque vous serez à l'abri, contactez immédiatement votre responsable et le service de sûreté, en mentionnant votre localisation ; • Suivez les directives qui vous seront transmises par votre responsable et/ou le service de sûreté ; • La reprise des activités sera permise qu'avec l'autorisation de votre supérieur une fois que l'ours aura quitté le secteur et que des moyens additionnels auront été pris pour assurer la sécurité du personnel.	**4.3.2. If the bear seems to have noticed you** • Identify yourself as a human. • Wave your arms slowly and speak slowly without making direct eye contact. • Back away slowly without turning your back to the bear and take a different route to keep away from the area where the bear is located. • If you are unable to turn back, stay where you are and wait without moving, giving the bear space. DO NOT CORNER THE BEAR. When the bear has gone away, slowly leave the area. DO NOT RUN ; • When you are in a safe location, contact your supervisor and the security service immediately and inform them of your location. • Follow the instructions given to you by your supervisor and/or the security service. • You may only continue your activities with the authorization of your supervisor once the bear has left the area and additional measures have been taken to ensure personnel safety.

4.3.3. Si l'ours a constaté votre présence et s'approche vers vous

- Demeurez debout solidement et éloignez-vous lentement ;
- Demeurez calme ;
- S'il continue à avancer vers vous, distrayez le en laissant tomber un sac un objet (qui ne peut être utilisé comme moyen de défense ex. rame, hache, etc.). Ne jetez de la nourriture qu'en dernier recours, car les ours seront plus exigeants et plus menaçants pour les prochaines personnes qu'il rencontrera par la suite sachant qu'il peut avoir de la nourriture facilement ;
- Prenez votre dispositif de répulsion sonore et/ou visuelle et soyez prêt à l'utiliser (sifflet ou sirène, lampe de poche ou fusée éclairante, mini flare) ;
- Lorsque l'ours quitte le secteur, quittez lentement le secteur. NE PAS COURIR ;
- Lorsque vous êtes à l'abri, contactez immédiatement votre responsable et le service de sûreté, en mentionnant votre localisation ;
- Suivez les directives qui vous seront transmises par votre responsable et/ou le service de sûreté ;
- La reprise des activités sera permise qu'avec l'autorisation de votre supérieur une fois que l'ours aura quitté le secteur et que des moyens additionnels auront été pris pour assurer la sécurité du personnel.

4.3.4. Si vous surprenez un ours et qu'il se montre agressif

L'ours est pris de court et agit par réflexe de défense. Même si l'ours vous fait des menaces vous pouvez encore désamorcer cette agressivité en vous éloignant doucement, en lui parlant et en laissant tomber un article devant vous. À ce stade, montrez-vous le moins menaçant possible.

4.3.3. If the bear has noticed you and approaches you

- Remain standing solidly and get away slowly.
- Remain calm;
- If the bear continues to come toward you, distract it by dropping an object (do not use an object that could be used for defence, such as an oar, axe, etc.) from a bag. Only throw food as a last resort because the bear will be more aggressive and threatening toward the next person it encounters, knowing that it can obtain food easily.
- Take out your noisemaker or visual repellent (whistle, siren, flashlight, signal flare, or mini flare) and prepare to use it.
- When the bear has left the area, slowly leave the area. DO NOT RUN ;
- When you are in a safe location, contact your supervisor and the security service immediately and inform them of your location.
- Follow the instructions given to you by your supervisor and/or the security service.
- You may only continue your activities with the authorization of your supervisor once the bear has left the area and additional measures have been taken to ensure personnel safety.

4.3.4. If you surprise a bear who then becomes aggressive

The bear has been taken off guard and will react with a reflex for self-defence. Even if the bear threatens you, you can relieve the aggressiveness by backing away gently while speaking to the bear and dropping an object in front of you. At this stage, appear as unthreatening as possible.

4.3.5. Si l'ours vous suit de façon insistante ou fonce sur vous sans peur.	**4.3.5. If the bear follows you insistently or charges you fearlessly**
L'ours qui prend un humain en chasse se montre insistant et menaçant. Il émet des sons contrairement au jeune ours curieux. Dans cette situation extrême, il est préférable de faire face à l'ours. Les actions suivantes sont indiquées : • Essayer de l'intimider à votre tour en : o Paraissant dominant; o Cognant des objets l'un contre l'autre, o Haussant la voix, o Agitant vigoureusement les bras, votre manteau, une branche ou votre sac au-dessus de votre tête ou sautez pour avoir l'air plus grand.	A bear chasing a human is insistent and threatening. It makes noises different from those of a young, curious bear. In this extreme situation, it is preferable to face the bear. The following actions are recommended: • Try to intimidate the bear by: o appearing dominant; o banging objects together; o raising your voice; o waving your arms, your coat, a branch or your bag vigorously over your head or jumping to appear taller.
Cette intimidation fonctionnera si l'ours craint encore les humains. Si ce dernier ne semble pas intimidé et qu'il se dirige toujours vers vous, faites-lui face et défendez-vous. Utilisez vos poings, des roches, un bâton, une rame, une hache pour vous défendre. Réfugiez-vous derrière un obstacle, roche ou arbre, utilisez cet obstacle comme bouclier. Si vous pouvez monter dans un arbre, faites-le. Même si cette technique ne fait pas l'unanimité et qu'un ours peut aussi monter, elle a sauvé des vies. Selon certaines affirmations de faire le mort serait une technique. Selon la nature de la situation et le comportement de l'ours qui peut être variable tel qu'expliqué à la section 4.1.1, l'ours demeure imprévisible. Si l'ours voyait en la présence de l'humain une menace ou un envahisseur, le fait de faire le mort désamorcera la situation, car il n'a plus rien à craindre de vous. Cependant s'il s'agit d'un ours prédateur, le fait de faire le mort ne changera rien, bien au contraire cela lui facilitera la tâche.	This intimidation will work if the bear is still afraid of humans. If the bear does not seem intimidated and continues to come after you, face it and defend yourself. Use your fists, rocks, a stick, an oar, or an axe to defend yourself. Get behind an obstacle, rock, or tree, and use the obstacle as a shield. If you can climb a tree, do so. Even though this technique does not always work, and bears can also climb, it has saved lives. Some assert that playing dead can be an acceptable technique. According to the situation and the bear's behaviour, which can be variable, as explained in Section 3.1.1, bears can be unpredictable. If the bear sees the human as a threat or an invader, playing dead can diffuse the situation because the bear will no longer have anything to fear from you. However, if the bear is predatory, playing dead will only make its attack easier.
4.4. Abattage de l'animal Il est interdit d'abattre un ours importun sur la seule base qu'il se promène sur le site minier. L'article 67 de la loi sur la conservation et la mise en valeur de la faune (RLRQ, c C-61.1) stipule qu'il est interdit de tuer un animal s'il peut être effarouché. Article 67 : Une personne ou celle qui lui prête main-forte ne peut tuer ou capturer un animal qui l'attaque ou qui cause du dommage à ses biens ou à ceux dont elle a la garde ou est chargée de l'entretien lorsqu'elle peut effaroucher cet animal ou l'empêcher de causer des dégâts. Nul ne peut abattre ou capturer un animal qui cause du dommage aux biens ou qui doit être déplacé pour des fins d'intérêt public, sauf aux conditions déterminées par	**4.4. Killing an animal** It is forbidden to kill an unwelcome bear on the sole basis that it was on the mine site. Article 67 of the Act Respecting the Conservation and Development of Wildlife (RLRQ, c C-61.1) stipulates that it is forbidden to kill an animal if it can be frightened away. Article 67. No person nor anyone lending him assistance may kill or capture an animal attacking him or causing damage to his property or property under his care or maintenance unless he is unable to frighten the animal away or prevent it from causing damage. No person may kill or capture an animal that causes damage to property or must be moved in the public interest, except on the conditions determined by regulation of the

règlement du ministre.

Allkem doit faire preuve de diligence raisonnable et prouver que tous les moyens ont été utilisés pour effaroucher l'animal et qu'il y a eu une dégradation de la situation avant d'abattre l'animal. Par exemple, l'ours est devenu agressif suite à plusieurs tentatives d'effarouchement. L'annexe A présente les lignes directrices à suivre avant de considérer l'abattage d'un animal.

La tâche d'abattre l'animal devra être confiée en premier lieu au maitre de trappe : Brian Weapenicappo. Si ce dernier n'est pas au site et qu'il est impossible de le contacter, la demande pourra être faite à un membre de la famille. Advenant, qu'aucun membre de la famille du maitre de trappe n'est au site et qu'il est impossible de les contacter, la tâche d'abattre l'animal pourra être accomplie par une personne désignée par le gestionnaire SST.

L'abattage d'un ours noir est une activité à déclaration obligatoire (article 68 de la loi C61.1). Un agent de la faune doit être contacté dans les plus brefs délais. S'il est impossible de contacter un agent de la faune, un appel doit être logé à SOS braconnage. Voici les coordonnées pour contacter un agent de la faune et SOS braconnage :

- Agent de la faune (bureau de Radisson) : 819-638-8305 poste 221 Contact : Vincent Brodeur
- Biologiste MFFP : Guillaume Szor 418 748-7701, poste 238
- SOS Braconnage : 1 800 463-2191

Si l'ours noir est abattu par le maitre de trappe ou un membre de sa famille, l'animal leur appartient. Si l'animal est abattu par toute autre personne, il appartient aux agents de la faune. L'ours mort ne peut être disposé au lieu d'enfouissement et ne peut être donné ou vendu même au maitre de trappe. L'agent de la faune décidera du moyen d'en disposer.

Un rapport d'évènement décrivant l'abattage de l'ours devra être remis à l'agent de la faune sur demande.

Tout manquement à cette procédure peut entrainer une amende ou une poursuite judiciaire de la part du Ministère de la Forêt, de la Faune et des Parcs.

Il est à noter que l'utilisation d'une cage pour capturer et relocaliser un ours importun n'est pas considérée pour l'instant.

Minister.

Pursuant to Article 68 of the Act C61.1, one must declare having killed a black bear. A wildlife officer must be contacted as soon as possible. If it is impossible to reach a wildlife officer, SOS Braconnage must be called. Here are the phone numbers for both:

- Wildlife officer (Radisson office): 819-638-8305 poste 221 221 Contact : Vincent Brodeur
- Biologist MFFP : Guillaume Szor 418 748-7701, poste 238
-
- SOS Braconnage: 1 800 463-2191

If the bear is killed by the tallyman or a member of his family, the animal belongs to them. If the animal is killed by anyone else, it belongs to wildlife authorities. The bear cannot be disposed of in the trench landfill and cannot be given or sold, even to the tallyman. The wildlife officer will decide how to dispose of the animal.

An event report describing how the animal was killed must be provided to wildlife authorities when requested.

Not following this procedure may result in a fine or legal action by the Ministère de la Forêt, de la Faune et des Parcs.

It must be noted that the use of a cage to capture and relocate an unwelcome bear is not an option that can be considered at the moment.

4.5. Rapport d'incident et enquête

Tout incident impliquant un animal sauvage devra être investigué en utilisant le rapport d'enquête et d'analyse d'incident (06-HSE-FORM-001) tel que prévu à la procédure 06-HSE-PRO-0001

Les conclusions et des mesures de prévention additionnelles seront établies et communiquées à l'ensemble des employés.

4.6. Mesures disciplinaires

Le travail en territoire sauvage comporte des risques pour la sécurité du personnel. Les mesures de prévention et les méthodes visant à réduire les risques sont mises en place et doivent être appliquées avec beaucoup de rigueur. Le non-respect de ces règles peut entrainer des situations qui pourraient mettre en danger la vie de la personne ne respectant pas ces règles et exposer inutilement la vie des autres employés.

Par conséquent, le non-respect des mesures de prévention et règles exposées à la procédure, le vol de dispositif de répulsion des bornes de sécurité sur le site entrainera des mesures disciplinaires pouvant mener à un renvoi immédiat du site.

4.5. Incident and investigation report

All incidents involving wild animals must be investigated using the Incident Investigation and Analysis Report (06-HSE-FORM-001) as provided for in procedure 06-HSE-PRO-0001.

Conclusions and additional preventive measures will be established and communicated to all employees.

4.6. Disciplinary action

Working in the wilderness involves safety risks for personnel. Preventive measures and methods designed to reduce risks are in place and must be applied with the utmost rigor. Non-compliance with these rules can lead to situations that could endanger the life of the person breaking the rules and unnecessarily expose the lives of other employees.

Consequently, failure to comply with the preventive measures and rules set out in the procedure, and the theft of repulsion devices from security terminals on the site, will result in disciplinary action that could lead to immediate dismissal from the site.

5. AUDIT DE LA PROCÉDURE ET MISE À JOUR

Cette procédure peut être auditée selon le calendrier des audits. Advenant un besoin d'apporter des changements, ceux-ci seront effectués avec les approbations appropriées.

5. PROCEDURE AUDIT AND UPDATE

This procedure can be audited according to the audit schedule. Should changes be necessary, they will be made with the appropriate approvals.

6. DOCUMENTS LIÉS

Dans le cadre de cette procédure ;

Les documents suivants ont été cités ou y sont référés :

- 06-HSE-FORM-0501 - Observation de la faune
- 06-HSE-FORM-001 – Formulaire déclaration incident

6. RELATED DOCUMENTS

In the course of these proceedings;

The following documents have been cited or referred to:

- 06-HSE-FORM-0501 - Wildlife observation
- 06-HSE-FORM-001 - Incident report form

7. RÉFÉRENCES RÈGLEMENTAIRE OU ADMINISTRATIVE ASSOCIÉES	7. ASSOCIATED REGULATORY OR ADMINISTRATIVE REFERENCE
JOLICOEUR, H. 2001. L'ours noir et vous ! ou Comment éviter les problèmes avec les ours noirs. Société de la faune et des parcs du Québec, Direction du développement de la faune. Québec. 62 p. Dépôt légal – Bibliothèque nationale du Québec, 2001 ISBN 2-550-37561	JOLICOEUR, H. 2001. L'ours noir et vous! or How to avoid problems with black bears. Société de la faune et des parcs du Québec, Direction du développement de la faune. Quebec City. 62 p. Legal Deposit - Bibliothèque nationale du Québec, 2001 ISBN 2-550-37561

APPENDIX Y – GLOSSARY OF CREE TOPONYMS

GLOSSARY OF CREE TOPONYMS

DOCUMENT NUMBER :	JBQ-ENV-LST-0001
REVISION:	2
DATE:	8/08/2024
DOCUMENT OWNER :	HSE
REVIEWED BY:	Dominique Thiffault
AUTHORIZED BY :	General Manager - Canada

REVIEW	REVISION DATE	UPDATES TO THIS REVISION
1	2024-01-11	Internal Review by Gillian Roy
2	2024-08-08	Integration of comments from CNG received 2024-05-21 Spelling of Kapisikamachibish changed for kaa apishikamaach siipiish

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1. Introduction

Galaxy Lithium (Canada) Inc (GLCI) plans to proceed with the construction and operation of the James Bay Lithium Mining Project (JBLMP), located in the Nord-du-Québec administrative region, some 10 km south of the Eastmain River and some 100 km east of James Bay, at the same latitude as the Cree village of Eastmain. The site is located on Category III lands under the James Bay and Northern Quebec Agreement (JBNQA), accessible via the Billy-Diamond highway and close to the truck stop at km 381. The project involves the extraction of approximately 2 Mt per year of spodumene-bearing pegmatite. In addition to the open pit, the site will include accumulation areas (overburden, waste rock/tailings, ore, concentrate), retention ponds, a water treatment unit, administrative buildings, a workers' camp, workshops and warehouses, and an explosives depot.

The PMLBJ is subject to the provincial environmental impact assessment and review procedure, as set out in Section 153 of Chapter II of the Environment Quality Act (EQA) and Schedule 1 of Chapter 22 of the JBNQA. The project is also subject to a federal environmental assessment, as set out in section 13 of the Canadian Environmental Assessment Act (CEAA, 2012) (S.C. 2012, c. 19, s. 52; [Repealed, 2019, c. 28, s. 9]), since ore extraction will exceed 3,000 t/day (section 16(a)) and mill capacity will exceed 4,000 t/day (section 16(b) of the regulations designating the concrete activities [SOR/2012-147]). The project was assessed at the federal level by the Canada Impact Assessment Agency (CEAA), jointly with the Cree Nation Government (CNG) under the legislative requirements of CEAA (2012) and in accordance with the spirit and objectives of the JBNQA.

The decision statement issued by the Minister of the Environment and Climate Change under the CEAA (2012) on January 13, 2023, sets out several conditions to be met by GLCI for the project. This document aims to meet the following condition from the decision statement (January 13, 2023):

> "10.3 The Proponent shall prepare, prior to construction and in consultation with First Nations and the Social and Cultural Development Department of the Cree Nation Government, a glossary of Cree toponyms that identify in Cree language the geographic locations in the Designated Project area. In doing so, the Proponent shall:
> 10.3.1 identify in the glossary the existing Cree toponyms of the geographic locations in the Designated Project area. For any location that does not have an existing Cree toponym and for which First Nations or the Social and Cultural Development Department of the Cree Nation Government considers that a toponym is necessary, the Proponent shall determine a Cree toponym for this location in consultation with the Social and Cultural Development Department of the Cree Nation Government and First Nations, and include it in the glossary;
> 10.3.2 present to the Agency, the Social and Cultural Development Department of the Cree Nation Government and First Nations, prior to construction, the glossary and a map of the Designated Project area that includes all Cree toponyms identified in the glossary and that shows the general layout of the Designated Project infrastructure; and
> 10.3.3 include the Cree toponyms identified in the glossary for any map produced by the Proponent as part of the Designated Project."

Finally, the provincial certificate of authorization, issued on December 27, 2023, mentions the following condition to be met:

> "Condition 33: The proponent shall develop, in consultation with the Cree communities and the Department of Social and Cultural Development of the Cree Nation Government, a glossary of existing Cree toponyms to identify geographic locations within the study area and shall identify on a map all locations included in the glossary. The proponent shall forward the glossary and map to the Provincial Administrator, the Cree Nation Government and the communities concerned for their information, at the time of filing the first application for ministerial authorization under section 22 of the Environment Quality Act for the construction of the mine site."

2. Consultation efforts

The development of the glossary of Cree toponyms was carried out in consultation with First Nations and the Social and Cultural Development Department of the Cree Nation Government (CNG). Presentations and minutes of meetings, when available, are presented in Appendix A. Table 1 presents the various meetings that took place as part of the consultations.

Table 1 Consultation Effort during the Development of the Glossary of Cree Toponyms

Date	Type of meeting / Objectives	Stakeholders
February 28, 2023	On-line meeting (Ms Teams) / Presentation of federal conditions and discussion on request of preparing a glossary of Cree toponyms	Mrs Barbara Hester, Waskaganish representative Mr. Alvin Cheezo, Eastmain representative
March 1, 2023	On-line meeting (Ms Teams) / Presentation of federal conditions and discussion on request of preparing a glossary of Cree toponyms	Mr. Joshua Blacksmith, Waswanipi representative
March 3, 2023	Face-to-face meeting / Discussion on glossary of Cree toponyms (existing and new)	Mr. Brian Weapenicappo, Tallyman of RE02 territory Mrs Florie Mayappo Mrs Dinah Mayappo
March 13, 2023	On-line meeting (Ms Teams) Face-to-face meeting with Mr. Raymond Shanoush / Discussion on glossary of Cree toponyms (existing and new)	Mr. Brian Weapenicappo, Tallyman of RE02 territory Mrs Florie Mayappo Mrs Dinah Mayappo
May 25, 2023	Face-to-face meeting / Discussion on current use of lands and resources for traditional purposes and other information on Federal Conditions (Glossary of Cree toponyms)	Mr. Brian Weapenicappo, Tallyman of RE02 territory Mrs Marjorie Weapenicappo Mrs Ena Weapenicappo Mr. Waylon Weapenicappo
October 10, 2023	Helicopter ride / Overview of RE02 trapline territory to see if new Cree toponyms could be given to specific landmarks	Mr. Brian Weapenicappo, Tallyman of RE02 territory
December 5, 2023	On-line meeting (Ms Teams) / Discussion on glossary of Cree toponyms	Mr. Alvin Cheezo, Eastmain representative
January 18, 2024	Face-to-face meeting / Discussion on glossary of Cree toponyms	Mr. Raymond Shanoush, Chief of Cree Nation of Eastmain Mr. Brian Weapenicappo, Tallyman of RE02 territory

An initial online meeting was held on February 28, 2023, to present to the Eastmain, Waskaganish and Waswanipi First Nations all the federal conditions stemming from the decision statement received in January 2023, and to discuss the list of documents to be developed in consultation with the First Nations prior to project construction. It was agreed that certain documents, such as the glossary of Cree toponyms, would be developed more in collaboration with representatives of the Cree Nation of Eastmain than with the Cree First Nations of Waskaganish and Waswanipi, given that the designated project area lies within the territory of the Cree Nation of Eastmain.

Discussions were then held between Mr. Raymond Shanoush, Galaxy's community liaison officer at the time, with Mr. John Bishop of the GNC's Department of Social and Cultural Development to obtain available information on Cree toponyms in the project area.

The information provided by Mr. Bishop from the GNC is presented in Appendix B.

On March 3, 2023, an online meeting was held with the tallyman of the RE02 territory, Mr. Brian Weapenicappo, and members of his family, notably to discuss the glossary of Cree toponyms. A map of the project area was then presented, and the possibility of naming specific places or landmarks in the Cree language was discussed. It was then suggested by Mr. Brian Weapenicappo's family to name CE4 " kaa apishikamaach siipiish ", since " siipiish " means small lake creek and this watercourse seems to be connected to Kapisikama Lake. GLCI representatives also validated with the family that the name "kaa wiisaapuskaaw-siipiishish" in Cree for stream CE5, is still an appropriate name and could be presented on the project maps. Finally, GLCI suggested planning a work session to give the tallyman and his family time to think of Cree names to identify specific places or landmarks in the project area.

On March 13, 2023, a working session took place with Mr. Brian Weapenicappo and certain members of his family. No new information was conveyed at this meeting. Instead, the family asked GLCI about the possibility of flying over the project area by helicopter to get a better overview of the territory, since Cree toponyms are generally given according to the main characteristics of the feature to be named (for example, a deep lake, a small lake, etc., or according to a particular event that occurred, such as the lake where the diaper (pail) tipped over).

Follow-up calls were then made in April 2023 to Mr. Brian Weapenicappo to see if he or his family had any new toponymic ideas, and to plan logistics related to the helicopter flyover scheduled as part of the inventory of waterfowl and other waterbird species on May 31, 2023.

On May 25, 2023, a meeting was held with Mr. Brian Weapenicappo and some members of his family to discuss the use of the land and resources for traditional purposes prior to project construction. The possibility of flying over the RE02 territory by helicopter during the inventory on May 31, 2023, was again discussed, and the federal condition concerning the development of the glossary of place names was presented once again. Finally, on the day scheduled for the helicopter flight, no one was available to take part.

A second helicopter flight was organized over the RE02 territory on October 10, 2023, as part of the characterization of potential wetland compensation projects. Once again, a seat in the helicopter was offered to the tallyman or a member of his family. This time, Mr. Brian Weapenicappo was able to join the team of experts and fly over the RE02 territory. Following the helicopter flight, Brian Weapenicappo was invited, by e-mail, to suggest place names to identify specific locations or landmarks in the project area.

On December 5, 2023, Mr. Alvin Cheezo, representative of the Eastmain Cree Nation, was met to discuss known Cree toponyms in the project area. Mr. Cheezo recommended consulting the family of the tallyman of territory RE02.

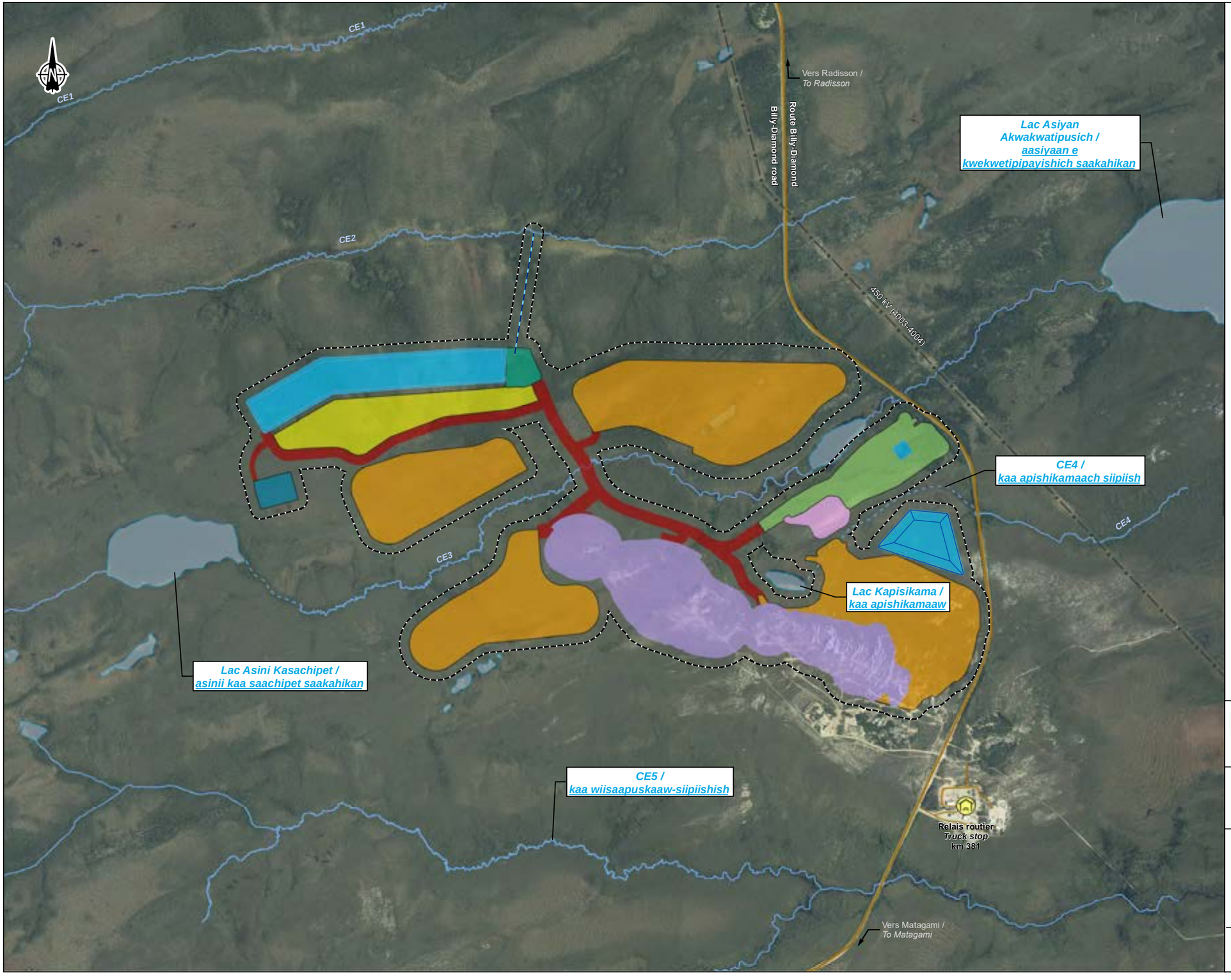
Before submitting the glossary of Cree toponyms to Cree, federal and provincial authorities, the document was presented to the Chief of the Cree Nation of Eastmain, Mr. Raymond Shanoush, and to Mr. Brian Weapenicappo on January 18, 2024 in order to validate that the information presented was complete and to verify whether new toponyms could be added. No new information was provided as a result of this meeting. However, it is important to note that this glossary may be updated throughout the life of the mine if GLCI is informed of the existence of other place names in the project area.

3. Cree toponyms

The Cree toponyms shown in Table 2 and Map 1 are those shared with GLCI to identify specific locations or landmarks in the project area.

Table 2 Cree Toponyms in the Project Area

French name	Cree name	Definition	Source
Kapisikama Lake	kaa apishikamaaw	Small lake	CNG (Appendix B)
Unnamed watercourse, referred to as "CE4" in project maps	kaa apishikamaach siipiish	Small lake creek connecting to Lake Kapisikama	Family of Mr. Brian Weapenicappo, tallyman of RE02 territory
Lake Asini Kasachipet	asinii kaa saachipet saakahikan	Lake where the stone sticks out of the water	CNG (Appendix B)
Lake Asiyan Akwakwatipusich	aasiyaan e kwekwetipipayishich saakahikan	Lake where the diaper (pail) tipped over	CNG (Appendix B)
Unnamed watercourse, referred to as "CE5" in project maps	kaa wiisaapuskaaw-siipiishish	An expanse of standing, dead trees in an area burnt by a forest fire creek	CNG (Appendix B)



Composantes du projet / *Project Component*

- Effluent minier / *Mine effluent*
- Accès/ *Access road*
- Usine de traitement de l'eau / *Water treatment plant*
- Secteur administratif et industriel / *Administrative and industrial sector*
- Secteur de la halde à minerai / *Rom Pad area*
- Fosse / *Pit*
- Halde à matières organiques et dépôts meubles / *Overburden and peat storage facility*
- Halde à stériles et résidus miniers / *Waste rock and tailings stockpile*
- Entrepôt à explosifs / *Explosives magazine*
- Bassin de gestion des eaux / *Water retention basin*
- Empreinte de la mine (zone tampon 50 mètres) / *Mine footprint (buffer zone 50 meters)*

Infrastructures / *Infrastructure*

- Route principale / *Main road*
- Route d'accès / *Access road*
- Ligne de transport d'énergie / *Transmission line*
- Relais routier / *Truck stop*

Hydrographie / *Hydrography*

- CE3 — Numéro de cours d'eau / *Stream number*
- Cours d'eau permanent / *Permanent stream*
- Cours d'eau à écoulement diffus ou intermittent / *Intermittent or diffused flow stream*
- Plan d'eau / *Waterbody*

arcadium lithium | Galaxy

projet Galaxy / Galaxy project
Glossaire de toponymes cris / Glossary of Cree toponyms

Carte / *Map* 1
Toponymes cris dans la zone du projet /
Cree toponyms in the project area

Sources :
Othoimage : Microsoft Bing (ESRI, 2017)
Données du projet / Project data : Galaxy nov. 2023

0 200 400 m
UTM, fuseau 18, NAD83

Août /
***August* 2024**

Dessin : A. Masson
Approbation : D. Thiffault
CA0005537_2398_GL_C1_wsp004_glossaire_cris_240809.mxd

wsp

Appendix A

A1 - Presentation and report on meeting with Eastmain, Waskaganish and Waswanipi First Nations (February 28 and March 1, 2023)

A2 - Meeting with the RE02 tallyman and members of his family (March 3, 2023)

A3 – Minutes of the workshop with Mr. Brian Weapenicappo and members of his family (March 13, 2023)

A4 – Minutes of meeting with Mr. Brian Weapenicappo and members of his family (May 25, 2023)

A5 – Minutes of meeting with Mr. Alvin Cheezo, Cree Nation of Eastmain (December 5, 2023)

James Bay Lithium Mine Project

Discussion on Federal Conditions and Consultation Process

February 28, 2023

By Dominique Thiffault, Environment Director by Interim
Raymond Shanoush , Communication Officer
Christelle Faivre, CR & HSS Director

Allkem



Federal Approval of Environmental and Social Impact Assessment & Conditions

- Federal approval received in January, 2023 from the Minister of the Environment following the review process by the Impact Assessment Agency of Canada and the Cree Nation Government

- The Decision Statement and related conditions are available online : https://www.iaac.gc.ca/050/evaluations/document/146228

- The conditions are to ensure that Project Activities do not cause significant adverse environmental effects

- Most of these conditions were already planned in the Environmental and Social Impact Assessment submitted to the federal and provincial governments in July 2021.

Federal Approval of Environmental and Social Impact Assessment & Conditions

- **271 conditions** must be respected
- These conditions concern:
  - **the protection of:**
    - fish and fish habitat;
    - migratory birds;
    - listed species at risk (caribou, bat species, wolverine);
    - wetlands;
    - Cree health;
    - current use of lands and ressources for traditional purposes;
    - greenhouse gases;
    - physical and cultural heritage and structures or sites of historical and archeaological significance;
  - **the prevention of accidents and malfunctions**
  - **the selection of a third-party independent environmental monitor**

Federal Approval of Environmental and Social Impact Assessment & Conditions

- Many conditions require that we develop documents in consultation with First Nations.
- As defined in the decision statement, the First Nations concerned:
  - The Cree Nation of Eastmain;
  - The Cree First Nation of Waskaganish;
  - The Cree First Nation of Waswanipi.

25 documents must be developed prior to construction

Documents to develop prior to construction in consultation with First Nations

Monitoring programs (surface and groundwater quality, surface and groundwater levels, acid rock drainage and metal leaching, bird, caribou, bats, wetlands, air quality, noise, potential contamination and plants and game meat, land and ressource uses, progressive reclamation)

- Action plan on caribou
- Protocol to report the presence or signs of the presence of wolverine
- Wetland compensation plan
- Dust management plan
- Protocol for managing complaints
- Communication plan
- Traffic management plan
- Archaeological and cultural resource protection plan
- Glossary of Cree toponyms
- Accident and malfunction response plan and communication plan

Consultation process as indicated in the Declaration statement

Consultation

2.3 The Proponent shall, where consultation is a requirement of a condition set out in this Decision Statement:

2.3.1 provide a written notice of the opportunity for the parties being consulted to present their views and information on the subject matter of the consultation;

2.3.2 provide all information available and relevant to the scope and the subject matter of the consultation and a reasonable period of time agreed upon with the parties being consulted, not to be less than 15 days, to prepare their views and information;

2.3.3 undertake an impartial consideration of all views and information presented by the parties being consulted on the subject matter of the consultation; and

2.3.4 advise as soon as feasible the parties being consulted on how the views and information received have, or have not, been integrated into the subject matter of the consultation by the Proponent, and provide a justification.

Proposed Consultation Process

- Allkem will send an email to the representatives of the First Nations « the Consulted Parties »

- We propose sending more than one document (between 5-6) at a time to avoid too many emails and back and forths
- Allkem will inform the Consulted Parties on the input required (comments on document, specific information)
- The period of time given to the Consulted Parties to provide their inputs:
  - A 15-day period will be given to provide inputs.
  - If additional time is needed, the Consulted Parties will have to inform Allkem within the first 7 days after receiving the documents
- The Consulted Parties will have to confirm the reception of the documents by email to Allkem.
- If a Consulted Party does not have any comments or information to provide, it should send an email to inform Allkem.
- If Allkem does not receive any feedback, by email or by phone, from a Consulted Party after the review period, Allkem will consider that the document is complete and final.

Following reception of inputs from First Nations

- Allkem will review all comments and information received from the Consulted Parties
- Allkem will inform the Consulted Parties on how their inputs have been considered in the final version of the documents. Justifications will be provided if inputs are not integrated.
- At any time, the Consulted Parties may inform Allkem if they wish to have a face to face meeting to discuss any subject matter.
- Once completed, the documents will also be submitted to the relevant authorities, when required.

The consultation process will continue during the construction, operation and rehabilitation phases

- Results from the monitoring programs and actions plans will be shared with the First Nations
- If additional mitigation measures are required, consultation will be held in due course
- Allkem will remain available to discuss any issues that may arise during its activities during construction, operations and rehabiliation phases
- Allkem wishes to continue working in collaboration with the First Nations throughout the Project phases.
- The monitoring programs and other documents required to be developed by the federal authorities may be modified during the project lifecycle to address changes or issues, etc.

Interest in participating to the development of these documents

Monitoring plans	Eastmain	Waskaganish	Waswanipi
Surface water quality			
Surface water levels			
Groundwater quality			
Groundwater levels			
Acid rock drainage and metal leaching			
Birds			
Caribous			
Bats			
Wetlands			
Air quality			
Noise			
Potential contamination and plants and game meat			
Land and ressource uses			
Progressive reclamation			

Interest in participating to the development of these documents

Documents	Eastmain	Waskaganish	Waswanipi
Action plan on caribou			
Protocol to report the presence or signs of the presence of wolverine			
Dust management plan			
Wetland compensation plan			
Protocol for managing complaints			
Communication plan			
Traffic management plan			
Archaeological and cultural resource protection plan			
Glossary of Cree toponyms			
Accident and malfunction response plan and communication plan			

The protocol for managing complaints
and communication plan can be presented to you today.

We will send you the protocol today, after the meeting.

Questions / Concern mechanism

Different ways to reach us:

Now:
By phone
Community Liaison officer

Raymond.shanoush@allkem.co
873 476 0145

During construction:
Office Community liaison officer

During Construction:
Internet via the Allkem website -
jamesbayinfo@allkem.co

Purpose

A grievance mechanism will help address issues proactively as they arise, before they erode the local community's trust during construction and operation.

It is a way to address your concerns

Today, we maintain a register of concerns and questions coming from the community, and actions done, with the CLO

Grievance reception

Acknowledge of receipt

*Processing of the complaint within **48 hours maximum***

Verification and investigation
Contact with the complainant

Answer and corrective actions if required

Conclusion

C

Questions / Concern mechanism

Allkem

Galaxy Lithium (Canada)
James Bay Project
(A member of the Allkem group of companies)

Concerns & Complaints of External Stakeholders management

Gestion des préoccupations et plaintes de parties prenantes externes

DOC NUMBER:	06-HSE-PRO-300
REVISION:	1
DATE:	26/02/2023
DOCUMENT OWNER:	HSE
REVIEWED BY:	HSE
AUTHORISED BY:	Denis Couture
TRANSLATION BY:	

GALAXY Allkem

it before sending it to the requester.

6.4. Response to external stakeholders

Concerns or complaints raised will be addressed verbally or in writing by the Community Relations Department, based on information provided by the relevant department.

The original subject matter of the concern or complaint:

- Outline of the evidence collected and analyzed;
- Conclusions, including regulatory compliance, if applicable;
- Proposed solutions, if any

For complaints about noise outside the designated project area:

GLCI develops corrective measures in consultation with **First Nations** (Waswanipi, Waskaganish, Eastmain) and **the Cree Nation Government** and implements the protocol during all phases of the designated project. The proponent presents to First Nations the results of the implementation of the protocol for noise exposure complaints and the corrective measures put in place in response to these complaints.

la validera avant envoi au demandeur.

6.4. Réponse aux parties prenantes externes

Les préoccupations ou plaintes soulevées seront répondues verbalement ou par écrit par le département des relations communautaires, basé sur les informations fournies par le département concerné.

L'objet initial de la préoccupation ou de la plainte :

- Les grandes lignes des éléments recueillis et analysées;
- Les conclusions, notamment au sujet de la conformité réglementaire, le cas échéant;
- Les solutions proposées, le cas échéant

Concernant des plaintes concernant le bruit à l'extérieur de la zone de projet désigné :

GLCI élabore les mesures correctives en consultation avec **les Premières Nations** (Waswanipi, Waskaganish, et Eastmain) et le **Gouvernement de la Nation Crie** et met en oeuvre le protocole durant toutes les phases du projet désigné. Le promoteur présente aux Premières Nations les résultats de la mise en œuvre du protocole pour les plaintes relatives à l'exposition au bruit et les mesures correctives mises en place en réponse à ces plaintes.

(A member of the Allkem group of companies)

6.6. Reports

Quarterly Report

GLCI submits to the Impact Assessment Agency of Canada, the Cree Nation Government and potentially affected parties, on a quarterly basis, a summary report of complaints received during the quarter, timelines for processing any complaints received, any corrective action taken in response to a complaint received, and timeliness for implementing any corrective action.

These complaints concern the current use of land and Resources for traditional purposes.

6.6. Rapports

Rapport Trimestriel

GLCI présente à l'Agence d'Evaluation d'impact du Canada, au Gouvernement de la Nation Crie et aux parties potentiellement affectées, à chaque trimestre, un rapport sommaire des plaintes reçues pendant le trimestre, des délais de traitement de toute plainte reçue, de toute mesure corrective prise en réponse à une plainte reçue et délai de mise en oeuvre de toute mesure corrective.
Ces plaintes concernent l'usage courant des terres et des ressources à des fins traditionnelles.

Communication plan

See the Excel Spread sheet

The next documents that will be sent to you shortly by email :

- monitoring program on birds
- monitoring program on bats
- monitoring program on caribou and action plan

Comments or questions ?

Thank you for your time and collaboration !

MINUTES OF MEETING

SUBJECT:	**JAC (Federal) Condition – Consultation Process and discussion on the communication plan and grievance mechanism**		
DATE:	Wednesday, 01 March	**TIME:**	3:00 to 4:00 pm
SITE:	NA	**LOCATION:**	**Remotely**
ATTENDEES		**Name / Title**	
ATTENDEES:		**Barbara Hester**, Land Registrar / Local Environment Administrator	Waskaganish
		Alvin Cheezo, Environment& land use coordinator	Eastmain
		Joshua Blacksmith was absent, and we did the same presentation on March 1st, 2023	
Allkem representatives	Dominique Thiffault	Christelle Faivre	Raymond Shanoush
DISTRIBUTION:	All the group and CNG		

Purpose of the meeting: The purpose of the meeting was to discuss with the first nations of Eastmain and Waskaganish on the consultation process link with the Federal Condition. Please see the PowerPoint presentation that we discussed during the 2 hours. The PowerPoint presentation is attached to this email.

- I**ntroduction – purpose of the meeting**
  - Comment from Barbara: A letter must be sent by Allkem to the Chief & Council and Director General asking for a resolution to designate someone as the representative of Waskaganish to take part in the consultations held for Allkem's project. We can mention in the letter that a first meeting was held with Barbara to discuss the consultation process and federal conditions.
  - Comment from Alvin Cheezo: A letter must also be sent to the Chief & Council of Eastmain and Director General to obtain the same resolution.

- **Presentation of the list of federal conditions and documents r**equired from the federal authorities that require to be developed in consultation with the First Nations of Eastmain, Waswanipi and Waskaganish, prior to the construction.

- **Presentation of the proposed consultation process**
  - Comments from Barbara Hester (Waskaganish):

MINUTES OF MEETING

- March will be very busy (vacation, and many days in training or outside the office) but Barbara will take some time during the vacation to review the documents.
-

Documents to review must be sent to Barbara Hester as well as to the Chief & Council, le Deputy Chief Samson Wischee, and to the CTA representative (Darryl Salt), and director (Wayne Cheezo Wayne.Cheezo@waskaganish.ca)

- **Comments from Alvin Cheezo (Eastmain)**
  - Documents to review must be sent to Alvin should also be sent to Chief & Council, and Derick Moose (Director of Public works)
  - A meeting in person would be interesting in mid-April, in Eastmain to have an update on the review of the documents, and inform the community (follow-up sessions)
- **Comments from Dominique Thiffault (Allkem):**
  - All documents need to be finalized by the **end of April** because they must be submitted to the relevant authorities prior to construction.
  - The documents that will be sent to the First Nations are developed with environmental experts (hydrologists, hydrogeologists, flora and fauna experts, etc.). Allkem is confident that the documents prepared are good but wishes to have the input of the First Nations if they have any comments or changes, they wish to propose. It is not an obligation to provide comments on all documents.
  - It will be very important to receive notifications from the representatives of the First Nations when they receive the documents, if they do not have any comments on the documents.
  - If communities have any questions, they can call Raymond Shanoush

- **The following documents will be sent by email shortly:**
  - Communication Plan;
  - Traffic Management Plan
  - Protocol for managing complaints
  - Accident and malfunction response plan and communication plan

- We did the Presentation of the protocol for managing complaints.
- We discussed on the communication plan: modifications were made to the plan during the discussion.

MINUTES OF MEETING

SUBJECT:	**JAC (Federal) Condition – Toponyms – exclusion area Map**		
DATE:	Friday, 03 March	**TIME:**	9:30 to 11:00 am
SITE:	NA	**LOCATION:**	**Eastmain, Lodge**
ATTENDEES		**Name / Title**	
ATTENDEES:		**Brian Weapenicappo** Tallyman RE02 and CTA members	Eastmain
		Florie Mayappo Dinah Mayappo Brian Weapenicappo	Eastmain
Allkem representatives	Dominique Thiffault	Christelle Faivre	
DISTRIBUTION:	All the group		

Purpose of the meeting: The purpose of the meeting was to discuss with Brian and his family (Tallyman) regarding toponyms in English and Cree and the maps of the exclusion area.

1) **Map of Project Area with Cree names (toponyms) in English and Cree syllabic**

- Names are usually given based on the shape of the area; on the way the area looks like. Crees do not use people's names to name rivers and lakes.
- CE4 that connects with Kapisikama Lake could be called "Kapisikama chibish", chibish meaning creek
- CE5 – the name in Cree is OK, it means a **rocky area** that has been burnt a long time ago.
- Documents presented during the meeting are sent to Dinah by email, for her to print and discuss the names with the family.
- A work session is planned **on March 13th, 2023 at 6pm**. **Raymond Shanoush will organize the meeting**. Christelle and Dominique will participate remotely.

2) **Map of Project with exclusion zones**

- The 35m exclusion zone could be adjusted south of the mine pit to consider the blasting area.
- Dominique informs Brian that the schedule for blasting activities will be regularly shared with Brian and his family for security reasons.

MINUTES OF MEETING

- **It is suggested to install signs informing that hunting/trapping/fishing is not allowed within 1 km radius of the project site. The signs should be installed along the roads where there are access to the trapline.**
- The signs should not mention the 35m radius for the tallyman and family (although fishing, hunting and trapping will be allowed for the tallyman and his family).
- Brian to provide to Allkem the names of the people included in his family.

MINUTES OF MEETING

SUBJECT:	JAC (Federal) Condition – Toponyms – exclusion area Map		
DATE:	2023-03-13	TIME:	18h to 19h
SITE:	N/A	LOCATION:	Eastmain
ATTENDEES:	Dinah Mayappo	Tallyman RE02's family member	
	Florie Mayappo	Tallyman RE02's family member	
	Brian Weapenicappo	Tallyman RE02	
	Raymond Shanoush	Allkem	
	Dominique Thiffault	Allkem	
DISTRIBUTION:	All		

ITEM	TOPIC	ACTION/PERSON
1.	Toponyms : Brian's family did not have time to meet to discuss the names that could be used for the rivers/watercourses of the Project (CE2, CE3, CE4, CE5, CE6)	Brian to meet with family to discuss possible names for the rivers/watercourses.
2.	Toponyms: Florie suggested to go by helicopter in summertime to have a good overview of the area to be able to propose proper names for these rivers/watercourses (i.e. names based on what the area looks like). ½ day could be enough to fly over the area.	Dominique to discuss with Allkem the possibility of organizing a helicopter ride (during the avian fauna survey ?)
3.	Map of Exclusion Zones (Gate registration): It was suggested to request that people register at Galaxy's gate before going inland for traditional activities. According to Brian, most of the people will not respect this request even if we ask them to. It was suggested to put this request on the signs that will be posted in periphery of project infrastructure. Worse case is that people will not register.	Dominique to adjust map with information provided

MINUTES OF MEETING

4.	Map of Exclusion Zones (Location of signs): Brian informed where signs should be posted along the Billy-Diamond road because this is where people access the territory. According to Brian, it is not worth posting signs all around the project site. Signs on the road and near the road should be enough because people do not go very far inland (see commented map).	Dominique to adjust map with information provided
5.	Map of Exclusion Zones (identification of family members of RE02): Brian needs to provide the list of the family members he wishes to allow in the 1km exclusion zone. It was mentioned to Brian that this list could be modified when needed. The exclusion zone could also be modified during the course of the project if deemed necessary.	Brian to provide the list of family members
6.	Map of Exclusion Zones (Management): Brian asked how these exclusion zones will be managed (game wardens, others?) Answer: There are very few game wardens on the territory. Galaxy will not hire any game wardens. This is why we will request that people going inland for traditional activities register at the gate. Hunting, fishing, trapping will be forbidden for all employees. Employees will not be able to bring fore arms or fishing gear.	N/A

MINUTES OF MEETING

SUBJECT:	Meeting to discuss current use of lands and resources for traditional purposes and other information on Federal Conditions		
DATE:	May 25th 2023	**TIME:**	5pm to 7pm
SITE:	Eneyaauhkaat Lodge – Meeting room	**LOCATION:**	Eastmain
ATTENDEES (Names):	Brian Weapenicappo	Tallyman of RE02	
	Marjorie Weapenicappo	Aunt of Tallyman	
	Ena Weapenicappo	Mother of Tallyman	
	Waylon Weapenicappo	Cousin of Tallyman	
ALLKEM REPRESENTATIVES:	Christelle Faivre		
	Catherine Lagacé		
	Dominique Thiffault		
DISTRIBUTION:	Internal		

PURPOSE OF THE MEETING	**The purpose of this meeting is to consult, prior to construction, the users of traplines RE02, VC33 and VC35, and the Cree Trappers Association on the goose and moose harvest rates, the quality of the harvest, the navigability, the quality of use of the traplines and their access via the Billy-Diamond Highway during the goose and moose hunt periods, in order to characterize the state of the resources and the harvests of the valued species. (Federal Condition #8.17.1)** **The purpose of the meeting is also to validate some information from documents and other monitoring programs to be developed prior to construction to comply with other federal conditions.**

ITEM	QUESTIONS/COMMENTS	ANSWERS
1.	The objective of the meeting was explained to the tallymen and representatives.	--
2.	The Tallyman and his family from the trapline RE02 were interviewed on their current use of lands and resources for traditional purposes. A questionnaire was used. The answers provided will serve as a baseline for the monitoring program. A report presenting all the answers received will be prepared by Allkem.	--
3.	A helicopter ride is planned on May 31st to conduct an avifauna survey. Brian or a representative is invited to accompany the experts from WSP. This could help the tallyman	Details on the logistics will be provided by Allkem as soon as possible.

MINUTES OF MEETING

	and his family to overview the project study area and help them finding new Cree toponyms for specific landmarks. Brian is asking: - who will pay for the gas to go to the meeting point at the Km 381 truck stop? - Is it possible to have the meeting point at the Eastmain airport?	
4.	For the Monitoring program on potential contaminants in plant species that are traditionally used (condition #7.16): It was asked to the tallyman and family: Which species (3) among these, that are the most eaten: - Black Spruce / Inaatuk (Picea mariana); - Tamarack / Waachinaakan (*Larix laricina*); - Alder (*Alnus spp.*) - Blueberry / Sipikomin, ithinimina, iynimin, inimena (*Vaccinium spp.*); - Labrador tea / Kachebuk (*Rhododendron groenlandicum*); - Narrow-leaved Kalmia / Uschipikwh (*Kalmia angustifolia*).	Answer received from tallyman and family: All the species should be kept in the monitoring program since the animals eat these plants and we eat the animals. The poplar is also a tree that is eaten by the beaver (all the parts of the poplar is eaten by the beaver).
5.	For the Monitoring program on potential contaminants in plant species that are traditionally used (condition #7.16): It was asked to the tallyman and family: What part of the plant you use and for what (consumption food or tea, or other) - Black spruce (*Picea mariana*) - Tamarack (*Larix laricina*) - Alder (*Alnus* spp.) - Blueberries (*Vaccinium* spp.) - Labrador tea (*Rhododendron groenlandicum*) - Narrow-leaved Kalmia (*Kalmia angustifolia*)	Answer received from tallyman and family: Ena mentioned that she did not collect any of these plants and that she would ask other people in the community. It was mentioned that the plant Eonepsee is similar to the Alder but a different color.
6.	The map of sensitive receptors (condition #7.3) was presented to Brian. He did not have any comment on it.	--
7.	The map presenting the exclusion zone (condition #8.10) was presented to Brian. He did not have any comment on it.	--
8.	The sign “No hunting and no berry picking” was presented to Brian. He did not have any comment on it.	--
9.	The tallyman’s family mentioned that 3 caribous were observed in May at Km 355.	--

MINUTES OF MEETING

10.	Brian and his family mentioned that they wanted funding to have a camp along the Eastmain River (on the South shore). They mentioned that they provided the info requested from Galaxy but never have anything in return. They feel that they are not compensated enough and not informed of potential business opportunities for the family members. If they don't see benefices, or compensation is not considered sufficient, based on all the loses, the family could eventually be against the project.	We will bring the matter to our leaders and will get back with an answer.
11.	Glossary of Cree Toponyms: The project map was presented to the tallyman and his family to discuss the possibility of finding new Cree toponyms or to identify other existing Cree toponyms for landmarks in the project area. No additional information was provided by the tallyman and family members.	--

MINUTES OF MEETING

SUBJECT:	Consultation on Cree Toponyms Glossary - CNE		
DATE:	Dec 5th, 2023	**TIME:**	10:00 to 10:15am
SITE:	James Bay Project	**LOCATION:**	Teams meeting and Office at CNE
ATTENDEES (Names):			
	Alvin Cheezo	Local Environment Advisor from Cree Nation of Eastmain	
ALLKEM REPRESENTATIVES:	Dominique Thiffault	Catherine Lagacé	
DISTRIBUTION:	Alvin Cheezo		

PURPOSE OF THE MEETING	**The purpose of this meeting is to consult the Cree Nation of Eastmain on the Cree Toponyms Glossary for the James Bay Lithium Mining Project, more specifically on the RE02 Trapline territory. We want to validate and complete the information gathered through our consultations with different stakeholders.**

ITEM	QUESTIONS/COMMENTS	ANSWERS
1.	Galaxy Lithium should talk to the RE02 Tallyman's family. Unfortunately, a lot of information regarding the Trapline RE02 were lost with the male elders passing away. However, we might be able to collect some information with some of the family members like Marjory, Kathleen, or Ina Weapenicappo.	We have talked to the Tallyman about the glossary. We will contact him again.

Appendix B

Knowledge Portrait (Place Names). Galaxy: James Bay Lithium Mine

(Department of Social and Cultural Development, Cree Nation Government, February 2023)

Knowledge Portrait
(Place Names)

Galaxy: James Bay Lithium Mine

Department of Social and Cultural Development

Cree Nation Government

February, 2023

For further information, please contact:

John Bishop
Toponymist
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Cree Nation Government
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c/o Aanischaaukamikw Cree Cultural Institute
205 Opemiska Meskino
P.O. Box 1168
Oujé-Bougoumou, QC
GoW 3Co

Tel: 418-745-2444 x 2013
Cell: 514-260-9439
jbishop@cngov.ca

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Introduction: Participants

The following report details the Cree language place names currently housed in the Cree Nation Government's place names database, for the vicinity of Galaxy's James Bay Lithium Mine. The place names almost all come from Eastmain territory, but a small number also lie on traplines stewarded by *natawihuu-uchimaawach* in Wemindji and Waskaganish (VC23 and R08 respectively.)

The place names in this report were gathered during interviews with elders, *natawihuu-uchimaawach*, and other land-users and community members. This was done as part of a number of projects which have taken place over the past forty years. In particular, the names in this report were gathered from the following individuals:

Eastmain

Edward Gilpin Jr.	Edward Gilpin Sr.	Florrie Mark-Stewart
Charlie Mayappo	Roderick Mayappo	Daniel Moses
Ernie Moses	Harry Moses	Sinclair Moses
Abraham Weapinacappo	James Weapinacappo	

Waskaganish

David Blackned	Mark Blackned	Philip Blackned

The names were gathered primarily in surveys undertaken in 1977 by the linguist Marguerite MacKenzie, working with Edward Gilpin in Eastmain. Subsequently, validation surveys were undertaken by the Cree Nation Government toponymist John Bishop, working with Raymond Shanoush in 2016. A small number of names were also taken from historic sources - when corroborated by the interviews with knowledgeable Eastmain Cree land-users. No name from a historical source is included without validation.

The following are the interviews and sources as they are catalogued in the Cree Nation Government's Place Names database:

1977 Marguerite MacKenzie Survey

283. Mayappo, Charlie. "Eastmain - VC # 35." In Cree Toponyms: A Report on the Geographic Names…, recorded by Edward Gilpin & edited by Marguerite MacKenzie, 12.

287. Moses, Harry. "Eastmain - South # 1." In Cree Toponyms: A Report on the Geographic Names…, recorded by Edward Gilpin & edited by Marguerite MacKenzie, 17.

288. Moses, Sinclair. "Eastmain - South # 3." In Cree Toponyms: A Report on the Geographic Names…, recorded by Edward Gilpin & edited by Marguerite MacKenzie, 24.

317. Weabinacappo, James. "Eastmain - VC # 33." In Cree Toponyms: A Report on the Geographic Names…, recorded by Edward Gilpin & edited by Marguerite MacKenzie, 10–11.

318. Weapinacappo, Abraham. "Eastmain - South # 2." In Cree Toponyms: A Report on the Geographic Names…, recorded by Edward Gilpin & edited by Marguerite MacKenzie, 18–19.

1979 Marguerite MacKenzie Survey

789. Blackned, Mark. Waskaganish & Nemaska Place Names Interview (R08). Interview by Willie Jacob and Marguerite MacKenzie, 1979.

2016 Cree Nation Government Survey

446. Gilpin, Edward. Eastmain Place Name Interview (VC33). Interview by John Bishop, April 6, 2016. Eastmain Multi-Service Day Centre.

449. Mark Stewart, Florrie. Eastmain Place Name Interview (Eastmain River, VC31, VC30, VC35, RE02). Interview by John Bishop & Curtis Mark Stewart, April 7, 2016. Florrie Mark Stewart's house, Eastmain.

64. Mayappo, Roderick. Eastmain Place Name Interview (VC35). Interview by John Bishop, April 5, 2016. Eastmain Band Council Office, Conference Room.

442. Moses, Daniel. Eastmain Place Name Interview (Eastmain River, RE01, RE03, RE02, VC33). Interview by John Bishop, April 5, 2016. Eastmain Band Council Office, Conference Room.

441. Moses, Ernie. Eastmain Place Name Interview (RE01). Interview by John Bishop, April 5, 2016. Eastmain Band Council Office, Conference Room.

447. Moses, Sinclair. Eastmain Place Name Interview (Eastmain River, RE03, VC35, RE01). Interview by John Bishop & Jamie Moses, April 7, 2016. Bessie and Sinclair Moses' house, Eastmain.

Any questions about a place name in this report can be directed to the Cree Nation Government toponymist, as can requests for digital data.

Additional Sources of Information

Additional sources of relevant material include the Cree Land Use Mapping (CLUM) undertaken by the Cree Nation Government's Department of Environment and Remedial Works (Land Planning Unit & Protected Areas Unit). Requests for information from the CLUM or Protected Areas surveys can be addressed to the relevant people at Environment and Remedial Works.

Interviews were also undertaken in 2002 as part of a Hydro Quebec assessment of the consequences of the La Grande Hydroelectric development. The Eastmain interviews were part of what was referred

to as the Western Sector Study, and included all of the traplines and families in the vicinity of the James Bay Lithium site (RE01, RE02, RE03, VC33, and VC35). An archive of this material is being created by the Cree Nation Government's Department of Social and Cultural Development, and includes Interview Transcripts, Interview Summaries, Audio Recordings of the Interviews, and Trapline Maps. Requests for this information should reference the interviews below, and should be addressed to the Cree Nation Government Toponymist:

Trapline RE1: Ernie Moses (Tallyman), Harry Moses.
Eastmain, QC: July 2002 & December-February 2003.

Trapline RE2: Clarence Mayappo (Tallyman), Ena Weapenicappo, Florrie Weapenicappo, Marjorie Weapenicappo, Gilbert Mayappo, Stanley Gilpin.
Eastmain, QC: July 2002 & February 2003.

Trapline RE3: John Moses (Tallyman), Sinclair Moses, Bessie Moses.
Eastmain, QC: August 2002 & September 2003.

Trapline VC33: James Weapenicappo (Tallyman), Harry Weapenicappo, Clifford Weapenicappo, Peter Weapenicappo, Sidney Weapenicappo, Stanley Gilpin.
Eastmain, QC: August 2002 & February 2003.

Trapline VC35: Roderick Mayappo (Tallyman), Rita Gilpin, Ellen Mayappo.
Eastmain, QC: August & December 2002, & February 2003.

Finally, the Department of Social and Cultural Development and Aanischaaukamikw Cree Cultural Institute are digitizing and organizing an archive of material from the Cree Regional Authority's Archaeology Unit, including information from the Archaeology, Culture, and Heritage Program (ACHP), which includes interviews with elders from Eastmain. Much of this material focuses on the coastal area around Eastmain, and areas flooded by EM-1. The material, however, may include references to places or events in the areas under consideration here.



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Regional Cree Geography

Galaxy's James Bay Lithium property is located on Eastmain territory, on the Eastmain trapline RE02. This particular trapline has been stewarded by members of the Mayappo and Weapinacappo families. The site lies approximately 16 km NE and 8 km NNW of land stewarded by members of the Moses family (RE03 and RE02). To the north, across the Eastmain river, are traplines stewarded by members of the Weapinacappo and Mayappo families (VC33 and VC35).

The Eastmain River

The Galaxy property lies in the watershed of the ᐋᓂᒣᓂᐤ ᓂᐋ (the Eastmain river), which flows in an arc from east to west of the site at distances varying from approximately 20 km (east) to 9 km (north) and 28 km (west). Obviously, the Eastmain river is the most significant regional geographic entity and it should come as no surprise that it contains a number of historically and culturally important sites. These include gathering places and travel routes used by Eastmain families for generations, as well as by Cree from other communities. In the 1970s, the stretch of river along RE02 was home to 10 winter camps with *mihtukaan-h.* It is one of the major rivers of Eeyou Istchee.

Named places along the river that are in the general vicinity of the James Bay Lithium mine include:

13737: ·ᐊᐱᓯᑦᓂᐊᐦᑕᓐ ᓂᐋᔨᓴ *(waapishtaanihtawaakani-siipiishish)*
The area where this river enters the Eastmain river has a number of significant places associated with it. On the north side of the river mouth, at ·ᐊᐱᓯᑦᓂᐊᐦᑕᓐ ᓂᐋ ᐁ ·ᐊᔨ·ᐋᐠ *(waapishtaanihtawaakani-siipii e wayawaach)*, there was a long-standing camp which served as a gathering place for inland families who would gather there prior to travelling down the Eastmain river in the spring. Families would also sometimes gather on the adjacent island ᑲ ᐱᔪᑦᑭ·ᐊᐦᑲᐤ *(kaa piskutaawahkaaw).* Daniel Moses remembers his father leading these canoe brigades, as expert knowledge of the river was needed. Across the Eastmain river from this camp, at ᐊᑎᐦᑳᒉᑯ ᐸᒋᑦᐦ·ᐋᑲᐢ *(atihkameku-pachitahwaakan)*, there was a noted net-fishing place for whitefish. Finally, a portage, ·ᐊᐱᓯᑦᓂᐊᐦᑕᓐ ᑲᐸᑦᑲᐢ *(waapishtaanihtawaakani-kapataakan)*, facilitated travel to a series of large lakes inland which were important for harvesting.

8104: ᑲ ·ᐃᓴᐳᔪᑲᐤ *(kaa wiisaapuskaaw)*
A curved stretch of the Eastmain river approximately 13 km ENE of the Galaxy mine property that is valued by land-users as a particularly good fishing, goose hunting, and trapping area. Notably, the James Bay Lithium site lies in the ᑲ ·ᐃᓴᐳᔪᑲᐤ ᓂᐋᔨᓴ *(kaa wiisaapuskaaw-siipiishish)* watershed which drains into the Eastmain river at *kaa wiisaapuskaaw.* The name refers to an area of dead trees still standing after being burned in a forest fire, although such names are

often very old and it is likely no traces of the fire remain. Beyond the stream, this area also lends its name to a rapids and portage - ᑲ ᐧᐋᐠᐳᐠᐦᐤ ᑲᐸᒋᑲᓄ *(kaa wiisaapuskaaw-kapataakan).*

6722: ᒪᓂᐧᐤ ᐯᐦᒋᐤ ᐸᐧᐋᓂᑯᑯ *(manituw ehtaaw paawishtikuu)*
A large and prominent rapids approximately 4 km in length located at a pronounced bend in the course of the river. There is a portage around the rapids that is similar in length. The name suggests the presence of *manituwach*, something that is confirmed by knowledgeable Eastmain elders. Recent interviews also suggest other kinds of importance to Cree land-users who associated healing qualities with the noise of the rapids and suggested they could assist with weather prediction. The Billy Diamond highway crosses the river at the western end of the rapids.

The rapids give their name to a number of nearby related features, including the portage ᒪᓂᐧᐤ ᐯᐦᒋᐤ ᑲᐸᒋᑲᓄ *(manituw ehtaaw kapataakan)*, the pull-over portage ᒪᓂᐧᐤ ᐯᐦᒋᐤ ᐸᐧᐦᑎᓂᑲᓄ *(manituw ehtaaw paashtinikan)*, the lake ᒪᓂᐧᐤ ᐯᐦᒋᐤ ᐦᐳᐦᐃᑲᓄ *(manituw ehtaaw saakahikan)*, and the creek ᒪᓂᐧᐤ ᐯᐦᒋᐤ ᓯᐊᔑᐧ *(manituw ehtaaw siipiishish).*

13148: ᐋᐦᐁᓂᑲᐦᐸ *(piihchaanikahp)*
An approximately 11 km long portage on the north side of the Eastmain river, to the west of *manituw ehtaaw siipiishish.* This historic portage was used by inland families coming south from ᓀᐧᒋᑲᐯ *(naatwaakamiy)*, on ᐅᐱᓀᑲᐦᑎᐣ *(upinakaashtikw)* in spring. People would come to the Eastmain river to join with others prior to travelling down the river together to the HBC post and the bay.

6273: ᓀᒣᐤ ᐸᑭᑦᐧᐊᑲᓄ *(namew-pachitahwaakan)*
a sturgeon net-fishing site that was widely used by Eastmain families. The area lies on the northside of the river and is routinely identified as a valued year-round harvesting and communal camping site by Eastmain community members. In the past, fishing was done here in spring and summer to provide food for the community as a whole. Daniel Moses' grandfather is also buried in the vicinity.

8150: ᐅᐸᔑᐤ ᐃᐢᐢᐤ ᐯ ᐁᑭ ᐞᑕᐧᐊᔑᑦ *(Upaashiiw-Iyiyiw e chechi-kutawaasut)*
Where *Upaashiiw Iyiyiw* built his last fire, the burial site of a noted historic figure. He was named for an association with ᐯ ᐅᐸᔑᐣ *(e upaashich)*, an important fishing and gathering site across the river from the contemporary community of Eastmain. *Upaashiiw-Iyiyiw* was the late Bob Cheezo's father.

Continuing down the Eastmain river, there is another large rapids with a name suggesting historical and cultural significance (see map CPNM-50-34):

4112: ᒥᔑᓂᑭᑲᑌᒥᐣ *(mishinichikukamikw)*
A large rapids associated with giant otter. There are only a few of these sites across Eeyou Istchee, a fact that reinforces the deep cultural and historical importance of this site. Downriver from this site is another gorge and rapids, with the name ᐱᔑᐤ

ᐁ ᐊᔪᓂ·Δ·ᑲᓐᑯ"ᑎᑉ *(pishiw e aashawikwaashkuhtit)*. While perhaps not as suggestive of deep cultural importance as is the reference to giant otter, sites named for remarkable animals like the lynx who jumped across the gorge are nonetheless rare and special. There are two portages allowing travellers to bypass these rapids - the shorter ᒥᔑᓂᒋᑲᒥᑯ ᑲᐸᑦᑲᓱ *(mishinichikukamiku-kapataakan)* and the longer ᐁ ᐸᐢᑦᐊ"ᒋᐸᕆᓭᓂ·Δᑊ *(e paashtaawahchipayinaaniwich)*, having a length of approximately 7 km.

Inland

The trapline RE02 is defined by two principal watersheds - that of the ᐊᒥᖏᑯ ᒪᑦ·ᐊᐤ ᓱᐯ *(amisku-maatawaaw siipii)* which flows westward from a series of large lakes that lie southwest of the Galaxy property and which enters the Eastmain river 23 km downstream from ᒥᔑᓂᒋᑲᒥᑯ *(mishinichikukamikw)*; and that of the aforementioned ᑲ ·Δᐦᐳᖏᐤ ᓱᐯᔑᓴ *(kaa wiisaapuskaaw-siipiishish)* which flows eastward and enters the Eastmain river at ᑲ ·Δᐦᐳᖏᐤ *(kaa wiisaapuskaaw)* (see CPNM-50-109).

The first of these two rivers, *amisku-maataawaaw siipii*, is used as a travel route, with a permanent camp at its mouth. Starting in the 1960s families would fly in, with float planes landing there on the Eastmain river. In the 1970s, people began to regularly access the territory using snow-mobiles. While the methods of travel changed, the essential geography remained and people continued to travel along the river from the Eastmain to the series of large lakes that make up its headwaters: ᓅᓂᑉᒻ ᓱᔾᒋᑕ·ᐊᓗ ᐦᑲ"Δᑲᓴ *(niishtam siyaachitawaach saakahikan)*, ᐁ ᐸᑊ·ᑲᔨ·ᐁᐦᑊᓗ ᐦᑲ"Δᑲᓴ *(e pahkwaayuwesahch saakahikan)*, ᐊᒥᖏᑯ ᒪᑦ·ᐊᐤ ᐦᑲ"Δᑲᓴ *(amisku-maataawaaw saakahikan)*, and ᑲ ᓅᓚᒍᓗᑊ ᐦᑲ"Δᑲᓴᑊ *(kaa niishumuch-h saakahikan-h)*. These lakes were important caribou and moose hunting areas and were home to a number of spawning sites. Both of these rivers had areas that were used for beaver, muskrat, otter and mink trapping.



ᓇᒣᐤ ᐸᑭᑦᐦᐊᑲᓂᐦ (1974)

Place Names

The place names listed below are those found in the vicinity of the James Bay Lithium mine. To locate the names, please see Cree Nation Government Place Names Map CPNM-50-109 and use the grid identifications below (for example, E4, F4, etc…).

ᐊᒥᐠᐧᐃ ᐃᑦᐧᐊᐤ ᓴᒃᐦᐃᒃᓱ
amisku-maataawaaw saakahikan (lake) beaver junction lake → *plaID* 710 → *map* CPNM-50-109 E2

ᐊᒥᐠᐧᐃ ᐃᑦᐧᐊᐤ ᓯᐲ
amisku-maataawaaw-siipii (river) beaver junction river → *plaID* 8153 → *map* CPNM-50-109 A3

ᐊᒥᐠᐧᐃ ᒥᔑ ᓴᒃᐦᐃᒃᓱ
amisku-mishi-saakahikan (lake) beaver large lake → *plaID* 676 → *map* CPNM-50-109 B5

ᐊᓯᓂ ᑲ ᓴᑭᐯᐟ ᓴᒃᐦᐃᒃᓱ *asinii kaa saachipet saakahikan (lake)* lake where the stone sticks out of the water → *plaID* 722 → *map* CPNM-50-109 E3

ᐁᓯᔭᓱ ᐁ ·ᕫ·ᕫᑎᐱᐸᓗᔑᓄ ᓴᒃᐦᐃᒃᓱ
aasiyaan e kwekwetipipayishich saakahikan (lake) lake where the diaper (pail) tipped over → *plaID* 7936 → *map* CPNM-50-109 F4

ᐊᑎᐦᑲᒋᐞ ᐸᑭᑕᐦ·ᐁᑲᓱ
atihkameku-pachitahwaakan (river section) whitefish net-setting place → *plaID* 8116 → *map* CPNM-50-109 I3

ᐁ ᑭᔭᓂᐞ ·ᐊᑭᓂᑐᓂ·ᐃᓄ ᓴᒃᐦᐃᒃᓱ *e chiyaashku-wachishtuniwich saakahikan (lake)* lake where seagulls nest → *plaID* 8114 → *map* CPNM-50-109 G2-H2

ᐁ ᓂᓂᑐᒪᒼᓄ *e nishtukamaach (lakes)* three lakes → *plaID* 711 → *map* CPNM-50-109 B3

ᐁ ᐸᐦ·ᐅᔨ·ᐁᓴᐦᐣ ᓴᒃᐦᐃᒃᓱ *e pahkwaayuwesahch saakahikan (lake)* lake where the skin is singed off of a (beaver's) tail → *plaID* 7938 → *map* CPNM-50-109 D2

ᐁ ᐱᒥᑦᐧᐊᐦᐄᓄ ᓴᒃᐦᐃᒃᓱ *e pimitaawahkaach saakahikan (lake)* where sand extehds cross-ways lake → *plaID* 698 → *map* CPNM-50-109 G2

ᐁ ᑕᐦᑭᒋᑎᐦᑐᓯ *e tahchikamiishtikw (river)* cold water lake river → *plaID* 8003 → *map* CPNM-50-109 A2 & C2

ᐅᓯᒣᓐᐤ ᓯᐲ *iisimeniiw-siipii (river)* Eastmain river → *plaID* 786 → *map* CPNM-50-109 B4-C4 & I3-I4

ᐄ ᐊᐱᔑᐄᒪᔑᓄ *kaa apishikamaashich (lake)* very small lake → *plaID* 719 → *map* CPNM-50-109 E3

ᐄ ᐊᐱᔑᐄᒪᐤ *kaa apishikamaaw (lake)* small lake → *plaID* 718 → *map* CPNM-50-109 F3

ᐄ ᐊᔭᐱᐢᓀᒥᔑᐤ ᓴᒃᐦᐃᒃᓱ *kaa ayaapishaamishiiw-saakahikan (lake)* lake where small fish spawn → *plaID* 13758 → *map* CPNM-50-109 F1

ᐄ ᑭᐢᑭᐦᐄᒪᓄ *kaa chiishchikamaach (lake)* steep lake → *plaID* 775 → *map*

ᐄ ᑭᐢᐦᐧᐦᑎᐦᐄᓄ ᓴᒃᐦᐃᒃᓱ *kaa chiishkaskamikaach saakahikan (lake)* lake with steep banks → *plaID* 717 → *map* CPNM-50-109 E3

ᐄ ᑭᐢᐦᐧᐦᑎᐦᐄᓄ ᓴᒃᐦᐃᒃᓱ *kaa chiishkaskamikaach saakahikan (lake)* lake with steep banks → *plaID* 721 → *map* CPNM-50-109 B3

ᑲ ᑭᖅᓂᔨᓴᕐᔪᐊᔪᓄᑦ ᓴᒃᖃᐅᓴᒃ *kaa chiyaashkunaapiskuwich saakahikan (lake)* lake where there are seagull rocks → *plaID* 694 → *map* CPNM-50-109 I2

ᑲ ᒥᔑᒃᒪᐃᓕᖅ *kaa mishikamaach (lake)* large lake → *plaID* 715 → *map* CPNM-50-109 G4

ᑲ ᔪᓚᐅᐊᖅ ᓴᒃᖃᐅᓴᒃ *kaa mushawaach saakahikan (lake)* barren-ground lake → *plaID* 716 → *map* CPNM-50-109 G3

ᑲ ᓇᒡᐊᖏᐣ ᓂᐲᐱ *kaa netaawahkaaw-siipii (river)* sandy point river → *plaID* 8033 → *map* CPNM-50-109 I3

ᑲ ᓂᓴᔪᒥᑦ ᓴᒃᖃᐅᓴᒃ *kaa niishumuchih saakahikan (lake)* twin lakes → *plaID* 776 → *map* CPNM-50-109 E2

ᑲ ᐸᖏᔨᐯᓴᖅᓄᑦ ᓴᒃᖃᐅᓴᒃ *kaa pahkupesekaach saakahikan (lake)* lake where cliffs go into the water → *plaID* 6719 → *map* CPNM-50-109 D2

ᑲ ᐱᖏᑐᑎᓐᖃᔭᓄᑦ ᐁ ᓇᒡᒋᔭᓄᑦ *kaa piihchishtikweyaach e naatwaayaach (river section)* where there is a long stretch of river that is calm (between rapids) → *plaID* 6724 → *map* B5-C5

ᑲ ᐱᕐᔨᑦᐊᖏᐣᐲ ᐃᐧᐃᓐᓇᒃ *kaa piskutaawahkaaw (island)* hump or mound-shaped elevation of sand → *plaID* 8035 → *map* CPNM-50-109 I3

ᑲ ᓱᐧᐯᐧᐁᖏᑎᓄᑦ ᓴᒃᖃᐅᓴᒃ *kaa shaapwewehtihch saakahikan (lake)* creek that cuts through (shortcut creek) lake → *plaID* 4114 → *map* CPNM-50-109 D4

ᑲ ᓱᐧᐯᐧᐁᖏᑎᓄᑦ ᓂᐱᐱᑐᓄ *kaa saapwewehtihch siipiishish (river)* creek that cuts through (shortcut creek) → *plaID* 4113 → *map* CPNM-50-109 C5-D5

ᑲ ᐅᐸᑭᓇᓱᓂᒃᐣ ᓴᒃᖃᐅᓴᒃ *kaa upaachinaakaniskaaw-saakahikan (lake)* narrows with an abundance of larch lake → *plaID* 1869 → *map* CPNM-50-109 F1-G1

ᑲ ᐅᓴᒪᓕᖅᓄᑦ *kaa usaamahtahk (lake)* he eats too much of it → *plaID* 16522 → *map* CPNM-50-109 B1

ᑲ ᐧᐊᐸᓵᒥᑲᐣ *kaa waapaskamikaaw (lake)* expanse of reindeer moss → *plaID* 5101 → *map* CPNM-50-109 I5

ᑲ ᐧᐊᔭᐧᐊᓕᖅᒪᐃᓕᓵ *kaa waayaawahchikamaach (lake)* lake where there is a depression in the sand → *plaID* 4115 → *map* CPNM-50-109 A3

ᑲ ᐧᐃᓴᓵᓂᐣ *kaa wiisaapuskaaw (river section)* an expanse of standing, dead trees in an area burnt by a forest fire → *plaID* 8037 → *map* CPNM-50-109 H4

ᑲ ᐧᐃᓴᓵᓂᐣ ᑲᐸᒋᓴᒃ *kaa wiisaapuskaaw-kapataakan (portage)* an expanse of standing, dead trees in an area burnt by a forest fire portage → *plaID* 8039 → *map* CPNM-50-109 H4

ᑲ ᐧᐃᓴᓵᓂᐣ ᓂᐱᔨᓵ *kaa wiisaapuskaaw-siipiishish (river)* an expanse of standing, dead trees in an area burnt by a forest fire creek → *plaID* 8038 → *map* CPNM-50-109 G4, E3 *&* F3

ᓴᓂᔭ ᐁᖏᒋᐣ ᑲᐸᒋᓴᒃ *manituw ehtaaw kapataakan (portages)* where there is a manituw portage → *plaID* 8172 → *map* CPNM-50-109 F4
origin: the name has a changed form.

ᓴᓂᔭ ᐁᖏᒋᐣ ᐸᓵᑎᓂᑲᓄᑦ *manituw ehtaaw paashtinikan (rapids)* where there is a manituw pull-over portage → *plaID* 8171 → *map* CPNM-50-109 F4
origin: the name has a changed form.

ᓴᓂᔭ ᐁᖏᒋᐣ ᐸᐧᐃᑎᓀᐧ *manituw ehtaaw paawishtikuw (rapids)* where there is a manituw rapids → *plaID* 6722 → *map* CPNM-50-109 E4-F4
origin: the name has a changed form.

ᓴᓂᔭ ᐁᖏᒋᐣ ᓴᒃᖃᐅᓴᒃ *manituw ehtaaw saakahikan (lake)* where there is a manituw lake → *plaID* 6716 → *map* CPNM-50-109 F4

origin: the name has a changed form.

ᒪᓂᔪ ᐁᓐᓴᐤ ᓂᐱᐲᓂ *manituw ehtaaw siipiishish (river)* where there is a manituw creek → *plaID* 6721 → *map* CPNM-50-109 F5
origin: the name has a changed form.

ᒥᓂᖏᔨᑉ·ᐊᓵ *minishtikuchiwan (river section)* where there are island(s) in the current or flow of a river → *plaID* 8028 → *map* CPNM-50-109 D6

ᒥᐱ ᐲᒃ"ᐃᒃᓵ *mishi-saakahikan (lake)* large lake → *plaID* 677 → *map* CPNM-50-109 A6

ᒥᐱ ᐲᒃ"ᐃᒃᓂ ᓂᐱᐲᓂ
mishi-saakahikani-siipiishish (river) large lake creek → *plaID* 4107
→ *map* CPNM-50-109 A5

ᒥᓯᑦ ᐊᑎ"ᒃᒉᔨ ᐲᒃ"ᐃᒃᓵ
mishta-atihkameku-saakahikan (lake) large whitefish lake → *plaID* 696
→ *map* CPNM-50-109 H2

ᓇᒉᐣ ᕮᑭᑦ·ᐋᒃᓵ *namew-pachitahwaakan (river section)* sturgeon net-setting place → *plaID* 6723 → *map* CPNM-50-109 C4

ᓀ·ᑕᒃᑊᐣ ᕮ·ᐃᓂᑎᔨ
naatwaakamiiw-paawishtikuw (rapids) riverine lake rapids → *plaID* 8026 & 8027 → *map* CPNM-50-109 C5 *&* D5

ᓀ·ᑕᒃᑊᐣ ᓂᐱᐲᓂ *naatwaakamiiw-siipiishish (creek)* riverine lake creek → *plaID* 4104 → *map* CPNM-50-109 D6

ᓀ·ᑕᒃᑊ *naatwaakamiy (river section)* riverine lake (a section of calm river that widens so that it forms a lake) → *plaID* 680 → *map* CPNM-50-109 D5

ᓅᓂᑉᓗ ᓂᔨᑭᑕ·ᐋᓗ ᐲᒃ"ᐃᒃᓵ *niishtam siyaachitawaach saakahikan (lakes)* the first lake on the river → *plaID* 4117
→ *map* CPNM-50-109 D3-E3
Note that the name has a changed form *siyaachitawaach.*

ᕮᑦᔨᓴᔨ ᐲᒃ"ᐃᒃᓵ
paahkuchasku-saakahikan (lake) rat lake → *plaID* 7935 → *map* CPNM-50-109 H3

ᐋ"ᐃᓂᒃ"ᕮ *piihchaanikahp (portage)* long portage → *plaID* 13148
→ *map* CPNM-50-109 E5

ᐋ"ᐃᓂᒃ"ᐋᐤ ᓂᐱᐲᓂ
piihchaanikahpiiw-siipiishish (river) long portage creek → *plaID* 13246
→ *map* CPNM-50-109 E5

ᓰᕮᐢᑎᔨᐣ ᑲ ᐅ"ᑭ ᕮᔭᒉᓗ ᐲᒃ"ᐃᒃᓵ
shiipaashtikuhch kaa uhchi-pascheyaach saakahikan (lake) lake from which the side-channel flows → *plaID* 7937
→ *map* CPNM-50-109 G4

ᑕ"ᔨᑦ·ᐊᐣ ᑲ ᐃ"ᑕᔨᐣ ᐲᒃ"ᐃᒃᓵ
tahkutaawahch kaa ihtakuhch saakahikan (lake) lake that is found on the summit (high ground) → *plaID* 4116
→ *map* CPNM-50-109 A2

ᑦᐣ ᑲ ᐲᑭᐯᓗ ·ᐄᓯᑦ ᐲᒃ"ᐃᒃᓵ *taaw kaa saachipech wiisht saakahikan (lake)* lake where the beaver lodge sticks out of the water far from shore → *plaID* 6720
→ *map* CPNM-50-109 F3

ᐅᕮᓰᐣ ᐃᔨᔨᐣ ᐁ ᚁᑭ ᔨᑦ·ᐋᔨᑦ
Upaashiiw-Iyiyiw e chechi-kutawaasut (river section) where Upaashiiw Iyiyiw built his last fire → *plaID* 8150
→ *map* CPNM-50-109 A4-B4

ᐅᐱᓀᒃᖏᖏᔨᓴ *upinakaashtikush (river)* lesser *upinakaaw* river → *plaID* 4110
→ *map* CPNM-50-109 E5

ᐅᐱᓀᒃᖏᖏᑭᘁ *upinakaashtikw (river)* island narrows river → *plaID* 801
→ *map* CPNM-50-109 A5-E6

·ᐊᕮᑎᔨᓴ ᓂᐱᐲᓂ *waapatihku-siipiishish (river)* white caribou creek → *plaID* 4028
→ *map* CPNM-50-109 G4

·ᐊᐱᓂᓚᓐᑕ·ᐊᒃᓂ ᒃᐸᓴᒃᓵ
waapishtaanihtawaakani-kapataakan

(portage) marten portage, but precise meaning unclear → *plaID* 13736 → *map* CPNM-50-109 I3

·ᐁᐱᓂᒋᓂᑲ·ᐁᑲᓂ ᓴᒃᐞᐃᒃᓵ
waapishtaanihtawaakani-saakahikan (lake) marten lake, but precise meaning unclear → *plaID* 13695 → *map* CPNM-50-109 H3

·ᐁᐱᓂᒋᓂᑲ·ᐁᑲᓂ ᓯᐱᔨᓂ
waapishtaanihtawaakani-siipiishish (river) marten creek, but precise meaning unclear → *plaID* 8104 → *map* CPNM-50-109 I3

·ᐁᐱᓂᒋᓂᑲ·ᐁᑲᓂ ᓯᐱ ᐁ ·ᐊᔾ·ᐁᐣ
waapishtaanihtawaakani-siipii e wayawaach (campsite) where the marten river flows out (into the Eastmain river) → *plaID* 13737 → *map* CPNM-50-109 I3

·ᐁᐦᐢᐱᑕᐢᐊᐧᐃᓐᓯᒋᒋᐃᐧᐊᓐ *wepataawahchichiwan (lake)* where the current flows through a sandy narrows → *plaID* 8102 → *map* CPNM-50-109 H5
origin: the name has a changed form.

·ᐁᐦᐢᐱᑕᐢᐊᐧᐃᓐᓯᒋᒋᐃᐧᐊᓐᓄ ᓯᐱᔨᓂ *wepataawahchichiwanu-siipiishish (river)* where the current flows through a sandy narrows creek → *plaID* 8103 → *map* CPNM-50-109 H6
origin: the name has a changed form.

·ᐃᔾᐦᓂᑲᐱᐃᐧᐁᐣ ᐁ ᐱᒧᐧᑐᐢ ᓴᒃᐞᐃᒃᓵ *wiyaapanikaapawiw e pimuhtet saakahikan (lake)* lake where Weapinacappo walks → *plaID* 749 → *map* CPNM-50-109 A1

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1:55,000

0 0.5 1 2 3 4 5 Km

500 700 m

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