ANNEXE ACEE-15
Rapport des essais cinétiques en cellules humides

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Essais cinétiques en cellules humides

Projet Rose Lithium-Tantale

Baie James, Québec, Canada

Préparé pour:
Corporation Lithium Éléments Critiques

Par:
Lamont inc.

Novembre 2019

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Baie James, Québec, Canada

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Novembre 2019

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1. INTRODUCTION

Corporation Lithium Éléments Critiques (CEC) a mandaté Lamont afin d'analyser les résultats des essais cinétiques en cellules humides d'échantillons de stériles et de minerai. Les échantillons pour ces essais cinétiques ont été prélevés dans l'empreinte de la fosse projetée du projet Rose Lithium-Tantale (Rose). Les échantillons ont été prélevés par CEC et les protocoles d'essais analytiques ont été déterminés en partie par CEC et en partie par Lamont.

Ce rapport présente les informations disponibles sur les 13 échantillons, le programme analytique pour les essais cinétiques en cellules humides ainsi que les résultats obtenus. À partir de ces informations, Lamont a procédé à la compilation et à une analyse des résultats.

1.1. Contexte

CEC a réalisé une étude de faisabilité technique pour développer le projet Rose Lithium-Tantale (Rose). Parallèlement à cette étude, des études environnementales ont été faites afin d'évaluer les impacts du projet sur le milieu récepteur. Dans le cadre des études techniques et environnementales, la caractérisation des résidus miniers, des stériles, du minerai et du mort-terrain est requise pour définir le plan de gestion qui permettra de limiter les impacts sur l'environnement lors de l'entreposage en surface.

Ainsi, les études géochimiques ont été entreprises par CEC afin de caractériser les stériles, le minerai, les résidus miniers et le mort-terrain (Lamont, 2017a; Lamont, 2017b; Lamont, 2018). Les résultats ont démontré que les stériles, le minerai, les résidus miniers et le mort-terrain respectaient les critères de la Directive 019 (MDDEP, 2012) au niveau provincial. Toutefois, l'Agence d'évaluation d'impact du Canada (AEIC) (auparavant l'Agence canadienne d'évaluation environnementale (ACEE)), au niveau fédéral, a demandé davantage d'informations quant à la prédiction du drainage minier et du comportement géochimique des stériles. Pour cela, CEC a démarré 13 essais cinétiques en cellules humides qui ont été effectués au laboratoire SGS à Lakefield en Ontario.

1.2. Informations consultées

Les informations sur le projet et celles relatives aux essais réalisés ont été tirées des documents suivants :

- Rose Lithium-Tantalum Project, Feasibility Study NI 43-101 Technical Report, Novembre 2017;
- Description du projet, Chapitre 3 du Volume 1 de l'Étude d'impact sur l'environnement et le milieu social, Projet minier Rose tantale-lithium, Février 2019;
- Rapport de travaux 2011 – Propriété Rose, Consul-Teck Exploration;
- Rapport de travaux 2010 – Propriété Pivert-Rose, Consul-Teck Exploration;
- Carte interactive du Système d'information géominière du Québec (SIGEOM);
- Site internet de Corporation Éléments Critiques (www.cecorp.ca);
- Certificats d'analyses, SGS Minerals Services;
- Carte de localisation des forages et des échantillons, journaux de forage, photographies et liste d'échantillons, Corporation Éléments Critiques.

1.3. Description du projet

Le projet Rose est situé à la Baie James, près de Némiscau et des communautés Crie de Nemaska et de Eastmain. Il est à environ 300 km de Chibougamau et 400 km de Matagami (figure 1.1). Il est accessible via les infrastructures routières mises en place dans la région. La propriété comprend 473 titres miniers (claims) et couvre une superficie de 246,5 km^2. L'indice principal (Rose) faisant l'objet des études techniques et environnementales se situe dans le feuillet 33C01 aux coordonnées 419 628 mE – 5 763 398 mN (UTM NAD83 Zone 18).

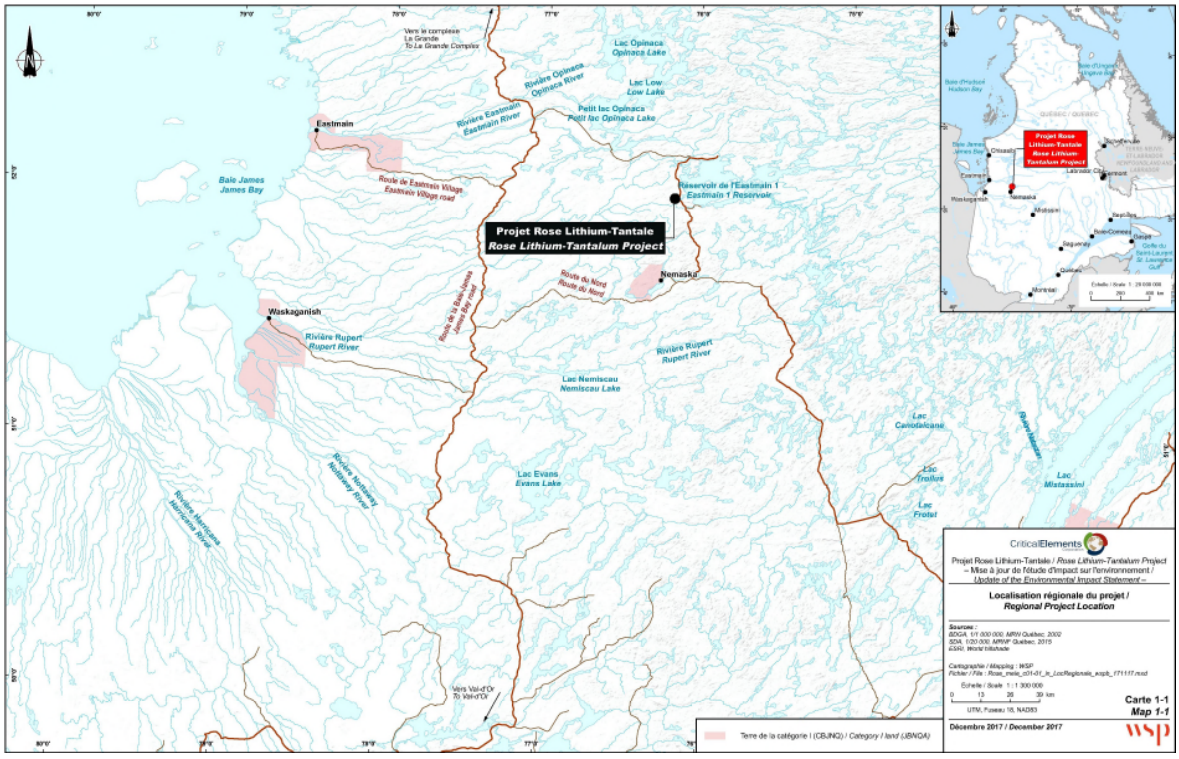

Figure 1.1 – Localisation du projet Rose

Ce projet est l'hôte d'une minéralisation significative en lithium et en tantale dans des pegmatites du type LCT. Étant donné que la minéralisation est située près de la surface, le projet développé inclut l'exploitation du minerai par une fosse. Les dimensions de la fosse projetée sont d'environ 1 620 m de long, 900 m de large et 200 m de profondeur (figure 1.2). La quantité de minerai prévu d'être extrait est de 26,8 Mt. Le minerai sera ensuite concassé, broyé et traité afin de produire des concentrés de spodumène de qualité technique et chimique et un concentré de tantalite. Les résidus issus du concentrateur, estimés à 24 Mt, seront filtrés puis entreposés en surface en co-déposition avec les stériles. Le projet inclut également l'extraction de stériles qui seront entreposées dans une halde à stériles sur le site. Le tonnage prévu de stériles est de 182,4 Mt. Selon les informations fournies par CEC, les stériles seront composés de quatre lithologies dont les proportions sont présentées dans le tableau 1.1.

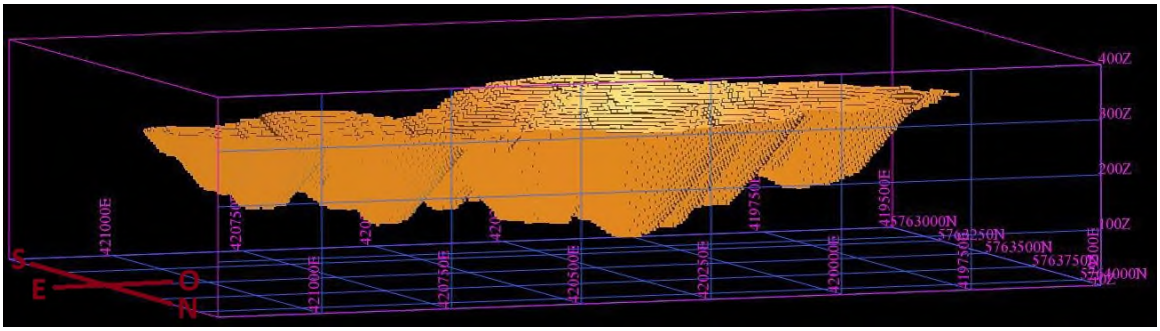

Figure 1.2 – Vue isométrique de la fosse

Tableau 1.1 – Proportions des différentes lithologies de stériles dans la fosse

Lithologie	Proportion (%)
Gneiss	65,2
Porphyre	20,5
Amphibolite	10,6
Métasédiment	3,7

1.4. Géologie et minéralisation

Le projet Rose est situé dans la province géologique du Supérieur, plus précisément dans la sous-province La Grande (figure 1.3). Ce craton archéen, un des plus grands sur la planète, constitue le cœur du Bouclier canadien et s'étend sur plus de 2 000 000 km^2 (Card, 1990) dont la partie nord-est se retrouve au Québec. De façon simplifiée, le socle rocheux de la Province du Supérieur est constitué de roches volcano-plutoniques, de métasédiments, d'intrusions plutoniques et de gneiss de haut métamorphisme. La majeure partie des roches de cette province géologique a subi un métamorphisme important, qui incluent le faciès des schistes verts, des amphibolites ou des granulites selon les régions (Card, 1990).

Le projet Rose est situé au sud de la Ceinture MLEGB (*Middle and Lower Eastmain Greenstone Belt*). Cette formation géologique s'étend sur plus de 300 km et est orientée est-ouest (Moukhsil *et al.*, 2007). Elle est composée de roches volcano-sédimentaires. Selon l'interprétation de Moukhsil *et al.* (2007), la majeure partie du projet Rose est recouverte par des intrusions syntectoniques datant de 2,710 à 2,697 Ma. Les lithologies rencontrées sur le projet sont donc surtout des intrusifs (Corbeil, 2010). Selon la carte interactive du SIGEOM disponible en ligne, le projet Rose se situe dans des unités géologiques du Batholite de Mitsumis composées de tonalite avec des intrusions de granodiorite et de pegmatites. Des gabbros et pyroxénites recoupent également la géologie du secteur (Corbeil, 2010).

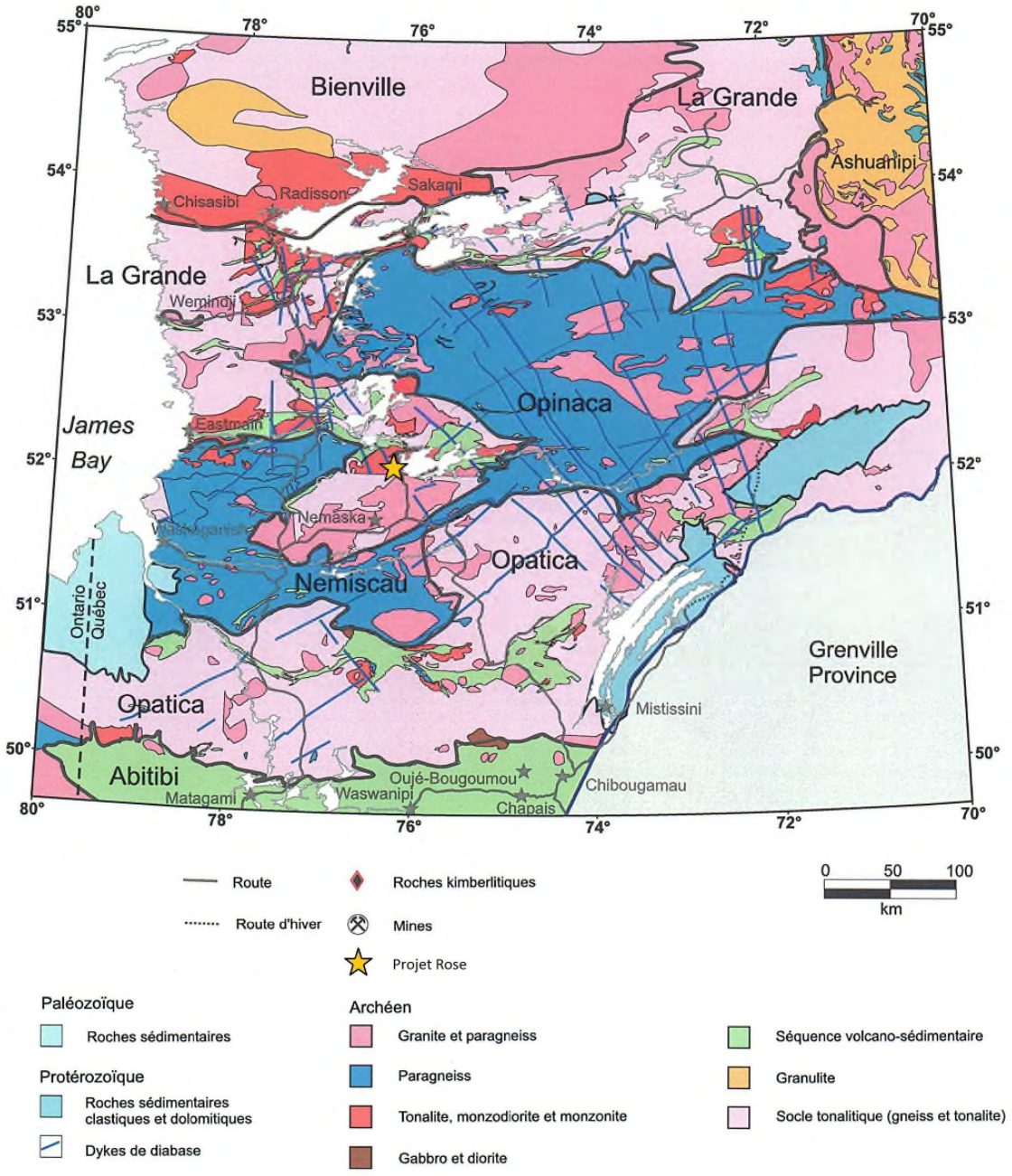

Figure 1.3 – Géologie de la province du Supérieur au Québec (modifié de Perreault *et al.*, 2006)

L'indice de lithium Rose a été découvert en 1961. La minéralisation consiste en du spodumène et de la lépidolite dans des dykes de pegmatite. Les dykes de pegmatites sont peu profonds et subparallèles à la surface (CEC, 2017). Le spodumène et la lépidolite représente jusqu'à 40 % de la composition minéralogique de la pegmatite. Les autres minéraux sont principalement du feldspath, du quartz et de la muscovite.

En plus du lithium (Li), des valeurs significatives ont également été obtenues en tantale (Ta), rubidium (Rb), césium (Cs), gallium (Ga) et/ou béryllium (Be). La présence de tous ces éléments est typique des pegmatites de type LCT. Il s'agit d'un type de pegmatite granitique, plus précisément une pegmatite à métaux rares. Ces pegmatites se retrouvent généralement dans un environnement géologique composé de terranes ayant été soumis à un métamorphisme d'intensité moyenne et plus souvent en périphérie de vastes plutons granitiques, dont les pegmatites en sont souvent dérivées (Sinclair, 1996). Elles peuvent aussi provenir de la fusion partielle de métasédiments. Les pegmatites à métaux rares se forment par cristallisation primaire d'un bain magmatique siliceux riche en constituants volatils et apparenté à des magmas granitiques hautement différenciés (Sinclair, 1996). La lithologie des roches sources exerce un rôle majeur dans la composition ultime des pegmatites à métaux rares.

2. ÉCHANTILLONNAGE

2.1. Essais statiques (études précédentes)

En 2017, une première étude de caractérisation géochimique des stériles a été effectuée (Lamont, 2017a). La sélection des échantillons de stériles et l'échantillonnage ont été effectués par CEC. Lamont n'avait pas été impliqué à cette étape de la caractérisation. Un total de 21 échantillons représentant les différentes lithologies de stériles ont été sélectionnés dans les carottes de forage d'exploration. Ces lithologies sont regroupées en quatre catégories : gneiss, amphibolite, porphyre et métasédiment. Des 21 échantillons prélevés, 11 était du gneiss, 6 d'amphibolite, 2 de porphyre et 2 de métasédiment. Selon les informations disponibles, les échantillons représentent les différentes lithologies qui composeront les futurs stériles qui seront extraits de la fosse, et la distribution en surface et en profondeur couvre plusieurs secteurs de la fosse projetée.

Pour compléter la campagne de 2017, un second programme d'échantillonnage et de caractérisation a été fait en 2018 (Lamont, 2018). Un total de 55 nouveaux échantillons de stériles et 10 échantillons de minerai ont été prélevés dans les carottes de forage d'exploration afin de couvrir l'empreinte de la future fosse et un nombre proportionnel d'échantillons a été prélevé pour représenter les lithologies qui seront exploitées. Le tableau 2.1 présente le nombre d'échantillons par lithologie pour les deux campagnes. On y montre à nouveau la proportion relative attendue des lithologies dans la halde de stériles.

Tableau 2.1 – Échantillonnage des campagnes 2017 et 2018

Lithologie	Proportion (%)	Campagne 2017	Campagne 2018	Total
Gneiss	65,2	11	36	47
Porphyre	20,5	2	15	17
Amphibolite	10,6	6	3	9
Métasédiment	3,7	2	1	3
Minerai (pegmatite à spodumène)	-	-	10	10

2.2. Essais cinétiques

Pour les essais en cellules humides, CEC a sélectionné les échantillons. Ceux-ci correspondent à des échantillons prélevés lors de la campagne de caractérisation géochimique effectuée en 2018 (Lamont, 2018). Le tableau 2.2 montre les échantillons sélectionnés, leur lithologie, et les interprétations obtenues en essais statiques selon les critères de la Directive 019. De façon générale, les échantillons sont représentatifs des futurs stériles et du minerai. Toutes les lithologies ont été testées en cellule humide. Un

échantillon d'amphibolite, le S659713 a été sélectionné car il était un des rares échantillons à être classifié comme étant potentiellement lixiviable en cuivre. L'échantillon composite est constitué d'un mélange des 4 lithologies de stériles selon les proportions suivantes : 65 % gneiss, 20 % porphyre, 11 % amphibolite et 4 % métasédiment. Deux essais sont également des duplicatas : S659711D et WasteD. La localisation des échantillons est présentée à la figure 2.1. Cette figure présente aussi tous les échantillons pris lors de la campagne de 2018.

Tableau 2.2 – Échantillons sélectionnés pour les essais cinétiques en cellule humide

Échantillon	Lithologie	Potentiel de génération d'acide	Potentiel de lixiviation en métaux
S659705	Minerai	Non	Non
S659707	Minerai	Non	Non
S659709	Minerai	Non	Non
S659711	Métasédiment	Non	Non
S659711D	Métasédiment	Non	Non
S659713	Amphibolite	Non	Oui pour le cuivre (Cu) selon TCLP
S659714	Amphibolite	Non	Non
S659719	Porphyre	Non	Non
S659724	Porphyre	Non	Non
S659735	Gneiss	Non	Non
S659745	Gneiss	Non	Non
Waste	Composite	-	-
WasteD	Composite	-	-

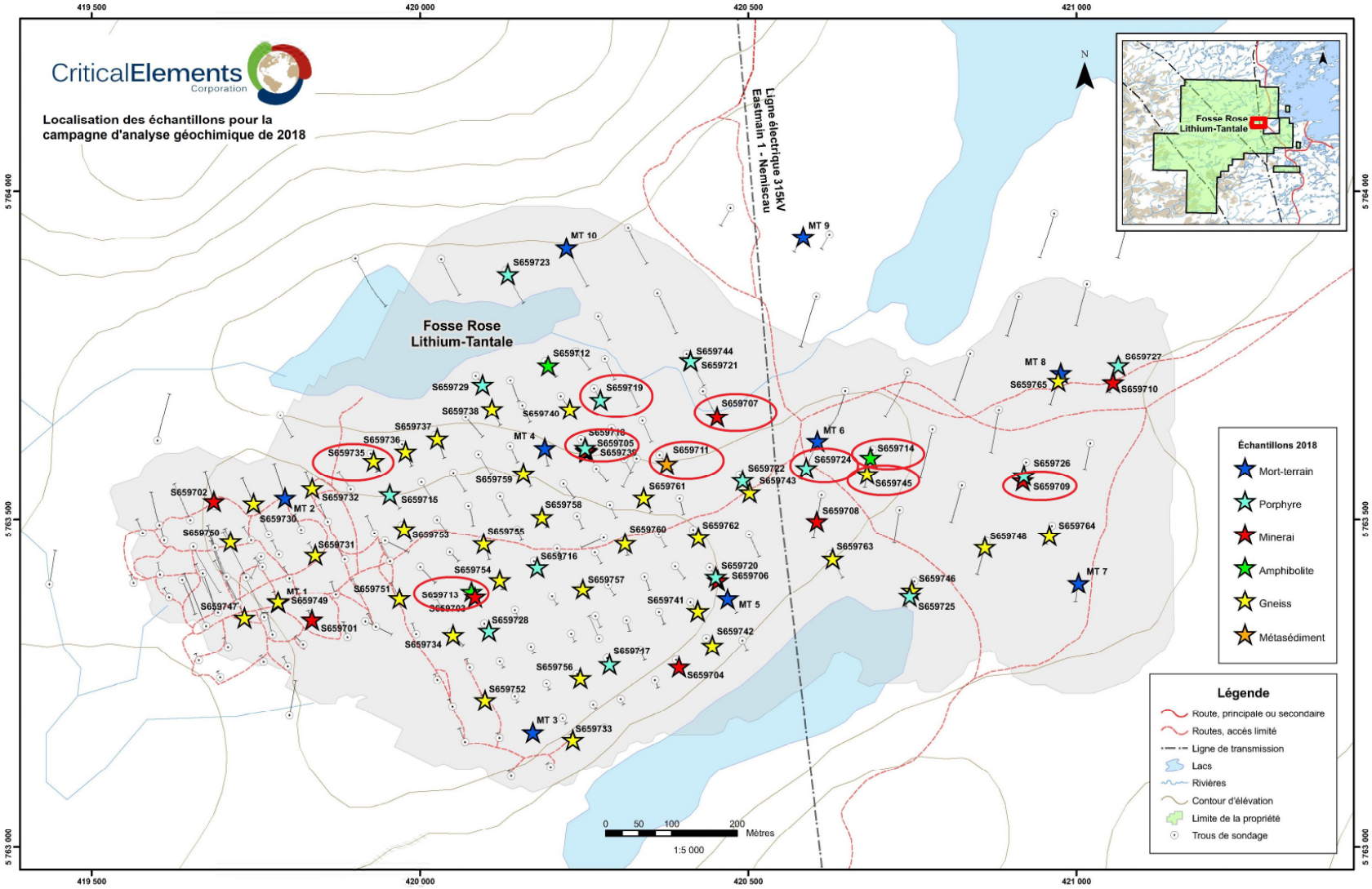

Figure 2.1 – Localisation des échantillons

3. PROGRAMME ANALYTIQUE

3.1. Essai cinétique en cellule humide

Les essais cinétiques en cellule humide ont été effectués au laboratoire SGS de Lakefield. Le laboratoire utilise une norme ASTM pour ce type d'essai (ASTM, 2018). Cet essai est spécifiquement conçu afin d'accélérer les réactions d'oxydation et de neutralisation. Pour cela, la cellule est bien aérée, la dilution est élevée et la taille des grains est relativement faible. Les rinçages fréquents inhibent la précipitation de minéraux secondaires.

Un échantillon de 1 kg est mis à l'intérieur d'un contenant appelé cellule humide. Pour les stériles et le minerai, la granulométrie doit être inférieure à 6,3 mm. La préparation des échantillons à partir de carottes de forage a donc nécessité des étapes de broyage et de tamisage. Une fois mis en place dans les cellules humides, les échantillons sont soumis à un premier rinçage avec 1 litre d'eau déionisée, à partir duquel le lixiviat est collecté à la base de la cellule humide après avoir circulé à travers l'échantillon (semaine 0). Les échantillons sont ensuite soumis à des cycles hebdomadaires (7 jours) où ils sont exposés à 3 jours de circulation d'air humide, à 3 jours de circulation d'air sec puis à un rinçage lors de la 7^{e} journée toujours avec 1 litre d'eau déionisée. L'eau déionisée est légèrement acide avec un pH variant de 5,0 à 5,5 (CEC, 2019). À chaque semaine, le lixiviat collecté est analysé pour les paramètres suivants :

- Volume d'eau ajouté et volume d'eau recueilli
- pH (électrode)
- Conductivité (électrode)
- Alcalinité et acidité (titrage)
- Sulfates (SO_4) et brome (Br) (chromatographie ionique)
- Fluor (F) (électrode)

Les lixiviats sont aussi analysés selon une liste plus exhaustive de métaux et autres éléments chimiques à une fréquence proposée par le laboratoire SGS, c'est-à-dire pour le premier rinçage (semaine 0), suivi des 4 premières semaines et ensuite une fois aux 4 semaines. Cette fréquence permet de diminuer les coûts d'analyse, mais les résultats doivent alors être interpolés entre ceux disponibles. Lorsque Lamont a été mandaté afin d'étudier les résultats préliminaires (autour de la 14^{e} semaine), il a été recommandé d'effectuer les analyses complètes à chaque semaine, ce qui a été fait de la 15^{e} à la 20^{e} semaine. La fréquence fut remise aux 4 semaines à partir de la 20^{e} semaine.

La liste d'éléments analysés est la suivante :

- Hg (CVAAS : spectrométrie d'absorption atomique en vapeur froide)
- Ag, Al, As, Ba, B, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Se, Si, Sn, Sr, Ta, Ti, Tl, U, V, W, Y, Zn (ICP-MS : spectrométrie de masse au plasma à couplage inductif)

Une durée minimale de 20 semaines fut respectée pour tous les essais. Trois échantillons ont été sélectionnés afin de prolonger la durée des essais. Il s'agit d'un échantillon de minerai (S659709), d'un échantillon d'amphibolite (S659713) et d'un échantillon composite (Waste). La durée fut de 28 semaines pour l'échantillon de minerai et l'échantillon composite, tandis que l'essai à partir de l'échantillon d'amphibolite est encore en cours au moment d'écrire ce rapport (40 semaines).

3.2. Analyses post-démantèlement

Des analyses chimiques ont été effectuées sur les échantillons contenus dans les cellules humides à la fin des essais. Ces résultats permettent généralement d'identifier quels éléments ont été lixiviés lors des essais cinétiques. Les analyses effectuées suivent les mêmes protocoles que les analyses effectuées sur les échantillons avant les essais cinétiques. Elles ont aussi été réalisées au laboratoire SGS. Il s'agit des analyses suivantes :

- Potentiel de génération d'acide : l'essai Modified Acid-Base Accounting (MABA) selon la méthode Sobek (Sobek *et al.*, 1978) modifiée par Lawrence et Wang (1997) a été réalisé. Cet essai permet d'obtenir le potentiel de neutralisation (PN) par titrage, la teneur en soufre total (S_{total}) par combustion et détection infrarouge (fournaise à induction), et le soufre contenu dans les sulfates ($S_{sulfates}$) par une lixiviation à l'acide. Le soufre contenu dans les sulfures ($S_{sulfures}$) et le potentiel d'acidification (PA) sont obtenus par calcul. L'essai effectué par SGS inclut également la teneur en carbone total (C_{total}) par combustion et détection infrarouge (fournaise à induction), et le pH en pâte.
- Concentration des métaux traces : le protocole d'analyse MA.200 - Mét 1.2 (CEAEQ, 2014) a été utilisé pour évaluer les concentrations en métaux traces. Cette méthode permet de mettre en solution les minéraux peu réfractaires par une digestion à l'eau régale (digestion partielle). Le dosage est ensuite effectué par spectrométrie d'émission optique au plasma à couplage inductif (ICP-OES) ou par spectrométrie de masse au plasma à couplage inductif (ICP-MS).

4. RÉSULTATS ET INTERPRÉTATION

4.1. Revue des résultats des essais statiques

Les essais statiques (Lamont, 2018) ont démontré que l'ensemble des stériles et du minerai ne serait pas générateur d'acide selon les critères de la Directive 019 (MDDEP, 2012). Toujours selon les critères de la Directive 019, 7 échantillons sur 76 sont considérés potentiellement lixiviables en cuivre lorsque soumis à des conditions acides. Les essais de lixiviation à pH neutre n'ont pas démontré ces mêmes résultats, alors la probabilité de lixiviation en cuivre dans les eaux de contact est très faible. Les essais cinétiques permettront de valider cette interprétation.

Les tableaux A-1 et A-2 (joints en annexe) présentent des données statistiques obtenues à partir des résultats des essais statiques de potentiel de génération d'acide (ABA de Sobek modifié) en comparaison avec les résultats des échantillons sélectionnés pour les essais cinétiques. De façon générale, les échantillons sélectionnés sont représentatifs de l'ensemble des stériles et du minerai, bien qu'ils ne représentent pas les valeurs extrêmes minimales ou maximales. À noter que dans les certificats d'analyses du laboratoire SGS, la valeur du soufre dans les sulfures est utilisée pour calculer le potentiel d'acidification (PA). Lorsque la valeur est inférieure à la limite de détection, la valeur entière est utilisée. L'approche pour effectuer ces calculs pourraient être différente, mais les résultats montreraient tout de même un très faible potentiel d'acidification. Les stériles et le minerai ont donc un très faible potentiel à générer de l'acide, mais aussi un très faible potentiel à la neutraliser.

Les tableaux A-3 et A-4 (joints en annexe) présentent les données statistiques obtenues à partir des résultats de l'analyse en métaux selon le protocole MA.200 – Mét 1.2 (CEAEQ, 2014). Les métaux pour lesquels il y a des critères dans l'annexe 2 du Guide d'intervention de la Protection des sols et de réhabilitation des terrains contaminés (Beaulieu, 2019) sont présentés (Ag, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Zn), ainsi que ceux faisant partie de la composition élémentaire des échantillons (Al, Ca, Fe, K, Mg, Na, P, Ti). À noter que certains métaux n'ont pas été présentés bien qu'il existe des critères pour ceux-ci car plus de 50 % des résultats d'analyse étaient sous les valeurs de la limite de détection (Hg, As, Se et Sn). De façon générale, les échantillons sélectionnés ne représentent pas les valeurs extrêmes minimales ou maximales, et sont représentatifs de l'ensemble des stériles et du minerai. Un échantillon d'amphibolite a été sélectionné puisqu'il dépassait les critères de la Directive 019 pour le cuivre afin d'être représentatif des échantillons potentiellement lixiviables suite à l'interprétation des essais statiques.

4.2. Résultats des essais cinétiques

Les essais cinétiques permettent d'obtenir davantage de données afin de définir le comportement géochimique des échantillons soumis à ces essais. Puisqu'il se déroule sur une plus longue période de temps (comparativement aux essais statiques qui sont dits ponctuels), de l'information quant aux vitesses de réaction peut être obtenue. Il est toutefois très important de bien comprendre les conditions dans lesquelles sont effectués les essais cinétiques, les limitations de chaque type d'essai et de bien définir les objectifs recherchés. Les résultats des essais cinétiques sont présentés pour 11 cellules humides (10 échantillons de lithologie unique et 1 échantillon composite). Les 2 autres cellules humides sont présentées à la section 4.3 portant sur le contrôle de qualité. Les résultats complets sous forme de tableaux sont présentés à l'annexe F et les certificats d'analyse sont à l'annexe G.

4.2.1. Limites de détection

Lors de l'interprétation des résultats des échantillons du projet Rose, la première chose qui fut identifiée est l'ordre de grandeur très faible des données obtenues. Plusieurs résultats sont même inférieurs aux limites de détection. Il ne s'agit pas ici d'un problème quant aux limites de détection utilisées au laboratoire puisque celles-ci sont très faibles. Ce sont plutôt les matériaux utilisés qui sont très faiblement réactifs. Les essais cinétiques en cellule humide provoquent et même accélèrent généralement les réactions d'oxydation et de neutralisation afin de pouvoir les caractériser, mais dans ces cas-ci, les matériaux sont quasi-inertes.

Voici un exemple avec les valeurs d'alcalinité et d'acidité. L'échantillon d'amphibolite S659713 donne des lixiviats avec une alcalinité et une acidité variant entre < 2 et 6 mg $CaCO_3$/l (figure 4.1). En utilisant la moitié de la limite de détection pour les calculs et les graphiques, les données varient donc entre 1 et 6 mg $CaCO_3$/l. La valeur maximale sera donc 6 fois plus élevée que la plus faible, mais l'ordre de grandeur demeure très faible pour l'ensemble des données. La sensibilité et la calibration des appareils de mesure au laboratoire devient un facteur d'erreur majeur dans les résultats pour les échantillons du projet Rose.

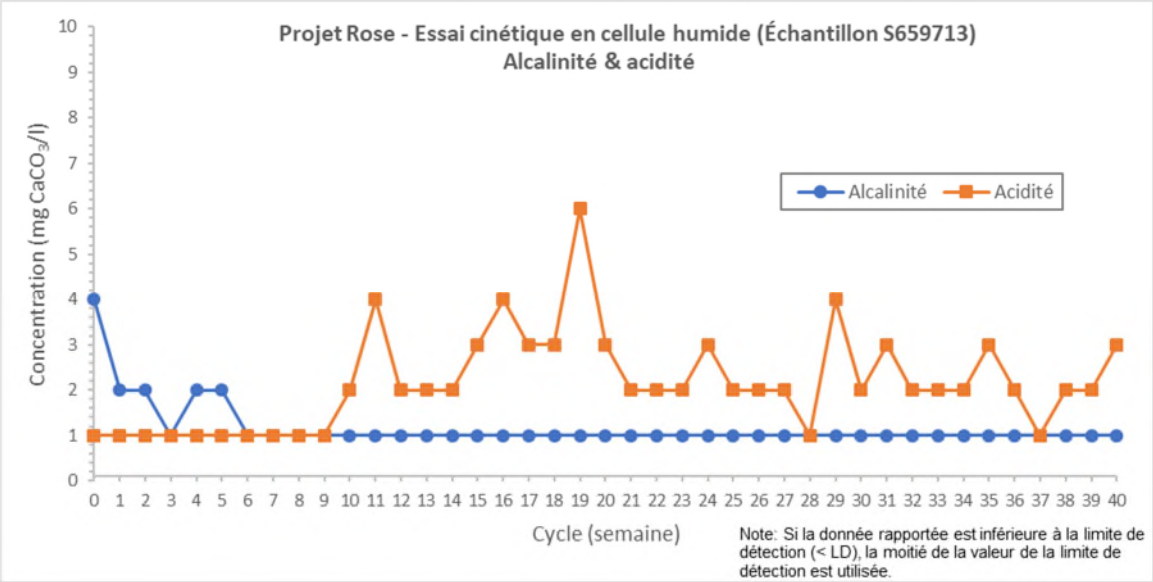

Figure 4.1 – Évolution de l'alcalinité et de l'acidité (échantillon S659713)

Des erreurs d'interprétation peuvent également être causées en raison des limites de détection. Par exemple, l'échantillon S659713 montre une courbe ascendante des concentrations en chrome après la semaine 4 (figure 4.2). En réalité, l'augmentation est causée par la limite de détection au laboratoire qui est passé de < 0,00003 à < 0,00008 mg/l entre les semaines 4 et 8. La courbe montre également une augmentation à la semaine 24, mais la valeur est de 0,00008 mg/l, soit égale à la limite de détection. Il ne faut pas interpréter cette valeur comme étant une augmentation significative lorsqu'on définit si l'essai a atteint une stabilité géochimique. Les changements dans les limites de détection au laboratoire peuvent être reliés à l'utilisation d'un appareil différent, ou d'un ajustement de celui-ci. Il ne faut donc pas pousser l'interprétation en précision et demeurer vigilant lorsque les données se situent proche de la limite de détection ou sous celle-ci.

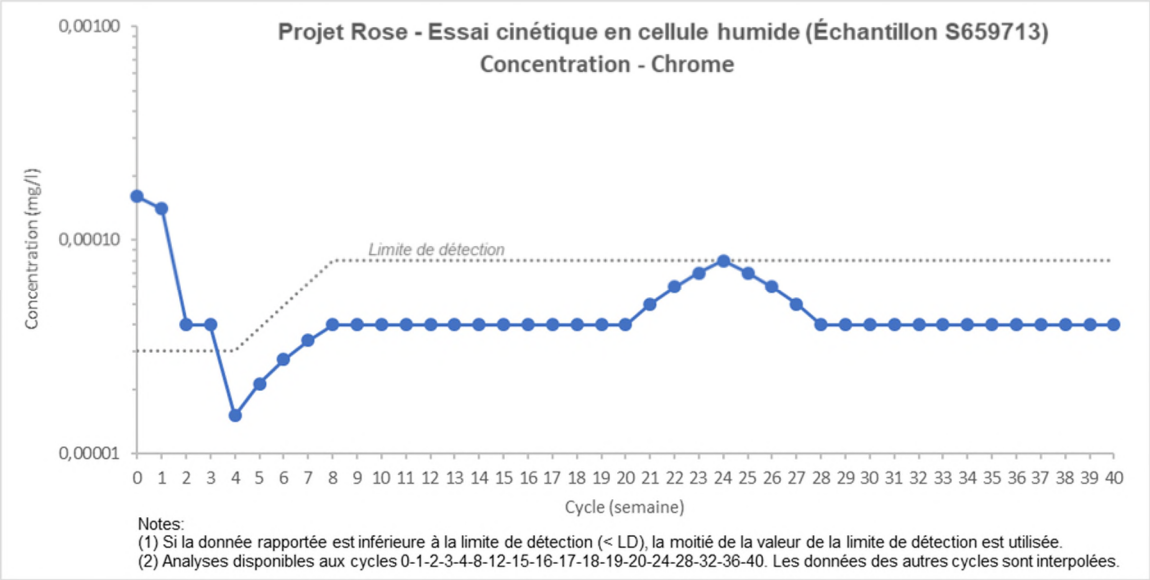

Figure 4.2 – Démonstration de l'influence possible de la limite de détection sur l'évolution des concentrations

Le tableau 4.1 montre les paramètres dont 50 % et plus des données sont inférieures à la limite de détection pour chaque essai. Pour les paramètres généraux, cette évaluation est basée en fonction de la durée des essais, soit sur des séries de 21 à 41 données, et sur des séries de 13 à 18 données pour les métaux et autres éléments.

Tableau 4.1 – Paramètres dont plus de 50 % des données sont inférieures aux limites de détection

Essai	Paramètres dont + 50 % des données sont < LD
S659705	Alcalinité, acidité, F, Br, Hg, Ag, B, Cr, Fe, Ni, P, Sb, Se, Sn, Ta, Ti
S659707	Acidité, F, Br, Hg, Ag, B, Cr, Fe, Ni, P, Sb, Ta, Ti
S650709	Acidité, Br, Hg, Ag, As, B, Cr, Fe, Ni, P, Sb, Ta, Ti
S659711	Acidité, F, Br, SO_4, Hg, Ag, As, B, Be, Bi, Cd, Co, Cr, Fe, Ni, Pb, Sb, Se, Ta, Tl, Zn
S659713	Alcalinité, F, Br, Hg, Ag, As, B, Be, Bi, Cr, Fe, P, Pb, Sb, Sn, Ta, Ti, W, Y
S659714	Acidité, F, Br, Hg, Ag, As, B, Be, Bi, Cd, Cr, Fe, Ni, P, Pb, Sb, Ta, Tl, W, Y, Zn
S659719	Acidité, F, Br, Hg, Ag, As, B, Be, Bi, Cd, Co, Cr, Fe, Ni, P, Pb, Sb, Se, Ta, Tl, Zn
S659724	Acidité, F, Br, Hg, Ag, B, Be, Bi, Cd, Co, Cr, Fe, Ni, P, Pb, Sb, Se, Ta, Ti, Tl, Zn
S659735	Acidité, F, Br, SO_4, Hg, Ag, As, B, Be, Bi, Cd, Co, Cr, Fe, Ni, P, Pb, Sb, Se, Ta, Tl, Zn
S659745	Acidité, F, Br, Hg, Ag, As, B, Be, Bi, Cd, Co, Cr, Fe, Ni, P, Pb, Sb, Se, Ta, Tl, Y, Zn
Waste	Alcalinité, acidité, F, Br, SO_4, Hg, Ag, As, B, Be, Bi, Cd, Cr, Fe, P, Pb, Sb, Se, Ta, Tl, Zn

4.2.2. Évolution du pH, de la conductivité et autres paramètres hebdomadaires

À chaque rinçage, c'est-à-dire à chaque semaine, les paramètres suivants sont analysés : pH, conductivité, alcalinité, acidité, sulfates, fluor et brome. Tel que mentionné

précédemment, les données d'acidité, fluor et brome sont régulièrement inférieures aux limites de détection.

Tous les résultats présentent une évolution similaire quant au pH, à la conductivité, aux sulfates et à l'alcalinité. Les résultats sont plus élevés au début, puis diminuent tranquillement pour se stabiliser. Les graphiques du pH et de la conductivité sont présentés à l'annexe B.

Seules les courbes du pH continuent de diminuer à chaque rinçage et se rapprochent tranquillement du pH initial de l'eau de rinçage qui est de 5,0 à 5,5 (CEC, 2019). Les valeurs de pH, tous essais confondus, varient de 5,5 à 8,5. Plus de 87 % des données de pH se situent dans l'intervalle de 6,0 à 7,5. Parmi les 28 données de pH inférieures à 6,0, 21 d'entre elles (75 %) proviennent de l'essai avec l'échantillon S659713, soit l'essai qui est encore en cours.

Les mesures d'alcalinité sont en général très faibles (< 10 mg $CaCO_3$/l), et souvent inférieures à la limite de détection après les premières semaines.

Les concentrations en sulfates sont également très faibles (< 0,2 à 10 mg/l), et sont généralement inférieures à 1 mg/l après les premières semaines.

La conductivité est quant à elle représentative de la charge en ions du lixiviat. Plus la conductivité de l'eau est élevée et plus elle est chargée en ions. Pour les essais avec les échantillons du projet Rose, les valeurs maximales de conductivité ont été obtenues au début des essais, ce qui est normal puisque les premiers rinçages sont généralement plus concentrés en métaux et éléments dissouts. Ces valeurs maximales varient entre 20 et 50 µS/cm. Après quelques semaines, les conductivités étaient toutes rendues inférieures à 10 µS/cm, à l'exception de l'échantillon S659724 qui semble se maintenir à 15 µS/cm. Pour fins de comparaison, les eaux de lixiviat obtenues dans des essais pour d'autres projets miniers avec des échantillons générateurs d'acide atteignent des conductivités supérieures à 2000 µS/cm. Les eaux de lixiviat des essais avec les échantillons du projet Rose sont donc très faiblement chargées. La composition des eaux de lixiviat se rapprochent de plus en plus à celle de l'eau de rinçage utilisée, ce qui démontre que les échantillons du projet Rose sont très peu réactifs.

4.2.3. Concentrations ponctuelles

Les métaux et autres éléments ont été analysés à une fréquence irrégulière telle qu'expliquée dans la méthodologie du programme analytique. Il est important de collecter un maximum de données au début des essais afin de ne pas manquer les

variations de taux, et les analyses sont généralement espacées une fois que les concentrations et les taux de lixiviation sont stabilisés.

Les essais en cellule humide permettent généralement de déterminer des taux d'oxydation, de neutralisation et de lixiviation en métaux. Les concentrations obtenues dans les lixiviats ne sont pas représentatives des futures qualités d'eau sur un site minier, car les conditions dans lesquels s'effectue ce type d'essai accélèrent les réactions géochimiques et empêchent la précipitation de minéraux secondaires en raison des rinçages fréquents et d'un facteur de dilution élevé. Par conséquent, bien que des comparaisons directes entre les critères de qualité de l'eau et les concentrations des lixiviats puissent fournir un certain contexte, ces comparaisons doivent être traitées avec prudence et ne doivent pas être utilisées seules afin de conclure sur le comportement géochimique des échantillons.

À cette fin, les concentrations ponctuelles en Ag, As, B, Ba, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, Se, U et Zn sont présentées sous forme de graphique dans l'annexe C. Les critères de qualité d'eau suivants sont également montrés :

- Concentration moyenne mensuelle maximale permise pour certaines substances nocives du Règlement sur les effluents des mines de métaux et des mines de diamants, Annexe 4 (REMMMD, 2019);
- Concentration moyenne mensuelle acceptable des exigences au point de rejet de l'effluent final de la Directive 019, Tableau 2.1 (MDDEP, 2012);
- Critère de qualité des eaux souterraines (résurgence dans l'eau de surface[1]) du Guide d'intervention de protection des sols et réhabilitation des terrains contaminés, Annexe 7 (Beaulieu, 2019).

Il est possible d'observer une tendance générale pour les métaux et autres éléments, soit plus élevée au début et diminuant par la suite. Cela reflète le comportement géochimique peu réactif des stériles et du minerai du projet Rose. Les concentrations contenues dans les lixiviats sont sous les critères de qualité d'eau, ce qui indique également que les stériles et le minerai sont peu réactifs et produisent des eaux faiblement chargées en métaux et autres éléments solubles.

[1] Les critères pour certains métaux n'ont pas été ajustés à la dureté du milieu récepteur, car tel que mentionné, la comparaison avec ces critères n'est qu'à titre indicatif pour fournir un certain contexte et les données brutes issues d'essais cinétiques en laboratoire ne devraient pas être utilisées en comparaison directe avec le milieu récepteur.

4.2.4. Taux de lixiviation

Les taux de lixiviation correspondent à la masse d'un certain métal ou élément qui se retrouvera dans les eaux de contact normalisée en fonction de la masse totale, du temps et du volume d'eau de rinçage. Pour cette étude, les taux sont exprimés en mg/kg/semaine. À noter que pour un essai en cellule humide, les taux de lixiviation (en mg/kg/semaine) sont généralement similaires aux concentrations (en mg/l) car le volume d'eau est d'environ 1 litre, l'échantillon est de 1 kg, et le temps est de 1 semaine.

Les taux ont été calculés pour tous les métaux et éléments, et cela pour les 11 essais (tableau 4.2). Les taux sont généralement calculés une fois que les concentrations sont stabilisées afin de ne pas tenir compte du lessivage des premiers cycles. Dans certaines situations, il peut être intéressant de conserver aussi ces données. Ainsi, le tableau 4.2 présente les taux calculés à partir du 4^{e} cycle jusqu'à la fin des essais, et l'annexe D compare ces taux avec ceux calculés pour la durée entière des essais.

Lorsqu'une donnée rapportée était inférieure à la limite de détection, la moitié de la valeur de la limite de détection a été utilisée pour les calculs. Dans le cas du projet Rose, les résultats calculés sont grandement influencés par les valeurs inférieures à la limite de détection. Un code de couleur est utilisé dans le tableau afin de repérer les taux pour lesquels au moins 50 %, ou 100 % des données sont inférieures à la limite de détection.

Le cuivre est le seul métal identifié dans certains échantillons comme étant potentiellement lixiviable lors de la caractérisation initiale par les essais statiques (Lamont, 2018). Les essais cinétiques n'ont pas montré d'autres métaux potentiellement lixiviables qui n'auraient pas été identifiés lors de ces essais statiques. Les taux de lixiviation du cuivre ont été comparés aux données de la *International Kinetic Database*©, ™ (MDAG, 2017). Cette base de données contient les résultats de 634 essais en cellule humide provenant de 81 mines ou projets différents dans le monde. Les données en cuivre sont disponibles pour 487 essais en cellule humide. Il est donc possible de comparer les résultats obtenus pour le projet Rose avec des résultats provenant du même type d'essai cinétique (figure 4.3). Les échantillons du projet Rose se situe entre le 9^{e} et le 17^{e} percentile de ce groupe, à l'exception de l'échantillon S659713 qui se situe davantage au niveau du 30^{e} percentile. Il est aussi possible d'exclure les données pour lesquelles le pH moyen (ou plus faible) est inférieur à 5. Cela permet d'exclure les échantillons étant potentiellement générateurs d'acide et de comparer davantage avec des échantillons pour lesquels le pH est similaire aux conditions de pH obtenus lors des essais avec les échantillons du projet Rose. Les échantillons du projet Rose se situent

encore dans des percentiles inférieurs (14 à 25^{e}), et l'échantillon S659713 est environ au 45^{e} percentile.

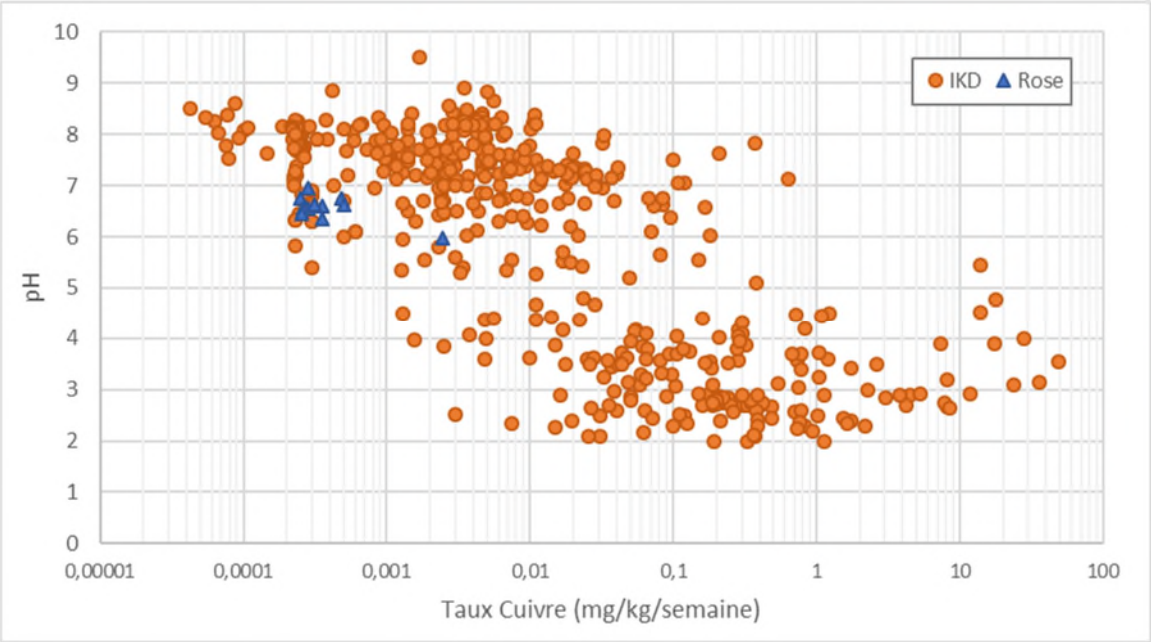

Figure 4.3 – Taux de lixiviation du cuivre en fonction du pH des essais cinétiques du projet Rose en comparaison avec la base de données IKD pour les essais en cellule humide

Tableau 4.2 – Taux de lixiviation

Paramètre	Unité	S659705	S659707	S659709	S659711	S659713	S659714	S659719	S659724	S659735	S659745	Waste
Alcalinité	mg $CaCO_3$/kg/sem	1,3	3,8	3,1	2,0	1,0	3,1	2,5	6,5	2,8	2,0	1,7
Acidité	mg $CaCO_3$/kg/sem	1,8	1,1	1,4	1,1	2,2	1,0	1,4	1,0	1,7	1,3	1,8
F	mg/kg/sem	0,03	0,05	0,10	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03
Br	mg/kg/sem	0,15	0,15	0,15	0,14	0,15	0,14	0,15	0,15	0,14	0,14	0,15
SO_4	mg/kg/sem	0,27	0,31	0,23	0,10	0,86	0,26	0,57	0,20	0,12	0,41	0,10
Hg	mg/kg/sem	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000006
Ag	mg/kg/sem	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00003
Al	mg/kg/sem	0,009	0,018	0,014	0,012	0,001	0,018	0,018	0,032	0,019	0,014	0,012
As	mg/kg/sem	0,0002	0,0002	0,0002	0,0002	0,0001	0,0001	0,0002	0,0003	0,0002	0,0002	0,0002
Ba	mg/kg/sem	0,00013	0,00017	0,00009	0,00016	0,00017	0,00031	0,00025	0,00029	0,00059	0,00018	0,00024
B	mg/kg/sem	0,001	0,001	0,001	0,001	0,002	0,001	0,003	0,003	0,001	0,001	0,001
Be	mg/kg/sem	0,000147	0,000027	0,000031	0,000003	0,000004	0,000003	0,000003	0,000003	0,000003	0,000003	0,000004
Bi	mg/kg/sem	0,000047	0,000966	0,000530	0,000003	0,000003	0,000003	0,000004	0,000003	0,000009	0,000008	0,000004
Ca	mg/kg/sem	0,15	1,26	0,78	0,21	0,24	0,76	0,59	1,92	0,65	0,29	0,40
Cd	mg/kg/sem	0,000005	0,000076	0,000015	0,000002	0,000004	0,000003	0,000004	0,000003	0,000002	0,000002	0,000002
Co	mg/kg/sem	0,000087	0,000151	0,000059	0,000002	0,0141	0,000005	0,000003	0,000002	0,000002	0,000004	0,000039
Cr	mg/kg/sem	0,00004	0,00004	0,00004	0,00003	0,00004	0,00003	0,00004	0,00004	0,00003	0,00003	0,00004
Cu	mg/kg/sem	0,00035	0,00049	0,00036	0,00028	0,00243	0,00025	0,00050	0,00028	0,00031	0,00026	0,00025
Fe	mg/kg/sem	0,003	0,005	0,003	0,003	0,005	0,003	0,005	0,003	0,003	0,003	0,004
K	mg/kg/sem	0,234	0,256	0,074	0,400	0,063	0,097	0,379	0,226	0,237	0,482	0,095
Li	mg/kg/sem	0,0085	0,0085	0,0113	0,0026	0,0008	0,0025	0,0050	0,0038	0,0087	0,0077	0,0020
Mg	mg/kg/sem	0,024	0,050	0,013	0,056	0,080	0,137	0,092	0,087	0,066	0,065	0,038
Mn	mg/kg/sem	0,00395	0,02056	0,01534	0,00022	0,00632	0,00201	0,00122	0,00114	0,00560	0,00051	0,00190
Mo	mg/kg/sem	0,00021	0,00052	0,00052	0,00020	0,00047	0,00006	0,00009	0,00006	0,00005	0,00008	0,00051
Na	mg/kg/sem	0,14	0,13	0,22	0,15	0,05	0,15	0,14	0,43	0,18	0,27	0,07
Ni	mg/kg/sem	0,00005	0,00005	0,00005	0,00005	0,0507	0,00007	0,00005	0,00007	0,00005	0,00005	0,00020
P	mg/kg/sem	0,001	0,002	0,001	0,004	0,001	0,002	0,004	0,001	0,002	0,002	0,002

Paramètre	Unité	S659705	S659707	S659709	S659711	S659713	S659714	S659719	S659724	S659735	S659745	Waste
Pb	mg/kg/sem	0,00003	0,00004	0,00002	0,00001	0,00001	0,00001	0,00001	0,00001	0,00003	0,00000	0,00004
Sb	mg/kg/sem	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0005
Se	mg/kg/sem	0,00002	0,00015	0,00006	0,00002	0,00006	0,00007	0,00002	0,00002	0,00002	0,00002	0,00002
Si	mg/kg/sem	0,59	0,42	0,37	0,31	0,18	0,21	0,30	0,37	0,32	0,22	0,11
Sn	mg/kg/sem	0,00004	0,00016	0,00008	0,00024	0,00008	0,00009	0,00008	0,00014	0,00024	0,00012	0,00012
Sr	mg/kg/sem	0,00079	0,00358	0,00187	0,00083	0,00097	0,00108	0,00256	0,00427	0,00366	0,00136	0,00144
Ta	mg/kg/sem	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005
Ti	mg/kg/sem	0,00076	0,00002	0,00002	0,00018	0,00005	0,00015	0,00006	0,00005	0,00014	0,00025	0,00006
Tl	mg/kg/sem	0,000015	0,000029	0,000006	0,000002	0,000007	0,000002	0,000003	0,000002	0,000002	0,000002	0,000003
U	mg/kg/sem	0,00031	0,00783	0,01544	0,00008	0,00003	0,00004	0,00140	0,00081	0,00079	0,00007	0,00021
V	mg/kg/sem	0,00003	0,00001	0,00003	0,00031	0,00011	0,00068	0,00022	0,00015	0,00016	0,00026	0,00019
W	mg/kg/sem	0,00034	0,00020	0,00012	0,00009	0,00003	0,00005	0,00010	0,00036	0,00017	0,00006	0,00015
Y	mg/kg/sem	0,000006	0,000012	0,000003	0,000001	0,000002	0,000001	0,000014	0,000005	0,000025	0,000001	0,000013
Zn	mg/kg/sem	0,003	0,004	0,002	0,001	0,003	0,001	0,002	0,001	0,001	0,001	0,001

Au moins 50% des données ayant servi aux calculs sont inférieures à la limite de détection

100% des données ayant servi aux calculs sont inférieures à la limite de détection

4.2.5. Analyses post-démantèlement

Des analyses post-démantèlement ont été faites sur chaque échantillon à la fin des essais cinétiques (résultats présentés sous forme de tableaux à l'annexe E). L'objectif de ces analyses est généralement de vérifier la balances des bilans de masse avec les taux de lixiviation. Toutefois, les échantillons du projet Rose sont tellement peu réactifs que la variabilité intrinsèque des échantillons explique davantage la variabilité des analyses avant et après les essais cinétiques. Les variations sont faibles, voire négligeables. On doit donc conclure que les échantillons ont la même composition chimique avant et après les essais cinétiques et qu'ils n'ont pas été altérés de façon significative par la procédure des essais cinétiques.

4.3. Contrôle de qualité

Deux cellules humides ont été démarrées afin d'effectuer un contrôle de qualité des essais. L'échantillon de métasédiment (S659711) et le composite de stériles (Waste) ont été dupliqués et mis dans deux cellules différentes. Les essais des duplicatas ont duré 20 semaines.

Les figures 4.4 à 4.7 présentent l'évolution de certains paramètres pour l'échantillon de métasédiments (S659711) et son duplicata (S659711D). Trois paramètres de la composition élémentaire (Al, Ca et K) ainsi que 3 métaux (Cu, Mn, et Ni) ont été choisis aléatoirement pour le contrôle de qualité. La corrélation entre l'échantillon et son duplicata est acceptable. La figure 4.5 qui présentent les courbes de l'alcalinité, l'acidité et les concentrations en sulfates semble montrer une moins bonne corrélation, mais cela est dû en raison des faibles valeurs. L'alcalinité varie de 1 (la moitié de < 2) à 5 mg $CaCO_3$/l, l'acidité de 1 (la moitié de < 2) à 4 mg $CaCO_3$/l, et les sulfates de 0,1 (la moitié de < 0,2) à 2,0 mg/l pour l'échantillon et son duplicata. Les figures 4.8 à 4.11 présentent les mêmes graphiques pour l'échantillon composite de stériles (Waste) et son duplicata (WasteD). La corrélation entre l'échantillon et son duplicata est acceptable. Une valeur anomale en manganèse est visible à la semaine 15 pour le duplicata du S659711 et l'échantillon composite Waste. Une anomalie similaire a été observée en baryum à la même semaine pour quelques échantillons. Il a été validé avec le laboratoire qu'il n'y avait pas eu d'erreur de manipulation ou de contamination lors de cette semaine. Aucune mention spéciale n'a été faite à cet effet. Ainsi, les valeurs ont donc été conservées telles quelles.

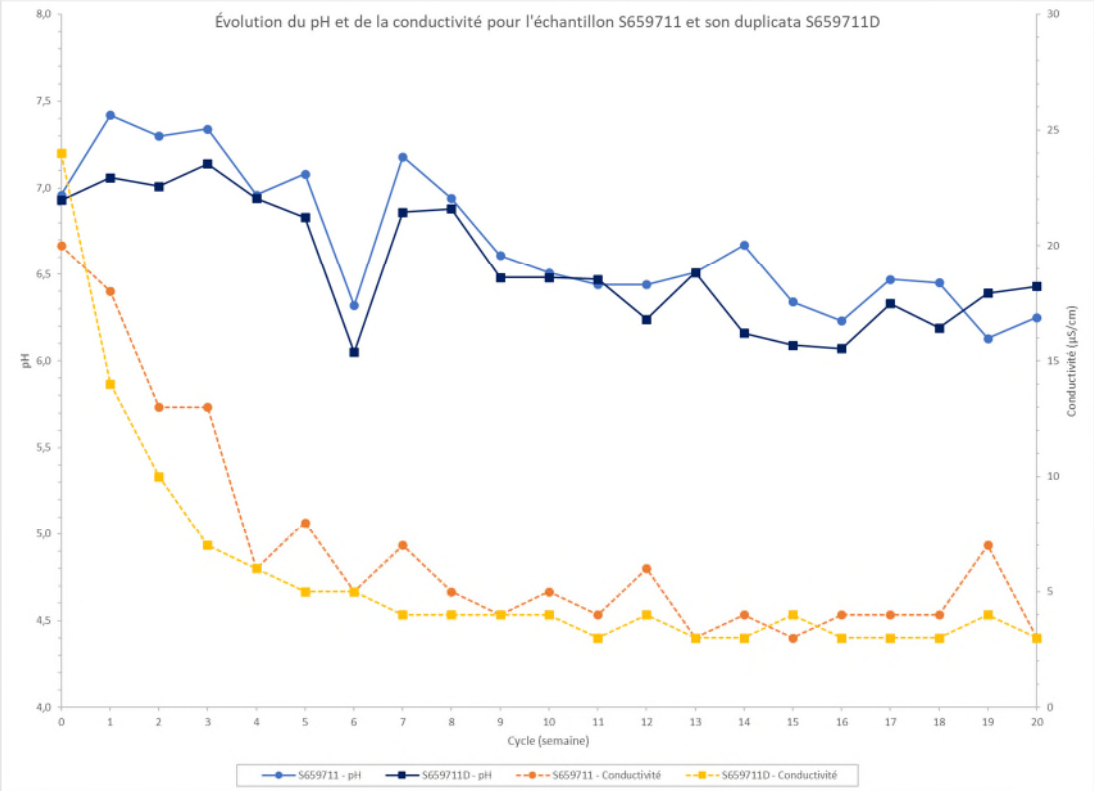

Figure 4.4 – pH et conductivité (S659711 et S659711D)

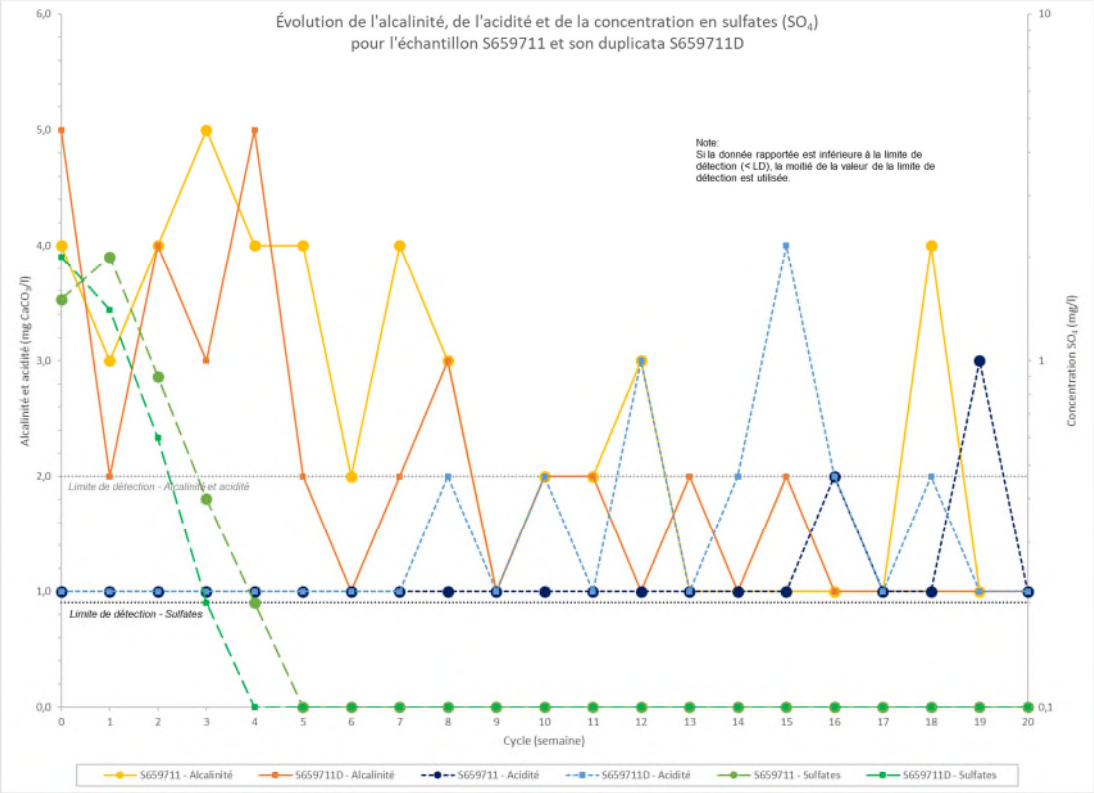

Figure 4.5 – Alcalinité, acidité et concentrations en sulfates (S659711 et S659711D)

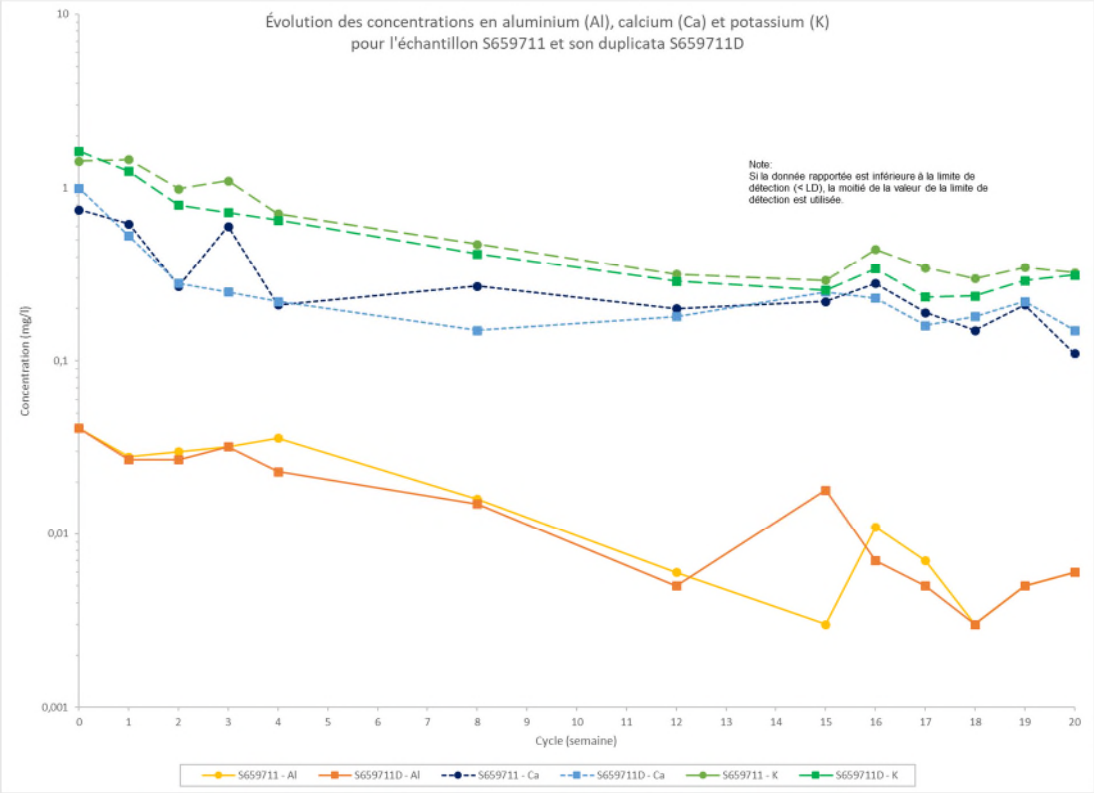

Figure 4.6 – Concentration en aluminium, calcium et potassium (S659711 et S659711D)

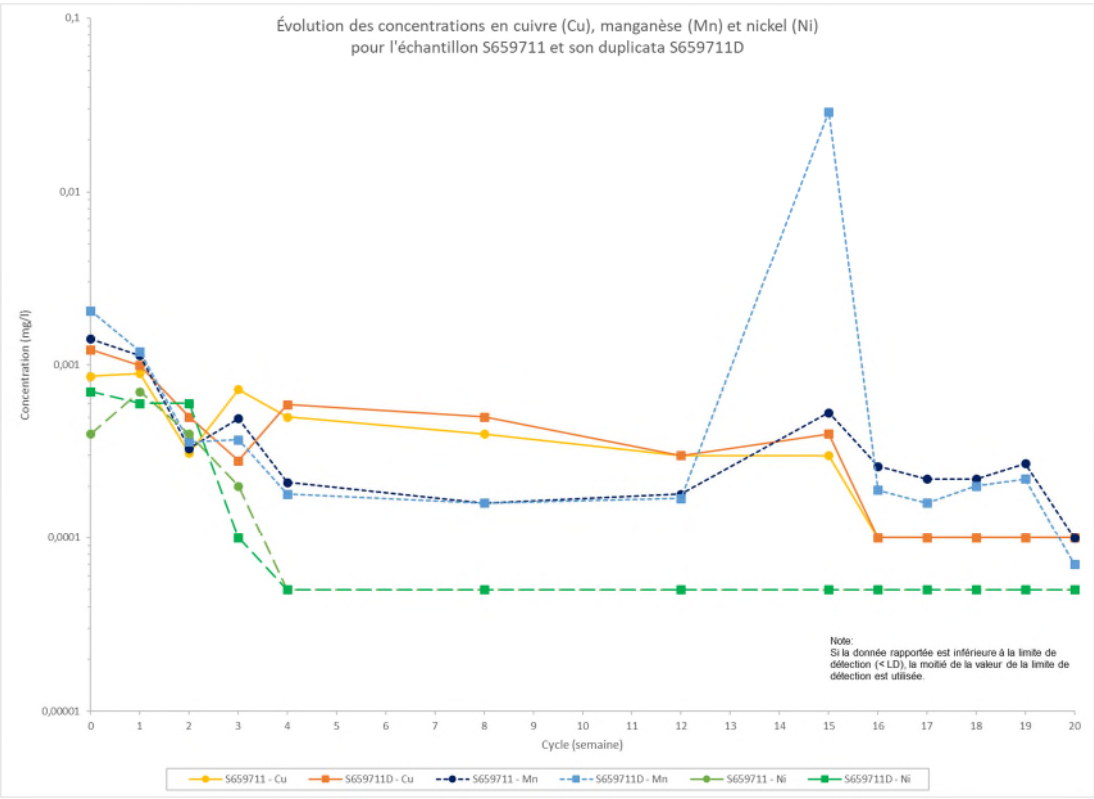

Figure 4.7 – Concentrations en cuivre, manganèse et nickel (S659711 et S659711D)

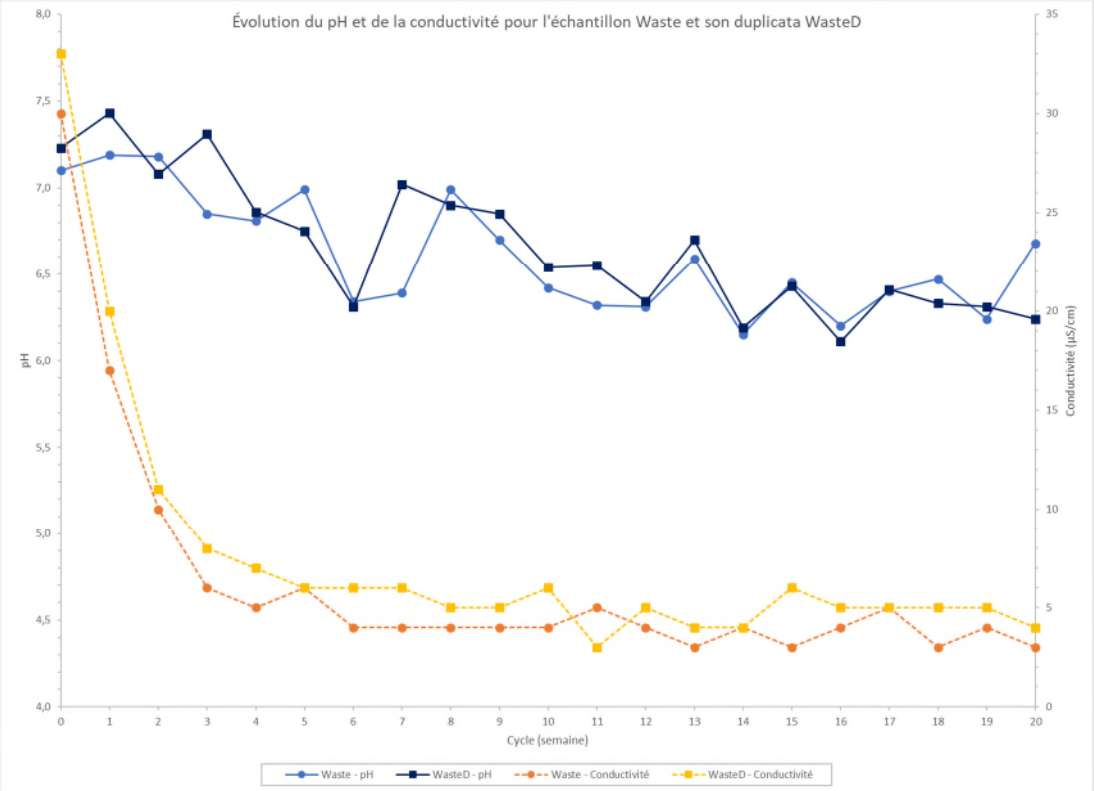

Figure 4.8 – pH et conductivité (Waste et WasteD)

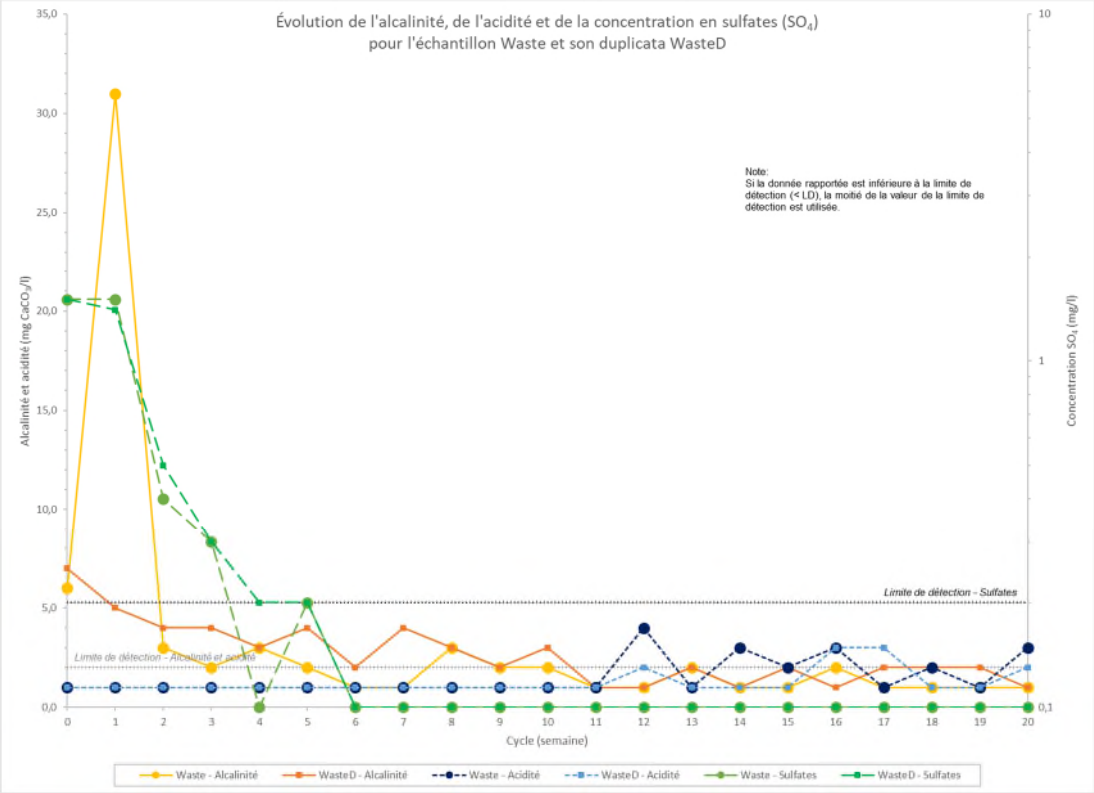

Figure 4.9 – Alcalinité, acidité et concentrations en sulfates (Waste et WasteD)

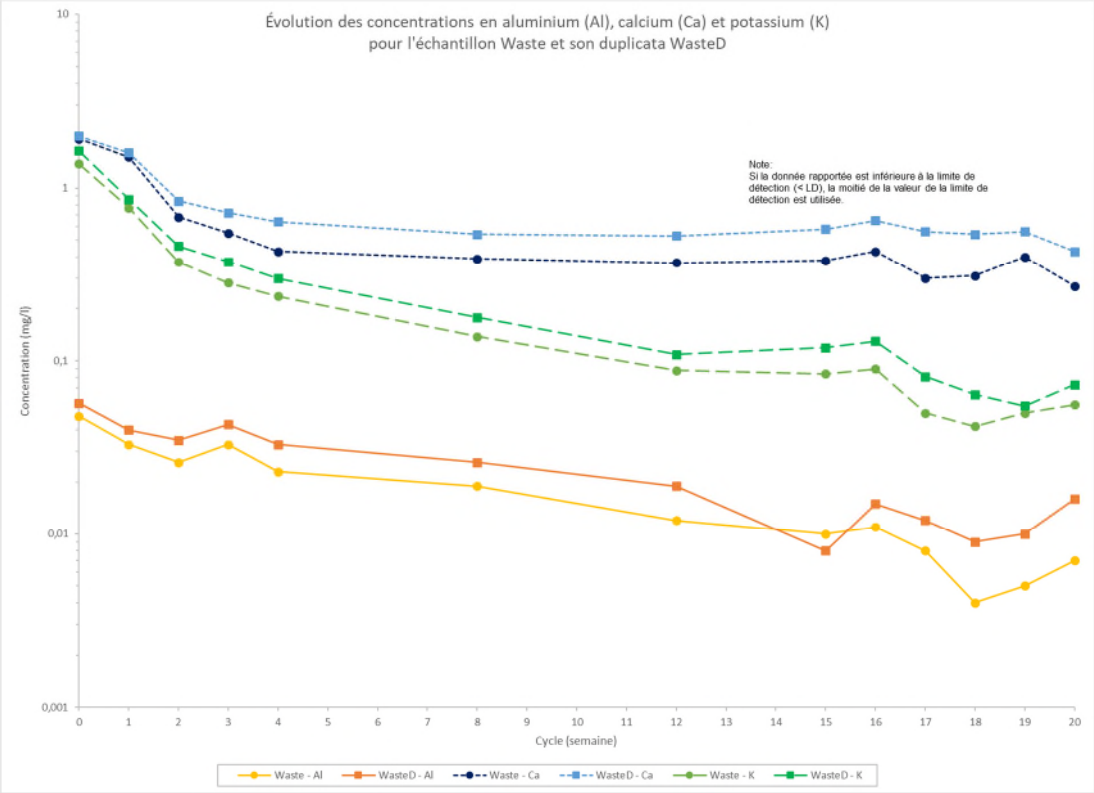

Figure 4.10 – Concentration en aluminium, calcium et potassium (Waste et WasteD)

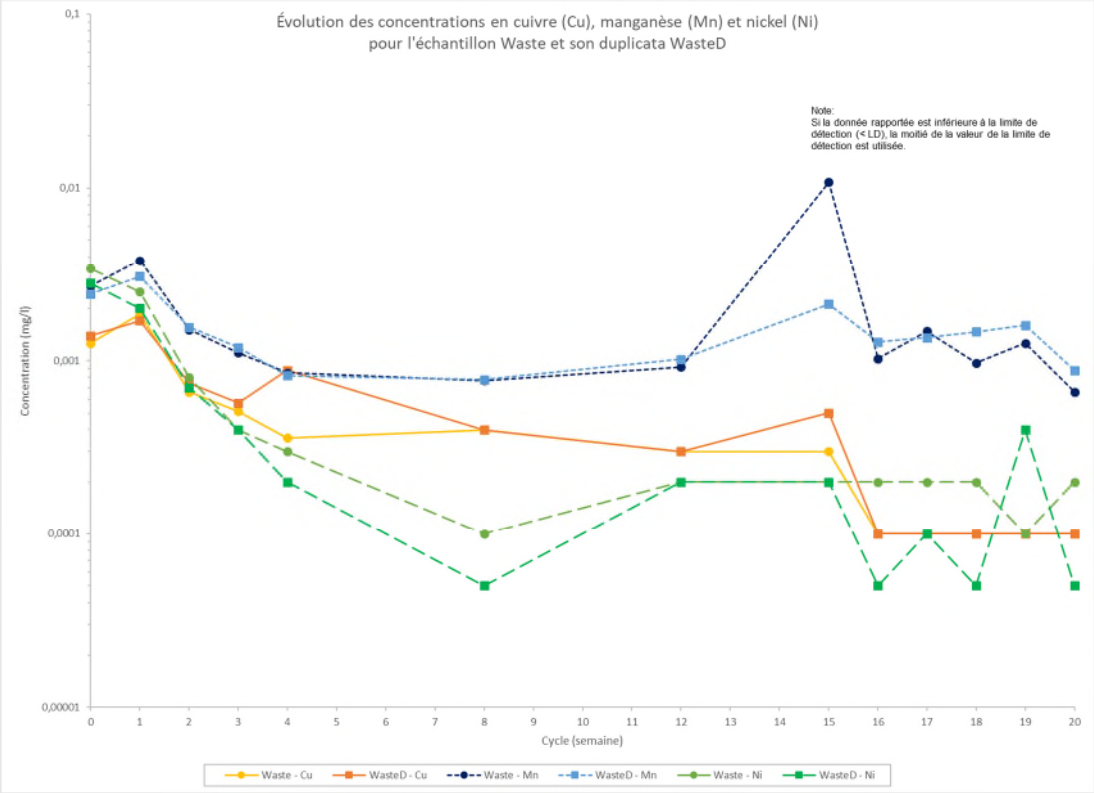

Figure 4.11 – Concentrations en cuivre, manganèse et nickel (Waste et WasteD)

5. CONCLUSIONS

Afin de contribuer à mieux caractériser les futurs stériles et le minerai du projet Rose, la compagnie CEC a effectué des essais cinétiques sur 11 échantillons, dont 10 étaient issus de lithologie unique et 1 dernier était un composite représentatif des proportions estimées de chaque lithologie dans la future halde à stériles. Les caractérisations géochimiques précédentes avaient démontré par des essais statiques et des analyses chimiques que les stériles et le minerai étaient non-potentiellement générateurs d'acide. Certains échantillons étaient considérés potentiellement lixiviables en cuivre dans des conditions acides. Dans des conditions moins agressives, les stériles et le minerai étaient potentiellement non-lixiviables pour tous les métaux.

Les essais cinétiques en cellule humide ont permis de démontrer que les échantillons testés contiennent très peu de métaux et qu'ils ne sont pas facilement lixiviables. Les concentrations obtenues dans les lixiviats sont régulièrement inférieures aux limites de détection des analyses au laboratoire. Les stériles et le minerai sont peu réactifs et peuvent être considérés comme des matériaux quasi-inertes. Les taux de lixiviation calculés sont faibles. Il n'y a pas eu de variation significative identifiée dans la composition chimique des échantillons avant et après l'essai cinétique.

Un essai cinétique avec un échantillon d'amphibolite est encore en cours, car les résultats ne sont pas complètement stabilisés. Il faudra attendre les derniers résultats avant de confirmer qu'il n'est pas lixiviable en métaux.

Les résultats actuels démontrent que les échantillons ne sont pas potentiellement lixiviables ni potentiellement acidogènes. Les stériles ne présentent donc pas de risque de drainage minier acide (DMA) ni de drainage neutre contaminé (DNC).

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ANNEXE A

Statistiques des résultats des essais statiques

Tableau A.1 – Statistiques des résultats du potentiel de génération d'acide pour les échantillons de minerai

Paramètre	Échantillon	Valeur pour l'échantillon	Minimum	Moyenne[1]	Médiane[1]	Maximum
Soufre total (%)	S659705	< 0,005	< 0,005	0,0036	0,0025	0,008
	S650707	0,008				
	S659709	< 0,005				
Soufre dans les sulfures (%)	S659705	< 0,02	< 0,02	0,01	0,01	< 0,02
	S650707	< 0,02				
	S659709	< 0,02				
PA Potentiel d'acidification (kg $CaCO_3$/t)	S659705	0,62	0,62	0,62	0,62	0,62
	S650707	0,62				
	S659709	0,62				
PN Potentiel de neutralisation (kg $CaCO_3$/t)	S659705	- 0,7	-0,7	-0,4	-0,6	0,3
	S650707	- 0,5				
	S659709	0,1				
Carbone total (%)	S659705	0,007	0,005	0,008	0,008	0,013
	S650707	0,008				
	S659709	0,008				

[1] La moyenne et la médiane ont été calculées en utilisant la moitié de la valeur de la limite de détection lorsque les valeurs étaient inférieures à celle-ci.

Tableau A.2 – Statistiques (par lithologie*) des résultats du potentiel de génération d'acide pour les échantillons de stériles

Paramètre	Échantillon	Valeur pour l'échantillon	Minimum	Moyenne[1]	Médiane[1]	Maximum
Soufre total (%)	S659711	< 0,005	< 0,005	0,023	0,023	0,043
	S650713	0,129	0,025	0,123	0,110	0,353
	S659714	0,025				
	S659719	0,073	0,006	0,044	0,018	0,285
	S659724	0,006				
	S659735	0,007	< 0,005	0,052	0,026	0,314
	S659745	0,050				
	Pour l'ensemble des stériles		*< 0,005*	*0,058*	*0,026*	*0,353*
Soufre dans les sulfures (%)	S659711	< 0,02	< 0,02	0,02	0,01	0,04
	S650713	0,11	< 0,02	0,10	0,08	0,31
	S659714	< 0,02				
	S659719	0,06	< 0,02	0,03	0,01	0,17
	S659724	< 0,02				
	S659735	< 0,02	< 0,02	0,04	0,01	0,25
	S659745	0,04				
	Pour l'ensemble des stériles		*< 0,02*	*0,04*	*0,01*	*0,31*
PA Potentiel d'acidification (kg $CaCO_3$/t)	S659711	0,62	0,62	0,83	0,62	1,25
	S650713	3,44	0,62	3,06	2,50	9,69
	S659714	0,62				
	S659719	1,88	0,62	1,12	0,62	5,31
	S659724	0,62				
	S659735	0,62	0,62	1,35	0,62	7,81
	S659745	1,25				
	Pour l'ensemble des stériles		*0,62*	*1,48*	*0,62*	*9,69*
PN Potentiel de neutralisation (kg $CaCO_3$/t)	S659711	8,9	5,3	6,6	5,6	8,9
	S650713	9,0	2,5	6,5	5,4	14
	S659714	9,0				
	S659719	8,6	4,2	8,3	7,6	13
	S659724	7,6				
	S659735	6,8	2,2	6,6	6,6	12
	S659745	9,3				
	Pour l'ensemble des stériles		*2,2*	*7,0*	*6,6*	*14*
Carbone total (%)	S659711	0,012	0,005	0,008	0,008	0,012
	S650713	0,013	0,006	0,015	0,013	0,030
	S659714	0,022				
	S659719	0,010	0,008	0,017	0,012	0,066
	S659724	0,044				
	S659735	0,010	0,005	0,012	0,010	0,049
	S659745	0,007				
	Pour l'ensemble des stériles		*0,005*	*0,014*	*0,011*	*0,066*

[1] La moyenne et la médiane ont été calculées en utilisant la moitié de la valeur de la limite de détection lorsque les valeurs étaient inférieures à celle-ci.

* S659711 : Métasédiment
S659713 et S659714 : Amphibolite
S659719 et S659724 : Porphyre
S659735 et S659745 : Gneiss

Tableau A.3 – Statistiques des résultats en métaux pour les échantillons de minerai

Paramètre (mg/kg)	Échantillon	Valeur pour l'échantillon	Minimum	Moyenne[1]	Médiane[1]	Maximum
Argent (Ag)	S659705	< 0,01	< 0,01	0,04	0,03	0,14
	S650707	0,03				
	S659709	0,03				
Aluminium (Al)	S659705	750	550	711	730	800
	S650707	800				
	S659709	730				
Barium (Ba)	S659705	0,57	0,21	0,88	0,65	2,7
	S650707	0,33				
	S659709	0,72				
Calcium (Ca)	S659705	120	120	215	210	330
	S650707	210				
	S659709	230				
Cadmium (Cd)	S659705	0,05	0,04	0,54	0,29	2,8
	S650707	2,8				
	S659709	0,64				
Cobalt (Co)	S659705	0,27	0,13	0,29	0,30	0,43
	S650707	0,43				
	S659709	0,31				
Chrome (Cr)	S659705	53	31	43	40	54
	S650707	38				
	S659709	37				
Cuivre (Cu)	S659705	1,4	1,2	2,9	2,4	5,8
	S650707	2,8				
	S659709	2,2				
Fer (Fe)	S659705	710	530	669	690	860
	S650707	680				
	S659709	700				
Potassium (K)	S659705	480	290	443	425	860
	S650707	610				
	S659709	370				
Magnésium (Mg)	S659705	8	8	27	21	67
	S650707	34				
	S659709	19				
Manganèse (Mn)	S659705	28	22	33	27	66
	S650707	26				
	S659709	26				
Molybdène (Mo)	S659705	1,5	0,3	1,2	1,3	2,1
	S650707	0,4				
	S659709	0,3				

Paramètre (mg/kg)	Échantillon	Valeur pour l'échantillon	Minimum	Moyenne[1]	Médiane[1]	Maximum
Sodium (Na)	S659705	250	150	249	245	310
	S650707	220				
	S659709	300				
Nickel (Ni)	S659705	2,3	1,2	1,8	1,8	2,3
	S650707	1,4				
	S659709	1,4				
Phosphore (P)	S659705	30	16	31	30	53
	S650707	16				
	S659709	33				
Plomb (Pb)	S659705	1,6	1,3	4,1	3,8	8,1
	S650707	4,4				
	S659709	5,2				
Titane (Ti)	S659705	1,0	0,6	1,0	0,9	1,7
	S650707	0,9				
	S659709	0,8				
Zinc (Zn)	S659705	28	19	79	68	190
	S650707	190				
	S659709	91				

[1] La moyenne et la médiane ont été calculées en utilisant la moitié de la valeur de la limite de détection lorsque les valeurs étaient inférieures à celle-ci.

Tableau A.4 – Statistiques (par lithologie*) des résultats en métaux pour les échantillons de stériles

Paramètre	Échantillon	Valeur pour l'échantillon	Minimum	Moyenne[1]	Médiane[1]	Maximum
Argent (Ag)	S659711	0,09	0,04	0,06	0,04	0,09
	S650713	0,05	0,04	0,07	0,06	0,13
	S659714	0,06				
	S659719	0,02	< 0,01	0,03	0,03	0,07
	S659724	< 0,01				
	S659735	0,01	< 0,01	0,07	0,02	1,6
	S659745	0,02				
	Pour l'ensemble des stériles		*< 0,01*	*0,06*	*0,03*	*1,6*
Aluminium (Al)	S659711	12000	9800	10600	10000	12000
	S650713	9200	2500	7778	7800	13000
	S659714	7400				
	S659719	15000	8100	12053	11000	17000
	S659724	8100				
	S659735	12000	4000	12138	12000	20000
	S659745	15000				
	Pour l'ensemble des stériles		*2500*	*11542*	*11500*	*20000*
Barium (Ba)	S659711	71	71	86	76	110
	S650713	12	4,3	39	8,2	250
	S659714	18				
	S659719	160	19	124	110	240
	S659724	19				
	S659735	300	16	140	130	300
	S659745	160				
	Pour l'ensemble des stériles		*4,3*	*122*	*110*	*300*
Calcium (Ca)	S659711	4800	3100	3700	3200	4800
	S650713	9400	2500	5544	4700	9400
	S659714	8800				
	S659719	4400	2500	4735	4300	10000
	S659724	4300				
	S659735	2100	960	4231	4000	8000
	S659745	7300				
	Pour l'ensemble des stériles		*960*	*4478*	*4150*	*10000*
Cadmium (Cd)	S659711	< 0,02	< 0,02	0,01	0,01	< 0,02
	S650713	0,04	< 0,02	0,05	0,03	0,18
	S659714	0,06				
	S659719	< 0,02	< 0,02	0,04	0,02	0,19
	S659724	0,03				
	S659735	< 0,02	< 0,02	0,03	0,02	0,19
	S659745	0,03				
	Pour l'ensemble des stériles		*< 0,02*	*0,03*	*0,02*	*0,19*

Paramètre	Échantillon	Valeur pour l'échantillon	Minimum	Moyenne[1]	Médiane[1]	Maximum
Cobalt (Co)	S659711	7,8	7,8	8,0	7,9	8,3
	S650713	15	6,1	13,2	8,8	32
	S659714	8,8				
	S659719	11	3,3	7,9	8,1	13
	S659724	4,2				
	S659735	6,0	2,4	7,9	7,6	14
	S659745	12				
	Pour l'ensemble des stériles		*2,4*	*8,5*	*8,0*	*32*
Chrome (Cr)	S659711	83	24	47	33	83
	S650713	48	11	57	45	230
	S659714	45				
	S659719	85	40	67	64	100
	S659724	83				
	S659735	71	24	64	60	130
	S659745	43				
	Pour l'ensemble des stériles		*11*	*63*	*58*	*230*
Cuivre (Cu)	S659711	1,1	1,1	16	21	25
	S650713	92	29	105	92	310
	S659714	54				
	S659719	54	2,8	22	18	63
	S659724	2,8				
	S659735	8,2	1,1	33	22	230
	S659745	31				
	Pour l'ensemble des stériles		*1,1*	*39*	*22*	*310*
Fer (Fe)	S659711	13000	13000	17333	19000	20000
	S650713	15000	4200	14267	11000	28000
	S659714	11000				
	S659719	18000	11000	17706	17000	25000
	S659724	13000				
	S659735	18000	6200	18468	18000	36000
	S659745	26000				
	Pour l'ensemble des stériles		*4200*	*17755*	*18000*	*36000*
Potassium (K)	S659711	5700	5700	7067	7700	7800
	S650713	1500	190	1831	490	10000
	S659714	920				
	S659719	7600	1700	5824	5100	9200
	S659724	1700				
	S659735	7300	960	6142	6100	15000
	S659745	7200				
	Pour l'ensemble des stériles		*190*	*5597*	*5900*	*15000*

Paramètre	Échantillon	Valeur pour l'échantillon	Minimum	Moyenne[1]	Médiane[1]	Maximum
Magnésium (Mg)	S659711	8000	6300	6900	6400	8000
	S650713	7000	1300	6100	6800	15000
	S659714	6800				
	S659719	10000	3000	6665	7400	11000
	S659724	3600				
	S659735	5200	1800	6366	6500	13000
	S659745	8700				
	Pour l'ensemble des stériles		*1300*	*6422*	*6650*	*15000*
Manganèse (Mn)	S659711	190	180	213	190	270
	S650713	260	56	196	230	420
	S659714	260				
	S659719	290	160	298	280	480
	S659724	190				
	S659735	260	93	287	260	540
	S659745	450				
	Pour l'ensemble des stériles		*56*	*276*	*260*	*540*
Molybdène (Mo)	S659711	0,2	0,2	0,6	0,8	0,8
	S650713	1,3	0,8	1,9	1,5	3,8
	S659714	3,8				
	S659719	< 0,1	< 0,2	0,9	0,9	2,1
	S659724	0,1				
	S659735	2,1	0,2	2,2	1,2	25
	S659745	1,2				
	Pour l'ensemble des stériles		*< 0,2*	*1,8*	*1,2*	*25*
Sodium (Na)	S659711	1500	380	777	450	1500
	S650713	1400	260	667	510	1400
	S659714	1300				
	S659719	1300	360	1146	1200	2100
	S659724	890				
	S659735	1100	300	1037	1100	2000
	S659745	1500				
	Pour l'ensemble des stériles		*260*	*1007*	*1100*	*2100*
Nickel (Ni)	S659711	38	5,4	17	8,8	38
	S650713	34	6,7	50	19	220
	S659714	48				
	S659719	28	3,1	14	11	42
	S659724	6,1				
	S659735	8,2	3,6	11	8,3	29
	S659745	6,7				
	Pour l'ensemble des stériles		*3,1*	*16*	*9,1*	*220*

Paramètre	Échantillon	Valeur pour l'échantillon	Minimum	Moyenne[1]	Médiane[1]	Maximum
Phosphore (P)	S659711	310	310	477	500	620
	S650713	330	190	410	340	740
	S659714	220				
	S659719	200	200	469	350	1500
	S659724	300				
	S659735	350	19	421	400	1400
	S659745	530				
	Pour l'ensemble des stériles		*19*	*432*	*395*	*1500*
Plomb (Pb)	S659711	1,1	0,67	1,0	1,1	1,3
	S650713	0,68	0,68	2,6	1,9	8,2
	S659714	8,2				
	S659719	4,3	1,1	3,9	2,5	23
	S659724	3,6				
	S659735	1,6	1,0	2,7	2,3	13
	S659745	1,7				
	Pour l'ensemble des stériles		*0,67*	*2,9*	*2,2*	*23*
Titane (Ti)	S659711	1100	1100	1233	1200	1400
	S650713	1600	200	928	990	1900
	S659714	1300				
	S659719	1400	590	1269	1200	2200
	S659724	590				
	S659735	1700	320	1342	1400	2500
	S659745	2100				
	Pour l'ensemble des stériles		*200*	*1272*	*1200*	*2500*
Zinc (Zn)	S659711	33	33	39	38	46
	S650713	20	7	25	26	50
	S659714	32				
	S659719	48	30	54	47	150
	S659724	48				
	S659735	41	9	44	45	80
	S659745	62				
	Pour l'ensemble des stériles		*7*	*44*	*44*	*150*

[1] La moyenne et la médiane ont été calculées en utilisant la moitié de la valeur de la limite de détection lorsque les valeurs étaient inférieures à celle-ci.

* S659711 : Métasédiment
S659713 et S659714 : Amphibolite
S659719 et S659724 : Porphyre
S659735 et S659745 : Gneiss

ANNEXE B

Graphiques des résultats de pH et conductivité

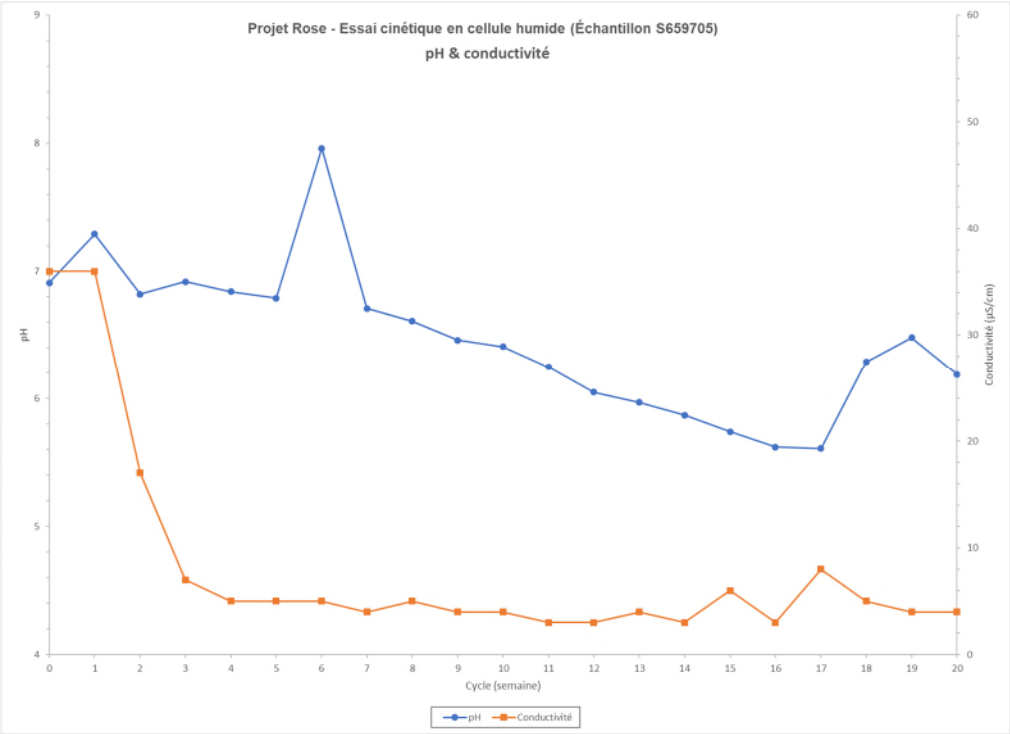

Figure B.1 – pH et conductivité pour l'échantillon de minerai S659705 (pegmatite à spodumène)

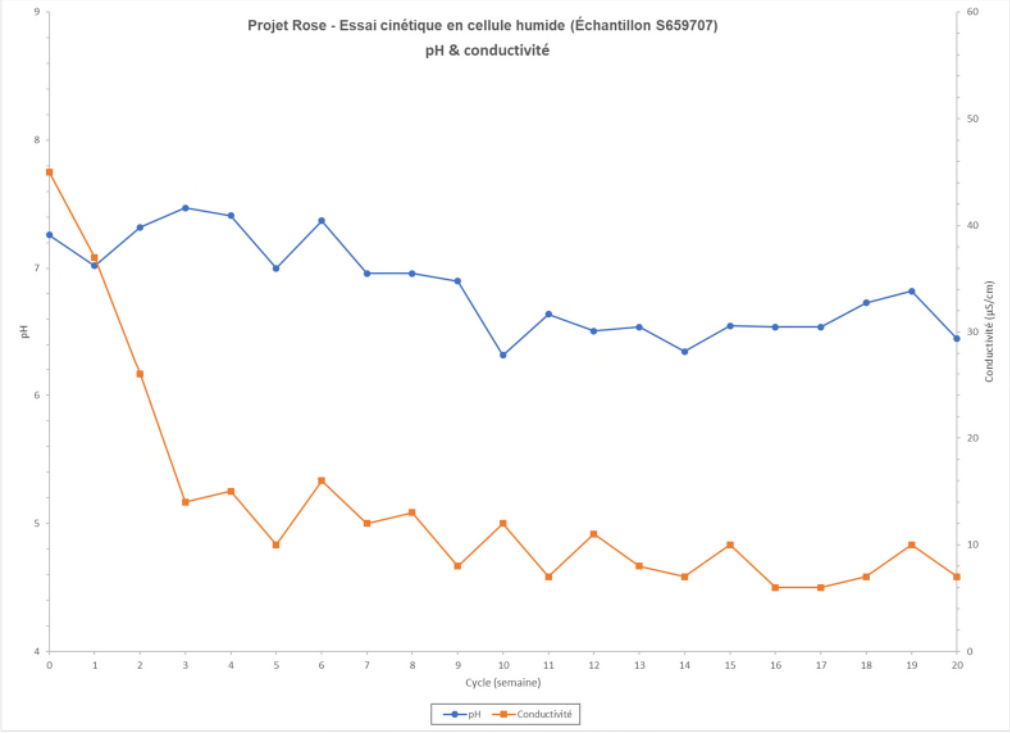

Figure B.2 – pH et conductivité pour l'échantillon de minerai S659707 (pegmatite à spodumène)

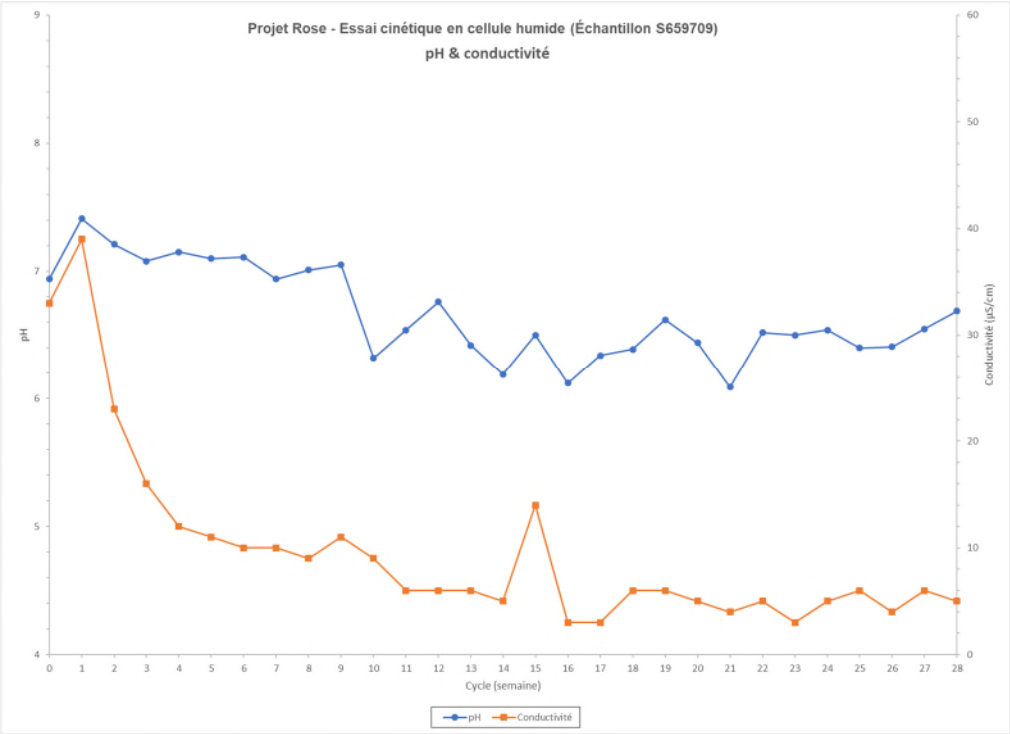

Figure B.3 – pH et conductivité pour l'échantillon de minerai S659709 (pegmatite à spodumène)

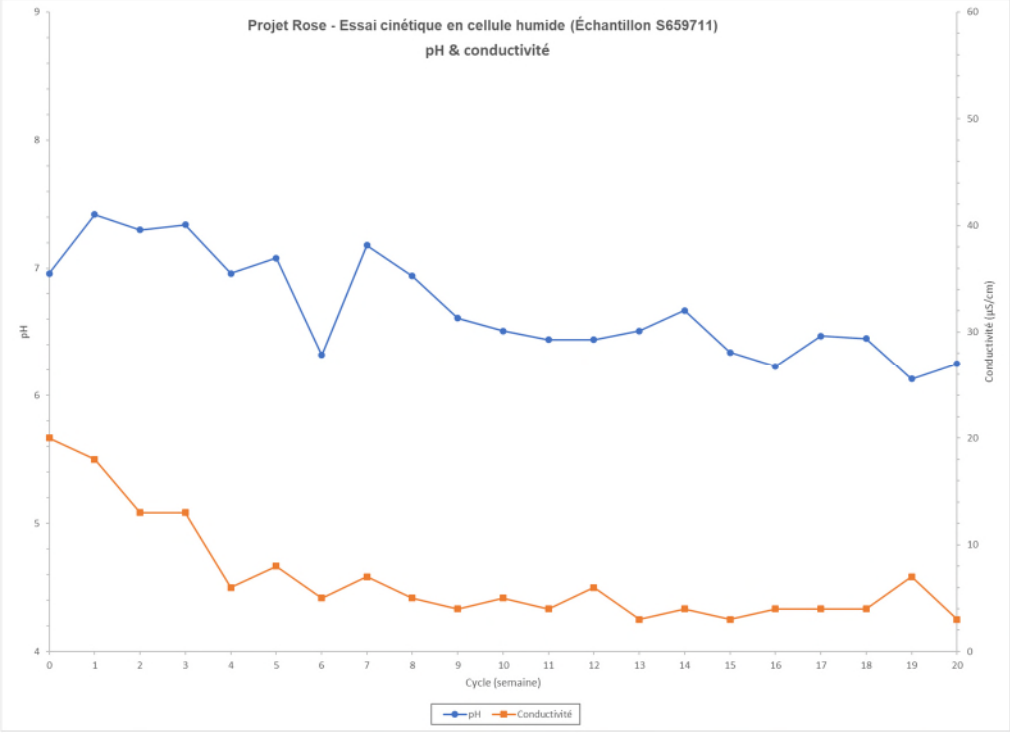

Figure B.4 – pH et conductivité pour l'échantillon de stériles S659711 (métasédiment)

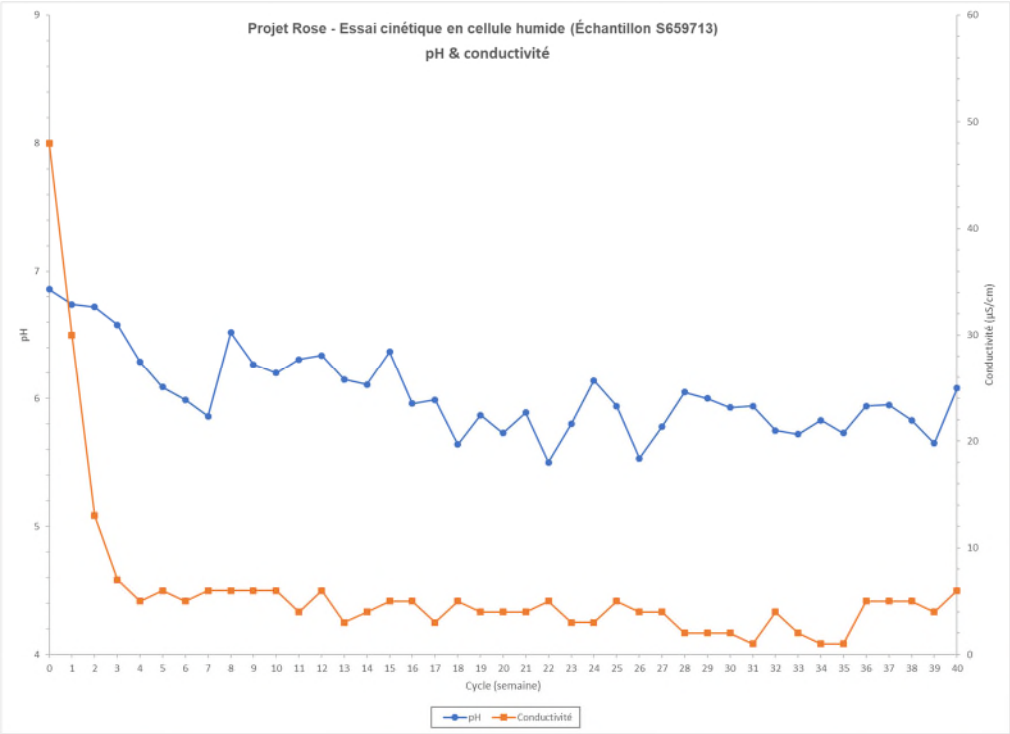

Figure B.5 – pH et conductivité pour l'échantillon de stériles S659713 (amphibolite)

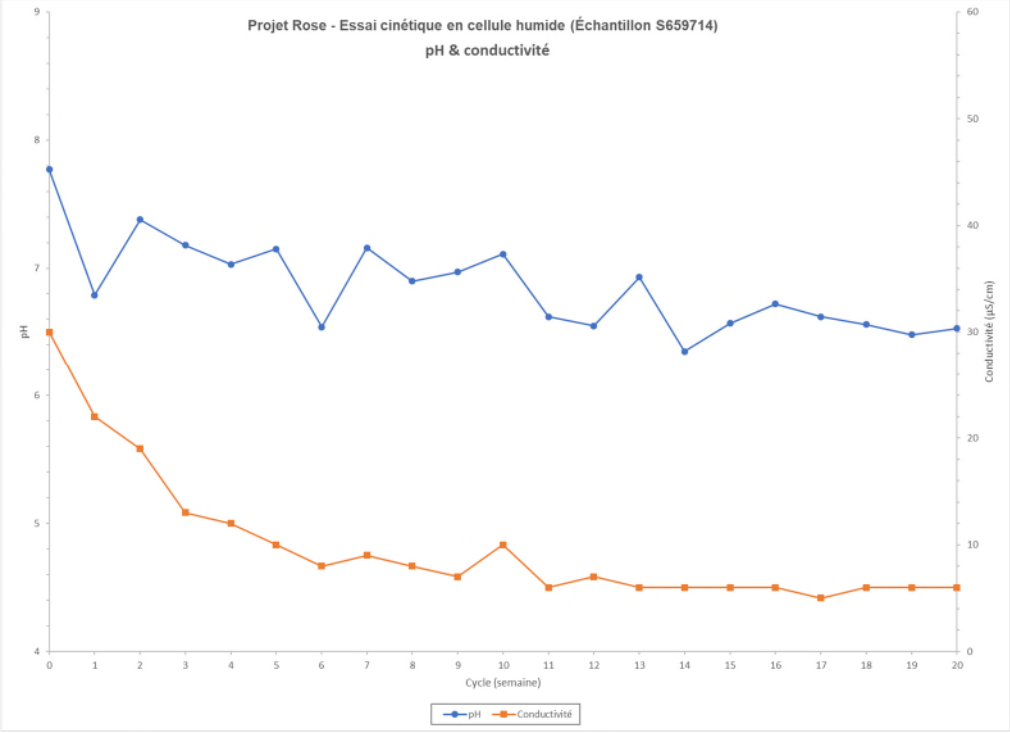

Figure B.6 – pH et conductivité pour l'échantillon de stériles S659714 (amphibolite)

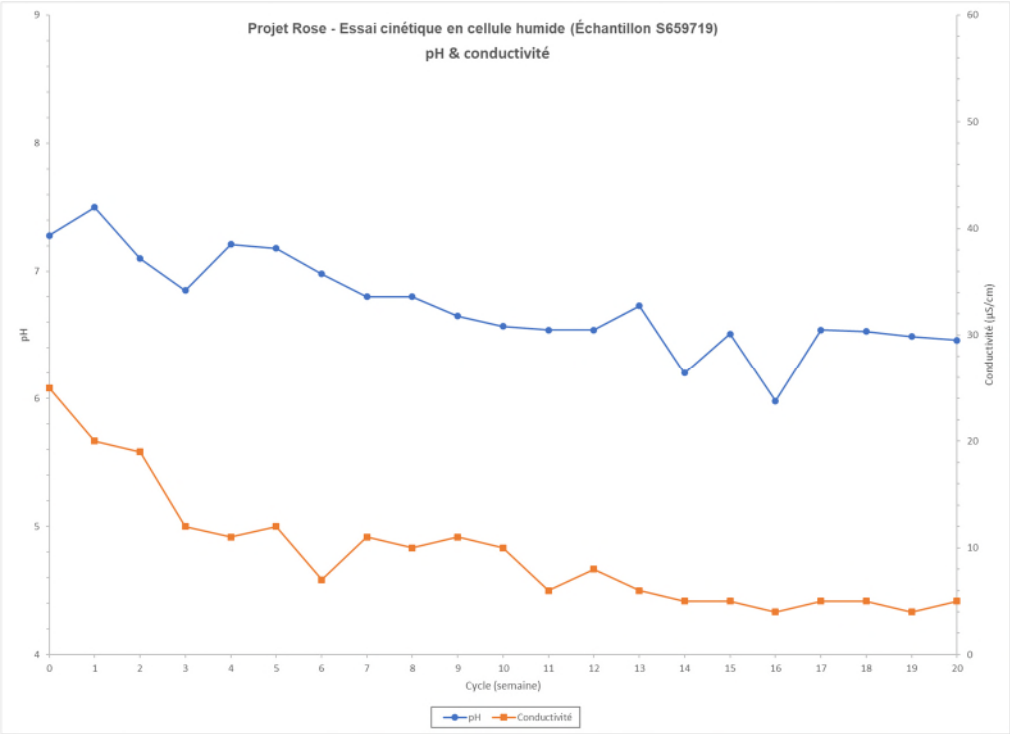

Figure B.7 – pH et conductivité pour l'échantillon de stériles S659719 (porphyre)

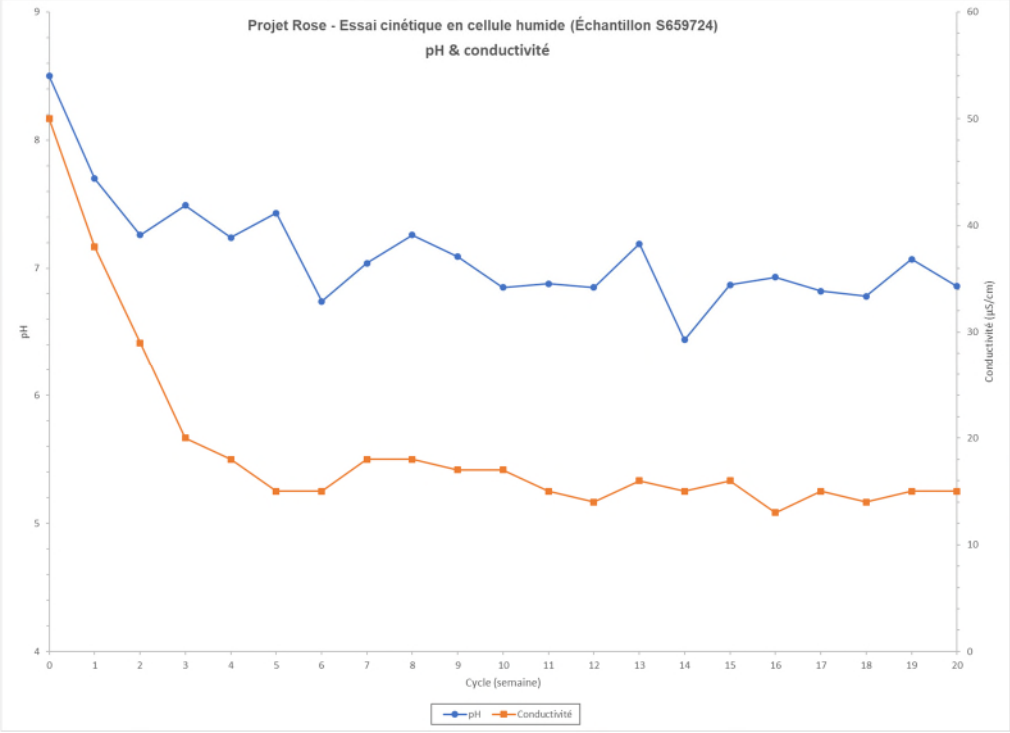

Figure B.8 – pH et conductivité pour l'échantillon de stériles S659724 (porphyre)

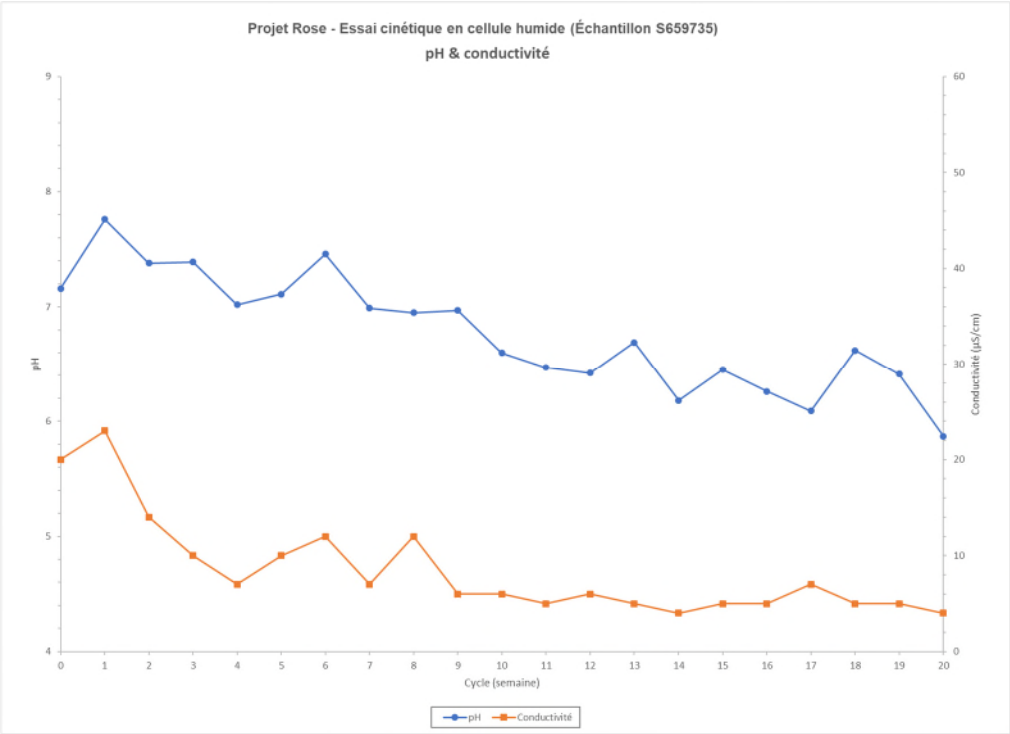

Figure B.9 – pH et conductivité pour l'échantillon de stériles S659735 (gneiss)

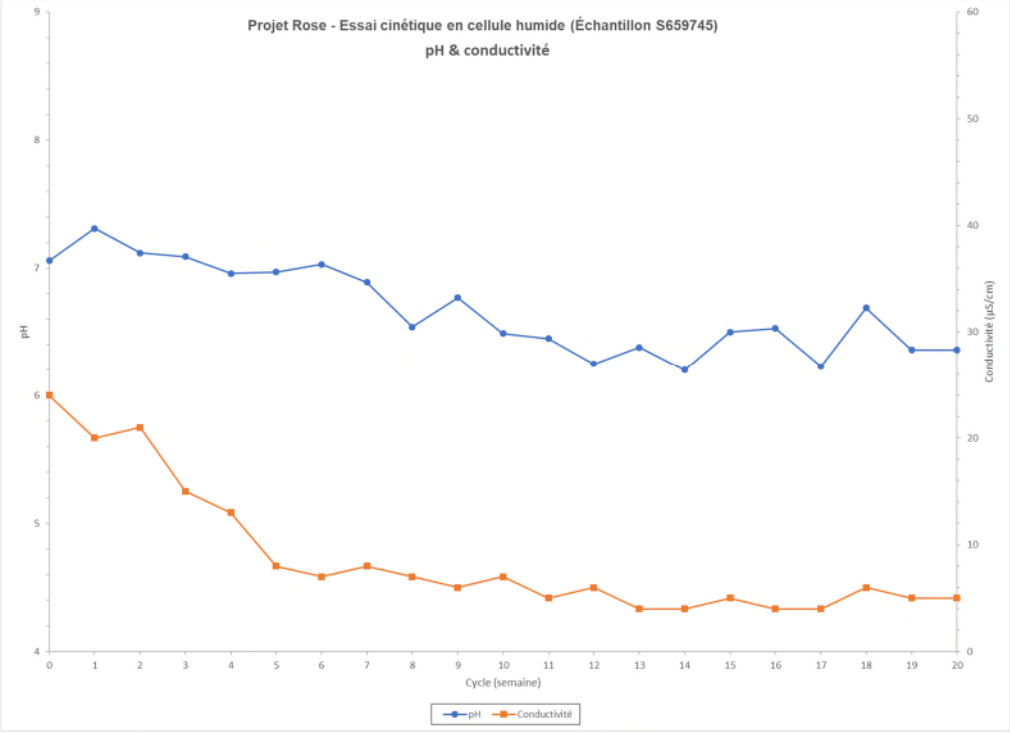

Figure B.10 – pH et conductivité pour l'échantillon de stériles S679745 (gneiss)

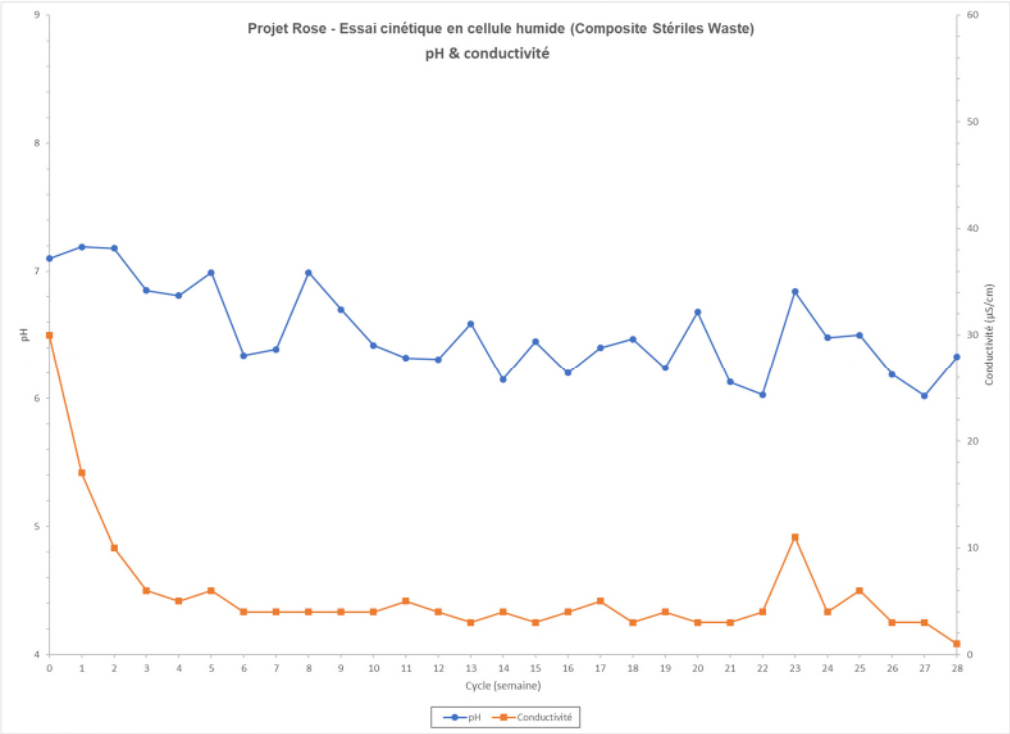

Figure B.11 – pH et conductivité pour l'échantillon de stériles composite Waste

ANNEXE C

Graphiques des concentrations ponctuelles

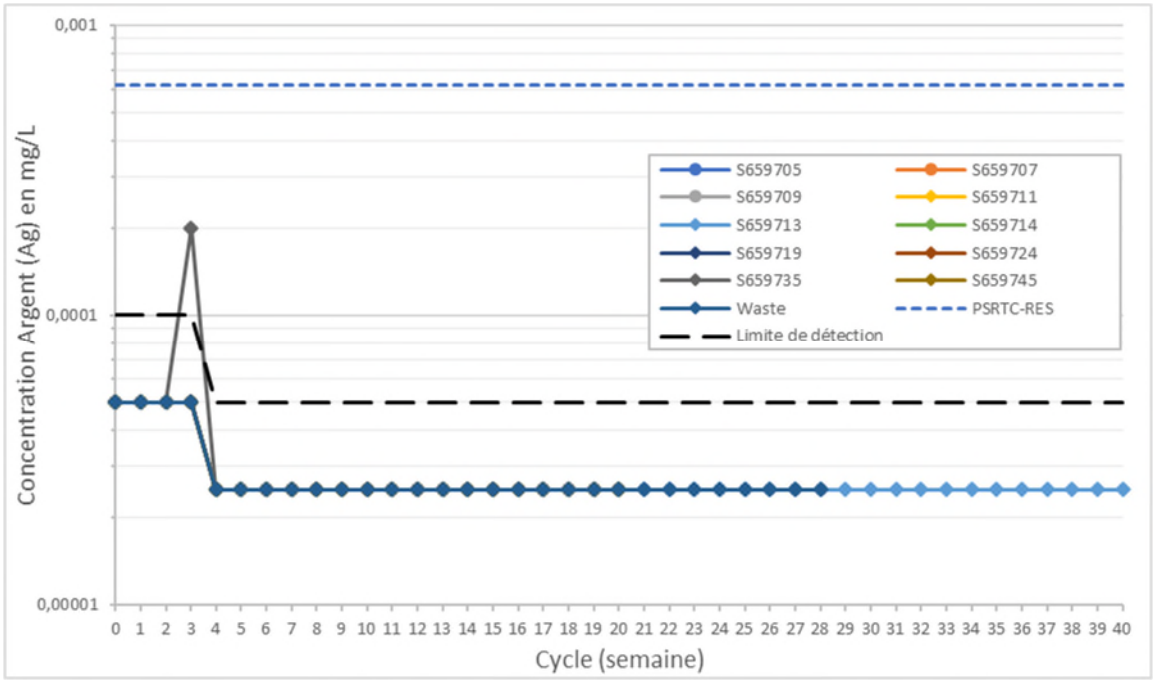

Figure C.1 – Évolution des concentrations en argent (Ag)

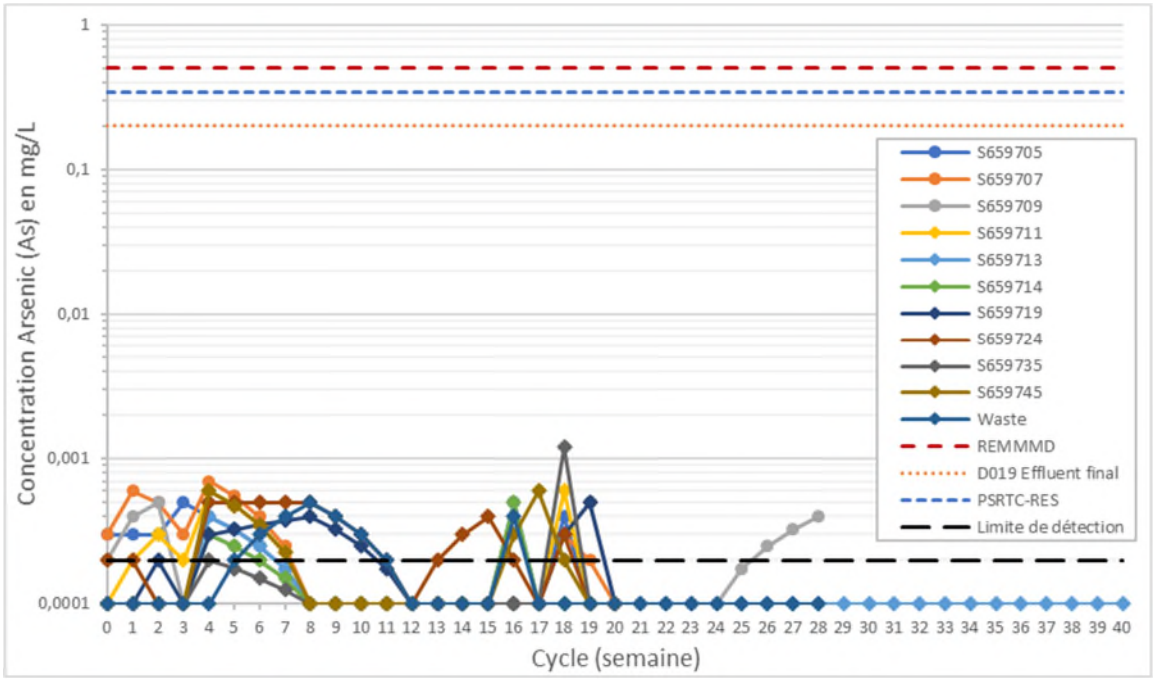

Figure C.2 – Évolution des concentrations en arsenic (As)

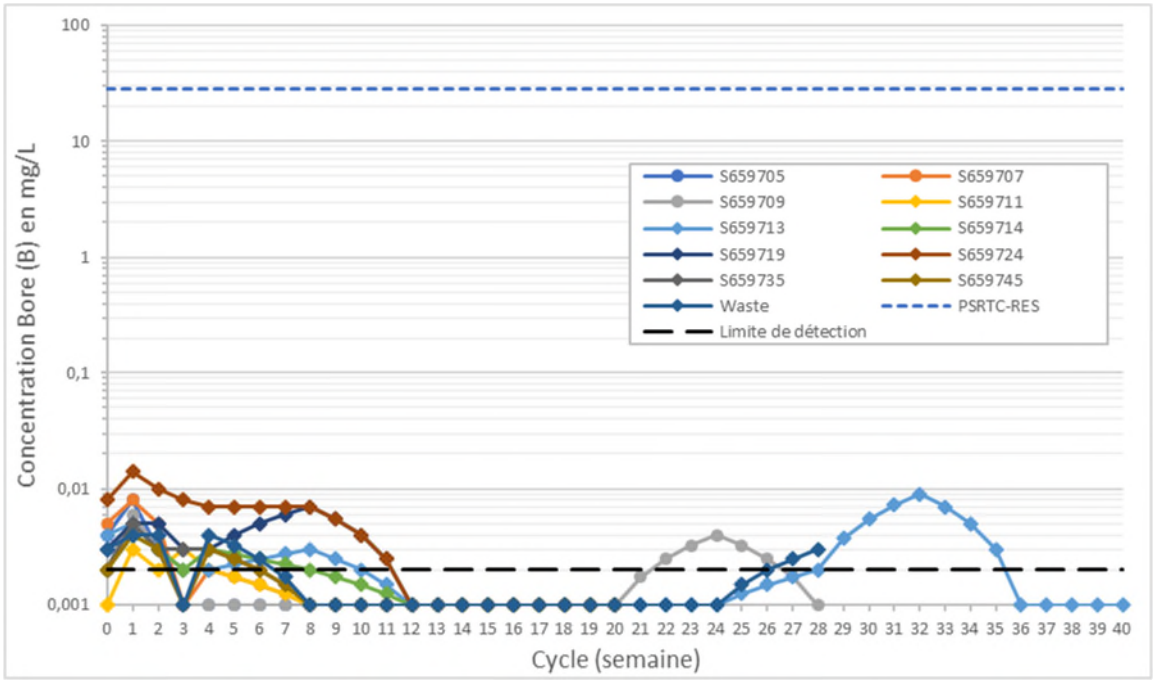

Figure C.3 – Évolution des concentrations en bore (B)

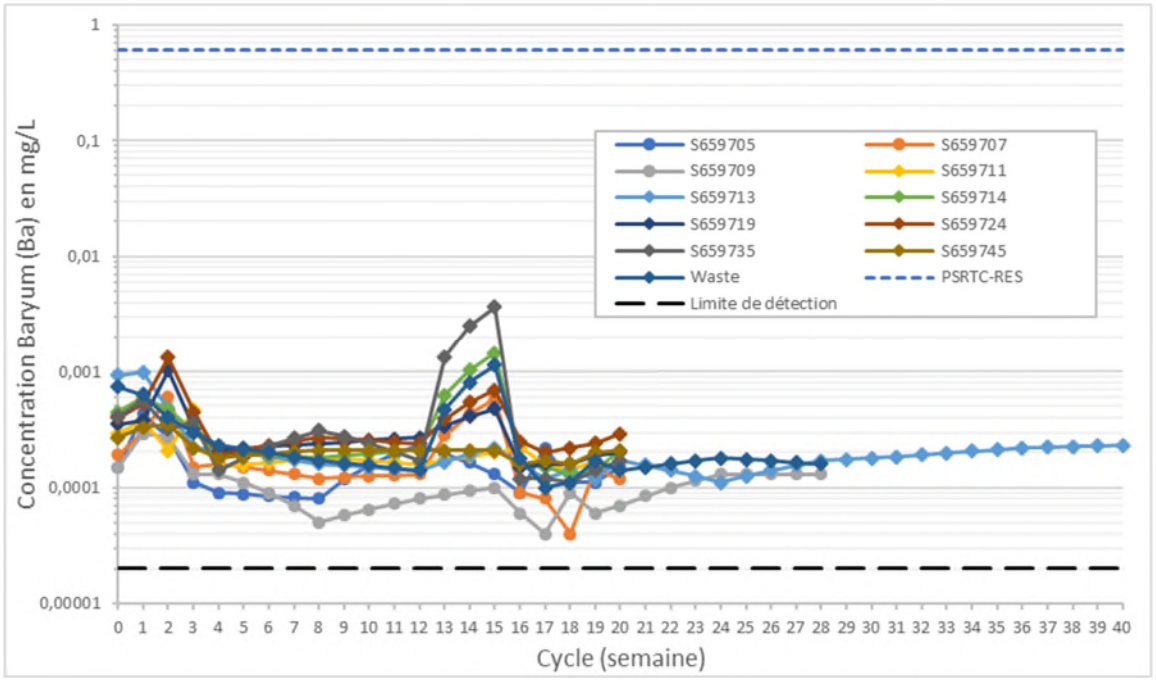

Figure C.4 – Évolution des concentrations en baryum (Ba)

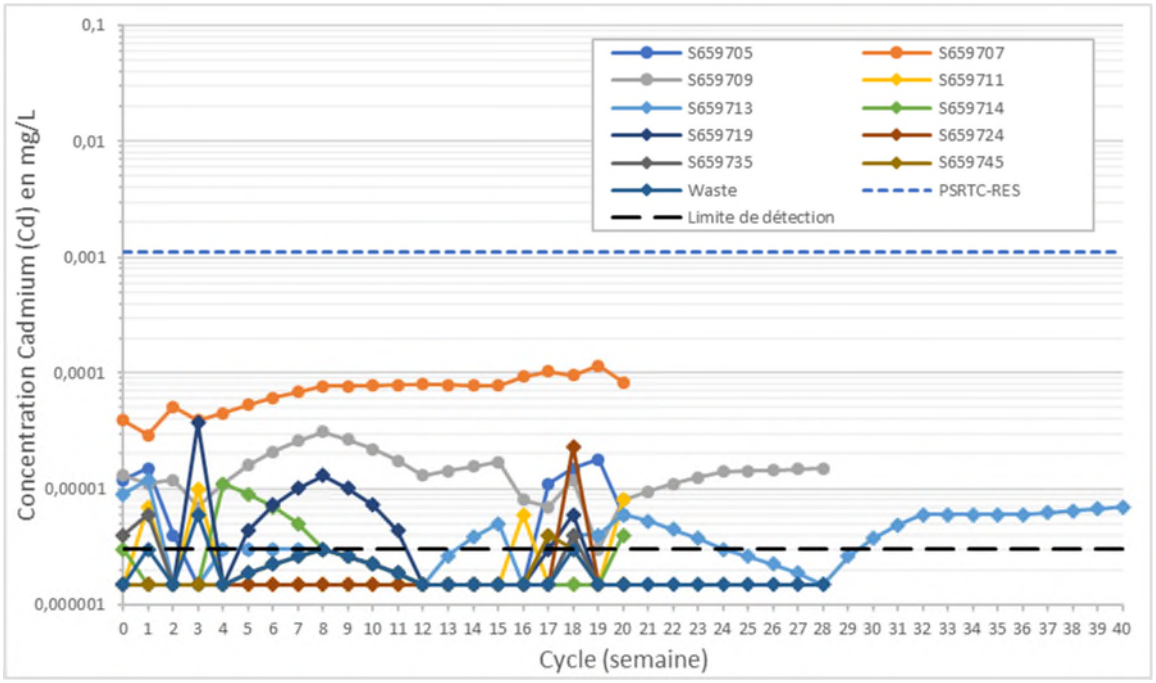

Figure C.5 – Évolution des concentrations en cadmium (Cd)

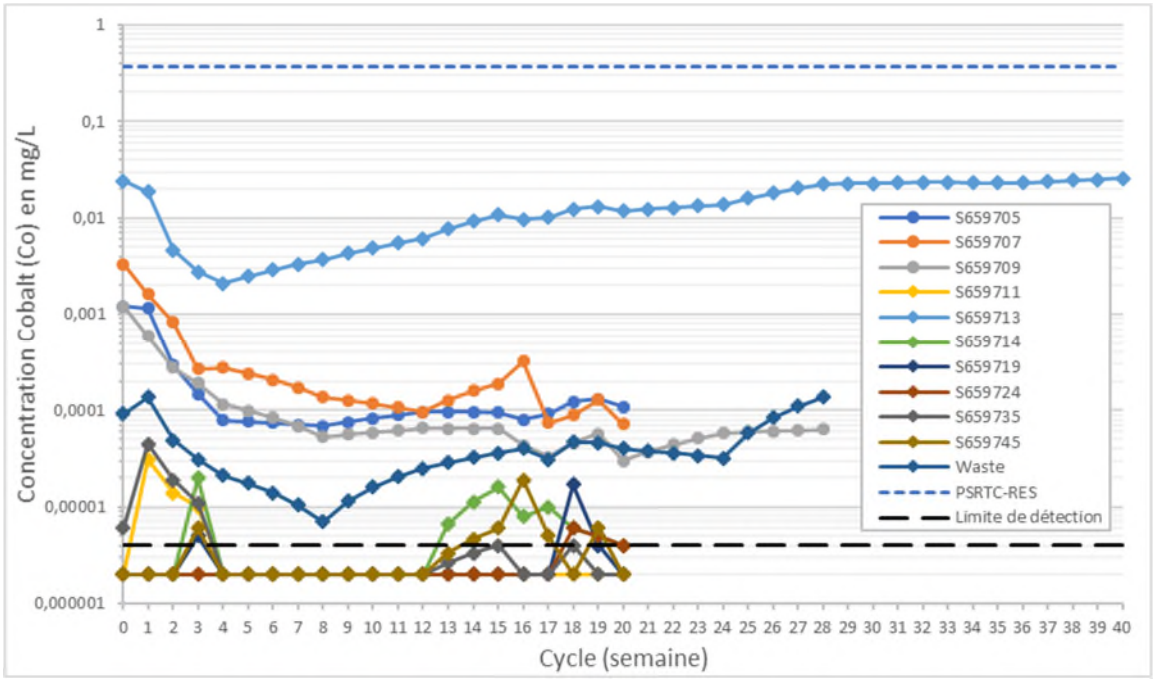

Figure C.6 – Évolution des concentrations en cobalt (Co)

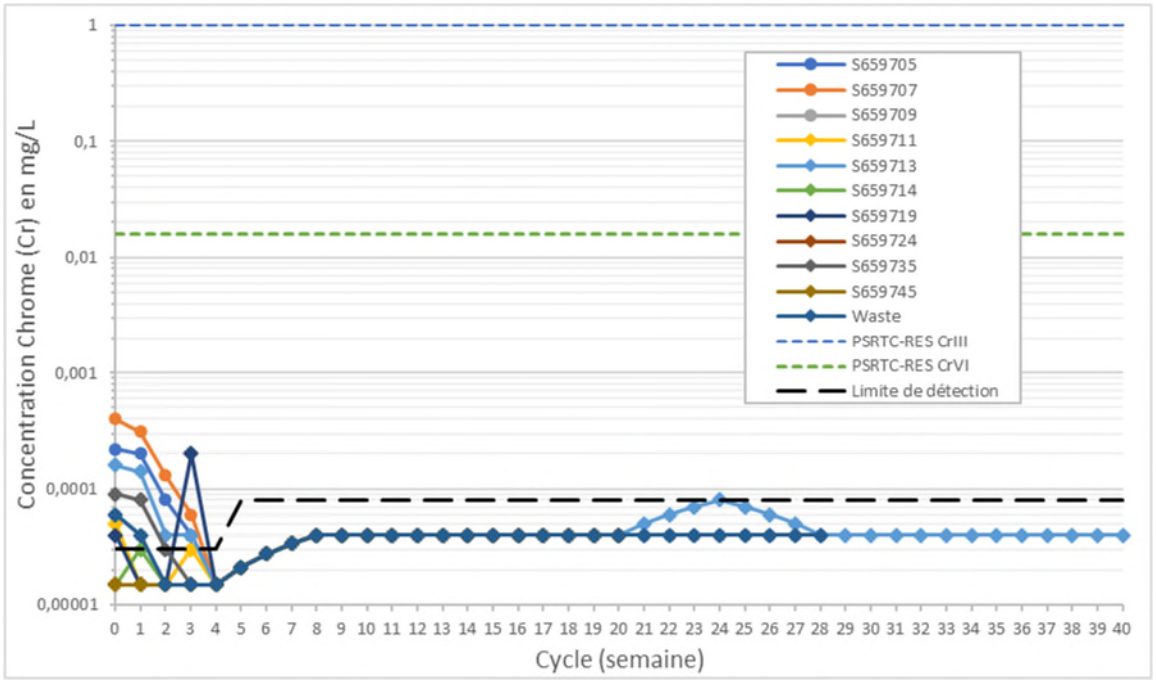

Figure C.7 – Évolution des concentrations en chrome (Cr)

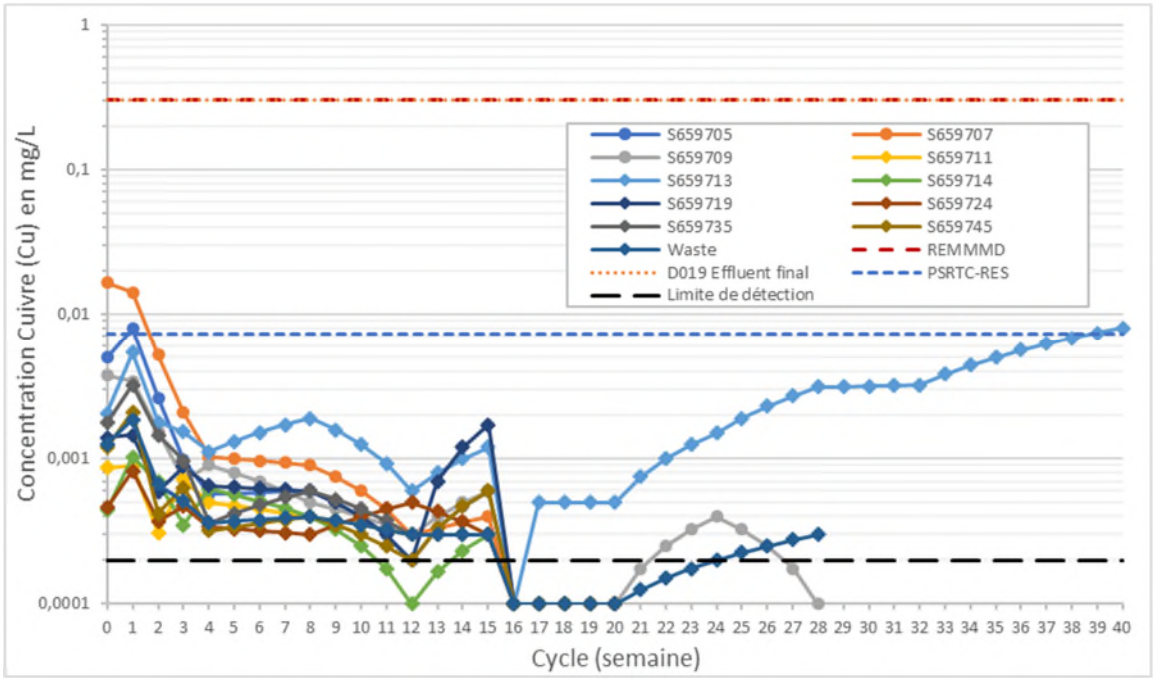

Figure C.8 – Évolution des concentrations en cuivre (Cu)

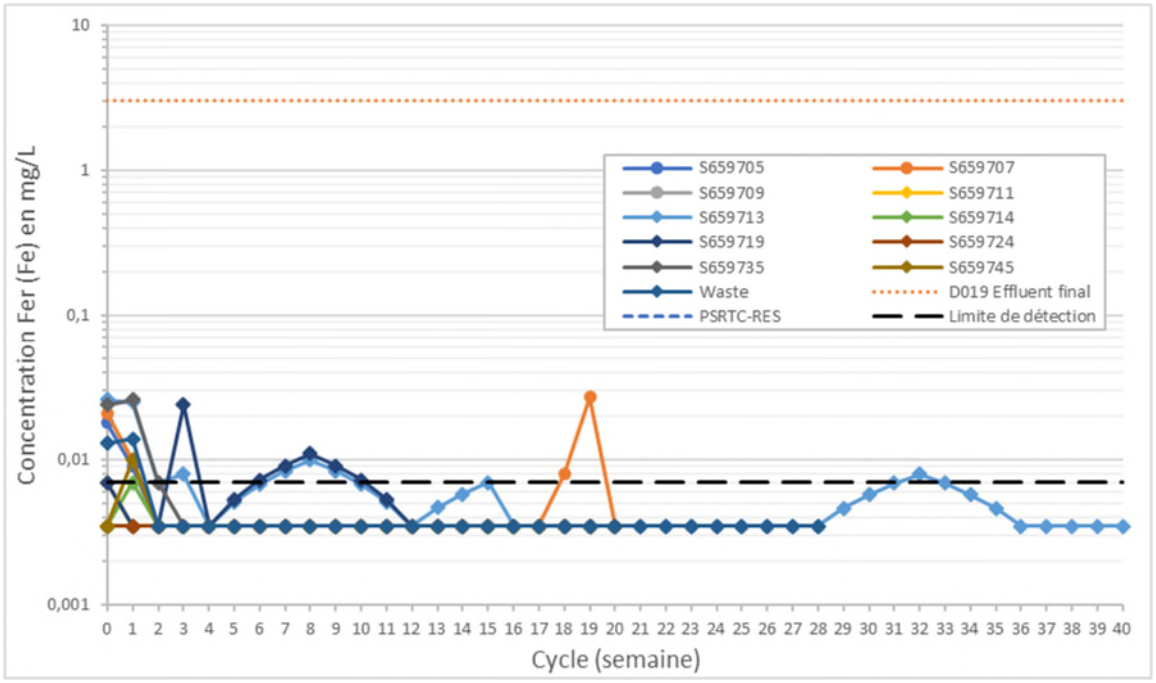

Figure C.9 – Évolution des concentrations en fer (Fe)

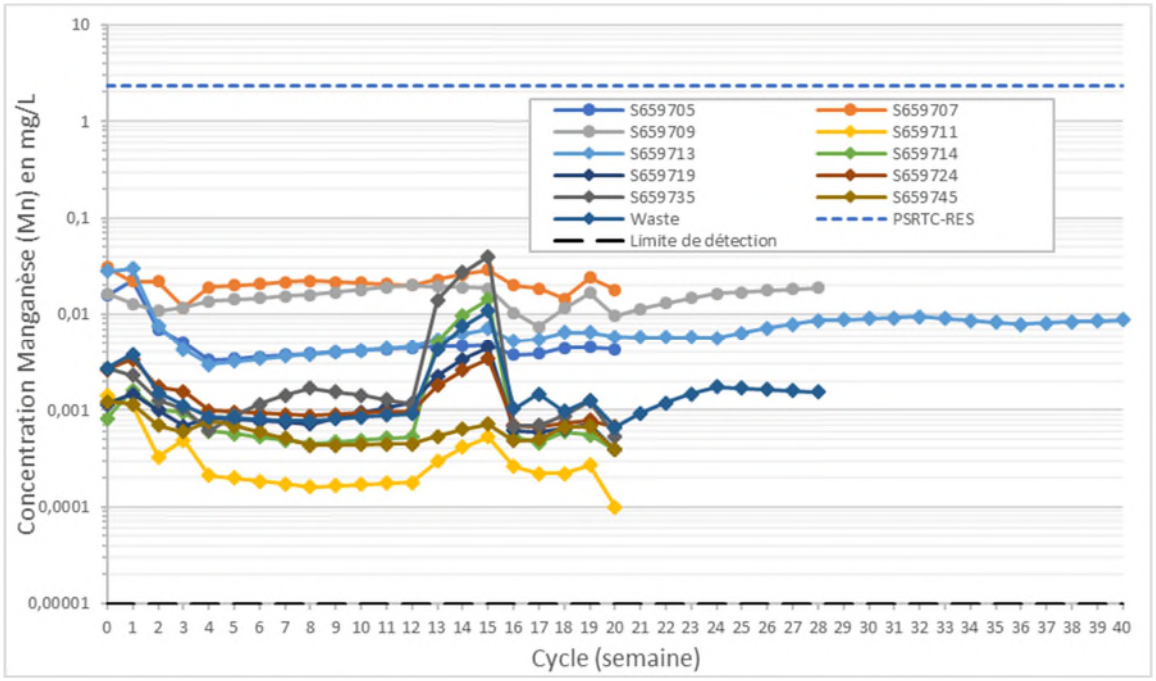

Figure C.10 – Évolution des concentrations en manganèse (Mn)

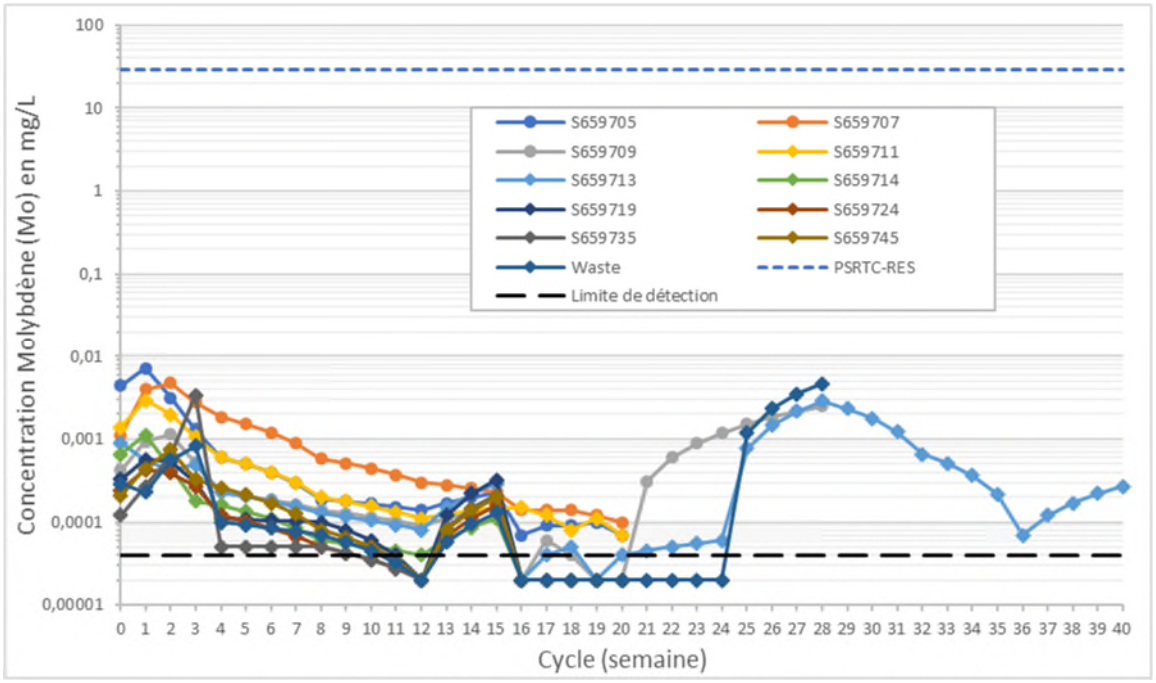

Figure C.11 – Évolution des concentrations en molybdène (Mo)

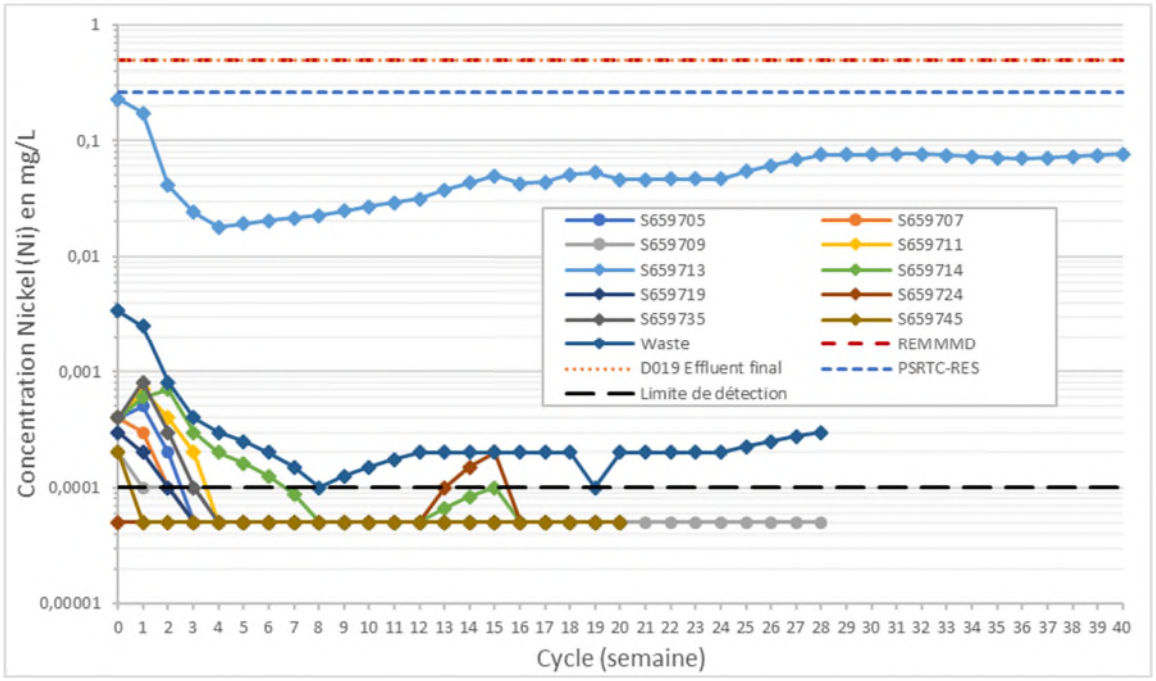

Figure C.12 – Évolution des concentrations en nickel (Ni)

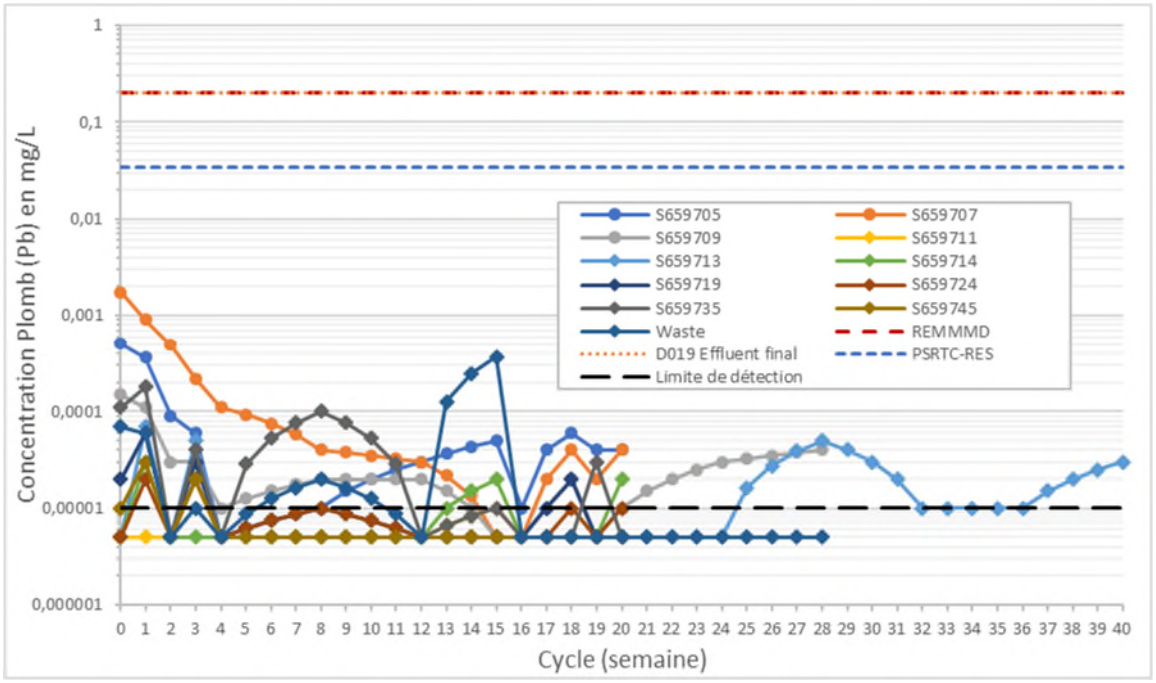

Figure C.13 – Évolution des concentrations en plomb (Pb)

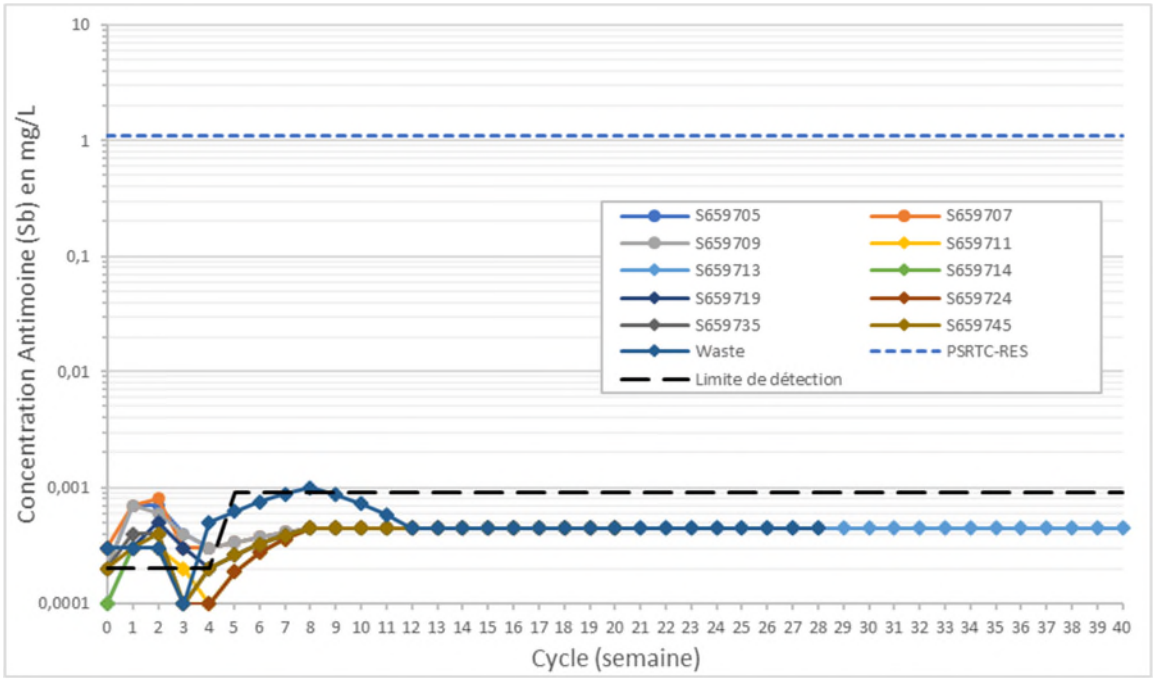

Figure C.14 – Évolution des concentrations en antimoine (Sb)

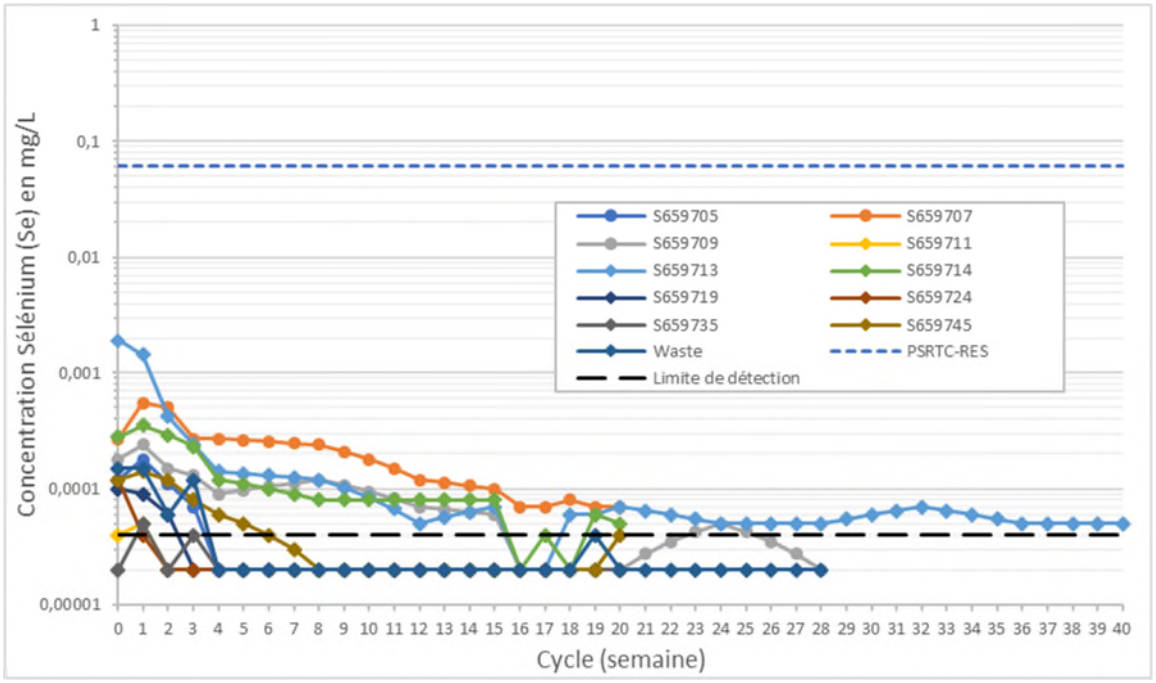

Figure C.15 – Évolution des concentrations en sélénium (Se)

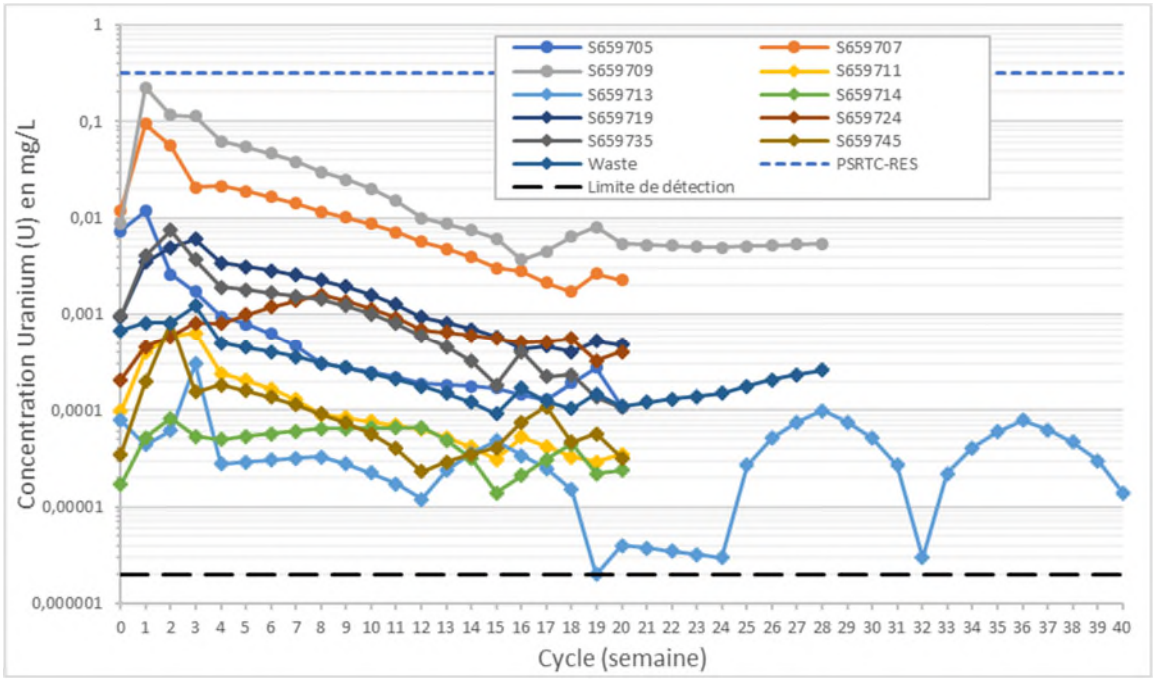

Figure C.16 – Évolution des concentrations en uranium (U)

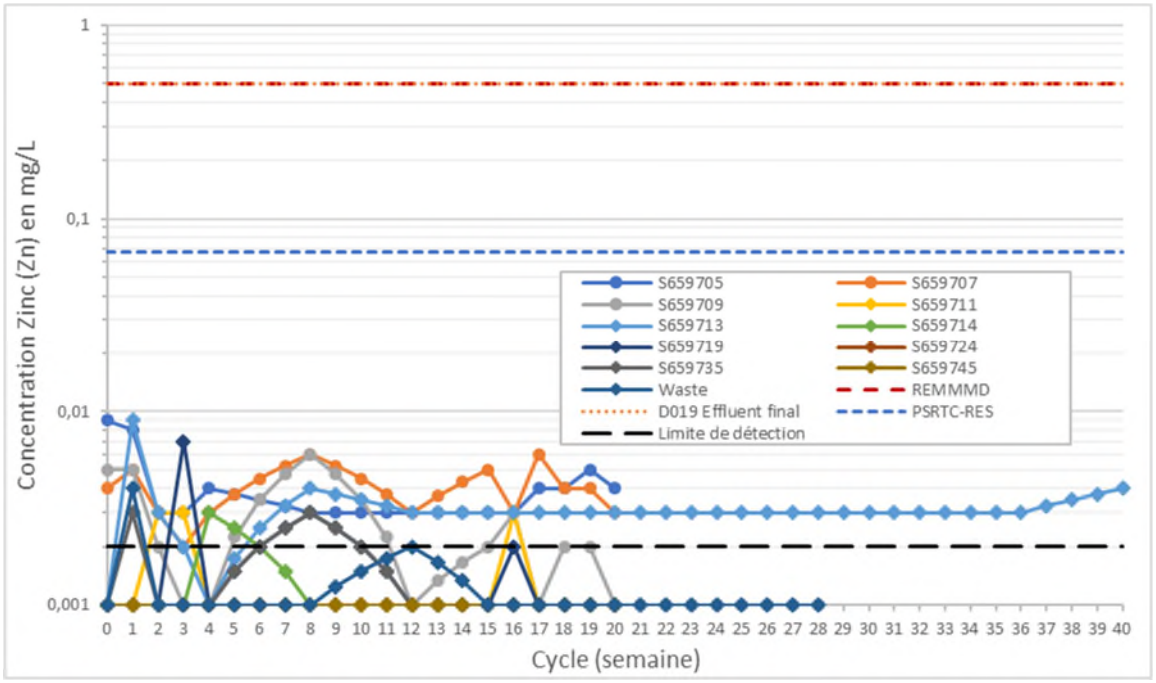

Figure C.17 – Évolution des concentrations en zinc (Zn)

ANNEXE D

Taux de lixiviation

Tableau D.1 – Taux de lixiviation calculés à partir du 4e cycle jusqu'à la fin des essais

Paramètre	Unité	S659705	S659707	S659709	S659711	S659713	S659714	S659719	S659724	S659735	S659745	Waste
Alcalinité	mg $CaCO_3$/kg/sem	1,3	3,8	3,1	2,0	1,0	3,1	2,5	6,5	2,8	2,0	1,7
Acidité	mg $CaCO_3$/kg/sem	1,8	1,1	1,4	1,1	2,2	1,0	1,4	1,0	1,7	1,3	1,8
F	mg/kg/sem	0,03	0,05	0,10	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03
Br	mg/kg/sem	0,15	0,15	0,15	0,14	0,15	0,14	0,15	0,15	0,14	0,14	0,15
SO4	mg/kg/sem	0,27	0,31	0,23	0,10	0,86	0,26	0,57	0,20	0,12	0,41	0,10
Hg	mg/kg/sem	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000006
Ag	mg/kg/sem	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00003
Al	mg/kg/sem	0,009	0,018	0,014	0,012	0,001	0,018	0,018	0,032	0,019	0,014	0,012
As	mg/kg/sem	0,0002	0,0002	0,0002	0,0002	0,0001	0,0001	0,0002	0,0003	0,0002	0,0002	0,0002
Ba	mg/kg/sem	0,00013	0,00017	0,00009	0,00016	0,00017	0,00031	0,00025	0,00029	0,00059	0,00018	0,00024
B	mg/kg/sem	0,001	0,001	0,001	0,001	0,002	0,001	0,003	0,003	0,001	0,001	0,001
Be	mg/kg/sem	0,000147	0,000027	0,000031	0,000003	0,000004	0,000003	0,000003	0,000003	0,000003	0,000003	0,000004
Bi	mg/kg/sem	0,000047	0,000966	0,000530	0,000003	0,000003	0,000003	0,000004	0,000003	0,000009	0,000008	0,000004
Ca	mg/kg/sem	0,15	1,26	0,78	0,21	0,24	0,76	0,59	1,92	0,65	0,29	0,40
Cd	mg/kg/sem	0,000005	0,000076	0,000015	0,000002	0,000004	0,000003	0,000004	0,000003	0,000002	0,000002	0,000002
Co	mg/kg/sem	0,000087	0,000151	0,000059	0,000002	0,0141	0,000005	0,000003	0,000002	0,000002	0,000004	0,000039
Cr	mg/kg/sem	0,00004	0,00004	0,00004	0,00003	0,00004	0,00003	0,00004	0,00004	0,00003	0,00003	0,00004
Cu	mg/kg/sem	0,00035	0,00049	0,00036	0,00028	0,00243	0,00025	0,00050	0,00028	0,00031	0,00026	0,00025
Fe	mg/kg/sem	0,003	0,005	0,003	0,003	0,005	0,003	0,005	0,003	0,003	0,003	0,004
K	mg/kg/sem	0,234	0,256	0,074	0,400	0,063	0,097	0,379	0,226	0,237	0,482	0,095
Li	mg/kg/sem	0,0085	0,0085	0,0113	0,0026	0,0008	0,0025	0,0050	0,0038	0,0087	0,0077	0,0020
Mg	mg/kg/sem	0,024	0,050	0,013	0,056	0,080	0,137	0,092	0,087	0,066	0,065	0,038
Mn	mg/kg/sem	0,00395	0,02056	0,01534	0,00022	0,00632	0,00201	0,00122	0,00114	0,00560	0,00051	0,00190
Mo	mg/kg/sem	0,00021	0,00052	0,00052	0,00020	0,00047	0,00006	0,00009	0,00006	0,00005	0,00008	0,00051
Na	mg/kg/sem	0,14	0,13	0,22	0,15	0,05	0,15	0,14	0,43	0,18	0,27	0,07
Ni	mg/kg/sem	0,00005	0,00005	0,00005	0,00005	0,0507	0,00007	0,00005	0,00007	0,00005	0,00005	0,00020
P	mg/kg/sem	0,001	0,002	0,001	0,004	0,001	0,002	0,004	0,001	0,002	0,002	0,002

Paramètre	Unité	S659705	S659707	S659709	S659711	S659713	S659714	S659719	S659724	S659735	S659745	Waste
Pb	mg/kg/sem	0,00003	0,00004	0,00002	0,00001	0,00001	0,00001	0,00001	0,00001	0,00003	0,00000	0,00004
Sb	mg/kg/sem	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0005
Se	mg/kg/sem	0,00002	0,00015	0,00006	0,00002	0,00006	0,00007	0,00002	0,00002	0,00002	0,00002	0,00002
Si	mg/kg/sem	0,59	0,42	0,37	0,31	0,18	0,21	0,30	0,37	0,32	0,22	0,11
Sn	mg/kg/sem	0,00004	0,00016	0,00008	0,00024	0,00008	0,00009	0,00008	0,00014	0,00024	0,00012	0,00012
Sr	mg/kg/sem	0,00079	0,00358	0,00187	0,00083	0,00097	0,00108	0,00256	0,00427	0,00366	0,00136	0,00144
Ta	mg/kg/sem	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005
Ti	mg/kg/sem	0,00076	0,00002	0,00002	0,00018	0,00005	0,00015	0,00006	0,00005	0,00014	0,00025	0,00006
Tl	mg/kg/sem	0,000015	0,000029	0,000006	0,000002	0,000007	0,000002	0,000003	0,000002	0,000002	0,000002	0,000003
U	mg/kg/sem	0,00031	0,00783	0,01544	0,00008	0,00003	0,00004	0,00140	0,00081	0,00079	0,00007	0,00021
V	mg/kg/sem	0,00003	0,00001	0,00003	0,00031	0,00011	0,00068	0,00022	0,00015	0,00016	0,00026	0,00019
W	mg/kg/sem	0,00034	0,00020	0,00012	0,00009	0,00003	0,00005	0,00010	0,00036	0,00017	0,00006	0,00015
Y	mg/kg/sem	0,000006	0,000012	0,000003	0,000001	0,000002	0,000001	0,000014	0,000005	0,000025	0,000001	0,000013
Zn	mg/kg/sem	0,003	0,004	0,002	0,001	0,003	0,001	0,002	0,001	0,001	0,001	0,001

Au moins 50% des données ayant servi aux calculs sont inférieures à la limite de détection

100% des données ayant servi aux calculs sont inférieures à la limite de détection

Tableau D. 2 – Taux de lixiviation calculés avec tous les cycles

Paramètre	Unité	S659705	S659707	S659709	S659711	S659713	S659714	S659719	S659724	S659735	S659745	Waste
Alcalinité	mg $CaCO_3$/kg/sem	2,1	4,5	3,4	2,3	1,1	3,4	3,0	7,0	3,2	2,3	2,8
Acidité	mg $CaCO_3$/kg/sem	1,7	1,1	1,4	1,1	2,1	1,0	1,3	1,0	1,6	1,2	1,7
F	mg/kg/sem	0,04	0,05	0,09	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03
Br	mg/kg/sem	0,14	0,14	0,15	0,14	0,15	0,14	0,15	0,14	0,14	0,14	0,15
SO4	mg/kg/sem	0,50	0,50	0,45	0,29	1,18	0,57	0,75	0,36	0,24	0,54	0,21
Hg	mg/kg/sem	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000005	0,000006
Ag	mg/kg/sem	0,00003	0,00003	0,00003	0,00003	0,00003	0,00003	0,00003	0,00003	0,00003	0,00003	0,00003
Al	mg/kg/sem	0,013	0,020	0,015	0,015	0,002	0,019	0,021	0,033	0,020	0,019	0,015
As	mg/kg/sem	0,0002	0,0002	0,0002	0,0002	0,0001	0,0001	0,0002	0,0003	0,0002	0,0002	0,0002
Ba	mg/kg/sem	0,00015	0,00019	0,00011	0,00019	0,00021	0,00033	0,00030	0,00035	0,00055	0,00020	0,00028
B	mg/kg/sem	0,001	0,002	0,002	0,001	0,002	0,002	0,003	0,004	0,002	0,001	0,002
Be	mg/kg/sem	0,000182	0,000039	0,000036	0,000003	0,000004	0,000003	0,000003	0,000003	0,000003	0,000003	0,000003
Bi	mg/kg/sem	0,000150	0,001036	0,000531	0,000003	0,000003	0,000003	0,000004	0,000003	0,000010	0,000007	0,000004
Ca	mg/kg/sem	0,24	1,40	0,91	0,27	0,40	0,92	0,65	2,02	0,67	0,32	0,50
Cd	mg/kg/sem	0,000005	0,000069	0,000014	0,000003	0,000004	0,000003	0,000006	0,000002	0,000002	0,000002	0,000002
Co	mg/kg/sem	0,000190	0,000376	0,000121	0,000004	0,0139	0,000005	0,000003	0,000002	0,000005	0,000003	0,000044
Cr	mg/kg/sem	0,00005	0,00007	0,00004	0,00003	0,00005	0,00003	0,00004	0,00003	0,00004	0,00003	0,00004
Cu	mg/kg/sem	0,00102	0,00202	0,00061	0,00035	0,00244	0,00031	0,00060	0,00032	0,00057	0,00040	0,00036
Fe	mg/kg/sem	0,004	0,006	0,003	0,003	0,006	0,003	0,006	0,003	0,005	0,004	0,004
K	mg/kg/sem	0,492	0,511	0,110	0,542	0,123	0,154	0,572	0,316	0,344	0,642	0,173
Li	mg/kg/sem	0,0383	0,0281	0,0329	0,0051	0,0014	0,0036	0,0092	0,0051	0,0172	0,0111	0,0036
Mg	mg/kg/sem	0,039	0,064	0,019	0,069	0,125	0,170	0,104	0,092	0,072	0,068	0,051
Mn	mg/kg/sem	0,00540	0,02039	0,01489	0,00033	0,00727	0,00182	0,00118	0,00133	0,00484	0,00057	0,00193
Mo	mg/kg/sem	0,00088	0,00098	0,00054	0,00048	0,00048	0,00015	0,00015	0,00010	0,00023	0,00014	0,00051
Na	mg/kg/sem	0,49	0,49	0,53	0,37	0,15	0,34	0,37	0,88	0,42	0,60	0,20
Ni	mg/kg/sem	0,00009	0,00008	0,00006	0,00011	0,0562	0,00014	0,00007	0,00006	0,00011	0,00005	0,00040
P	mg/kg/sem	0,002	0,003	0,002	0,007	0,005	0,001	0,003	0,001	0,002	0,002	0,002

Paramètre	Unité	S659705	S659707	S659709	S659711	S659713	S659714	S659719	S659724	S659735	S659745	Waste
Pb	mg/kg/sem	0,00006	0,00017	0,00003	0,00001	0,00001	0,00001	0,00001	0,00001	0,00004	0,00001	0,00004
Sb	mg/kg/sem	0,0004	0,0004	0,0004	0,0004	0,0004	0,0003	0,0004	0,0004	0,0004	0,0004	0,0005
Se	mg/kg/sem	0,00004	0,00019	0,00007	0,00002	0,00015	0,00010	0,00003	0,00002	0,00002	0,00004	0,00003
Si	mg/kg/sem	0,64	0,44	0,39	0,31	0,18	0,21	0,30	0,37	0,31	0,21	0,11
Sn	mg/kg/sem	0,00005	0,00024	0,00009	0,00023	0,00013	0,00011	0,00009	0,00015	0,00025	0,00014	0,00014
Sr	mg/kg/sem	0,00112	0,00436	0,00271	0,00103	0,00143	0,00138	0,00284	0,00437	0,00401	0,00147	0,00181
Ta	mg/kg/sem	0,00010	0,00009	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005
Ti	mg/kg/sem	0,00063	0,00004	0,00003	0,00021	0,00010	0,00018	0,00011	0,00012	0,00021	0,00036	0,00011
Tl	mg/kg/sem	0,000025	0,000041	0,000006	0,000002	0,000009	0,000002	0,000003	0,000002	0,000002	0,000002	0,000002
U	mg/kg/sem	0,00127	0,01446	0,02888	0,00014	0,00004	0,00004	0,00184	0,00075	0,00134	0,00011	0,00030
V	mg/kg/sem	0,00005	0,00003	0,00003	0,00036	0,00014	0,00079	0,00025	0,00016	0,00018	0,00029	0,00021
W	mg/kg/sem	0,00092	0,00047	0,00022	0,00016	0,00006	0,00007	0,00015	0,00042	0,00038	0,00009	0,00018
Y	mg/kg/sem	0,000067	0,000058	0,000005	0,000003	0,000005	0,000001	0,000053	0,000008	0,000093	0,000003	0,000038
Zn	mg/kg/sem	0,004	0,004	0,002	0,001	0,003	0,001	0,002	0,001	0,001	0,001	0,001

Au moins 50% des données ayant servi aux calculs sont inférieures à la limite de détection

100% des données ayant servi aux calculs sont inférieures à la limite de détection

ANNEXE E

Résultats d'analyse post-démantèlement

Tableau E.1 – Résultats d'analyse avant et après l'essai cinétique de l'échantillon S659705

Paramètre	Unités	Avant	Après
BILAN ACIDE-BASE (Sobek modifié)			
pH en pâte		9,57	10,26
Fizz Rate	---	1	1
Potentiel de neutralisation (PN)	kg $CaCO_3$/t	-0,7	3,6
Potentiel d'acidification (PA)	kg $CaCO_3$/t	0,62	0,62
Potentiel net de neutralisation (PNN)	kg $CaCO_3$/t	-1,32	2,98
Ratio PN/PA	ratio	-1,13	5,76
Soufre (total)	%	< 0,005	< 0,005
Soufre (sulfates)	%	< 0,02	< 0,02
Soufre (sulfures)	%	< 0,02	< 0,02
Carbone (Total)	%	0,007	0,008
Carbonates	%	< 0,025	0,030
Potentiel de génération d'acide	Directive 019	Non	Non
Potentiel de génération d'acide	Price	Oui	Non
MÉTAUX ET AUTRES ÉLÉMENTS			
Fluor	mg/kg	2	6
Brome	mg/kg	< 3	< 1,5
Mercure	mg/kg	< 0,05	< 0,05
Argent	mg/kg	< 0,01	0,03
Aluminium	mg/kg	750	3300
Arsenic	mg/kg	< 0,5	< 0,5
Bore	mg/kg	< 1	< 1
Baryum	mg/kg	0,57	4,0
Béryllium	mg/kg	0,80	2,1
Bismuth	mg/kg	8,2	9,6
Calcium	mg/kg	120	280
Cadmium	mg/kg	0,05	0,03
Cobalt	mg/kg	0,27	0,64
Chrome	mg/kg	53	120
Cuivre	mg/kg	1,4	3,9
Fer	mg/kg	710	2900
Potassium	mg/kg	480	1600
Lithium	mg/kg	24	85
Magnésium	mg/kg	8	35
Manganèse	mg/kg	28	230
Molybdène	mg/kg	1,5	3,2
Sodium	mg/kg	250	1200
Nickel	mg/kg	2,3	6,0
Phosphore	mg/kg	30	53
Plomb	mg/kg	1,6	3,0
Antimoine	mg/kg	< 0,8	< 0,8
Sélénium	mg/kg	< 0,7	< 0,7
Étain	mg/kg	< 0,5	0,9
Strontium	mg/kg	0,47	1,4
Tantale	mg/kg	0,13	NA
Thorium	mg/kg	3,0	NA
Titane	mg/kg	1,0	76
Thallium	mg/kg	0,09	1,0
Uranium	mg/kg	2,5	2,6
Vanadium	mg/kg	< 1	3
Tungstène	mg/kg	0,09	NA
Yttrium	mg/kg	0,43	NA
Zinc	mg/kg	28	29

Tableau E.2 – Résultats d'analyse avant et après l'essai cinétique de l'échantillon S659707

Paramètre	Unités	Avant	Après
BILAN ACIDE-BASE (Sobek modifié)			
pH en pâte		9,74	10,19
Fizz Rate	---	1	1
Potentiel de neutralisation (PN)	kg $CaCO_3$/t	-0,5	4,3
Potentiel d'acidification (PA)	kg $CaCO_3$/t	0,62	0,62
Potentiel net de neutralisation (PNN)	kg $CaCO_3$/t	-1,12	3,68
Ratio PN/PA	ratio	-0,81	6,88
Soufre (total)	%	0,008	< 0,005
Soufre (sulfates)	%	< 0,02	< 0,02
Soufre (sulfures)	%	< 0,02	< 0,02
Carbone (Total)	%	0,008	0,021
Carbonates	%	< 0,025	< 0,025
Potentiel de génération d'acide	Directive 019	Non	Non
Potentiel de génération d'acide	Price	Oui	Non
MÉTAUX ET AUTRES ÉLÉMENTS			
Fluor	mg/kg	4	10
Brome	mg/kg	< 3	< 1,5
Mercure	mg/kg	< 0,05	< 0,05
Argent	mg/kg	0,03	0,07
Aluminium	mg/kg	800	4000
Arsenic	mg/kg	< 0,5	< 0,5
Bore	mg/kg	< 1	< 1
Baryum	mg/kg	0,33	0,7
Béryllium	mg/kg	0,87	1,9
Bismuth	mg/kg	130	197
Calcium	mg/kg	210	400
Cadmium	mg/kg	2,8	3,7
Cobalt	mg/kg	0,43	0,70
Chrome	mg/kg	38	128
Cuivre	mg/kg	2,8	42
Fer	mg/kg	680	3300
Potassium	mg/kg	610	2400
Lithium	mg/kg	17	72
Magnésium	mg/kg	34	120
Manganèse	mg/kg	26	100
Molybdène	mg/kg	0,4	6,9
Sodium	mg/kg	220	1000
Nickel	mg/kg	1,4	5,8
Phosphore	mg/kg	16	57
Plomb	mg/kg	4,4	8,0
Antimoine	mg/kg	< 0,8	< 0,8
Sélénium	mg/kg	< 0,7	< 0,7
Étain	mg/kg	< 0,5	1,3
Strontium	mg/kg	0,60	1,2
Tantale	mg/kg	< 0,01	NA
Thorium	mg/kg	1,6	NA
Titane	mg/kg	0,9	10
Thallium	mg/kg	0,10	1,5
Uranium	mg/kg	3,3	3,2
Vanadium	mg/kg	< 1	1
Tungstène	mg/kg	0,04	NA
Yttrium	mg/kg	0,34	NA
Zinc	mg/kg	190	300

Tableau E.3 – Résultats d'analyse avant et après l'essai cinétique de l'échantillon S659709

Paramètre	Unités	Avant	Après
BILAN ACIDE-BASE (Sobek modifié)			
pH en pâte		9,76	10,09
Fizz Rate	---	1	1
Potentiel de neutralisation (PN)	kg $CaCO_3$/t	0,1	0,8
Potentiel d'acidification (PA)	kg $CaCO_3$/t	0,62	0,62
Potentiel net de neutralisation (PNN)	kg $CaCO_3$/t	-0,52	0,18
Ratio PN/PA	ratio	0,16	1,28
Soufre (total)	%	< 0,005	0,005
Soufre (sulfates)	%	< 0,02	< 0,02
Soufre (sulfures)	%	< 0,02	< 0,02
Carbone (Total)	%	0,008	0,011
Carbonates	%	< 0,025	< 0,025
Potentiel de génération d'acide	Directive 019	Non	Non
Potentiel de génération d'acide	Price	Oui	Incertain
MÉTAUX ET AUTRES ÉLÉMENTS			
Fluor	mg/kg	3	6
Brome	mg/kg	< 3	< 1,5
Mercure	mg/kg	< 0,05	< 0,05
Argent	mg/kg	0,03	0,05
Aluminium	mg/kg	730	1600
Arsenic	mg/kg	< 0,5	< 0,5
Bore	mg/kg	< 1	< 1
Baryum	mg/kg	0,72	2,2
Béryllium	mg/kg	1,3	2,5
Bismuth	mg/kg	79	260
Calcium	mg/kg	230	340
Cadmium	mg/kg	0,64	0,63
Cobalt	mg/kg	0,31	0,33
Chrome	mg/kg	37	3
Cuivre	mg/kg	2,2	53
Fer	mg/kg	700	2300
Potassium	mg/kg	370	800
Lithium	mg/kg	22	56
Magnésium	mg/kg	19	36
Manganèse	mg/kg	26	58
Molybdène	mg/kg	0,3	1,1
Sodium	mg/kg	300	620
Nickel	mg/kg	1,4	0,4
Phosphore	mg/kg	33	51
Plomb	mg/kg	5,2	7,1
Antimoine	mg/kg	< 0,8	< 0,8
Sélénium	mg/kg	< 0,7	< 0,7
Étain	mg/kg	< 0,5	0,6
Strontium	mg/kg	3,0	3,7
Tantale	mg/kg	< 0,01	NA
Thorium	mg/kg	2,3	NA
Titane	mg/kg	0,8	8,2
Thallium	mg/kg	0,04	0,3
Uranium	mg/kg	9,2	10,0
Vanadium	mg/kg	< 1	< 1
Tungstène	mg/kg	0,06	NA
Yttrium	mg/kg	0,17	NA
Zinc	mg/kg	91	87

Tableau E.4 – Résultats d'analyse avant et après l'essai cinétique de l'échantillon S659711

Paramètre	Unités	Avant	Après	Après (Duplicata)
BILAN ACIDE-BASE (Sobek modifié)				
pH en pâte		10,22	10,20	10,24
Fizz Rate	---	1	1	1
Potentiel de neutralisation (PN)	kg $CaCO_3$/t	8,9	10,8	11,5
Potentiel d'acidification (PA)	kg $CaCO_3$/t	0,62	0,62	0,62
Potentiel net de neutralisation (PNN)	kg $CaCO_3$/t	8,28	10,2	10,9
Ratio PN/PA	ratio	14,4	17,3	18,4
Soufre (total)	%	< 0,005	< 0,005	< 0,005
Soufre (sulfates)	%	< 0,02	< 0,02	< 0,02
Soufre (sulfures)	%	< 0,02	< 0,02	< 0,02
Carbone (Total)	%	0,012	0,009	0,008
Carbonates	%	< 0,025	< 0,025	< 0,025
Potentiel de génération d'acide	Directive 019	Non	Non	Non
Potentiel de génération d'acide	Price	Non	Non	Non
MÉTAUX ET AUTRES ÉLÉMENTS				
Fluor	mg/kg	2	2	3
Brome	mg/kg	< 3	< 1,5	< 1,5
Mercure	mg/kg	< 0,05	< 0,05	< 0,05
Argent	mg/kg	0,09	0,02	0,02
Aluminium	mg/kg	12000	12000	13000
Arsenic	mg/kg	< 0,5	< 0,5	< 0,5
Bore	mg/kg	< 1	< 1	< 1
Baryum	mg/kg	71	73	81
Béryllium	mg/kg	0,07	0,07	0,08
Bismuth	mg/kg	< 0,09	0,10	0,10
Calcium	mg/kg	4800	5000	5300
Cadmium	mg/kg	< 0,02	< 0,02	< 0,02
Cobalt	mg/kg	7,8	8,3	8,8
Chrome	mg/kg	83	66	54
Cuivre	mg/kg	1,1	1,9	2,7
Fer	mg/kg	13000	13000	13000
Potassium	mg/kg	5700	4500	4800
Lithium	mg/kg	120	120	130
Magnésium	mg/kg	8000	7800	8100
Manganèse	mg/kg	190	200	230
Molybdène	mg/kg	0,2	2,3	0,9
Sodium	mg/kg	1500	1500	1600
Nickel	mg/kg	38	38	40
Phosphore	mg/kg	310	310	310
Plomb	mg/kg	1,1	0,94	1,2
Antimoine	mg/kg	< 0,8	< 0,8	< 0,8
Sélénium	mg/kg	< 0,7	< 0,7	< 0,7
Étain	mg/kg	< 0,5	< 0,5	< 0,5
Strontium	mg/kg	15	16	16
Tantale	mg/kg	< 0,01	NA	NA
Thorium	mg/kg	1,1	NA	NA
Titane	mg/kg	1100	1300	1400
Thallium	mg/kg	0,08	0,15	0,17
Uranium	mg/kg	0,33	0,31	0,30
Vanadium	mg/kg	34	35	38
Tungstène	mg/kg	0,05	NA	NA
Yttrium	mg/kg	1,70	NA	NA
Zinc	mg/kg	33	33	33

Tableau E.5 – Résultats d'analyse avant et après l'essai cinétique de l'échantillon S659713

Paramètre	Unités	Avant	Après
BILAN ACIDE-BASE (Sobek modifié)			
pH en pâte		9,83	à venir
Fizz Rate	---	1	
Potentiel de neutralisation (PN)	kg $CaCO_3$/t	9,0	
Potentiel d'acidification (PA)	kg $CaCO_3$/t	3,44	
Potentiel net de neutralisation (PNN)	kg $CaCO_3$/t	5,56	
Ratio PN/PA	ratio	2,62	
Soufre (total)	%	0,129	
Soufre (sulfates)	%	< 0,02	
Soufre (sulfures)	%	0,11	
Carbone (Total)	%	0,013	
Carbonates	%	< 0,025	
Potentiel de génération d'acide	Directive 019	Non	
Potentiel de génération d'acide	Price	Non	
MÉTAUX ET AUTRES ÉLÉMENTS			
Fluor	mg/kg	1	à venir
Brome	mg/kg	< 3	
Mercure	mg/kg	< 0,05	
Argent	mg/kg	0,05	
Aluminium	mg/kg	9200	
Arsenic	mg/kg	< 0,5	
Bore	mg/kg	1	
Baryum	mg/kg	12	
Béryllium	mg/kg	0,05	
Bismuth	mg/kg	< 0,09	
Calcium	mg/kg	9400	
Cadmium	mg/kg	0,04	
Cobalt	mg/kg	15	
Chrome	mg/kg	48	
Cuivre	mg/kg	92	
Fer	mg/kg	15000	
Potassium	mg/kg	1500	
Lithium	mg/kg	28	
Magnésium	mg/kg	7000	
Manganèse	mg/kg	260	
Molybdène	mg/kg	1,3	
Sodium	mg/kg	1400	
Nickel	mg/kg	34	
Phosphore	mg/kg	330	
Plomb	mg/kg	0,68	
Antimoine	mg/kg	< 0,8	
Sélénium	mg/kg	< 0,7	
Étain	mg/kg	< 0,5	
Strontium	mg/kg	6,6	
Tantale	mg/kg	< 0,01	
Thorium	mg/kg	0,51	
Titane	mg/kg	1600	
Thallium	mg/kg	< 0,02	
Uranium	mg/kg	0,07	
Vanadium	mg/kg	53	
Tungstène	mg/kg	0,07	
Yttrium	mg/kg	6,3	
Zinc	mg/kg	20	

Tableau E.6 – Résultats d'analyse avant et après l'essai cinétique de l'échantillon S659714

Paramètre	Unités	Avant	Après
BILAN ACIDE-BASE (Sobek modifié)			
pH en pâte		10,10	9,92
Fizz Rate	---	1	1
Potentiel de neutralisation (PN)	kg $CaCO_3$/t	9,0	10,3
Potentiel d'acidification (PA)	kg $CaCO_3$/t	0,62	0,94
Potentiel net de neutralisation (PNN)	kg $CaCO_3$/t	8,38	9,36
Ratio PN/PA	ratio	14,5	11,0
Soufre (total)	%	0,025	0,036
Soufre (sulfates)	%	0,02	< 0,02
Soufre (sulfures)	%	< 0,02	0,03
Carbone (Total)	%	0,022	0,017
Carbonates	%	< 0,025	< 0,025
Potentiel de génération d'acide	Directive 019	Non	Non
Potentiel de génération d'acide	Price	Non	Non
MÉTAUX ET AUTRES ÉLÉMENTS			
Fluor	mg/kg	2	2
Brome	mg/kg	< 3	< 1,5
Mercure	mg/kg	< 0,05	< 0,05
Argent	mg/kg	0,06	0,08
Aluminium	mg/kg	7400	7500
Arsenic	mg/kg	< 0,5	< 0,5
Bore	mg/kg	2	2
Baryum	mg/kg	18	22
Béryllium	mg/kg	0,19	0,26
Bismuth	mg/kg	0,39	0,62
Calcium	mg/kg	8800	9000
Cadmium	mg/kg	0,06	0,02
Cobalt	mg/kg	8,8	10
Chrome	mg/kg	45	49
Cuivre	mg/kg	54	75
Fer	mg/kg	11000	12000
Potassium	mg/kg	920	830
Lithium	mg/kg	35	41
Magnésium	mg/kg	6800	6700
Manganèse	mg/kg	260	290
Molybdène	mg/kg	3,8	3,8
Sodium	mg/kg	1300	1200
Nickel	mg/kg	48	32
Phosphore	mg/kg	220	230
Plomb	mg/kg	8,2	10
Antimoine	mg/kg	< 0,8	< 0,8
Sélénium	mg/kg	< 0,7	< 0,7
Étain	mg/kg	< 0,5	< 0,5
Strontium	mg/kg	8,9	9,0
Tantale	mg/kg	< 0,01	NA
Thorium	mg/kg	0,18	NA
Titane	mg/kg	1300	1600
Thallium	mg/kg	< 0,02	0,03
Uranium	mg/kg	0,033	0,047
Vanadium	mg/kg	46	48
Tungstène	mg/kg	0,05	NA
Yttrium	mg/kg	5,4	NA
Zinc	mg/kg	32	18

Tableau E.7 – Résultats d'analyse avant et après l'essai cinétique de l'échantillon S659719

Paramètre	Unités	Avant	Après
BILAN ACIDE-BASE (Sobek modifié)			
pH en pâte		10,14	10,22
Fizz Rate	---	1	1
Potentiel de neutralisation (PN)	kg $CaCO_3$/t	8,6	12,0
Potentiel d'acidification (PA)	kg $CaCO_3$/t	1,88	1,56
Potentiel net de neutralisation (PNN)	kg $CaCO_3$/t	6,72	10,4
Ratio PN/PA	ratio	4,59	7,68
Soufre (total)	%	0,073	0,059
Soufre (sulfates)	%	< 0,02	< 0,02
Soufre (sulfures)	%	0,06	0,05
Carbone (Total)	%	0,010	0,010
Carbonates	%	< 0,025	< 0,025
Potentiel de génération d'acide	Directive 019	Non	Non
Potentiel de génération d'acide	Price	Non	Non
MÉTAUX ET AUTRES ÉLÉMENTS			
Fluor	mg/kg	2	3
Brome	mg/kg	< 3	< 1,5
Mercure	mg/kg	< 0,05	< 0,05
Argent	mg/kg	0,02	0,04
Aluminium	mg/kg	15000	15000
Arsenic	mg/kg	< 0,5	< 0,5
Bore	mg/kg	2	1
Baryum	mg/kg	160	170
Béryllium	mg/kg	0,11	0,12
Bismuth	mg/kg	< 0,09	0,12
Calcium	mg/kg	4400	4300
Cadmium	mg/kg	< 0,02	< 0,02
Cobalt	mg/kg	11	11
Chrome	mg/kg	85	85
Cuivre	mg/kg	54	55
Fer	mg/kg	18000	18000
Potassium	mg/kg	7600	6100
Lithium	mg/kg	230	220
Magnésium	mg/kg	10000	9400
Manganèse	mg/kg	290	340
Molybdène	mg/kg	< 0,1	1,8
Sodium	mg/kg	1300	1400
Nickel	mg/kg	28	25
Phosphore	mg/kg	200	180
Plomb	mg/kg	4,3	4,4
Antimoine	mg/kg	< 0,8	< 0,8
Sélénium	mg/kg	< 0,7	< 0,7
Étain	mg/kg	0,7	0,9
Strontium	mg/kg	16	18
Tantale	mg/kg	< 0,01	NA
Thorium	mg/kg	6,1	NA
Titane	mg/kg	1400	1500
Thallium	mg/kg	0,18	0,29
Uranium	mg/kg	2,4	3,1
Vanadium	mg/kg	41	41
Tungstène	mg/kg	0,13	NA
Yttrium	mg/kg	10	NA
Zinc	mg/kg	48	44

Tableau E.8 – Résultats d'analyse avant et après l'essai cinétique de l'échantillon S659724

Paramètre	Unités	Avant	Après
BILAN ACIDE-BASE (Sobek modifié)			
pH en pâte		9,52	9,77
Fizz Rate	---	1	1
Potentiel de neutralisation (PN)	kg $CaCO_3$/t	7,6	10,1
Potentiel d'acidification (PA)	kg $CaCO_3$/t	0,62	0,62
Potentiel net de neutralisation (PNN)	kg $CaCO_3$/t	6,98	9,48
Ratio PN/PA	ratio	12,3	16,2
Soufre (total)	%	0,006	< 0,005
Soufre (sulfates)	%	< 0,02	< 0,02
Soufre (sulfures)	%	< 0,02	< 0,02
Carbone (Total)	%	0,044	0,040
Carbonates	%	0,100	0,105
Potentiel de génération d'acide	Directive 019	Non	Non
Potentiel de génération d'acide	Price	Non	Non
MÉTAUX ET AUTRES ÉLÉMENTS			
Fluor	mg/kg	1	2
Brome	mg/kg	< 3	< 1,5
Mercure	mg/kg	< 0,05	< 0,05
Argent	mg/kg	< 0,01	0,01
Aluminium	mg/kg	8100	10000
Arsenic	mg/kg	< 0,5	< 0,5
Bore	mg/kg	7	10
Baryum	mg/kg	19	31
Béryllium	mg/kg	0,13	0,19
Bismuth	mg/kg	< 0,09	< 0,09
Calcium	mg/kg	4300	5100
Cadmium	mg/kg	0,03	0,05
Cobalt	mg/kg	4,2	5,6
Chrome	mg/kg	83	79
Cuivre	mg/kg	2,8	5,4
Fer	mg/kg	13000	16000
Potassium	mg/kg	1700	2000
Lithium	mg/kg	64	81
Magnésium	mg/kg	3600	4300
Manganèse	mg/kg	190	250
Molybdène	mg/kg	0,1	4,1
Sodium	mg/kg	890	1200
Nickel	mg/kg	6,1	8,5
Phosphore	mg/kg	300	400
Plomb	mg/kg	3,6	4,5
Antimoine	mg/kg	< 0,8	< 0,8
Sélénium	mg/kg	< 0,7	< 0,7
Étain	mg/kg	< 0,5	< 0,5
Strontium	mg/kg	15	17
Tantale	mg/kg	< 0,01	NA
Thorium	mg/kg	6,4	NA
Titane	mg/kg	590	760
Thallium	mg/kg	< 0,02	0,06
Uranium	mg/kg	0,38	0,47
Vanadium	mg/kg	13	16
Tungstène	mg/kg	0,14	NA
Yttrium	mg/kg	3,1	NA
Zinc	mg/kg	48	62

Tableau E.9 – Résultats d'analyse avant et après l'essai cinétique de l'échantillon S659735

Paramètre	Unités	Avant	Après
BILAN ACIDE-BASE (Sobek modifié)			
pH en pâte		10,02	10,28
Fizz Rate	---	1	1
Potentiel de neutralisation (PN)	kg $CaCO_3$/t	6,8	11,2
Potentiel d'acidification (PA)	kg $CaCO_3$/t	0,62	1,56
Potentiel net de neutralisation (PNN)	kg $CaCO_3$/t	6,18	9,64
Ratio PN/PA	ratio	11,0	7,17
Soufre (total)	%	0,007	0,057
Soufre (sulfates)	%	< 0,02	< 0,02
Soufre (sulfures)	%	< 0,02	0,05
Carbone (Total)	%	0,010	0,011
Carbonates	%	< 0,025	< 0,025
Potentiel de génération d'acide	Directive 019	Non	Non
Potentiel de génération d'acide	Price	Non	Non
MÉTAUX ET AUTRES ÉLÉMENTS			
Fluor	mg/kg	2	4
Brome	mg/kg	< 3	< 1,5
Mercure	mg/kg	< 0,05	< 0,05
Argent	mg/kg	0,01	0,05
Aluminium	mg/kg	12000	12000
Arsenic	mg/kg	< 0,5	< 0,5
Bore	mg/kg	< 1	< 1
Baryum	mg/kg	300	270
Béryllium	mg/kg	0,07	0,12
Bismuth	mg/kg	< 0,09	0,72
Calcium	mg/kg	2100	2400
Cadmium	mg/kg	< 0,02	0,03
Cobalt	mg/kg	6,0	7,7
Chrome	mg/kg	71	100
Cuivre	mg/kg	8,2	78
Fer	mg/kg	18000	18000
Potassium	mg/kg	7300	5400
Lithium	mg/kg	320	310
Magnésium	mg/kg	5200	4900
Manganèse	mg/kg	260	350
Molybdène	mg/kg	2,1	2,7
Sodium	mg/kg	1100	1500
Nickel	mg/kg	8,2	13
Phosphore	mg/kg	350	360
Plomb	mg/kg	1,6	2,3
Antimoine	mg/kg	< 0,8	< 0,8
Sélénium	mg/kg	< 0,7	< 0,7
Étain	mg/kg	0,9	1,3
Strontium	mg/kg	21	21
Tantale	mg/kg	< 0,01	NA
Thorium	mg/kg	4,4	NA
Titane	mg/kg	1700	1800
Thallium	mg/kg	0,07	0,14
Uranium	mg/kg	0,62	0,83
Vanadium	mg/kg	28	30
Tungstène	mg/kg	0,12	NA
Yttrium	mg/kg	4,8	NA
Zinc	mg/kg	41	39

Tableau E.10 – Résultats d'analyse avant et après l'essai cinétique de l'échantillon S659745

Paramètre	Unités	Avant	Après
BILAN ACIDE-BASE (Sobek modifié)			
pH en pâte		10,00	10,14
Fizz Rate	---	1	1
Potentiel de neutralisation (PN)	kg $CaCO_3$/t	9,3	14,8
Potentiel d'acidification (PA)	kg $CaCO_3$/t	1,25	1,56
Potentiel net de neutralisation (PNN)	kg $CaCO_3$/t	8,05	13,2
Ratio PN/PA	ratio	7,44	9,47
Soufre (total)	%	0,050	0,052
Soufre (sulfates)	%	< 0,02	< 0,02
Soufre (sulfures)	%	0,04	0,05
Carbone (Total)	%	0,007	0,008
Carbonates	%	< 0,025	< 0,025
Potentiel de génération d'acide	Directive 019	Non	Non
Potentiel de génération d'acide	Price	Non	Non
MÉTAUX ET AUTRES ÉLÉMENTS			
Fluor	mg/kg	3	6
Brome	mg/kg	< 3	< 1,5
Mercure	mg/kg	< 0,05	< 0,05
Argent	mg/kg	0,02	0,04
Aluminium	mg/kg	15000	17000
Arsenic	mg/kg	< 0,5	< 0,5
Bore	mg/kg	1	< 1
Baryum	mg/kg	160	180
Béryllium	mg/kg	0,09	0,12
Bismuth	mg/kg	< 0,09	0,32
Calcium	mg/kg	7300	7900
Cadmium	mg/kg	0,03	0,03
Cobalt	mg/kg	12	13
Chrome	mg/kg	43	49
Cuivre	mg/kg	31	38
Fer	mg/kg	26000	3200
Potassium	mg/kg	7200	6500
Lithium	mg/kg	190	210
Magnésium	mg/kg	8700	9600
Manganèse	mg/kg	450	490
Molybdène	mg/kg	1,2	2,6
Sodium	mg/kg	1500	1800
Nickel	mg/kg	6,7	7,7
Phosphore	mg/kg	530	550
Plomb	mg/kg	1,7	1,7
Antimoine	mg/kg	< 0,8	< 0,8
Sélénium	mg/kg	< 0,7	< 0,7
Étain	mg/kg	< 0,5	< 0,5
Strontium	mg/kg	19	22
Tantale	mg/kg	< 0,01	NA
Thorium	mg/kg	1,2	NA
Titane	mg/kg	2100	2500
Thallium	mg/kg	0,30	0,58
Uranium	mg/kg	0,34	0,40
Vanadium	mg/kg	56	63
Tungstène	mg/kg	0,10	NA
Yttrium	mg/kg	4,7	NA
Zinc	mg/kg	62	67

Tableau E.11 – Résultats d'analyse avant et après l'essai cinétique de l'échantillon composite Waste

Paramètre	Unités	Avant	Après	Après (Duplicata)
BILAN ACIDE-BASE (Sobek modifié)				
pH en pâte		NA	10,00	10,14
Fizz Rate	---	NA	1	1
Potentiel de neutralisation (PN)	kg $CaCO_3$/t	NA	4,4	11,0
Potentiel d'acidification (PA)	kg $CaCO_3$/t	NA	0,94	0,62
Potentiel net de neutralisation (PNN)	kg $CaCO_3$/t	NA	3,46	10,4
Ratio PN/PA	ratio	NA	4,69	17,6
Soufre (total)	%	NA	0,055	0,024
Soufre (sulfates)	%	NA	0,02	< 0,02
Soufre (sulfures)	%	NA	0,03	0,02
Carbone (Total)	%	NA	0,011	0,008
Carbonates	%	NA	< 0,025	< 0,025
Potentiel de génération d'acide	Directive 019	NA	Non	Non
Potentiel de génération d'acide	Price	NA	Non	Non
MÉTAUX ET AUTRES ÉLÉMENTS				
Fluor	mg/kg	NA	< 1	4
Brome	mg/kg	NA	< 1,5	< 1,5
Mercure	mg/kg	NA	< 0,05	< 0,05
Argent	mg/kg	NA	0,03	0,03
Aluminium	mg/kg	NA	9000	14000
Arsenic	mg/kg	NA	< 0,5	< 0,5
Bore	mg/kg	NA	< 1	2
Baryum	mg/kg	NA	130	190
Béryllium	mg/kg	NA	0,1	0,1
Bismuth	mg/kg	NA	1,7	0,1
Calcium	mg/kg	NA	3900	5400
Cadmium	mg/kg	NA	< 0,02	0,02
Cobalt	mg/kg	NA	8,0	9,5
Chrome	mg/kg	NA	9	58
Cuivre	mg/kg	NA	43	34
Fer	mg/kg	NA	19000	20000
Potassium	mg/kg	NA	5600	5300
Lithium	mg/kg	NA	200	240
Magnésium	mg/kg	NA	4900	7200
Manganèse	mg/kg	NA	250	350
Molybdène	mg/kg	NA	0,8	2,6
Sodium	mg/kg	NA	680	1400
Nickel	mg/kg	NA	9,2	14,0
Phosphore	mg/kg	NA	460	400
Plomb	mg/kg	NA	1,8	2,5
Antimoine	mg/kg	NA	< 0,8	< 0,8
Sélénium	mg/kg	NA	< 0,7	< 0,7
Étain	mg/kg	NA	0,6	0,8
Strontium	mg/kg	NA	9,0	19,0
Tantale	mg/kg	NA	NA	NA
Thorium	mg/kg	NA	NA	NA
Titane	mg/kg	NA	1400	2000
Thallium	mg/kg	NA	0,2	0,2
Uranium	mg/kg	NA	0,6	0,7
Vanadium	mg/kg	NA	31	42
Tungstène	mg/kg	NA	NA	NA
Yttrium	mg/kg	NA	NA	NA
Zinc	mg/kg	NA	35	49

ANNEXE F

Tableaux complets des résultats d'analyse

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659705
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	780	6.91	4	< 2	36	< 0.06	< 0,3	2,2
1	CA11045-JAN19	30-janv-19	1000	979	7.29	9	< 2	36	0.06	< 0,3	2,8
2	CA11005-FEB19	06-févr-19	1000	989	6.82	7	< 2	17	0.06	< 0,3	0,9
3	CA11012-FEB19	13-févr-19	1000	1011	6.92	3	< 2	7	0.06	< 0,3	0,5
4	CA11025-FEB19	20-févr-19	1000	960	6.84	2	< 2	5	0.06	< 0,3	0,4
5	CA11042-FEB19	27-févr-19	1000	980	6.79	2	< 2	5	< 0.06	< 0,3	0,4
6	CA11003-MAR19	06-mars-19	1000	992	7.96	2	< 2	5	0.07	< 0,3	0,4
7	CA11011-MAR19	13-mars-19	1000	892	6.71	2	< 2	4	< 0.06	< 0,3	0,4
8	CA11041-MAR19	20-mars-19	1000	969	6.61	2	< 2	5	< 0.06	< 0,3	0,4
9	CA11053-MAR19	27-mars-19	1000	967	6.46	< 2	< 2	4	< 0.06	< 0,3	0,3
10	CA10028-APR19	03-avr-19	1000	991	6.41	2	< 2	4	< 0.06	< 0,3	0,3
11	CA10116-APR19	10-avr-19	1000	963	6.25	< 2	< 2	3	< 0.06	< 0,3	0,2
12	CA10203-APR19	17-avr-19	1000	982	6.05	< 2	2	3	< 0.06	< 0,3	0,2
13	CA10233-APR19	24-avr-19	1000	973	5.97	< 2	5	4	< 0.06	< 0,3	0,3
14	CA10010-MAY19	01-mai-19	1000	983	5.87	< 2	4	3	< 0.06	< 0,3	0,3
15	CA10088-MAY19	08-mai-19	1000	964	5.74	< 2	2	6	< 0.06	< 0,3	0,2
16	CA10244-MAY19	15-mai-19	1000	970	5.62	< 2	5	3	< 0.06	< 0,3	0,3
17	CA10388-MAY19	22-mai-19	1000	973	5.61	< 2	2	8	< 0.06	< 0,3	0,2
18	CA10505-MAY19	29-mai-19	1000	963	6.29	< 2	2	5	< 0.06	< 0,3	0,2
19	CA10028-JUN19	05-juin-19	1000	973	6.48	< 2	< 2	4	< 0.06	< 0,3	< 0,2
20	CA10256-JUN19	12-juin-19	1000	960	6.19	< 2	< 2	4	< 0.06	< 0,3	0,2

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659705
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0,033	0,0003	0,00015	0,004	0,000577	0,0015	0,7	0,000012
1	CA11045-JAN19	< 0.00001	< 0.0001	0.044	0.0003	0.00043	0.008	0.000492	0.000802	1.41	0.000015
2	CA11005-FEB19	< 0.00001	< 0.0001	0.025	0.0003	0.00027	0.003	0.000216	0.000268	0.40	0.000004
3	CA11012-FEB19	< 0.00001	< 0.0001	0.028	0.0005	0.00011	< 0.002	0.000180	0.000140	0.23	< 0.000003
4	CA11025-FEB19	< 0.00001	< 0.00005	0.011	0.0004	0.00009	< 0.002	0.000139	0.000125	0.16	0.000003
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.009	< 0.0002	0.00008	< 0.002	0.000136	0.000043	0.14	0.000003
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.012	< 0.0002	0.00023	< 0.002	0.000155	0.000037	0.17	< 0.000003
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.008	< 0.0002	0.00013	< 0.002	0.000148	0.000022	0.17	< 0.000003
16	CA10244-MAY19	< 0.00001	< 0.00005	0.009	0.0005	0.00009	< 0.002	0.000131	0.000021	0.16	< 0.000003
17	CA10388-MAY19	< 0.00001	< 0.00005	0.008	< 0.0002	0.00022	< 0.002	0.000114	0.000035	0.12	0.000011
18	CA10505-MAY19	< 0.00001	< 0.00005	0.008	0.0004	0.00011	< 0.002	0.000158	0.000032	0.13	0.000015
19	CA10028-JUN19	< 0.00001	< 0.00005	0.009	< 0.0002	0.00011	< 0.002	0.000193	0.000037	0.15	0.000018
20	CA10256-JUN19	< 0.00001	< 0.00005	0.011	< 0.0002	0.00015	< 0.002	0.000258	0.000041	0.13	0.000006

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659705
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0012	0,00022	0,005	0,018	2,38	0.283	0,108	0,0156	0,00445	3,15
1	CA11045-JAN19	0.00116	0.00020	0.00798	0.009	2.85	0.314	0.236	0.0226	0.00714	3.78
2	CA11005-FEB19	0.000291	0.00008	0.00263	< 0.007	1.05	0.0873	0.065	0.00696	0.00315	1.22
3	CA11012-FEB19	0.000148	0.00004	0.00098	< 0.007	0.665	0.0451	0.040	0.00510	0.00131	0.60
4	CA11025-FEB19	0.000079	< 0.00003	0.00057	< 0.007	0.482	0.0241	0.027	0.00328	0.00060	0.38
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	0.000068	< 0.00008	0.0006	< 0.007	0.284	0.0081	0.025	0.00385	0.00019	0.23
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	0.000096	< 0.00008	0.0002	< 0.007	0.214	0.0063	0.028	0.00444	0.00014	0.04
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.000095	< 0.00008	0.0006	< 0.007	0.177	0.0050	0.028	0.00468	0.00023	0.04
16	CA10244-MAY19	0.000080	< 0.00008	< 0.0002	< 0.007	0.179	0.0056	0.016	0.00374	0.00007	0.09
17	CA10388-MAY19	0.000091	< 0.00008	< 0.0002	< 0.007	0.129	0.0039	0.021	0.00385	0.00009	0.08
18	CA10505-MAY19	0.000123	< 0.00008	< 0.0002	< 0.007	0.113	0.0044	0.018	0.00443	0.00009	< 0.01
19	CA10028-JUN19	0.000131	< 0.00008	< 0.0002	< 0.007	0.117	0.0048	0.024	0.00451	0.00010	0.06
20	CA10256-JUN19	0.000108	< 0.00008	< 0.0002	< 0.007	0.135	0.0061	0.017	0.00427	0.00007	0.15

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659705
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0004	0,009	0,00051	0,0002	0,00012	0,32	0,0002	0,00233	0,0008	0,00019
1	CA11045-JAN19	0.0005	0.009	0.00036	0.0007	0.00018	1.16	0.00013	0.00542	0.0003	0.00015
2	CA11005-FEB19	0.0002	0.008	0.00009	0.0007	0.00011	1.06	0.00009	0.00163	0.0002	0.00008
3	CA11012-FEB19	< 0.0001	< 0.003	0.00006	0.0004	0.00007	1.02	0.00008	0.00132	0.0001	< 0.00005
4	CA11025-FEB19	< 0.0001	< 0.003	< 0.00001	0.0003	< 0.00004	0.76	0.00007	0.00078	< 0.0001	0.00511
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.0001	< 0.003	0.00001	< 0.0009	< 0.00004	0.66	< 0.00006	0.00079	< 0.0001	< 0.00005
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.0001	< 0.003	0.00003	< 0.0009	< 0.00004	0.62	< 0.00006	0.00087	< 0.0001	0.00007
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.0001	< 0.003	0.00005	< 0.0009	< 0.00004	0.57	0.00007	0.00093	< 0.0001	0.00007
16	CA10244-MAY19	< 0.0001	< 0.003	0.00001	< 0.0009	< 0.00004	0.57	< 0.00006	0.00078	< 0.0001	< 0.00005
17	CA10388-MAY19	< 0.0001	< 0.003	0.00004	< 0.0009	< 0.00004	0.47	< 0.00006	0.00067	< 0.0001	< 0.00005
18	CA10505-MAY19	< 0.0001	< 0.003	0.00006	< 0.0009	< 0.00004	0.49	< 0.00006	0.00075	< 0.0001	< 0.00005
19	CA10028-JUN19	< 0.0001	< 0.003	0.00004	< 0.0009	< 0.00004	0.41	< 0.00006	0.00080	< 0.0001	< 0.00005
20	CA10256-JUN19	< 0.0001	< 0.003	0.00004	< 0.0009	< 0.00004	0.55	< 0.00006	0.00078	< 0.0001	< 0.00005

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659705
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,000128	0,00728	0,00015	0,00321	0,000685	0,009
1	CA11045-JAN19	0,000076	0,0118	0,00017	0,00604	0,000524	0,008
2	CA11005-FEB19	0,000044	0,00258	0,00014	0,0035	0,000182	0,003
3	CA11012-FEB19	0,000034	0,00172	0,00012	0,00166	0,000076	0,003
4	CA11025-FEB19	0,000022	0,000944	0,00008	0,00113	0,000025	0,004
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	0.000022	0.000304	0.00003	0.00038	0.000006	0.003
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	0.000011	0.000188	0.00002	0.00022	< 0.000002	0.003
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	0.000014	0.000169	0.00002	0.00014	< 0.000002	0.003
16	CA10244-MAY19	< 0.000005	0.000144	0.00003	0.00016	< 0.000002	0.003
17	CA10388-MAY19	0.000016	0.000128	0.00002	0.00010	0.000008	0.004
18	CA10505-MAY19	0.000017	0.000190	< 0.00001	0.00012	0.000007	0.004
19	CA10028-JUN19	0.000014	0.000275	< 0.00001	0.00011	< 0.000002	0.005
20	CA10256-JUN19	0.000013	0.000109	0.00002	0.00010	0.000002	0.004

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659707
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	842	7.26	7	< 2	45	0.06	< 0.3	2.2
1	CA11045-JAN19	30-janv-19	1000	920	7.02	9	< 2	37	0.08	< 0.3	2.2
2	CA11005-FEB19	06-févr-19	1000	985	7.32	10	< 2	26	0.07	< 0.3	1.0
3	CA11012-FEB19	13-févr-19	1000	933	7.47	7	< 2	14	< 0.06	< 0.3	0.5
4	CA11025-FEB19	20-févr-19	1000	978	7.41	7	< 2	15	< 0.06	< 0.3	0.5
5	CA11042-FEB19	27-févr-19	1000	960	7.00	4	< 2	10	< 0.06	< 0.3	0.4
6	CA11003-MAR19	06-mars-19	1000	977	7.37	5	< 2	16	< 0.06	< 0.3	0.4
7	CA11011-MAR19	13-mars-19	1000	967	6.96	6	< 2	12	< 0.06	< 0.3	0.4
8	CA11041-MAR19	20-mars-19	1000	987	6.96	6	< 2	13	< 0.06	< 0.3	0.4
9	CA11053-MAR19	27-mars-19	1000	946	6.90	5	< 2	8	< 0.06	< 0.3	0.3
10	CA10028-APR19	03-avr-19	1000	1012	6.32	3	< 2	12	< 0.06	< 0.3	0.3
11	CA10116-APR19	10-avr-19	1000	943	6.64	4	< 2	7	< 0.06	< 0.3	0.3
12	CA10203-APR19	17-avr-19	1000	946	6.51	3	< 2	11	< 0.06	< 0.3	0.3
13	CA10233-APR19	24-avr-19	1000	968	6.54	2	3	8	0.06	< 0.3	0.3
14	CA10010-MAY19	01-mai-19	1000	954	6.35	5	< 2	7	< 0.06	< 0.3	0.3
15	CA10088-MAY19	08-mai-19	1000	978	6.55	3	< 2	10	0.07	< 0.3	0.3
16	CA10244-MAY19	15-mai-19	1000	989	6.54	3	< 2	6	0.06	< 0.3	0.2
17	CA10388-MAY19	22-mai-19	1000	957	6.54	2	< 2	6	0.07	< 0.3	0.2
18	CA10505-MAY19	29-mai-19	1000	952	6.73	2	< 2	7	0.07	< 0.3	0.2
19	CA10028-JUN19	05-juin-19	1000	1034	6.82	4	< 2	10	0.08	< 0.3	0.4
20	CA10256-JUN19	12-juin-19	1000	913	6.45	2	< 2	7	0.08	< 0.3	0.2

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659707
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0.048	0.0003	0.00019	0.005	0.000189	0,00125	2,36	0,000039
1	CA11045-JAN19	< 0.00001	< 0.0001	0.028	0.0006	0.00030	0.008	0.000108	0.00196	2.95	0.000029
2	CA11005-FEB19	< 0.00001	< 0.0001	0.020	0.0005	0.00060	0.005	0.000070	0.00142	2.36	0.000051
3	CA11012-FEB19	< 0.00001	< 0.0001	0.030	0.0003	0.00015	< 0.002	0.000041	0.00116	1.12	0.000039
4	CA11025-FEB19	< 0.00001	< 0.00005	0.025	0.0007	0.00016	0.002	0.000041	0.00137	1.65	0.000045
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.021	< 0.0002	0.00012	< 0.002	0.000025	0.000951	1.51	0.000076
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.019	< 0.0002	0.00013	< 0.002	0.000028	0.000698	1.23	0.000079
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.015	< 0.0002	0.00058	< 0.002	0.000025	0.00114	1.34	0.000077
16	CA10244-MAY19	0.00001	< 0.00005	0.018	< 0.0002	0.00009	< 0.002	0.000022	0.000893	1.14	0.000093
17	CA10388-MAY19	< 0.00001	< 0.00005	0.016	< 0.0002	0.00008	< 0.002	0.000017	0.000755	1.03	0.000102
18	CA10505-MAY19	< 0.00001	< 0.00005	0.010	0.0003	0.00004	< 0.002	0.000020	0.000853	0.70	0.000095
19	CA10028-JUN19	< 0.00001	< 0.00005	0.013	0.0002	0.00014	< 0.002	0.000033	0.000986	1.12	0.000115
20	CA10256-JUN19	< 0.00001	< 0.00005	0.017	< 0.0002	0.00012	< 0.002	0.000033	0.00153	0.96	0.000083

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659707
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,00331	0,0004	0,0166	0,021	2,81	0,184	0,135	0,0309	0,00112	3,48
1	CA11045-JAN19	0.00162	0.00031	0.0142	0.010	2.14	0.191	0.191	0.0218	0.00394	3.35
2	CA11005-FEB19	0.000827	0.00013	0.00516	< 0.007	1.37	0.0832	0.151	0.0218	0.00471	1.54
3	CA11012-FEB19	0.000267	0.00006	0.00208	< 0.007	0.740	0.0344	0.071	0.0118	0.00278	0.58
4	CA11025-FEB19	0.000274	< 0.00003	0.00103	< 0.007	0.673	0.0262	0.097	0.0192	0.00183	0.44
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	0.000137	< 0.00008	0.0009	< 0.007	0.314	0.0095	0.065	0.0223	0.00058	0.22
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	0.000096	< 0.00008	0.0003	< 0.007	0.188	0.0055	0.045	0.0200	0.00030	< 0.01
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.000189	< 0.00008	0.0004	< 0.007	0.157	0.0043	0.044	0.0290	0.00023	0.01
16	CA10244-MAY19	0.000321	< 0.00008	< 0.0002	< 0.007	0.165	0.0045	0.026	0.0199	0.00014	0.06
17	CA10388-MAY19	0.000074	< 0.00008	< 0.0002	< 0.007	0.117	0.0030	0.027	0.0186	0.00014	0.05
18	CA10505-MAY19	0.000089	< 0.00008	< 0.0002	0.008	0.081	0.0028	0.015	0.0145	0.00014	< 0.01
19	CA10028-JUN19	0.000129	< 0.00008	< 0.0002	0.027	0.101	0.0035	0.035	0.0242	0.00012	0.05
20	CA10256-JUN19	0.000072	< 0.00008	< 0.0002	< 0.007	0.115	0.0044	0.018	0.0181	0.00010	0.13

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659707
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0004	0,017	0,00174	0.0003	0,00027	0,45	0,00056	0,00808	0,0007	0,00022
1	CA11045-JAN19	0.0003	0.013	0.00090	0.0007	0.00055	0.48	0.00151	0.0112	0.0003	0.00019
2	CA11005-FEB19	0.0001	0.015	0.00049	0.0008	0.00050	0.82	0.00030	0.00942	0.0002	0.00006
3	CA11012-FEB19	< 0.0001	0.003	0.00022	0.0003	0.00027	0.50	0.00018	0.00461	0.0001	0.00005
4	CA11025-FEB19	< 0.0001	< 0.003	0.00011	0.0003	0.00027	0.68	0.00010	0.00596	< 0.0001	< 0.00005
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.0001	< 0.003	0.00004	< 0.0009	0.00024	0.54	0.00017	0.00476	< 0.0001	< 0.00005
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.0001	< 0.003	0.00003	< 0.0009	0.00012	0.38	< 0.00006	0.00317	< 0.0001	< 0.00005
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	0.00010	0.40	0.00009	0.00327	< 0.0001	< 0.00005
16	CA10244-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	0.00007	0.33	0.00062	0.00250	< 0.0001	< 0.00005
17	CA10388-MAY19	< 0.0001	0.003	0.00002	< 0.0009	0.00007	0.30	0.00008	0.00233	< 0.0001	< 0.00005
18	CA10505-MAY19	< 0.0001	< 0.003	0.00004	< 0.0009	0.00008	0.22	0.00032	0.00166	< 0.0001	< 0.00005
19	CA10028-JUN19	< 0.0001	< 0.003	0.00002	< 0.0009	0.00007	0.29	0.00048	0.00262	< 0.0001	< 0.00005
20	CA10256-JUN19	< 0.0001	< 0.003	0.00004	< 0.0009	0.00007	0.30	0.00008	0.00213	< 0.0001	< 0.00005

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659707
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,000163	0,0119	0,00013	0,0015	0,000552	0,004
1	CA11045-JAN19	0.000084	0.0941	0.00011	0.00267	0.000302	0.005
2	CA11005-FEB19	0.000097	0.0555	0.00006	0.00218	0.000208	0.003
3	CA11012-FEB19	0.000047	0.0206	0.00003	0.00077	0.000070	0.002
4	CA11025-FEB19	0.000059	0.0214	0.00003	0.00076	0.000051	0.003
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	0.000040	0.0116	0.00002	0.00023	0.000013	0.006
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	0.000022	0.00561	0.00001	0.00009	0.000002	0.003
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	0.000021	0.00303	< 0.00001	0.00005	< 0.000002	0.005
16	CA10244-MAY19	0.000008	0.00281	0.00001	0.00005	< 0.000002	0.003
17	CA10388-MAY19	0.000020	0.00214	0.00001	0.00004	< 0.000002	0.006
18	CA10505-MAY19	0.000021	0.00171	< 0.00001	0.00004	0.000004	0.004
19	CA10028-JUN19	0.000021	0.00265	< 0.00001	0.00004	0.000009	0.004
20	CA10256-JUN19	0.000019	0.00227	< 0.00001	0.00005	0.000002	0.003

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659709
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	830	6.94	4	< 2	33	< 0.06	< 0.3	2.8
1	CA11045-JAN19	30-janv-19	1000	973	7.41	8	< 2	39	0.06	< 0.3	3.2
2	CA11005-FEB19	06-févr-19	1000	990	7.21	7	< 2	23	0.07	< 0.3	1.4
3	CA11012-FEB19	13-févr-19	1000	977	7.08	4	< 2	16	0.07	< 0.3	0.6
4	CA11025-FEB19	20-févr-19	1000	998	7.15	5	< 2	12	0.07	< 0.3	0.4
5	CA11042-FEB19	27-févr-19	1000	978	7.10	6	< 2	11	0.07	< 0.3	0.3
6	CA11003-MAR19	06-mars-19	1000	968	7.11	5	< 2	10	0.08	< 0.3	1.5
7	CA11011-MAR19	13-mars-19	1000	967	6.94	4	< 2	10	0.10	< 0.3	0.5
8	CA11041-MAR19	20-mars-19	1000	982	7.01	4	< 2	9	0.08	< 0.3	0.3
9	CA11053-MAR19	27-mars-19	1000	994	7.05	5	< 2	11	0.08	< 0.3	0.3
10	CA10028-APR19	03-avr-19	1000	1019	6.32	2	< 2	9	0.08	< 0.3	0.2
11	CA10116-APR19	10-avr-19	1000	993	6.54	17	< 2	6	0.08	< 0.3	0.2
12	CA10203-APR19	17-avr-19	1000	1005	6.76	2	< 2	6	0.07	< 0.3	0.2
13	CA10233-APR19	24-avr-19	1000	984	6.42	< 2	2	6	0.09	< 0.3	0.2
14	CA10010-MAY19	01-mai-19	1000	998	6.19	2	< 2	5	0.09	< 0.3	0.2
15	CA10088-MAY19	08-mai-19	1000	962	6.50	3	< 2	14	0.10	< 0.3	0.2
16	CA10244-MAY19	15-mai-19	1000	951	6.12	< 2	2	3	0.08	< 0.3	< 0.2
17	CA10388-MAY19	22-mai-19	1000	933	6.34	< 2	2	3	0.11	< 0.3	< 0.2
18	CA10505-MAY19	29-mai-19	1000	957	6.39	2	< 2	6	0.10	< 0.3	0.2
19	CA10028-JUN19	05-juin-19	1000	997	6.62	2	< 2	6	0.09	< 0.3	< 0.2
20	CA10256-JUN19	12-juin-19	1000	921	6.44	2	< 2	5	0.09	< 0.3	< 0.2
21	CA10450-JUN19	19-juin-19	1000	939	6,09	< 2	2	4	0,1	< 0.3	< 0.2
22	CA10615-JUN19	26-juin-19	1000	976	6,52	2	< 2	5	0,13	< 0.3	< 0.2
23	CA10022-JUL19	03-juil-19	1000	1055	6,5	2	< 2	3	0,12	< 0.3	< 0.2
24	CA10105-JUL19	10-juil-19	1000	995	6,54	2	< 2	5	0,12	< 0.3	< 0.2
25	CA10130-JUL19	17-juil-19	1000	1013	6,4	2	4	6	0,13	< 0.3	< 0.2
26	CA10337-JUL19	24-juil-19	1000	998	6,41	2	< 2	4	0,14	< 0.3	< 0.2
27	CA10389-JUL19	31-juil-19	1000	1008	6,55	2	2	6	0,14	< 0.3	< 0.2
28	CA10023-AUG19	07-août-19	1000	999	6,69	2	4	5	0,13	< 0.3	< 0.2

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659709
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0.022	0.0002	0.00015	0.002	0.000098	0,000156	2,15	0,000013
1	CA11045-JAN19	< 0.00001	< 0.0001	0.015	0.0004	0.00029	0.006	0.000069	0.000812	2.58	0.000011
2	CA11005-FEB19	< 0.00001	< 0.0001	0.019	0.0005	0.00027	0.003	0.000045	0.000533	1.54	0.000012
3	CA11012-FEB19	< 0.00001	< 0.0001	0.029	< 0.0002	0.00013	< 0.002	0.000055	0.000742	1.14	0.000007
4	CA11025-FEB19	< 0.00001	< 0.00005	0.023	0.0003	0.00013	< 0.002	0.000038	0.000570	1.20	0.000011
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.021	< 0.0002	0.00005	< 0.002	0.000029	0.000724	0.98	0.000031
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.019	< 0.0002	0.00008	< 0.002	0.000037	0.000656	0.93	0.000013
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.010	< 0.0002	0.00010	< 0.002	0.000026	0.000290	0.83	0.000017
16	CA10244-MAY19	< 0.00001	< 0.00005	0.011	< 0.0002	0.00006	< 0.002	0.000027	0.000419	0.48	0.000008
17	CA10388-MAY19	< 0.00001	< 0.00005	0.013	< 0.0002	0.00004	< 0.002	0.000027	0.000603	0.41	0.000007
18	CA10505-MAY19	< 0.00001	< 0.00005	0.009	0.0003	0.00009	< 0.002	0.000020	0.000466	0.58	0.000012
19	CA10028-JUN19	< 0.00001	< 0.00005	0.008	0.0005	0.00006	< 0.002	0.000031	0.000445	0.71	0.000003
20	CA10256-JUN19	< 0.00001	< 0.00005	0.008	< 0.0002	0.00007	< 0.002	0.000034	0.000376	0.48	0.000008
21	CA10450-JUN19	---	---	---	---	---	---	---	---	---	---
22	CA10615-JUN19	---	---	---	---	---	---	---	---	---	---
23	CA10022-JUL19	---	---	---	---	---	---	---	---	---	---
24	CA10105-JUL19	< 0.00001	< 0.00005	0,012	< 0.0002	0,00013	0,004	0,000035	0,000511	0,63	0,000014
25	CA10130-JUL19	---	---	---	---	---	---	---	---	---	---
26	CA10337-JUL19	---	---	---	---	---	---	---	---	---	---
27	CA10389-JUL19	---	---	---	---	---	---	---	---	---	---
28	CA10023-AUG19	< 0.00001	< 0.00005	0,009	0,0004	0,00013	< 0.002	0,00003	0,000529	0,8	0,000015

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659709
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0012	0,00006	0,00376	< 0.007	0,404	0,196	0,064	0,0165	0,00042	2,68
1	CA11045-JAN19	0.000594	0.00004	0.00343	< 0.007	0.505	0.309	0.086	0.0128	0.00093	4.50
2	CA11005-FEB19	0.000275	< 0.00003	0.00155	< 0.007	0.303	0.129	0.049	0.0108	0.00114	2.18
3	CA11012-FEB19	0.000192	< 0.00003	0.00072	< 0.007	0.218	0.0817	0.035	0.0118	0.00052	1.19
4	CA11025-FEB19	0.000115	< 0.00003	0.00090	< 0.007	0.182	0.0505	0.032	0.0137	0.00023	0.84
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	0.000053	< 0.00008	0.0005	< 0.007	0.112	0.0152	0.022	0.0160	0.00014	0.38
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	0.000065	< 0.00008	0.0003	< 0.007	0.068	0.0085	0.016	0.0200	0.00009	0.12
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.000064	< 0.00008	0.0006	< 0.007	0.059	0.0058	0.014	0.0185	0.00015	0.09
16	CA10244-MAY19	0.000043	< 0.00008	< 0.0002	< 0.007	0.067	0.0048	0.002	0.0104	< 0.00004	0.11
17	CA10388-MAY19	0.000033	< 0.00008	< 0.0002	< 0.007	0.038	0.0031	0.006	0.00739	0.00006	0.08
18	CA10505-MAY19	0.000046	< 0.00008	< 0.0002	< 0.007	0.030	0.0048	0.005	0.0116	0.00004	< 0.01
19	CA10028-JUN19	0.000057	< 0.00008	< 0.0002	< 0.007	0.034	0.0050	0.010	0.0167	< 0.00004	0.10
20	CA10256-JUN19	0.000030	< 0.00008	< 0.0002	< 0.007	0.039	0.0053	0.003	0.00968	< 0.00004	0.17
21	CA10450-JUN19	---	---	---	---	---	---	---	---	---	---
22	CA10615-JUN19	---	---	---	---	---	---	---	---	---	---
23	CA10022-JUL19	---	---	---	---	---	---	---	---	---	---
24	CA10105-JUL19	0,000058	< 0.00008	0,0004	< 0.007	0,052	0,0046	0,008	0,0164	0,00117	0,1
25	CA10130-JUL19	---	---	---	---	---	---	---	---	---	---
26	CA10337-JUL19	---	---	---	---	---	---	---	---	---	---
27	CA10389-JUL19	---	---	---	---	---	---	---	---	---	---
28	CA10023-AUG19	0,000063	< 0.00008	< 0.0002	< 0.007	0,062	0,0039	0,009	0,0188	0,00251	0,1

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659709
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0002	0,009	0,00015	0.0002	0,00018	0,35	0,00021	0,0127	< 0.0001	0,00009
1	CA11045-JAN19	0.0001	0.004	0.00011	0.0007	0.00024	0.61	0.00017	0.0113	0.0001	< 0.00005
2	CA11005-FEB19	0.0001	0.003	0.00003	0.0006	0.00015	0.61	0.00013	0.00593	< 0.0001	< 0.00005
3	CA11012-FEB19	0.0001	< 0.003	0.00003	0.0004	0.00013	0.65	0.00012	0.00447	< 0.0001	< 0.00005
4	CA11025-FEB19	< 0.0001	< 0.003	0.00001	0.0003	0.00009	0.60	0.00006	0.00368	< 0.0001	< 0.00005
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.0001	< 0.003	0.00002	< 0.0009	0.00012	0.47	0.00011	0.00268	< 0.0001	< 0.00005
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.0001	< 0.003	0.00002	< 0.0009	0.00007	0.49	< 0.00006	0.00210	< 0.0001	< 0.00005
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	0.00006	0.39	0.00009	0.00183	< 0.0001	< 0.00005
16	CA10244-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.20	0.00010	0.00109	< 0.0001	< 0.00005
17	CA10388-MAY19	< 0.0001	< 0.003	0.00001	< 0.0009	< 0.00004	0.15	0.00007	0.00084	< 0.0001	< 0.00005
18	CA10505-MAY19	< 0.0001	< 0.003	0.00002	< 0.0009	< 0.00004	0.21	0.00009	0.00127	< 0.0001	< 0.00005
19	CA10028-JUN19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.25	< 0.00006	0.00146	< 0.0001	< 0.00005
20	CA10256-JUN19	< 0.0001	< 0.003	0.00001	< 0.0009	< 0.00004	0.19	0.00008	0.00100	< 0.0001	< 0.00005
21	CA10450-JUN19	---	---	---	---	---	---	---	---	---	---
22	CA10615-JUN19	---	---	---	---	---	---	---	---	---	---
23	CA10022-JUL19	---	---	---	---	---	---	---	---	---	---
24	CA10105-JUL19	< 0.0001	< 0.003	0,00003	< 0.0009	0,00005	0,28	0,00013	0,00138	< 0.0001	< 0.00005
25	CA10130-JUL19	---	---	---	---	---	---	---	---	---	---
26	CA10337-JUL19	---	---	---	---	---	---	---	---	---	---
27	CA10389-JUL19	---	---	---	---	---	---	---	---	---	---
28	CA10023-AUG19	< 0.0001	< 0.003	0,00004	< 0.0009	< 0.00004	0,39	< 0.00006	0,00153	< 0.0001	< 0.00005

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659709
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,000005	0,00876	0,00005	0,00057	0,000045	0,005
1	CA11045-JAN19	< 0.000005	0.225	0.00004	0.00154	0.000031	0.005
2	CA11005-FEB19	0.000013	0.117	0.00003	0.00100	0.000010	0.002
3	CA11012-FEB19	0.000009	0.112	0.00002	0.00059	0.000003	< 0.002
4	CA11025-FEB19	0.000010	0.0624	0.00003	0.00063	0.000003	< 0.002
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	0.000015	0.0299	0.00002	0.00015	0.000002	0.006
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	< 0.000005	0.00999	< 0.00001	0.00010	< 0.000002	< 0.002
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000005	0.00612	0.00002	0.00005	< 0.000002	0.002
16	CA10244-MAY19	< 0.000005	0.00366	0.00002	0.00002	< 0.000002	0.003
17	CA10388-MAY19	0.000006	0.00449	< 0.00001	0.00003	< 0.000002	< 0.002
18	CA10505-MAY19	< 0.000005	0.00638	< 0.00001	0.00004	0.000002	0.002
19	CA10028-JUN19	0.000005	0.00805	< 0.00001	0.00005	< 0.000002	0.002
20	CA10256-JUN19	0.000005	0.00538	< 0.00001	0.00004	0.000002	< 0.002
21	CA10450-JUN19	---	---	---	---	---	---
22	CA10615-JUN19	---	---	---	---	---	---
23	CA10022-JUL19	---	---	---	---	---	---
24	CA10105-JUL19	< 0.000005	0,00492	< 0.00001	0,00002	0,000007	< 0.002
25	CA10130-JUL19	---	---	---	---	---	---
26	CA10337-JUL19	---	---	---	---	---	---
27	CA10389-JUL19	---	---	---	---	---	---
28	CA10023-AUG19	< 0.000005	0,00544	0,00014	< 0.00002	0,000002	< 0.002

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659711
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	845	6.96	4	< 2	20	< 0.06	< 0.3	1.5
1	CA11045-JAN19	30-janv-19	1000	946	7.42	3	< 2	18	< 0.06	< 0.3	2.0
2	CA11005-FEB19	06-févr-19	1000	916	7.30	4	< 2	13	< 0.06	< 0.3	0.9
3	CA11012-FEB19	13-févr-19	1000	997	7.34	5	< 2	13	< 0.06	< 0.3	0.4
4	CA11025-FEB19	20-févr-19	1000	892	6.96	4	< 2	6	< 0.06	< 0.3	0.2
5	CA11042-FEB19	27-févr-19	1000	995	7.08	4	< 2	8	< 0.06	< 0.3	< 0.2
6	CA11003-MAR19	06-mars-19	1000	915	6.32	2	< 2	5	< 0.06	< 0.3	< 0.2
7	CA11011-MAR19	13-mars-19	1000	947	7.18	4	< 2	7	< 0.06	< 0.3	< 0.2
8	CA11041-MAR19	20-mars-19	1000	966	6.94	3	< 2	5	< 0.06	< 0.3	< 0.2
9	CA11053-MAR19	27-mars-19	1000	937	6.61	< 2	< 2	4	< 0.06	< 0.3	< 0.2
10	CA10028-APR19	03-avr-19	1000	933	6.51	2	< 2	5	< 0.06	< 0.3	< 0.2
11	CA10116-APR19	10-avr-19	1000	933	6.44	2	< 2	4	< 0.06	< 0.3	< 0.2
12	CA10203-APR19	17-avr-19	1000	962	6.44	3	< 2	6	< 0.06	< 0.3	< 0.2
13	CA10233-APR19	24-avr-19	1000	966	6.51	< 2	< 2	3	< 0.06	< 0.3	< 0.2
14	CA10010-MAY19	01-mai-19	1000	954	6.67	< 2	< 2	4	< 0.06	< 0.3	< 0.2
15	CA10088-MAY19	08-mai-19	1000	1024	6.34	< 2	< 2	3	< 0.06	< 0.3	< 0.2
16	CA10244-MAY19	15-mai-19	1000	1007	6.23	< 2	2	4	< 0.06	< 0.3	< 0.2
17	CA10388-MAY19	22-mai-19	1000	979	6.47	< 2	< 2	4	< 0.06	< 0.3	< 0.2
18	CA10505-MAY19	29-mai-19	1000	980	6.45	4	< 2	4	< 0.06	< 0.3	< 0.2
19	CA10028-JUN19	05-juin-19	1000	1000	6.13	< 2	3	7	< 0.06	< 0.3	< 0.2
20	CA10256-JUN19	12-juin-19	1000	893	6.25	< 2	< 2	3	< 0.06	< 0.3	< 0.2

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659711
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0.041	< 0.0002	0.00029	< 0.002	< 0.000007	< 0.000007	0,75	< 0.000003
1	CA11045-JAN19	< 0.00001	< 0.0001	0.028	0.0002	0.00038	0.003	< 0.000007	< 0.000007	0.62	0.000007
2	CA11005-FEB19	< 0.00001	< 0.0001	0.030	0.0003	0.00021	0.002	< 0.000007	< 0.000007	0.27	< 0.000003
3	CA11012-FEB19	< 0.00001	< 0.0001	0.032	0.0002	0.00047	0.003	< 0.000007	< 0.000007	0.60	0.000010
4	CA11025-FEB19	< 0.00001	< 0.00005	0.036	0.0006	0.00015	0.002	< 0.000007	< 0.000007	0.21	< 0.000003
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.016	< 0.0002	0.00018	< 0.002	< 0.000007	< 0.000007	0.27	< 0.000003
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.006	< 0.0002	0.00016	< 0.002	< 0.000007	< 0.000007	0.20	< 0.000003
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.003	< 0.0002	0.00020	< 0.002	< 0.000007	< 0.000007	0.22	< 0.000003
16	CA10244-MAY19	< 0.00001	< 0.00005	0.011	< 0.0002	0.00022	< 0.002	< 0.000007	< 0.000007	0.28	0.000006
17	CA10388-MAY19	< 0.00001	< 0.00005	0.007	< 0.0002	0.00016	< 0.002	< 0.000007	< 0.000007	0.19	< 0.000003
18	CA10505-MAY19	< 0.00001	< 0.00005	0.003	0.0006	0.00014	< 0.002	< 0.000007	< 0.000007	0.15	< 0.000003
19	CA10028-JUN19	< 0.00001	< 0.00005	0.005	< 0.0002	0.00017	< 0.002	< 0.000007	< 0.000007	0.21	< 0.000003
20	CA10256-JUN19	< 0.00001	< 0.00005	0.006	< 0.0002	0.00014	< 0.002	< 0.000007	< 0.000007	0.11	0.000008

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659711
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000004	0,00005	0,00086	0,007	1,43	0,0159	0,154	0,00141	0,00138	1,48
1	CA11045-JAN19	0.000031	< 0.00003	0.00089	< 0.007	1.46	0.0231	0.176	0.00113	0.00294	2.16
2	CA11005-FEB19	0.000014	< 0.00003	0.00031	< 0.007	0.990	0.0154	0.071	0.00033	0.00199	1.26
3	CA11012-FEB19	0.000010	0.00003	0.00072	< 0.007	1.10	0.0138	0.147	0.00049	0.00106	0.84
4	CA11025-FEB19	< 0.000004	< 0.00003	0.00050	< 0.007	0.711	0.0077	0.052	0.00021	0.00060	0.51
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000004	< 0.00008	0.0004	< 0.007	0.475	0.0030	0.073	0.00016	0.00020	0.23
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.000004	< 0.00008	0.0003	< 0.007	0.317	0.0019	0.058	0.00018	0.00011	0.03
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000004	< 0.00008	0.0003	< 0.007	0.292	0.0011	0.058	0.00053	0.00015	0.03
16	CA10244-MAY19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.442	0.0018	0.061	0.00026	0.00015	0.09
17	CA10388-MAY19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.345	0.0010	0.057	0.00022	0.00012	0.06
18	CA10505-MAY19	0.000002	< 0.00008	< 0.0002	< 0.007	0.299	0.0009	0.038	0.00022	0.00008	< 0.01
19	CA10028-JUN19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.346	0.0012	0.062	0.00027	0.00011	0.07
20	CA10256-JUN19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.323	0.0012	0.030	0.00010	0.00007	0.14

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659711
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0004	0,035	< 0.00001	0.0003	0,00004	0,26	0,00029	0,00239	< 0.0001	0,00074
1	CA11045-JAN19	0.0007	0.018	< 0.00001	0.0003	0.00005	0.23	0.00028	0.00211	< 0.0001	0.00034
2	CA11005-FEB19	0.0004	0.018	< 0.00001	0.0003	< 0.00004	0.23	0.00018	0.00102	< 0.0001	0.00035
3	CA11012-FEB19	0.0002	0.018	0.00002	0.0002	< 0.00004	0.54	0.00015	0.00254	< 0.0001	0.00012
4	CA11025-FEB19	< 0.0001	0.013	< 0.00001	< 0.0002	< 0.00004	0.26	0.00014	0.00084	< 0.0001	0.00038
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.0001	0.004	< 0.00001	< 0.0009	< 0.00004	0.42	0.00012	0.00115	< 0.0001	0.00010
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.30	< 0.00006	0.00072	< 0.0001	0.00005
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.0001	< 0.003	0.00001	< 0.0009	< 0.00004	0.34	0.00077	0.00083	< 0.0001	< 0.00005
16	CA10244-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.41	0.00060	0.00096	< 0.0001	0.00006
17	CA10388-MAY19	< 0.0001	0.008	< 0.00001	< 0.0009	< 0.00004	0.34	0.00025	0.00081	< 0.0001	< 0.00005
18	CA10505-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.23	0.00034	0.00069	< 0.0001	< 0.00005
19	CA10028-JUN19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.30	0.00032	0.00085	< 0.0001	0.00143
20	CA10256-JUN19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.21	0.00016	0.00052	< 0.0001	< 0.00005

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659711
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000005	0,000098	0,00045	0,00021	0,000017	< 0.002
1	CA11045-JAN19	< 0.000005	0.000395	0.00057	0.00052	0.000010	< 0.002
2	CA11005-FEB19	< 0.000005	0.000581	0.00061	0.00064	0.000003	0.003
3	CA11012-FEB19	< 0.000005	0.000632	0.00070	0.00060	0.000005	0.003
4	CA11025-FEB19	< 0.000005	0.000241	0.00055	0.00026	0.000002	< 0.002
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000005	0.000090	0.00040	0.00015	0.000002	< 0.002
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	< 0.000005	0.000063	0.00030	0.00003	< 0.000002	< 0.002
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000005	0.000031	0.00025	0.00003	< 0.000002	< 0.002
16	CA10244-MAY19	< 0.000005	0.000053	0.00024	0.00003	< 0.000002	0.003
17	CA10388-MAY19	< 0.000005	0.000042	0.00021	0.00003	< 0.000002	< 0.002
18	CA10505-MAY19	< 0.000005	0.000033	0.00020	0.00002	< 0.000002	< 0.002
19	CA10028-JUN19	< 0.000005	0.000029	0.00018	0.00002	< 0.000002	< 0.002
20	CA10256-JUN19	< 0.000005	0.000035	0.00021	0.00004	0.000002	< 0.002

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659711 Dup
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	864	6.93	5	< 2	24	< 0.06	< 0.3	2.0
1	CA11045-JAN19	30-janv-19	1000	937	7.06	2	< 2	14	< 0.06	< 0.3	1.4
2	CA11005-FEB19	06-févr-19	1000	955	7.01	4	< 2	10	< 0.06	< 0.3	0.6
3	CA11012-FEB19	13-févr-19	1000	948	7.14	3	< 2	7	< 0.06	< 0.3	0.2
4	CA11025-FEB19	20-févr-19	1000	942	6.94	5	< 2	6	< 0.06	< 0.3	< 0.2
5	CA11042-FEB19	27-févr-19	1000	967	6.83	2	< 2	5	< 0.06	< 0.3	< 0.2
6	CA11003-MAR19	06-mars-19	1000	924	6.05	< 2	< 2	5	< 0.06	< 0.3	< 0.2
7	CA11011-MAR19	13-mars-19	1000	951	6.86	2	< 2	4	< 0.06	< 0.3	< 0.2
8	CA11041-MAR19	20-mars-19	1000	930	6.88	3	2	4	< 0.06	< 0.3	< 0.2
9	CA11053-MAR19	27-mars-19	1000	955	6.48	< 2	< 2	4	< 0.06	< 0.3	< 0.2
10	CA10028-APR19	03-avr-19	1000	964	6.48	2	2	4	< 0.06	< 0.3	< 0.2
11	CA10116-APR19	10-avr-19	1000	964	6.47	2	< 2	3	< 0.06	< 0.3	< 0.2
12	CA10203-APR19	17-avr-19	1000	968	6.24	< 2	3	4	< 0.06	< 0.3	< 0.2
13	CA10233-APR19	24-avr-19	1000	959	6.51	2	< 2	3	< 0.06	< 0.3	< 0.2
14	CA10010-MAY19	01-mai-19	1000	995	6.16	< 2	2	3	< 0.06	< 0.3	< 0.2
15	CA10088-MAY19	08-mai-19	1000	978	6.09	2	4	4	< 0.06	< 0.3	< 0.2
16	CA10244-MAY19	15-mai-19	1000	1005	6.07	< 2	2	3	< 0.06	< 0.3	< 0.2
17	CA10388-MAY19	22-mai-19	1000	1006	6.33	< 2	< 2	3	< 0.06	< 0.3	< 0.2
18	CA10505-MAY19	29-mai-19	1000	971	6.19	< 2	2	3	< 0.06	< 0.3	< 0.2
19	CA10028-JUN19	05-juin-19	1000	997	6.39	< 2	< 2	4	< 0.06	< 0.3	< 0.2
20	CA10256-JUN19	12-juin-19	1000	911	6.43	< 2	< 2	3	< 0.06	< 0.3	< 0.2

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659711 Dup
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0.041	< 0.0002	0.00041	0.002	< 0.000007	< 0.000007	1	< 0.000003
1	CA11045-JAN19	< 0.00001	< 0.0001	0.027	< 0.0002	0.00031	0.003	< 0.000007	< 0.000007	0.53	< 0.000003
2	CA11005-FEB19	< 0.00001	< 0.0001	0.027	< 0.0002	0.00030	0.010	< 0.000007	< 0.000007	0.28	< 0.000003
3	CA11012-FEB19	< 0.00001	< 0.0001	0.032	0.0005	0.00022	< 0.002	0.000011	< 0.000007	0.25	< 0.000003
4	CA11025-FEB19	< 0.00001	< 0.00005	0.023	0.0005	0.00018	0.002	< 0.000007	< 0.000007	0.22	< 0.000003
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.015	< 0.0002	0.00013	< 0.002	< 0.000007	< 0.000007	0.15	< 0.000003
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.005	< 0.0002	0.00265	< 0.002	< 0.000007	0.000218	0.18	< 0.000003
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.018	< 0.0002	0.00274	< 0.002	< 0.000007	< 0.000007	0.25	< 0.000003
16	CA10244-MAY19	< 0.00001	< 0.00005	0.007	0.0005	0.00023	< 0.002	< 0.000007	< 0.000007	0.23	< 0.000003
17	CA10388-MAY19	< 0.00001	< 0.00005	0.005	0.0005	0.00015	< 0.002	< 0.000007	< 0.000007	0.16	< 0.000003
18	CA10505-MAY19	< 0.00001	< 0.00005	0.003	0.0002	0.00017	< 0.002	< 0.000007	< 0.000007	0.18	0.000010
19	CA10028-JUN19	< 0.00001	< 0.00005	0.005	0.0008	0.00021	< 0.002	0.000026	< 0.000007	0.22	< 0.000003
20	CA10256-JUN19	< 0.00001	< 0.00005	0.006	< 0.0002	0.00016	< 0.002	< 0.000007	< 0.000007	0.15	< 0.000003

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659711 Dup
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,00002	0,00006	0,00122	0,007	1,63	0,0163	0,199	0,00204	0,00112	1,75
1	CA11045-JAN19	0.000019	0.00005	0.00099	< 0.007	1.25	0.0158	0.134	0.00119	0.00219	1.67
2	CA11005-FEB19	0.000011	0.00003	0.00050	< 0.007	0.798	0.0107	0.073	0.00036	0.00203	0.87
3	CA11012-FEB19	0.000007	< 0.00003	0.00028	< 0.007	0.722	0.0086	0.053	0.00037	0.00112	0.56
4	CA11025-FEB19	0.000015	< 0.00003	0.00059	< 0.007	0.652	0.0063	0.049	0.00018	0.00062	0.38
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000004	< 0.00008	0.0005	< 0.007	0.416	0.0026	0.037	0.00016	0.00020	0.18
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.000004	< 0.00008	0.0003	< 0.007	0.288	0.0015	0.045	0.00017	0.00011	< 0.01
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.000017	< 0.00008	0.0004	< 0.007	0.256	0.0009	0.060	0.0289	0.00014	0.02
16	CA10244-MAY19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.341	0.0013	0.052	0.00019	0.00009	0.07
17	CA10388-MAY19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.234	0.0008	0.043	0.00016	0.00011	0.04
18	CA10505-MAY19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.237	0.0008	0.039	0.00020	0.00005	< 0.01
19	CA10028-JUN19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.290	0.0010	0.059	0.00022	0.00010	0.06
20	CA10256-JUN19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.313	0.0012	0.035	0.00007	0.00007	0.16

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659711 Dup
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0007	0,028	< 0.00001	0.0003	0,00006	0,24	0,0005	0,00325	< 0.0001	0,00049
1	CA11045-JAN19	0.0006	0.019	0.00004	0.0003	0.00004	0.20	0.00014	0.00172	< 0.0001	0.00038
2	CA11005-FEB19	0.0006	0.010	< 0.00001	0.0004	< 0.00004	0.16	0.00016	0.00087	< 0.0001	0.00043
3	CA11012-FEB19	0.0001	0.014	< 0.00001	< 0.0002	< 0.00004	0.29	0.00018	0.00104	< 0.0001	0.00023
4	CA11025-FEB19	< 0.0001	0.008	< 0.00001	0.0002	< 0.00004	0.22	0.00012	0.00089	< 0.0001	0.00012
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.0001	0.003	0.00004	< 0.0009	< 0.00004	0.21	0.00013	0.00068	< 0.0001	0.00015
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.25	0.00011	0.00072	< 0.0001	< 0.00005
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	0.00004	0.32	0.00011	0.00191	< 0.0001	0.00016
16	CA10244-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.33	0.00009	0.00099	< 0.0001	0.00009
17	CA10388-MAY19	< 0.0001	0.004	< 0.00001	< 0.0009	< 0.00004	0.26	< 0.00006	0.00067	< 0.0001	< 0.00005
18	CA10505-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.23	< 0.00006	0.00078	< 0.0001	< 0.00005
19	CA10028-JUN19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.25	< 0.00006	0.00097	< 0.0001	0.00005
20	CA10256-JUN19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.21	0.00006	0.00076	< 0.0001	0.00005

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659711 Dup
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000005	0,000115	0,00043	0,00021	0,000027	< 0.002
1	CA11045-JAN19	< 0.000005	0.000233	0.00051	0.00029	0.000024	0.002
2	CA11005-FEB19	< 0.000005	0.000269	0.00049	0.00043	0.000008	< 0.002
3	CA11012-FEB19	< 0.000005	0.000279	0.00067	0.00027	0.000005	< 0.002
4	CA11025-FEB19	< 0.000005	0.000233	0.00051	0.00022	0.000003	< 0.002
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000005	0.000069	0.00033	0.00012	< 0.000002	< 0.002
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	< 0.000005	0.000100	0.00025	0.00005	< 0.000002	0.004
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000005	0.000018	0.00021	0.00003	0.000008	< 0.002
16	CA10244-MAY19	< 0.000005	0.000054	0.00029	0.00003	< 0.000002	0.002
17	CA10388-MAY19	< 0.000005	0.000039	0.00020	0.00003	< 0.000002	0.003
18	CA10505-MAY19	< 0.000005	0.000029	0.00017	< 0.00002	< 0.000002	< 0.002
19	CA10028-JUN19	< 0.000005	0.000040	0.00019	< 0.00002	0.000002	0.002
20	CA10256-JUN19	< 0.000005	0.000037	0.00021	0.00002	< 0.000002	< 0.002

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659713
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	881	6.86	4	< 2	48	< 0.06	< 0.3	10
1	CA11045-JAN19	30-janv-19	1000	962	6.74	2	< 2	30	< 0.06	< 0.3	8.2
2	CA11005-FEB19	06-févr-19	1000	953	6.72	2	< 2	13	< 0.06	< 0.3	2.7
3	CA11012-FEB19	13-févr-19	1000	938	6.58	< 2	< 2	7	< 0.06	< 0.3	1.5
4	CA11025-FEB19	20-févr-19	1000	920	6.29	2	< 2	5	< 0.06	< 0.3	1.2
5	CA11042-FEB19	27-févr-19	1000	967	6.09	2	< 2	6	< 0.06	< 0.3	1.2
6	CA11003-MAR19	06-mars-19	1000	955	5.99	< 2	< 2	5	< 0.06	< 0.3	1.1
7	CA11011-MAR19	13-mars-19	1000	920	5.86	< 2	< 2	6	< 0.06	< 0.3	1.2
8	CA11041-MAR19	20-mars-19	1000	946	6.52	< 2	< 2	6	< 0.06	< 0.3	1.3
9	CA11053-MAR19	27-mars-19	1000	956	6.27	< 2	< 2	6	< 0.06	< 0.3	1.2
10	CA10028-APR19	03-avr-19	1000	977	6.20	< 2	2	6	< 0.06	< 0.3	1.0
11	CA10116-APR19	10-avr-19	1000	942	6.31	< 2	4	4	< 0.06	< 0.3	0.8
12	CA10203-APR19	17-avr-19	1000	957	6.34	< 2	2	6	< 0.06	< 0.3	1.0
13	CA10233-APR19	24-avr-19	1000	950	6.15	< 2	2	3	< 0.06	< 0.3	0.9
14	CA10010-MAY19	01-mai-19	1000	954	6.11	< 2	2	4	< 0.06	< 0.3	0.9
15	CA10088-MAY19	08-mai-19	1000	932	6.37	< 2	3	5	< 0.06	< 0.3	1.2
16	CA10244-MAY19	15-mai-19	1000	947	5.96	< 2	4	5	< 0.06	< 0.3	0.9
17	CA10388-MAY19	22-mai-19	1000	951	5.99	< 2	3	3	< 0.06	< 0.3	0.9
18	CA10505-MAY19	29-mai-19	1000	932	5.64	< 2	3	5	< 0.06	< 0.3	0.9
19	CA10028-JUN19	05-juin-19	1000	952	5.87	< 2	6	4	< 0.06	< 0.3	0.8
20	CA10256-JUN19	12-juin-19	1000	941	5.73	< 2	3	4	< 0.06	< 0.3	0.8
21	CA10450-JUN19	19-juin-19	1000	952	5,89	< 2	2	4	< 0.06	< 0.3	0,8
22	CA10615-JUN19	26-juin-19	1000	931	5,5	< 2	2	5	< 0.06	< 0.3	0,8
23	CA10022-JUL19	03-juil-19	1000	998	5,8	< 2	2	3	< 0.06	< 0.3	0,8
24	CA10105-JUL19	10-juil-19	1000	925	6,14	< 2	3	3	< 0.06	< 0.3	0,6
25	CA10130-JUL19	17-juil-19	1000	1017	5,94	< 2	2	5	< 0.06	< 0.3	0,8
26	CA10337-JUL19	24-juil-19	1000	1032	5,53	< 2	2	4	< 0.06	< 0.3	0,8
27	CA10389-JUL19	31-juil-19	1000	1020	5,78	< 2	2	4	< 0.06	< 0.3	0,6
28	CA10023-AUG19	07-août-19	1000	999	6,05	< 2	< 2	2	< 0.06	< 0.3	0,8
29	CA10118-AUG19	14-août-19	1000	1024	6	< 2	4	2	< 0.06	< 0.3	0,8
30	CA10188-AUG19	21-août-19	1000	977	5,93	< 2	2	2	< 0.06	< 0.3	0,8
31	CA10279-AUG19	28-août-19	1000	947	5,94	< 2	3	< 2	0,06	< 0.3	1
32	CA10019-SEP19	04-sept-19	1000	1013	5,75	< 2	2	4	< 0.06	< 0.3	0,8
33	CA10045-SEP19	11-sept-19	1000	1034	5,72	< 2	2	2	< 0.06	< 0.3	0,7
34	CA10147-SEP19	18-sept-19	1000	1020	5,83	< 2	2	< 2	< 0.06	< 0.3	0,8
35	CA10272-SEP19	25-sept-19	1000	983	5,73	< 2	3	< 2	< 0.06	< 0.3	0,8
36	CA10018-OCT19	02-oct-19	1000	1013	5,94	< 2	2	5	< 0.06	< 0.3	0,9
37	CA10095-OCT19	09-oct-19	1000	972	5,95	< 2	< 2	5	< 0.06	< 0.3	0,7
38	CA10182-OCT19	16-oct-19	1000	986	5,83	< 2	2	5	< 0.06	< 0.3	0,8
39	CA10243-OCT19	23-oct-19	1000	971	5,65	< 2	2	4	< 0.06	< 0.3	0,8
40	CA10373-OCT19	30-oct-19	1000	1008	6,08	< 2	3	6	< 0.06	< 0.3	0,8

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659713
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0.020	< 0.0002	0.00092	0.004	< 0.000007	< 0.000007	3,47	0,000009
1	CA11045-JAN19	< 0.00001	< 0.0001	0.012	< 0.0002	0.00098	0.005	< 0.000007	< 0.000007	3.34	0.000012
2	CA11005-FEB19	< 0.00001	< 0.0001	0.007	< 0.0002	0.00048	0.003	< 0.000007	< 0.000007	0.86	< 0.000003
3	CA11012-FEB19	< 0.00001	< 0.0001	0.011	< 0.0002	0.00022	0.002	< 0.000007	< 0.000007	0.50	< 0.000003
4	CA11025-FEB19	< 0.00001	< 0.00005	0.005	0.0004	0.00021	0.002	< 0.000007	< 0.000007	0.39	0.000003
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.003	< 0.0002	0.00016	0.003	< 0.000007	< 0.000007	0.35	0.000003
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.003	< 0.0002	0.00014	< 0.002	< 0.000007	< 0.000007	0.27	< 0.000003
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.001	< 0.0002	0.00022	< 0.002	< 0.000007	< 0.000007	0.34	0.000005
16	CA10244-MAY19	< 0.00001	< 0.00005	0.001	< 0.0002	0.00016	< 0.002	< 0.000007	< 0.000007	0.29	< 0.000003
17	CA10388-MAY19	< 0.00001	< 0.00005	0.001	< 0.0002	0.00012	< 0.002	< 0.000007	< 0.000007	0.24	< 0.000003
18	CA10505-MAY19	< 0.00001	< 0.00005	0.001	< 0.0002	0.00014	< 0.002	< 0.000007	< 0.000007	0.24	0.000004
19	CA10028-JUN19	< 0.00001	< 0.00005	0.002	< 0.0002	0.00012	< 0.002	< 0.000007	< 0.000007	0.22	0.000004
20	CA10256-JUN19	< 0.00001	< 0.00005	0.001	< 0.0002	0.00017	< 0.002	0.000007	< 0.000007	0.20	0.000006
21	CA10450-JUN19	---	---	---	---	---	---	---	---	---	---
22	CA10615-JUN19	---	---	---	---	---	---	---	---	---	---
23	CA10022-JUL19	---	---	---	---	---	---	---	---	---	---
24	CA10105-JUL19	< 0.00001	< 0.00005	< 0.001	< 0.0002	0,00011	< 0.002	< 0.000007	< 0.000007	0,16	0,000003
25	CA10130-JUL19	---	---	---	---	---	---	---	---	---	---
26	CA10337-JUL19	---	---	---	---	---	---	---	---	---	---
27	CA10389-JUL19	---	---	---	---	---	---	---	---	---	---
28	CA10023-AUG19	< 0.00001	< 0.00005	< 0.001	< 0.0002	0,00017	0,002	< 0.000007	< 0.000007	0,23	< 0.000003
29	CA10118-AUG19	---	---	---	---	---	---	---	---	---	---
30	CA10188-AUG19	---	---	---	---	---	---	---	---	---	---
31	CA10279-AUG19	---	---	---	---	---	---	---	---	---	---
32	CA10019-SEP19	< 0.00001	< 0.00005	< 0.001	< 0.0002	0,00019	0,009	< 0.000007	< 0.000007	0,2	0,000006
33	CA10045-SEP19	---	---	---	---	---	---	---	---	---	---
34	CA10147-SEP19	---	---	---	---	---	---	---	---	---	---
35	CA10272-SEP19	---	---	---	---	---	---	---	---	---	---
36	CA10018-OCT19	< 0.00001	< 0.00005	0,001	< 0.0002	0,00022	< 0.002	< 0.000007	< 0.000007	0,18	0,000006
37	CA10095-OCT19	---	---	---	---	---	---	---	---	---	---
38	CA10182-OCT19	---	---	---	---	---	---	---	---	---	---
39	CA10243-OCT19	---	---	---	---	---	---	---	---	---	---
40	CA10373-OCT19	< 0.00001	< 0.00005	0,001	< 0.0002	0,00023	< 0.002	< 0.000007	< 0.000007	0,18	0,000007

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659713
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0241	0,00016	0,00206	0,026	1,11	0,0114	0,962	0,0279	0,0009	1,78
1	CA11045-JAN19	0.0187	0.00014	0.00538	0.025	1.23	0.0099	0.940	0.0299	0.00055	1.82
2	CA11005-FEB19	0.00466	0.00004	0.00178	0.007	0.345	0.0045	0.281	0.00760	0.00041	0.48
3	CA11012-FEB19	0.00277	0.00004	0.00153	0.008	0.238	0.0029	0.157	0.00426	0.00049	0.28
4	CA11025-FEB19	0.002094	< 0.00003	0.00111	< 0.007	0.188	0.0022	0.126	0.00298	0.00023	0.20
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	0.00369	< 0.00008	0.0019	0.010	0.121	0.0014	0.125	0.00380	0.00013	0.14
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	0.006064	< 0.00008	0.0006	< 0.007	0.066	0.0010	0.104	0.00454	0.00008	< 0.01
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.0108	< 0.00008	0.0012	0.007	0.070	0.0009	0.108	0.00707	0.00029	0.02
16	CA10244-MAY19	0.009628	< 0.00008	< 0.0002	< 0.007	0.076	0.0009	0.084	0.00520	< 0.00004	0.04
17	CA10388-MAY19	0.010040	< 0.00008	0.0005	< 0.007	0.044	0.0006	0.081	0.00544	0.00004	0.02
18	CA10505-MAY19	0.0123	< 0.00008	0.0005	< 0.007	0.029	0.0007	0.078	0.00646	0.00005	< 0.01
19	CA10028-JUN19	0.013090	< 0.00008	0.0005	< 0.007	0.040	0.0007	0.083	0.00649	< 0.00004	0.03
20	CA10256-JUN19	0.0117	< 0.00008	0.0005	< 0.007	0.045	0.0008	0.066	0.00578	0.00004	0.11
21	CA10450-JUN19	---	---	---	---	---	---	---	---	---	---
22	CA10615-JUN19	---	---	---	---	---	---	---	---	---	---
23	CA10022-JUL19	---	---	---	---	---	---	---	---	---	---
24	CA10105-JUL19	0,0138	0,00008	0,0015	< 0.007	0,044	0,0006	0,061	0,00566	0,00006	0,03
25	CA10130-JUL19	---	---	---	---	---	---	---	---	---	---
26	CA10337-JUL19	---	---	---	---	---	---	---	---	---	---
27	CA10389-JUL19	---	---	---	---	---	---	---	---	---	---
28	CA10023-AUG19	0,0224	< 0.00008	0,0031	< 0.007	0,052	0,0007	0,074	0,00863	0,00288	0,03
29	CA10118-AUG19	---	---	---	---	---	---	---	---	---	---
30	CA10188-AUG19	---	---	---	---	---	---	---	---	---	---
31	CA10279-AUG19	---	---	---	---	---	---	---	---	---	---
32	CA10019-SEP19	0,02327	< 0.00008	0,0032	0,008	0,033	0,0009	0,061	0,00946	0,00066	0,01
33	CA10045-SEP19	---	---	---	---	---	---	---	---	---	---
34	CA10147-SEP19	---	---	---	---	---	---	---	---	---	---
35	CA10272-SEP19	---	---	---	---	---	---	---	---	---	---
36	CA10018-OCT19	0,0231	< 0.00008	0,0056	< 0.007	0,052	< 0.0001	0,061	0,00785	0,00007	0,07
37	CA10095-OCT19	---	---	---	---	---	---	---	---	---	---
38	CA10182-OCT19	---	---	---	---	---	---	---	---	---	---
39	CA10243-OCT19	---	---	---	---	---	---	---	---	---	---
40	CA10373-OCT19	0,0257	< 0.00008	0,008	< 0.007	0,031	0,0006	0,06	0,0088	0,00027	0,01

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659713
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,228	< 0.003	< 0.00001	< 0.0002	0,0019	0,17	0,00028	0,0108	< 0.0001	0,0008
1	CA11045-JAN19	0.172	0.150	0.00007	0.0003	0.00143	0.23	0.00159	0.00927	< 0.0001	0.00063
2	CA11005-FEB19	0.0410	< 0.003	< 0.00001	0.0004	0.00042	0.18	0.00007	0.00254	< 0.0001	0.00031
3	CA11012-FEB19	0.0241	< 0.003	0.00005	< 0.0002	0.00024	0.27	0.00045	0.00171	< 0.0001	0.00064
4	CA11025-FEB19	0.0180	< 0.003	< 0.00001	0.0002	0.00014	0.20	0.00005	0.00129	< 0.0001	0.00016
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	0.0226	< 0.003	< 0.00001	< 0.0009	0.00012	0.21	< 0.00006	0.00136	< 0.0001	0.00017
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	0.0314	< 0.003	< 0.00001	< 0.0009	0.00005	0.17	< 0.00006	0.00099	< 0.0001	< 0.00005
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.0494	< 0.003	< 0.00001	< 0.0009	0.00007	0.19	< 0.00006	0.00132	< 0.0001	< 0.00005
16	CA10244-MAY19	0.0426	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.15	< 0.00006	0.00098	< 0.0001	0.00005
17	CA10388-MAY19	0.0435	0.003	< 0.00001	< 0.0009	< 0.00004	0.12	< 0.00006	0.00091	< 0.0001	0.00006
18	CA10505-MAY19	0.0507	< 0.003	< 0.00001	< 0.0009	0.00006	0.13	< 0.00006	0.00101	< 0.0001	0.00007
19	CA10028-JUN19	0.0529	< 0.003	< 0.00001	< 0.0009	0.00006	0.11	< 0.00006	0.00088	< 0.0001	< 0.00005
20	CA10256-JUN19	0.0461	< 0.003	< 0.00001	< 0.0009	0.00007	0.13	< 0.00006	0.00091	< 0.0001	< 0.00005
21	CA10450-JUN19	---	---	---	---	---	---	---	---	---	---
22	CA10615-JUN19	---	---	---	---	---	---	---	---	---	---
23	CA10022-JUL19	---	---	---	---	---	---	---	---	---	---
24	CA10105-JUL19	0,0469	< 0.003	< 0.00001	< 0.0009	0,00005	0,12	< 0.00006	0,0007	< 0.0001	< 0.00005
25	CA10130-JUL19	---	---	---	---	---	---	---	---	---	---
26	CA10337-JUL19	---	---	---	---	---	---	---	---	---	---
27	CA10389-JUL19	---	---	---	---	---	---	---	---	---	---
28	CA10023-AUG19	0,0754	< 0.003	0,00005	< 0.0009	0,00005	0,21	0,00014	0,00094	< 0.0001	< 0.00005
29	CA10118-AUG19	---	---	---	---	---	---	---	---	---	---
30	CA10188-AUG19	---	---	---	---	---	---	---	---	---	---
31	CA10279-AUG19	---	---	---	---	---	---	---	---	---	---
32	CA10019-SEP19	0,0767	< 0.003	0,00001	< 0.0009	0,00007	0,24	0,00016	0,00105	< 0.0001	< 0.00005
33	CA10045-SEP19	---	---	---	---	---	---	---	---	---	---
34	CA10147-SEP19	---	---	---	---	---	---	---	---	---	---
35	CA10272-SEP19	---	---	---	---	---	---	---	---	---	---
36	CA10018-OCT19	0,0696	< 0.003	0,00001	< 0.0009	0,00005	0,19	0,00016	0,00084	< 0.0001	< 0.00005
37	CA10095-OCT19	---	---	---	---	---	---	---	---	---	---
38	CA10182-OCT19	---	---	---	---	---	---	---	---	---	---
39	CA10243-OCT19	---	---	---	---	---	---	---	---	---	---
40	CA10373-OCT19	0,0766	< 0.003	0,00003	< 0.0009	0,00005	0,22	0,00015	0,0009	< 0.0001	< 0.00005

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659713
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,000055	0,000078	0,0004	0,00029	0,000079	< 0.002
1	CA11045-JAN19	0.000030	0.000044	0.00037	0.00009	0.000043	0.009
2	CA11005-FEB19	0.000018	0.000062	0.00031	0.00021	0.000014	0.003
3	CA11012-FEB19	0.000012	0.000300	0.00043	0.00062	0.000015	0.002
4	CA11025-FEB19	0.000010	0.000028	0.00033	0.00010	0.000006	< 0.002
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	0.000013	0.000033	0.00021	0.00016	0.000003	0.004
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	< 0.000005	0.000012	0.00014	< 0.00002	< 0.000002	0.003
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	0.000005	0.000048	0.00012	< 0.00002	0.000002	0.003
16	CA10244-MAY19	< 0.000005	0.000034	0.00013	< 0.00002	< 0.000002	0.003
17	CA10388-MAY19	0.000007	0.000025	0.00010	0.00003	< 0.000002	0.003
18	CA10505-MAY19	0.000010	0.000015	0.00009	< 0.00002	< 0.000002	0.003
19	CA10028-JUN19	0.000006	0.000002	0.00005	< 0.00002	< 0.000002	0.003
20	CA10256-JUN19	0.000008	0.000004	0.00008	< 0.00002	< 0.000002	0.003
21	CA10450-JUN19	---	---	---	---	---	---
22	CA10615-JUN19	---	---	---	---	---	---
23	CA10022-JUL19	---	---	---	---	---	---
24	CA10105-JUL19	0,000005	0,000003	0,00008	< 0.00002	0,000002	0,003
25	CA10130-JUL19	---	---	---	---	---	---
26	CA10337-JUL19	---	---	---	---	---	---
27	CA10389-JUL19	---	---	---	---	---	---
28	CA10023-AUG19	0,000007	0,000099	0,00017	< 0.00002	< 0.000002	0,003
29	CA10118-AUG19	---	---	---	---	---	---
30	CA10188-AUG19	---	---	---	---	---	---
31	CA10279-AUG19	---	---	---	---	---	---
32	CA10019-SEP19	0,000009	0,000003	0,00004	< 0.00002	< 0.000002	0,003
33	CA10045-SEP19	---	---	---	---	---	---
34	CA10147-SEP19	---	---	---	---	---	---
35	CA10272-SEP19	---	---	---	---	---	---
36	CA10018-OCT19	0,000009	0,000079	0,00004	< 0.00002	< 0.000002	0,003
37	CA10095-OCT19	---	---	---	---	---	---
38	CA10182-OCT19	---	---	---	---	---	---
39	CA10243-OCT19	---	---	---	---	---	---
40	CA10373-OCT19	0,000007	0,000014	0,00004	< 0.00002	< 0.000002	0,004

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659714
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	861	7.77	8	< 2	30	< 0.06	< 0.3	2.1
1	CA11045-JAN19	30-janv-19	1000	900	6.79	4	< 2	22	< 0.06	< 0.3	2.9
2	CA11005-FEB19	06-févr-19	1000	914	7.38	6	< 2	19	< 0.06	< 0.3	2.3
3	CA11012-FEB19	13-févr-19	1000	920	7.18	4	< 2	13	< 0.06	< 0.3	1.0
4	CA11025-FEB19	20-févr-19	1000	905	7.03	5	< 2	12	< 0.06	< 0.3	0.9
5	CA11042-FEB19	27-févr-19	1000	900	7.15	3	< 2	10	< 0.06	< 0.3	0.6
6	CA11003-MAR19	06-mars-19	1000	897	6.54	4	< 2	8	< 0.06	< 0.3	0.4
7	CA11011-MAR19	13-mars-19	1000	896	7.16	5	< 2	9	< 0.06	< 0.3	0.4
8	CA11041-MAR19	20-mars-19	1000	904	6.90	4	< 2	8	< 0.06	< 0.3	0.4
9	CA11053-MAR19	27-mars-19	1000	911	6.97	3	< 2	7	< 0.06	< 0.3	0.3
10	CA10028-APR19	03-avr-19	1000	919	7.11	5	< 2	10	< 0.06	< 0.3	0.3
11	CA10116-APR19	10-avr-19	1000	901	6.62	3	< 2	6	< 0.06	< 0.3	0.3
12	CA10203-APR19	17-avr-19	1000	906	6.55	3	< 2	7	< 0.06	< 0.3	0.3
13	CA10233-APR19	24-avr-19	1000	937	6.93	3	< 2	6	< 0.06	< 0.3	0.2
14	CA10010-MAY19	01-mai-19	1000	956	6.35	6	< 2	6	0.06	< 0.3	0.2
15	CA10088-MAY19	08-mai-19	1000	933	6.57	2	< 2	6	< 0.06	< 0.3	< 0.2
16	CA10244-MAY19	15-mai-19	1000	971	6.72	3	3	6	< 0.06	< 0.3	< 0.2
17	CA10388-MAY19	22-mai-19	1000	960	6.62	2	< 2	5	< 0.06	< 0.3	< 0.2
18	CA10505-MAY19	29-mai-19	1000	953	6.56	2	< 2	6	< 0.06	< 0.3	< 0.2
19	CA10028-JUN19	05-juin-19	1000	976	6.48	2	< 2	6	< 0.06	< 0.3	< 0.2
20	CA10256-JUN19	12-juin-19	1000	889	6.53	2	< 2	6	< 0.06	< 0.3	< 0.2

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659714
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0.033	< 0.0002	0.00045	0.002	< 0.000007	< 0.000007	2,96	0,000003
1	CA11045-JAN19	< 0.00001	< 0.0001	0.024	< 0.0002	0.00060	0.004	< 0.000007	< 0.000007	2.21	< 0.000003
2	CA11005-FEB19	< 0.00001	< 0.0001	0.021	< 0.0002	0.00047	0.003	< 0.000007	< 0.000007	1.23	< 0.000003
3	CA11012-FEB19	< 0.00001	< 0.0001	0.029	< 0.0002	0.00030	0.002	< 0.000007	< 0.000007	0.94	< 0.000003
4	CA11025-FEB19	< 0.00001	< 0.00005	0.021	0.0003	0.00020	0.003	< 0.000007	< 0.000007	0.84	0.000011
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.021	< 0.0002	0.00018	0.002	< 0.000007	< 0.000007	0.80	0.000003
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.022	< 0.0002	0.00021	< 0.002	< 0.000007	< 0.000007	0.79	< 0.000003
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.020	< 0.0002	0.00144	< 0.002	< 0.000007	< 0.000007	0.87	< 0.000003
16	CA10244-MAY19	0.00001	< 0.00005	0.016	0.0005	0.00016	< 0.002	< 0.000007	< 0.000007	0.88	< 0.000003
17	CA10388-MAY19	< 0.00001	< 0.00005	0.017	< 0.0002	0.00015	< 0.002	< 0.000007	< 0.000007	0.78	< 0.000003
18	CA10505-MAY19	< 0.00001	< 0.00005	0.014	< 0.0002	0.00013	< 0.002	< 0.000007	< 0.000007	0.79	< 0.000003
19	CA10028-JUN19	< 0.00001	< 0.00005	0.012	< 0.0002	0.00014	< 0.002	< 0.000007	< 0.000007	0.78	< 0.000003
20	CA10256-JUN19	< 0.00001	< 0.00005	0.022	< 0.0002	0.00021	< 0.002	< 0.000007	< 0.000007	0.86	0.000004

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659714
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000004	< 0.00003	0,00044	< 0.007	0,526	0,0088	0,319	0,00082	0,00065	1,24
1	CA11045-JAN19	< 0.000004	0.00003	0.00103	0.007	0.540	0.0112	0.407	0.00160	0.00112	1.65
2	CA11005-FEB19	< 0.000004	< 0.00003	0.00069	< 0.007	0.429	0.0101	0.378	0.00100	0.00045	1.46
3	CA11012-FEB19	0.000020	< 0.00003	0.00035	< 0.007	0.292	0.0082	0.274	0.00096	0.00018	0.81
4	CA11025-FEB19	< 0.000004	< 0.00003	0.00062	< 0.007	0.249	0.0071	0.264	0.00061	0.00016	0.60
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000004	< 0.00008	0.0004	< 0.007	0.139	0.0031	0.163	0.00045	0.00006	0.22
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.076	0.0024	0.143	0.00053	0.00004	0.02
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.000016	< 0.00008	0.0003	< 0.007	0.068	0.0013	0.123	0.0144	0.00011	0.02
16	CA10244-MAY19	0.000008	< 0.00008	< 0.0002	< 0.007	0.074	0.0012	0.109	0.00053	< 0.00004	0.06
17	CA10388-MAY19	0.000010	< 0.00008	< 0.0002	< 0.007	0.039	0.0008	0.094	0.00046	< 0.00004	0.03
18	CA10505-MAY19	0.000006	< 0.00008	< 0.0002	< 0.007	0.023	0.0009	0.088	0.00060	< 0.00004	< 0.01
19	CA10028-JUN19	0.000005	< 0.00008	< 0.0002	< 0.007	0.036	0.0010	0.096	0.00055	< 0.00004	0.05
20	CA10256-JUN19	0.000004	< 0.00008	< 0.0002	< 0.007	0.046	0.0012	0.097	0.00039	< 0.00004	0.14

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659714
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0004	< 0.003	< 0.00001	< 0.0002	0,00028	0,18	0,0003	0,00408	< 0.0001	0,00026
1	CA11045-JAN19	0.0006	< 0.003	0.00003	0.0003	0.00035	0.22	0.00016	0.00358	< 0.0001	0.00042
2	CA11005-FEB19	0.0007	< 0.003	< 0.00001	0.0003	0.00029	0.21	0.00012	0.00226	< 0.0001	0.00029
3	CA11012-FEB19	0.0003	< 0.003	< 0.00001	< 0.0002	0.00023	0.29	0.00013	0.00192	< 0.0001	0.00049
4	CA11025-FEB19	0.0002	< 0.003	< 0.00001	< 0.0002	0.00012	0.23	0.00009	0.00146	< 0.0001	0.00016
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.0001	< 0.003	< 0.00001	< 0.0009	0.00008	0.24	0.00015	0.00132	< 0.0001	0.00018
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.0001	< 0.003	< 0.00001	< 0.0009	0.00008	0.22	< 0.00006	0.00097	< 0.0001	0.00021
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.0001	< 0.003	0.00002	< 0.0009	0.00008	0.25	0.00011	0.00157	< 0.0001	0.00015
16	CA10244-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.23	0.00034	0.00099	< 0.0001	< 0.00005
17	CA10388-MAY19	< 0.0001	0.004	< 0.00001	< 0.0009	0.00004	0.19	0.00008	0.00081	< 0.0001	0.00019
18	CA10505-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.19	< 0.00006	0.00088	< 0.0001	0.00013
19	CA10028-JUN19	< 0.0001	< 0.003	< 0.00001	< 0.0009	0.00006	0.15	< 0.00006	0.00083	< 0.0001	< 0.00005
20	CA10256-JUN19	< 0.0001	< 0.003	0.00002	< 0.0009	0.00005	0.24	0.00007	0.00091	< 0.0001	0.00026

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659714
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000005	0,000017	0,00086	0,00012	< 0.000002	< 0.002
1	CA11045-JAN19	< 0.000005	0.000052	0.00156	0.00020	0.000003	< 0.002
2	CA11005-FEB19	< 0.000005	0.000082	0.00150	0.00024	0.000003	< 0.002
3	CA11012-FEB19	< 0.000005	0.000054	0.00165	0.00015	0.000005	< 0.002
4	CA11025-FEB19	< 0.000005	0.000050	0.00120	0.00015	< 0.000002	0.003
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000005	0.000064	0.00093	0.00011	< 0.000002	< 0.002
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	< 0.000005	0.000066	0.00069	< 0.00002	< 0.000002	< 0.002
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000005	0.000014	0.00058	< 0.00002	0.000002	< 0.002
16	CA10244-MAY19	< 0.000005	0.000021	0.00053	< 0.00002	< 0.000002	< 0.002
17	CA10388-MAY19	< 0.000005	0.000031	0.00048	< 0.00002	< 0.000002	< 0.002
18	CA10505-MAY19	< 0.000005	0.000045	0.00040	< 0.00002	< 0.000002	< 0.002
19	CA10028-JUN19	< 0.000005	0.000022	0.00033	< 0.00002	< 0.000002	< 0.002
20	CA10256-JUN19	< 0.000005	0.000024	0.00055	< 0.00002	0.000002	< 0.002

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659719
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	860	7.28	5	< 2	25	< 0.06	< 0.3	1.8
1	CA11045-JAN19	30-janv-19	1000	932	7.50	4	< 2	20	< 0.06	< 0.3	2.4
2	CA11005-FEB19	06-févr-19	1000	1019	7.10	7	< 2	19	< 0.06	< 0.3	1.4
3	CA11012-FEB19	13-févr-19	1000	979	6.85	4	< 2	12	< 0.06	< 0.3	0.9
4	CA11025-FEB19	20-févr-19	1000	970	7.21	4	< 2	11	< 0.06	< 0.3	0.7
5	CA11042-FEB19	27-févr-19	1000	1004	7.18	5	< 2	12	< 0.06	< 0.3	0.7
6	CA11003-MAR19	06-mars-19	1000	941	6.98	3	< 2	7	< 0.06	< 0.3	0.5
7	CA11011-MAR19	13-mars-19	1000	993	6.80	4	< 2	11	< 0.06	< 0.3	0.6
8	CA11041-MAR19	20-mars-19	1000	978	6.80	3	< 2	10	< 0.06	< 0.3	0.8
9	CA11053-MAR19	27-mars-19	1000	984	6.65	3	< 2	11	< 0.06	< 0.3	1.0
10	CA10028-APR19	03-avr-19	1000	1000	6.57	3	< 2	10	< 0.06	< 0.3	0.9
11	CA10116-APR19	10-avr-19	1000	1014	6.54	3	< 2	6	< 0.06	< 0.3	0.8
12	CA10203-APR19	17-avr-19	1000	1002	6.54	3	< 2	8	< 0.06	< 0.3	0.7
13	CA10233-APR19	24-avr-19	1000	1004	6.73	3	< 2	6	< 0.06	< 0.3	0.6
14	CA10010-MAY19	01-mai-19	1000	1004	6.20	2	< 2	5	< 0.06	< 0.3	0.5
15	CA10088-MAY19	08-mai-19	1000	994	6.51	2	< 2	5	< 0.06	< 0.3	0.6
16	CA10244-MAY19	15-mai-19	1000	978	5.98	< 2	4	4	< 0.06	< 0.3	0.4
17	CA10388-MAY19	22-mai-19	1000	974	6.54	< 2	3	5	< 0.06	< 0.3	0.3
18	CA10505-MAY19	29-mai-19	1000	966	6.53	< 2	2	5	< 0.06	< 0.3	0.3
19	CA10028-JUN19	05-juin-19	1000	952	6.49	< 2	2	4	< 0.06	< 0.3	0.3
20	CA10256-JUN19	12-juin-19	1000	898	6.46	2	< 2	5	< 0.06	< 0.3	< 0.2

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659719
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0.035	< 0.0002	0.00035	0.003	< 0.000007	< 0.000007	1,01	< 0.000003
1	CA11045-JAN19	< 0.00001	< 0.0001	0.039	< 0.0002	0.00038	0.005	< 0.000007	< 0.000007	1.03	< 0.000003
2	CA11005-FEB19	< 0.00001	< 0.0001	0.028	0.0002	0.00103	0.005	< 0.000007	< 0.000007	1.18	< 0.000003
3	CA11012-FEB19	< 0.00001	< 0.0001	0.036	< 0.0002	0.00032	0.003	< 0.000007	0.000016	0.64	0.000037
4	CA11025-FEB19	< 0.00001	< 0.00005	0.038	0.0003	0.00021	0.003	< 0.000007	< 0.000007	0.72	< 0.000003
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.025	0.0004	0.00024	0.007	< 0.000007	< 0.000007	0.68	0.000013
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.015	< 0.0002	0.00027	< 0.002	< 0.000007	< 0.000007	0.75	< 0.000003
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.010	< 0.0002	0.00048	< 0.002	< 0.000007	< 0.000007	0.62	< 0.000003
16	CA10244-MAY19	0.00001	< 0.00005	0.013	< 0.0002	0.00015	< 0.002	< 0.000007	< 0.000007	0.41	< 0.000003
17	CA10388-MAY19	< 0.00001	< 0.00005	0.010	< 0.0002	0.00016	< 0.002	< 0.000007	0.000011	0.32	0.000003
18	CA10505-MAY19	< 0.00001	< 0.00005	0.008	0.0003	0.00016	< 0.002	< 0.000007	< 0.000007	0.29	0.000006
19	CA10028-JUN19	< 0.00001	< 0.00005	0.007	0.0005	0.00019	< 0.002	< 0.000007	< 0.000007	0.36	< 0.000003
20	CA10256-JUN19	< 0.00001	< 0.00005	0.015	< 0.0002	0.00020	< 0.002	< 0.000007	< 0.000007	0.34	< 0.000003

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659719
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000004	0,00004	0,0014	0,007	1,97	0,0301	0,146	0,00115	0,00033	1,91
1	CA11045-JAN19	< 0.000004	< 0.00003	0.00145	< 0.007	1.65	0.0380	0.182	0.00147	0.00057	1.90
2	CA11005-FEB19	< 0.000004	< 0.00003	0.00059	< 0.007	1.44	0.0282	0.204	0.00101	0.00053	1.26
3	CA11012-FEB19	0.000005	0.00020	0.00088	0.024	0.880	0.0192	0.118	0.00069	0.00030	0.59
4	CA11025-FEB19	< 0.000004	< 0.00003	0.00065	< 0.007	0.836	0.0142	0.123	0.00083	0.00011	0.46
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000004	< 0.00008	0.0006	0.011	0.451	0.0058	0.113	0.00072	0.00010	0.22
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.000004	< 0.00008	0.0002	< 0.007	0.322	0.0038	0.116	0.00118	< 0.00004	0.02
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000004	< 0.00008	0.0017	< 0.007	0.255	0.0022	0.089	0.00445	0.00032	0.06
16	CA10244-MAY19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.213	0.0024	0.055	0.00062	< 0.00004	0.06
17	CA10388-MAY19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.145	0.0014	0.049	0.00060	< 0.00004	0.04
18	CA10505-MAY19	0.000017	< 0.00008	< 0.0002	< 0.007	0.191	0.0019	0.042	0.00064	< 0.00004	< 0.01
19	CA10028-JUN19	0.000004	< 0.00008	< 0.0002	< 0.007	0.213	0.0020	0.058	0.00071	< 0.00004	0.05
20	CA10256-JUN19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.280	0.0023	0.048	0.00039	< 0.00004	0.14

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659719
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0003	< 0.003	0,00002	0.0003	0,0001	0,3	0,00031	0,00369	< 0.0001	0,00084
1	CA11045-JAN19	0.0002	< 0.003	0.00006	0.0003	0.00009	0.25	0.00016	0.00431	< 0.0001	0.00048
2	CA11005-FEB19	0.0001	< 0.003	< 0.00001	0.0005	0.00006	0.42	0.00010	0.00548	< 0.0001	0.00009
3	CA11012-FEB19	< 0.0001	< 0.003	0.00003	0.0003	< 0.00004	0.34	0.00012	0.00340	< 0.0001	0.00011
4	CA11025-FEB19	< 0.0001	< 0.003	< 0.00001	0.0002	< 0.00004	0.34	0.00006	0.00330	< 0.0001	0.00018
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.0001	< 0.003	0.00001	< 0.0009	< 0.00004	0.30	0.00016	0.00305	< 0.0001	< 0.00005
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.41	< 0.00006	0.00293	< 0.0001	< 0.00005
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.40	< 0.00006	0.00273	< 0.0001	< 0.00005
16	CA10244-MAY19	< 0.0001	0.035	< 0.00001	< 0.0009	< 0.00004	0.24	0.00011	0.00176	< 0.0001	< 0.00005
17	CA10388-MAY19	< 0.0001	0.004	0.00001	< 0.0009	< 0.00004	0.18	0.00014	0.00140	< 0.0001	0.00005
18	CA10505-MAY19	< 0.0001	< 0.003	0.00002	< 0.0009	< 0.00004	0.14	0.00009	0.00158	< 0.0001	< 0.00005
19	CA10028-JUN19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.19	< 0.00006	0.00172	< 0.0001	0.00007
20	CA10256-JUN19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.19	< 0.00006	0.00163	< 0.0001	0.00012

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659719
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000005	0,000951	0,00031	0,00024	0,000468	< 0.002
1	CA11045-JAN19	< 0.000005	0.00345	0.00045	0.00038	0.000280	< 0.002
2	CA11005-FEB19	0.000008	0.00489	0.00041	0.00047	0.000126	< 0.002
3	CA11012-FEB19	< 0.000005	0.00598	0.00038	0.00028	0.000078	0.007
4	CA11025-FEB19	< 0.000005	0.00340	0.00040	0.00027	0.000040	< 0.002
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	0.000005	0.00226	0.00025	0.00022	0.000018	0.003
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	< 0.000005	0.000929	0.00021	0.00003	0.000006	< 0.002
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000005	0.000577	0.00018	0.00002	0.000003	< 0.002
16	CA10244-MAY19	< 0.000005	0.000427	0.00016	0.00003	0.000002	0.002
17	CA10388-MAY19	< 0.000005	0.000462	0.00015	< 0.00002	0.000008	< 0.002
18	CA10505-MAY19	< 0.000005	0.000403	0.00013	< 0.00002	0.000010	< 0.002
19	CA10028-JUN19	< 0.000005	0.000519	0.00013	0.00002	0.000013	< 0.002
20	CA10256-JUN19	0.000005	0.000474	0.00016	0.00003	0.000012	< 0.002

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659724
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	855	8.50	17	< 2	50	< 0.06	< 0.3	1.2
1	CA11045-JAN19	30-janv-19	1000	930	7.70	9	< 2	38	< 0.06	< 0.3	1.6
2	CA11005-FEB19	06-févr-19	1000	923	7.26	7	< 2	29	< 0.06	< 0.3	1.2
3	CA11012-FEB19	13-févr-19	1000	929	7.49	7	< 2	20	< 0.06	< 0.3	0.6
4	CA11025-FEB19	20-févr-19	1000	896	7.24	8	< 2	18	< 0.06	< 0.3	0.6
5	CA11042-FEB19	27-févr-19	1000	937	7.43	7	< 2	15	< 0.06	< 0.3	0.4
6	CA11003-MAR19	06-mars-19	1000	917	6.74	6	< 2	15	< 0.06	< 0.3	0.3
7	CA11011-MAR19	13-mars-19	1000	963	7.04	8	< 2	18	< 0.06	< 0.3	0.3
8	CA11041-MAR19	20-mars-19	1000	994	7.26	8	< 2	18	< 0.06	< 0.3	0.2
9	CA11053-MAR19	27-mars-19	1000	991	7.09	8	< 2	17	< 0.06	< 0.3	0.2
10	CA10028-APR19	03-avr-19	1000	992	6.85	7	< 2	17	< 0.06	< 0.3	0.2
11	CA10116-APR19	10-avr-19	1000	995	6.88	7	< 2	15	< 0.06	< 0.3	< 0.2
12	CA10203-APR19	17-avr-19	1000	991	6.85	4	< 2	14	< 0.06	< 0.3	< 0.2
13	CA10233-APR19	24-avr-19	1000	997	7.19	7	< 2	16	< 0.06	< 0.3	< 0.2
14	CA10010-MAY19	01-mai-19	1000	993	6.44	6	< 2	15	< 0.06	< 0.3	0.4
15	CA10088-MAY19	08-mai-19	1000	994	6.87	6	< 2	16	< 0.06	< 0.3	< 0.2
16	CA10244-MAY19	15-mai-19	1000	988	6.93	6	< 2	13	< 0.06	< 0.3	< 0.2
17	CA10388-MAY19	22-mai-19	1000	996	6.82	7	< 2	15	< 0.06	< 0.3	< 0.2
18	CA10505-MAY19	29-mai-19	1000	991	6.78	6	< 2	14	< 0.06	< 0.3	< 0.2
19	CA10028-JUN19	05-juin-19	1000	981	7.07	6	< 2	15	< 0.06	< 0.3	< 0.2
20	CA10256-JUN19	12-juin-19	1000	981	6.86	6	< 2	15	< 0.06	< 0.3	< 0.2

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659724
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0.036	0.0002	0.00040	0.008	< 0.000007	< 0.000007	4,4	< 0.000003
1	CA11045-JAN19	< 0.00001	< 0.0001	0.040	0.0002	0.00053	0.014	< 0.000007	< 0.000007	3.20	< 0.000003
2	CA11005-FEB19	< 0.00001	< 0.0001	0.032	< 0.0002	0.00132	0.010	< 0.000007	< 0.000007	1.78	< 0.000003
3	CA11012-FEB19	< 0.00001	< 0.0001	0.052	< 0.0002	0.00045	0.008	< 0.000007	< 0.000007	1.42	< 0.000003
4	CA11025-FEB19	< 0.00001	< 0.00005	0.040	0.0005	0.00019	0.007	< 0.000007	< 0.000007	1.31	< 0.000003
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.027	0.0005	0.00027	0.007	< 0.000007	< 0.000007	2.03	< 0.000003
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.039	< 0.0002	0.00024	< 0.002	< 0.000007	< 0.000007	1.75	< 0.000003
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.032	0.0004	0.00069	< 0.002	< 0.000007	< 0.000007	2.33	< 0.000003
16	CA10244-MAY19	< 0.00001	< 0.00005	0.034	0.0002	0.00025	< 0.002	< 0.000007	< 0.000007	2.29	< 0.000003
17	CA10388-MAY19	< 0.00001	< 0.00005	0.030	< 0.0002	0.00020	< 0.002	< 0.000007	< 0.000007	2.17	< 0.000003
18	CA10505-MAY19	< 0.00001	< 0.00005	0.029	0.0003	0.00022	< 0.002	< 0.000007	< 0.000007	2.17	0.000023
19	CA10028-JUN19	< 0.00001	< 0.00005	0.030	< 0.0002	0.00024	< 0.002	< 0.000007	< 0.000007	2.26	< 0.000003
20	CA10256-JUN19	< 0.00001	< 0.00005	0.035	< 0.0002	0.00029	< 0.002	< 0.000007	< 0.000007	2.27	< 0.000003

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659724
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000004	< 0.00003	0,00046	< 0.007	1,07	0,0139	0,131	0,00262	0,00024	3,53
1	CA11045-JAN19	< 0.000004	< 0.00003	0.00082	< 0.007	0.916	0.0131	0.175	0.00336	0.00043	4.02
2	CA11005-FEB19	< 0.000004	< 0.00003	0.00037	< 0.007	0.610	0.0097	0.103	0.00175	0.00039	2.76
3	CA11012-FEB19	< 0.000004	< 0.00003	0.00047	< 0.007	0.499	0.0086	0.084	0.00156	0.00027	1.97
4	CA11025-FEB19	< 0.000004	< 0.00003	0.00034	< 0.007	0.454	0.0080	0.076	0.00099	0.00012	1.55
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000004	< 0.00008	0.0003	< 0.007	0.302	0.0054	0.127	0.00088	0.00005	0.56
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.000004	< 0.00008	0.0005	< 0.007	0.176	0.0030	0.084	0.00098	< 0.00004	0.17
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000004	< 0.00008	0.0003	< 0.007	0.169	0.0026	0.086	0.00341	0.00016	0.16
16	CA10244-MAY19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.179	0.0025	0.074	0.00070	< 0.00004	0.19
17	CA10388-MAY19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.131	0.0018	0.075	0.00067	< 0.00004	0.16
18	CA10505-MAY19	0.000006	< 0.00008	< 0.0002	< 0.007	0.116	0.0020	0.066	0.00073	< 0.00004	< 0.01
19	CA10028-JUN19	0.000005	< 0.00008	< 0.0002	< 0.007	0.131	0.0019	0.076	0.00079	< 0.00004	0.14
20	CA10256-JUN19	0.000004	< 0.00008	< 0.0002	< 0.007	0.132	0.0023	0.063	0.00067	< 0.00004	0.21

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659724
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.0001	< 0.003	< 0.00001	0.0003	0,00012	0,53	0,00029	0,00694	< 0.0001	0,00039
1	CA11045-JAN19	< 0.0001	< 0.003	0.00002	0.0003	0.00004	0.35	0.00022	0.00646	< 0.0001	0.00051
2	CA11005-FEB19	< 0.0001	< 0.003	< 0.00001	0.0003	< 0.00004	0.33	0.00010	0.00415	< 0.0001	0.00024
3	CA11012-FEB19	< 0.0001	< 0.003	0.00002	< 0.0002	< 0.00004	0.44	0.00013	0.00368	< 0.0001	0.00072
4	CA11025-FEB19	< 0.0001	< 0.003	< 0.00001	< 0.0002	< 0.00004	0.33	0.00013	0.00309	< 0.0001	0.00019
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.0001	< 0.003	0.00001	< 0.0009	< 0.00004	0.51	0.00033	0.00574	< 0.0001	< 0.00005
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.30	0.00007	0.00388	< 0.0001	< 0.00005
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.0002	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.39	0.00014	0.00468	< 0.0001	< 0.00005
16	CA10244-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.38	0.00007	0.00425	< 0.0001	< 0.00005
17	CA10388-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.34	0.00006	0.00400	< 0.0001	< 0.00005
18	CA10505-MAY19	< 0.0001	< 0.003	0.00001	< 0.0009	< 0.00004	0.35	0.00007	0.00411	< 0.0001	< 0.00005
19	CA10028-JUN19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.30	< 0.00006	0.00409	< 0.0001	< 0.00005
20	CA10256-JUN19	< 0.0001	< 0.003	0.00001	< 0.0009	< 0.00004	0.40	0.00009	0.00410	< 0.0001	< 0.00005

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659724
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000005	0,000207	0,00014	0,00026	0,000016	< 0.002
1	CA11045-JAN19	< 0.000005	0.000455	0.00025	0.00055	0.000026	< 0.002
2	CA11005-FEB19	< 0.000005	0.000585	0.00020	0.00086	0.000021	< 0.002
3	CA11012-FEB19	< 0.000005	0.000818	0.00027	0.00126	0.000023	< 0.002
4	CA11025-FEB19	< 0.000005	0.000797	0.00022	0.00133	0.000014	< 0.002
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000005	0.00159	0.00020	0.00052	0.000007	< 0.002
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	< 0.000005	0.000687	0.00014	0.00013	0.000003	< 0.002
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000005	0.000554	0.00013	0.00009	0.000004	< 0.002
16	CA10244-MAY19	< 0.000005	0.000510	0.00016	0.00008	< 0.000002	< 0.002
17	CA10388-MAY19	< 0.000005	0.000513	0.00011	0.00007	< 0.000002	< 0.002
18	CA10505-MAY19	< 0.000005	0.000558	0.00012	0.00008	0.000006	< 0.002
19	CA10028-JUN19	< 0.000005	0.000326	0.00008	0.00005	< 0.000002	< 0.002
20	CA10256-JUN19	< 0.000005	0.000402	0.00013	0.00006	0.000003	< 0.002

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659735
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	833	7.16	4	< 2	20	< 0.06	< 0.3	0.8
1	CA11045-JAN19	30-janv-19	1000	901	7.76	7	< 2	23	< 0.06	< 0.3	1.6
2	CA11005-FEB19	06-févr-19	1000	929	7.38	6	< 2	14	< 0.06	< 0.3	0.7
3	CA11012-FEB19	13-févr-19	1000	914	7.39	5	< 2	10	< 0.06	< 0.3	0.3
4	CA11025-FEB19	20-févr-19	1000	891	7.02	4	< 2	7	< 0.06	< 0.3	0.3
5	CA11042-FEB19	27-févr-19	1000	974	7.11	6	< 2	10	< 0.06	< 0.3	< 0.2
6	CA11003-MAR19	06-mars-19	1000	1002	7.46	5	< 2	12	< 0.06	< 0.3	< 0.2
7	CA11011-MAR19	13-mars-19	1000	916	6.99	4	< 2	7	< 0.06	< 0.3	0.3
8	CA11041-MAR19	20-mars-19	1000	999	6.95	5	< 2	12	< 0.06	< 0.3	0.2
9	CA11053-MAR19	27-mars-19	1000	951	6.97	4	< 2	6	< 0.06	< 0.3	< 0.2
10	CA10028-APR19	03-avr-19	1000	988	6.60	< 2	< 2	6	< 0.06	< 0.3	< 0.2
11	CA10116-APR19	10-avr-19	1000	965	6.47	3	< 2	5	< 0.06	< 0.3	< 0.2
12	CA10203-APR19	17-avr-19	1000	1002	6.42	5	< 2	6	< 0.06	< 0.3	< 0.2
13	CA10233-APR19	24-avr-19	1000	993	6.69	3	< 2	5	< 0.06	< 0.3	< 0.2
14	CA10010-MAY19	01-mai-19	1000	991	6.18	2	< 2	4	< 0.06	< 0.3	< 0.2
15	CA10088-MAY19	08-mai-19	1000	993	6.45	2	< 2	5	< 0.06	< 0.3	< 0.2
16	CA10244-MAY19	15-mai-19	1000	947	6.26	< 2	4	5	< 0.06	< 0.3	< 0.2
17	CA10388-MAY19	22-mai-19	1000	950	6.09	< 2	11	7	< 0.06	< 0.3	< 0.2
18	CA10505-MAY19	29-mai-19	1000	928	6.62	< 2	< 2	5	< 0.06	< 0.3	< 0.2
19	CA10028-JUN19	05-juin-19	1000	965	6.41	2	< 2	5	< 0.06	< 0.3	< 0.2
20	CA10256-JUN19	12-juin-19	1000	880	5.87	< 2	2	4	< 0.06	< 0.3	< 0.2

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659735
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0.032	< 0.0002	0.00041	0.002	< 0.000007	< 0.000007	0,93	0,000004
1	CA11045-JAN19	< 0.00001	< 0.0001	0.033	< 0.0002	0.00056	0.005	< 0.000007	< 0.000007	1.22	0.000006
2	CA11005-FEB19	< 0.00001	< 0.0001	0.025	< 0.0002	0.00032	0.003	< 0.000007	0.000011	0.71	< 0.000003
3	CA11012-FEB19	< 0.00001	0.0002	0.033	< 0.0002	0.00036	0.003	< 0.000007	0.000028	0.58	< 0.000003
4	CA11025-FEB19	< 0.00001	< 0.00005	0.028	0.0002	0.00014	0.003	< 0.000007	< 0.000007	0.53	< 0.000003
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.026	< 0.0002	0.00031	< 0.002	< 0.000007	0.000026	1.21	0.000003
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.011	< 0.0002	0.00017	< 0.002	< 0.000007	< 0.000007	0.56	< 0.000003
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.034	< 0.0002	0.00367	< 0.002	< 0.000007	< 0.000007	0.74	< 0.000003
16	CA10244-MAY19	0.00001	< 0.00005	0.011	< 0.0002	0.00012	< 0.002	< 0.000007	0.000011	0.38	< 0.000003
17	CA10388-MAY19	< 0.00001	< 0.00005	0.012	< 0.0002	0.00012	< 0.002	< 0.000007	0.000012	0.37	< 0.000003
18	CA10505-MAY19	< 0.00001	< 0.00005	0.006	0.0012	0.00011	< 0.002	< 0.000007	< 0.000007	0.36	0.000004
19	CA10028-JUN19	< 0.00001	< 0.00005	0.006	< 0.0002	0.00014	< 0.002	< 0.000007	< 0.000007	0.41	< 0.000003
20	CA10256-JUN19	< 0.00001	< 0.00005	0.011	< 0.0002	0.00017	< 0.002	< 0.000007	< 0.000007	0.32	< 0.000003

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659735
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,000006	0,00009	0,00177	0,024	1,18	0,0516	0,108	0,00269	0,00012	1,57
1	CA11045-JAN19	0.000045	0.00008	0.00321	0.026	1.09	0.102	0.151	0.00230	0.00027	2.65
2	CA11005-FEB19	0.000019	0.00003	0.00145	0.007	0.749	0.0497	0.095	0.00126	0.00064	1.48
3	CA11012-FEB19	0.000011	< 0.00003	0.00097	< 0.007	0.580	0.0344	0.080	0.00103	0.00337	0.79
4	CA11025-FEB19	< 0.000004	< 0.00003	0.00036	< 0.007	0.509	0.0243	0.070	0.00062	0.00005	0.56
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000004	< 0.00008	0.0006	< 0.007	0.348	0.0122	0.116	0.00168	0.00005	0.30
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.000004	< 0.00008	0.0003	< 0.007	0.163	0.0057	0.057	0.00115	< 0.00004	0.02
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.000004	< 0.00008	0.0003	< 0.007	0.155	0.0041	0.079	0.0400	0.00021	0.06
16	CA10244-MAY19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.158	0.0039	0.029	0.00068	< 0.00004	0.07
17	CA10388-MAY19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.123	0.0028	0.036	0.00070	< 0.00004	0.06
18	CA10505-MAY19	0.000004	< 0.00008	< 0.0002	< 0.007	0.119	0.0033	0.033	0.00087	< 0.00004	< 0.01
19	CA10028-JUN19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.127	0.0034	0.045	0.00124	< 0.00004	0.06
20	CA10256-JUN19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.132	0.0036	0.028	0.00054	< 0.00004	0.14

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659735
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0004	0,004	0,00011	0.0002	< 0.00004	0,25	0,00017	0,00451	< 0.0001	0,00072
1	CA11045-JAN19	0.0008	< 0.003	0.00018	0.0004	0.00005	0.24	0.00063	0.00945	< 0.0001	0.00100
2	CA11005-FEB19	0.0003	< 0.003	< 0.00001	0.0004	< 0.00004	0.24	0.00027	0.00579	< 0.0001	0.00031
3	CA11012-FEB19	0.0001	< 0.003	0.00004	< 0.0002	0.00004	0.34	0.00031	0.00482	0.0001	0.00037
4	CA11025-FEB19	< 0.0001	< 0.003	< 0.00001	0.0002	< 0.00004	0.25	0.00014	0.00370	< 0.0001	0.00021
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.0001	< 0.003	0.00010	< 0.0009	< 0.00004	0.49	0.00015	0.00666	< 0.0001	0.00015
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.30	0.00072	0.00284	< 0.0001	< 0.00005
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.0001	< 0.003	0.00001	< 0.0009	< 0.00004	0.46	0.00017	0.00450	< 0.0001	0.00038
16	CA10244-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.22	0.00011	0.00187	< 0.0001	0.00010
17	CA10388-MAY19	< 0.0001	0.003	< 0.00001	< 0.0009	< 0.00004	0.20	0.00008	0.00180	< 0.0001	0.00015
18	CA10505-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.22	0.00007	0.00194	< 0.0001	0.00006
19	CA10028-JUN19	< 0.0001	< 0.003	0.00003	< 0.0009	< 0.00004	0.27	< 0.00006	0.00220	< 0.0001	< 0.00005
20	CA10256-JUN19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.19	< 0.00006	0.00167	< 0.0001	0.00015

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659735
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000005	0,000963	0,0002	0,00053	0,00073	< 0.002
1	CA11045-JAN19	< 0.000005	0.00407	0.00033	0.00141	0.000607	0.003
2	CA11005-FEB19	< 0.000005	0.00748	0.00030	0.00164	0.000267	< 0.002
3	CA11012-FEB19	< 0.000005	0.00366	0.00039	0.00201	0.000135	< 0.002
4	CA11025-FEB19	< 0.000005	0.00191	0.00026	0.00053	0.000063	< 0.002
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000005	0.00143	0.00023	0.00024	0.000032	0.003
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	< 0.000005	0.000589	0.00013	0.00007	0.000009	< 0.002
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000005	0.000183	0.00013	0.00005	0.000035	< 0.002
16	CA10244-MAY19	< 0.000005	0.000402	0.00010	0.00007	< 0.000002	< 0.002
17	CA10388-MAY19	< 0.000005	0.000223	0.00013	0.00007	0.000013	< 0.002
18	CA10505-MAY19	< 0.000005	0.000232	0.00010	0.00008	0.000021	< 0.002
19	CA10028-JUN19	< 0.000005	0.000136	0.00009	0.00007	0.000013	< 0.002
20	CA10256-JUN19	< 0.000005	0.000106	0.00014	0.00005	0.000015	< 0.002

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659745
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	858	7.06	4	< 2	24	< 0.06	< 0.3	1.1
1	CA11045-JAN19	30-janv-19	1000	931	7.31	3	< 2	20	< 0.06	< 0.3	1.3
2	CA11005-FEB19	06-févr-19	1000	907	7.12	5	< 2	21	0.06	< 0.3	1.5
3	CA11012-FEB19	13-févr-19	1000	923	7.09	3	< 2	15	0.06	< 0.3	1.1
4	CA11025-FEB19	20-févr-19	1000	916	6.96	4	< 2	13	0.06	< 0.3	1.1
5	CA11042-FEB19	27-févr-19	1000	922	6.97	2	< 2	8	< 0.06	< 0.3	0.6
6	CA11003-MAR19	06-mars-19	1000	912	7.03	4	< 2	7	< 0.06	< 0.3	0.6
7	CA11011-MAR19	13-mars-19	1000	838	6.89	3	< 2	8	< 0.06	< 0.3	0.6
8	CA11041-MAR19	20-mars-19	1000	918	6.54	3	< 2	7	< 0.06	< 0.3	0.5
9	CA11053-MAR19	27-mars-19	1000	913	6.77	3	< 2	6	< 0.06	< 0.3	0.5
10	CA10028-APR19	03-avr-19	1000	945	6.49	3	< 2	7	< 0.06	< 0.3	0.4
11	CA10116-APR19	10-avr-19	1000	913	6.45	2	< 2	5	< 0.06	< 0.3	0.4
12	CA10203-APR19	17-avr-19	1000	941	6.25	< 2	3	6	< 0.06	< 0.3	0.4
13	CA10233-APR19	24-avr-19	1000	944	6.38	< 2	< 2	4	< 0.06	< 0.3	0.4
14	CA10010-MAY19	01-mai-19	1000	943	6.20	2	2	4	< 0.06	< 0.3	0.3
15	CA10088-MAY19	08-mai-19	1000	930	6.50	2	< 2	5	< 0.06	< 0.3	0.3
16	CA10244-MAY19	15-mai-19	1000	957	6.53	2	3	4	< 0.06	< 0.3	0.3
17	CA10388-MAY19	22-mai-19	1000	958	6.23	< 2	3	4	< 0.06	< 0.3	0.3
18	CA10505-MAY19	29-mai-19	1000	935	6.69	< 2	< 2	6	< 0.06	< 0.3	0.3
19	CA10028-JUN19	05-juin-19	1000	960	6.36	2	< 2	5	< 0.06	< 0.3	0.2
20	CA10256-JUN19	12-juin-19	1000	885	6.36	< 2	< 2	5	< 0.06	< 0.3	0.3

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659745
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0.045	< 0.0002	0.00027	0.002	< 0.000007	< 0.000007	0,56	< 0.000003
1	CA11045-JAN19	< 0.00001	< 0.0001	0.048	< 0.0002	0.00033	0.004	< 0.000007	< 0.000007	0.61	< 0.000003
2	CA11005-FEB19	< 0.00001	< 0.0001	0.040	< 0.0002	0.00035	0.003	< 0.000007	0.000011	0.44	< 0.000003
3	CA11012-FEB19	< 0.00001	< 0.0001	0.044	< 0.0002	0.00022	< 0.002	< 0.000007	< 0.000007	0.33	< 0.000003
4	CA11025-FEB19	< 0.00001	< 0.00005	0.032	0.0006	0.00018	0.003	< 0.000007	< 0.000007	0.31	< 0.000003
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.022	< 0.0002	0.00021	< 0.002	< 0.000007	0.000020	0.31	0.000003
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.012	< 0.0002	0.00021	< 0.002	< 0.000007	< 0.000007	0.32	< 0.000003
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.005	< 0.0002	0.00021	< 0.002	< 0.000007	< 0.000007	0.33	< 0.000003
16	CA10244-MAY19	< 0.00001	< 0.00005	0.008	0.0003	0.00016	< 0.002	< 0.000007	< 0.000007	0.35	< 0.000003
17	CA10388-MAY19	< 0.00001	< 0.00005	0.007	0.0006	0.00017	< 0.002	< 0.000007	0.000022	0.27	0.000004
18	CA10505-MAY19	< 0.00001	< 0.00005	0.005	0.0002	0.00016	< 0.002	< 0.000007	< 0.000007	0.31	0.000003
19	CA10028-JUN19	< 0.00001	< 0.00005	0.004	< 0.0002	0.00020	< 0.002	< 0.000007	< 0.000007	0.29	< 0.000003
20	CA10256-JUN19	< 0.00001	< 0.00005	0.011	< 0.0002	0.00021	< 0.002	< 0.000007	< 0.000007	0.32	< 0.000003

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659745
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000004	< 0.00003	0,0012	< 0.007	1,74	0,025	0,091	0,00122	0,00021	2,45
1	CA11045-JAN19	< 0.000004	< 0.00003	0.00209	0.010	1.58	0.0303	0.111	0.00115	0.00044	2.57
2	CA11005-FEB19	< 0.000004	< 0.00003	0.00042	< 0.007	1.40	0.0302	0.093	0.00070	0.00074	2.25
3	CA11012-FEB19	0.000006	< 0.00003	0.00063	< 0.007	1.13	0.0268	0.074	0.00060	0.00033	1.44
4	CA11025-FEB19	< 0.000004	< 0.00003	0.00032	< 0.007	1.07	0.0246	0.063	0.00077	0.00026	1.13
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000004	< 0.00008	0.0004	< 0.007	0.642	0.0096	0.063	0.00043	0.00008	0.37
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.000004	< 0.00008	0.0002	< 0.007	0.414	0.0061	0.076	0.00045	< 0.00004	0.07
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.000006	< 0.00008	0.0006	< 0.007	0.357	0.0035	0.074	0.00072	0.00020	0.08
16	CA10244-MAY19	0.000019	< 0.00008	< 0.0002	< 0.007	0.358	0.0037	0.071	0.00048	< 0.00004	0.09
17	CA10388-MAY19	0.000005	< 0.00008	< 0.0002	< 0.007	0.264	0.0024	0.069	0.00050	< 0.00004	0.07
18	CA10505-MAY19	0.000002	< 0.00008	< 0.0002	< 0.007	0.292	0.0028	0.070	0.00066	< 0.00004	< 0.01
19	CA10028-JUN19	0.000006	< 0.00008	< 0.0002	< 0.007	0.260	0.0027	0.076	0.00067	< 0.00004	0.07
20	CA10256-JUN19	< 0.000004	< 0.00008	< 0.0002	< 0.007	0.338	0.0037	0.075	0.00039	< 0.00004	0.16

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659745
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0002	0,006	0,00001	0.0002	0,00012	0,16	0,00027	0,00219	< 0.0001	0,00109
1	CA11045-JAN19	< 0.0001	< 0.003	0.00003	0.0003	0.00014	0.20	0.00016	0.00260	< 0.0001	0.00124
2	CA11005-FEB19	< 0.0001	< 0.003	< 0.00001	0.0004	0.00012	0.17	0.00023	0.00190	< 0.0001	0.00082
3	CA11012-FEB19	< 0.0001	< 0.003	0.00002	< 0.0002	0.00008	0.22	0.00022	0.00177	< 0.0001	0.00054
4	CA11025-FEB19	< 0.0001	< 0.003	< 0.00001	0.0002	0.00006	0.19	0.00012	0.00158	< 0.0001	0.00036
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.22	0.00026	0.00165	< 0.0001	0.00051
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.24	0.00013	0.00159	< 0.0001	0.00026
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.27	0.00014	0.00152	< 0.0001	< 0.00005
16	CA10244-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.33	0.00007	0.00122	< 0.0001	0.00007
17	CA10388-MAY19	< 0.0001	0.004	< 0.00001	< 0.0009	< 0.00004	0.26	0.00007	0.00108	< 0.0001	0.00015
18	CA10505-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.25	< 0.00006	0.00122	< 0.0001	0.00006
19	CA10028-JUN19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.23	< 0.00006	0.00116	< 0.0001	0.00006
20	CA10256-JUN19	< 0.0001	< 0.003	< 0.00001	< 0.0009	0.00004	0.28	< 0.00006	0.00127	< 0.0001	0.00038

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: S659745
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000005	0,000035	0,00026	0,00014	0,000015	< 0.002
1	CA11045-JAN19	< 0.000005	0.000196	0.00054	0.00018	0.000019	< 0.002
2	CA11005-FEB19	< 0.000005	0.000816	0.00051	0.00048	0.000004	< 0.002
3	CA11012-FEB19	< 0.000005	0.000154	0.00056	0.00018	0.000003	< 0.002
4	CA11025-FEB19	< 0.000005	0.000182	0.00041	0.00019	0.000003	< 0.002
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000005	0.000091	0.00032	0.00010	< 0.000002	< 0.002
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	< 0.000005	0.000023	0.00027	0.00003	< 0.000002	< 0.002
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000005	0.000041	0.00028	0.00003	< 0.000002	< 0.002
16	CA10244-MAY19	< 0.000005	0.000075	0.00023	0.00006	< 0.000002	< 0.002
17	CA10388-MAY19	< 0.000005	0.000109	0.00020	0.00003	< 0.000002	< 0.002
18	CA10505-MAY19	< 0.000005	0.000047	0.00021	0.00002	< 0.000002	< 0.002
19	CA10028-JUN19	< 0.000005	0.000057	0.00015	< 0.00002	< 0.000002	< 0.002
20	CA10256-JUN19	< 0.000005	0.000032	0.00025	< 0.00002	< 0.000002	< 0.002

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: Waste Composite
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	902	7.10	6	< 2	30	< 0.06	< 0.3	1.5
1	CA11045-JAN19	30-janv-19	1000	960	7.19	31	< 2	17	< 0.06	< 0.3	1.5
2	CA11005-FEB19	06-févr-19	1000	987	7.18	3	< 2	10	< 0.06	< 0.3	0.4
3	CA11012-FEB19	13-févr-19	1000	1001	6.85	2	< 2	6	< 0.06	< 0.3	0.3
4	CA11025-FEB19	20-févr-19	1000	963	6.81	3	< 2	5	< 0.06	< 0.3	< 0.2
5	CA11042-FEB19	27-févr-19	1000	1003	6.99	2	< 2	6	< 0.06	< 0.3	0.2
6	CA11003-MAR19	06-mars-19	1000	974	6.34	< 2	< 2	4	< 0.06	< 0.3	< 0.2
7	CA11011-MAR19	13-mars-19	1000	971	6.39	< 2	< 2	4	< 0.06	< 0.3	< 0.2
8	CA11041-MAR19	20-mars-19	1000	989	6.99	3	< 2	4	< 0.06	< 0.3	< 0.2
9	CA11053-MAR19	27-mars-19	1000	980	6.70	2	< 2	4	< 0.06	< 0.3	< 0.2
10	CA10028-APR19	03-avr-19	1000	997	6.42	2	< 2	4	< 0.06	< 0.3	< 0.2
11	CA10116-APR19	10-avr-19	1000	965	6.32	< 2	< 2	5	< 0.06	< 0.3	< 0.2
12	CA10203-APR19	17-avr-19	1000	996	6.31	< 2	4	4	< 0.06	< 0.3	< 0.2
13	CA10233-APR19	24-avr-19	1000	995	6.59	2	< 2	3	< 0.06	< 0.3	< 0.2
14	CA10010-MAY19	01-mai-19	1000	991	6.15	< 2	3	4	< 0.06	< 0.3	< 0.2
15	CA10088-MAY19	08-mai-19	1000	1006	6.45	< 2	2	3	< 0.06	< 0.3	< 0.2
16	CA10244-MAY19	15-mai-19	1000	1042	6.20	2	3	4	< 0.06	< 0.3	< 0.2
17	CA10388-MAY19	22-mai-19	1000	1043	6.40	< 2	< 2	5	< 0.06	< 0.3	< 0.2
18	CA10505-MAY19	29-mai-19	1000	1023	6.47	< 2	2	3	< 0.06	< 0.3	< 0.2
19	CA10028-JUN19	05-juin-19	1000	1039	6.24	< 2	< 2	4	< 0.06	< 0.3	< 0.2
20	CA10256-JUN19	12-juin-19	1000	961	6.68	< 2	3	3	< 0.06	< 0.3	< 0.2
21	CA10450-JUN19	19-juin-19	1000	994	6,13	< 2	2	3	< 0.06	< 0.3	< 0.2
22	CA10615-JUN19	26-juin-19	1000	995	6,03	< 2	2	4	< 0.06	< 0.3	< 0.2
23	CA10022-JUL19	03-juil-19	1000	1053	6,84	6	< 2	11	< 0.06	< 0.3	< 0.2
24	CA10105-JUL19	10-juil-19	1000	1024	6,48	2	3	4	< 0.06	< 0.3	< 0.2
25	CA10130-JUL19	17-juil-19	1000	1051	6,5	2	2	6	< 0.06	< 0.3	< 0.2
26	CA10337-JUL19	24-juil-19	1000	1014	6,19	< 2	2	3	< 0.06	< 0.3	< 0.2
27	CA10389-JUL19	31-juil-19	1000	1010	6,02	< 2	3	3	< 0.06	< 0.3	< 0.2
28	CA10023-AUG19	07-août-19	1000		6,33	< 2	2	< 2	< 0.06	< 0.3	< 0.2

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: Waste Composite
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0.048	< 0.0002	0.00074	0.003	< 0.000007	< 0.000007	1,92	< 0.000003
1	CA11045-JAN19	< 0.00001	< 0.0001	0.033	< 0.0002	0.00063	0.004	< 0.000007	< 0.000007	1.51	0.000003
2	CA11005-FEB19	< 0.00001	< 0.0001	0.026	< 0.0002	0.00040	0.004	< 0.000007	< 0.000007	0.68	< 0.000003
3	CA11012-FEB19	< 0.00001	< 0.0001	0.033	< 0.0002	0.00030	< 0.002	< 0.000007	0.000016	0.55	0.000006
4	CA11025-FEB19	< 0.00001	< 0.00005	0.023	< 0.0002	0.00023	0.004	< 0.000007	< 0.000007	0.43	< 0.000003
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.019	0.0005	0.00017	< 0.002	< 0.000007	< 0.000007	0.39	0.000003
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.012	< 0.0002	0.00014	< 0.002	< 0.000007	< 0.000007	0.37	< 0.000003
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.010	< 0.0002	0.00114	< 0.002	< 0.000007	< 0.000007	0.38	< 0.000003
16	CA10244-MAY19	< 0.00001	< 0.00005	0.011	0.0004	0.00018	< 0.002	< 0.000007	< 0.000007	0.43	< 0.000003
17	CA10388-MAY19	< 0.00001	< 0.00005	0.008	< 0.0002	0.00010	< 0.002	< 0.000007	< 0.000007	0.30	< 0.000003
18	CA10505-MAY19	< 0.00001	< 0.00005	0.004	< 0.0002	0.00011	< 0.002	< 0.000007	< 0.000007	0.31	0.000003
19	CA10028-JUN19	< 0.00001	< 0.00005	0.005	< 0.0002	0.00017	< 0.002	< 0.000007	< 0.000007	0.40	< 0.000003
20	CA10256-JUN19	0.00001	< 0.00005	0.007	< 0.0002	0.00014	< 0.002	< 0.000007	< 0.000007	0.27	< 0.000003
21	CA10450-JUN19	---	---	---	---	---	---	---	---	---	---
22	CA10615-JUN19	---	---	---	---	---	---	---	---	---	---
23	CA10022-JUL19	---	---	---	---	---	---	---	---	---	---
24	CA10105-JUL19	0,00001	< 0.00005	0,01	< 0.0002	0,00018	< 0.002	< 0.000007	< 0.000007	0,58	< 0.000003
25	CA10130-JUL19	---	---	---	---	---	---	---	---	---	---
26	CA10337-JUL19	---	---	---	---	---	---	---	---	---	---
27	CA10389-JUL19	---	---	---	---	---	---	---	---	---	---
28	CA10023-AUG19	< 0.00001	< 0.00005	0,004	< 0.0002	0,00016	0,003	< 0.000007	< 0.000007	0,36	< 0.000003

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: Waste Composite
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,000092	0,00006	0,00126	0,013	1,38	0,0263	0,208	0,0027	0,00029	1,95
1	CA11045-JAN19	0.000137	0.00004	0.00185	0.014	0.768	0.0171	0.206	0.00381	0.00023	1.48
2	CA11005-FEB19	0.000049	< 0.00003	0.00066	< 0.007	0.372	0.0077	0.085	0.00151	0.00056	0.56
3	CA11012-FEB19	0.000031	< 0.00003	0.00051	< 0.007	0.282	0.0068	0.066	0.00111	0.00082	0.35
4	CA11025-FEB19	0.000021	< 0.00003	0.00036	< 0.007	0.236	0.0047	0.051	0.00085	0.00010	0.26
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	0.000007	< 0.00008	0.0004	< 0.007	0.138	0.0032	0.042	0.00077	0.00007	0.14
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	0.000025	< 0.00008	0.0003	< 0.007	0.088	0.0020	0.039	0.00092	< 0.00004	< 0.01
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.000036	< 0.00008	0.0003	< 0.007	0.084	0.0014	0.042	0.0108	0.00013	< 0.01
16	CA10244-MAY19	0.000040	< 0.00008	< 0.0002	< 0.007	0.090	0.0017	0.031	0.00103	< 0.00004	0.04
17	CA10388-MAY19	0.000031	< 0.00008	< 0.0002	< 0.007	0.050	0.0010	0.029	0.00148	< 0.00004	< 0.01
18	CA10505-MAY19	0.000047	< 0.00008	< 0.0002	< 0.007	0.042	0.0011	0.025	0.00097	< 0.00004	< 0.01
19	CA10028-JUN19	0.000046	< 0.00008	< 0.0002	< 0.007	0.050	0.0015	0.040	0.00126	< 0.00004	0.04
20	CA10256-JUN19	0.000040	< 0.00008	< 0.0002	< 0.007	0.056	0.0014	0.020	0.00066	< 0.00004	0.11
21	CA10450-JUN19	---	---	---	---	---	---	---	---	---	---
22	CA10615-JUN19	---	---	---	---	---	---	---	---	---	---
23	CA10022-JUL19	---	---	---	---	---	---	---	---	---	---
24	CA10105-JUL19	0,000032	< 0.00008	0,0002	< 0.007	0,064	0,0013	0,041	0,00173	< 0.00004	0,02
25	CA10130-JUL19	---	---	---	---	---	---	---	---	---	---
26	CA10337-JUL19	---	---	---	---	---	---	---	---	---	---
27	CA10389-JUL19	---	---	---	---	---	---	---	---	---	---
28	CA10023-AUG19	0,000136	< 0.00008	0,0003	< 0.007	0,059	0,001	0,037	0,00153	0,00466	0,04

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: Waste Composite
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0034	< 0.003	0,00007	0.0003	0,00015	0,2	0,00028	0,00641	< 0.0001	0,00053
1	CA11045-JAN19	0.0025	< 0.003	0.00006	0.0003	0.00015	0.15	0.00016	0.00584	< 0.0001	0.00081
2	CA11005-FEB19	0.0008	< 0.003	< 0.00001	0.0003	0.00006	0.12	0.00027	0.00258	< 0.0001	0.00032
3	CA11012-FEB19	0.0004	< 0.003	0.00001	< 0.0002	0.00012	0.18	0.00029	0.00239	< 0.0001	0.00026
4	CA11025-FEB19	0.0003	< 0.003	< 0.00001	0.0005	< 0.00004	0.11	0.00010	0.00170	< 0.0001	0.00007
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	0.0001	< 0.003	0.00002	0.0010	< 0.00004	0.13	0.00023	0.00160	< 0.0001	0.00011
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	0.0002	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.10	0.00012	0.00131	< 0.0001	< 0.00005
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.0002	< 0.003	0.00037	< 0.0009	< 0.00004	0.13	0.00012	0.00172	< 0.0001	0.00005
16	CA10244-MAY19	0.0002	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.12	0.00015	0.00144	< 0.0001	< 0.00005
17	CA10388-MAY19	0.0002	0.004	< 0.00001	< 0.0009	< 0.00004	0.09	0.00008	0.00102	< 0.0001	< 0.00005
18	CA10505-MAY19	0.0002	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.10	< 0.00006	0.00115	< 0.0001	< 0.00005
19	CA10028-JUN19	0.0001	< 0.003	< 0.00001	< 0.0009	0.00004	0.11	< 0.00006	0.00137	< 0.0001	< 0.00005
20	CA10256-JUN19	0.0002	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.09	< 0.00006	0.00097	< 0.0001	< 0.00005
21	CA10450-JUN19	---	---	---	---	---	---	---	---	---	---
22	CA10615-JUN19	---	---	---	---	---	---	---	---	---	---
23	CA10022-JUL19	---	---	---	---	---	---	---	---	---	---
24	CA10105-JUL19	0,0002	< 0.003	< 0.00001	< 0.0009	< 0.00004	0,11	0,0002	0,00179	< 0.0001	0,00009
25	CA10130-JUL19	---	---	---	---	---	---	---	---	---	---
26	CA10337-JUL19	---	---	---	---	---	---	---	---	---	---
27	CA10389-JUL19	---	---	---	---	---	---	---	---	---	---
28	CA10023-AUG19	0,0003	< 0.003	< 0.00001	< 0.0009	< 0.00004	0,08	< 0.00006	0,00108	< 0.0001	< 0.00005

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: Waste Composite
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000005	0,000681	0,00032	0,0004	0,000368	< 0.002
1	CA11045-JAN19	< 0.000005	0.000817	0.00041	0.00030	0.000247	0.004
2	CA11005-FEB19	< 0.000005	0.000813	0.00035	0.00039	0.000118	< 0.002
3	CA11012-FEB19	< 0.000005	0.00122	0.00040	0.00039	0.000101	< 0.002
4	CA11025-FEB19	< 0.000005	0.000500	0.00028	0.00022	0.000044	< 0.002
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000005	0.000305	0.00026	0.00063	0.000023	< 0.002
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	< 0.000005	0.000177	0.00018	0.00006	0.000008	0.002
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000005	0.000092	0.00013	0.00005	0.000003	< 0.002
16	CA10244-MAY19	< 0.000005	0.000169	0.00018	0.00007	< 0.000002	< 0.002
17	CA10388-MAY19	< 0.000005	0.000125	0.00013	0.00004	0.000005	< 0.002
18	CA10505-MAY19	< 0.000005	0.000104	0.00012	0.00003	0.000007	< 0.002
19	CA10028-JUN19	< 0.000005	0.000146	0.00013	0.00004	0.000008	< 0.002
20	CA10256-JUN19	< 0.000005	0.000110	0.00015	0.00003	0.000009	< 0.002
21	CA10450-JUN19	---	---	---	---	---	---
22	CA10615-JUN19	---	---	---	---	---	---
23	CA10022-JUL19	---	---	---	---	---	---
24	CA10105-JUL19	< 0.000005	0,000149	0,00011	0,00003	0,000007	< 0.002
25	CA10130-JUL19	---	---	---	---	---	---
26	CA10337-JUL19	---	---	---	---	---	---
27	CA10389-JUL19	---	---	---	---	---	---
28	CA10023-AUG19	< 0.000005	0,00026	0,00026	< 0.00002	0,000009	< 0.002

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: Waste Composite Dup
Weight: 1 kg
Cell Type Waste Rock

Analyte			Leachate Volume Added (mL)	Leachate Volume Recovered (mL)	pH	Alkalinity	Acidity	CONDU	F	Br	SO4
Week/Event	LIMS	Sample Date	mL	mL	no unit	mg/L as CaCO3	mg/L as CaCO3	uS/cm	mg/L	mg/L	mg/L
0	CA11044-JAN19	23-janv-19	1000	887	7.23	7	< 2	33	< 0.06	< 0.3	1.5
1	CA11045-JAN19	30-janv-19	1000	964	7.43	5	< 2	20	< 0.06	< 0.3	1.4
2	CA11005-FEB19	06-févr-19	1000	973	7.08	4	< 2	11	< 0.06	< 0.3	0.5
3	CA11012-FEB19	13-févr-19	1000	980	7.31	4	< 2	8	< 0.06	< 0.3	0.3
4	CA11025-FEB19	20-févr-19	1000	962	6.86	3	< 2	7	< 0.06	< 0.3	0.2
5	CA11042-FEB19	27-févr-19	1000	986	6.75	4	< 2	6	< 0.06	0.2	0.2
6	CA11003-MAR19	06-mars-19	1000	956	6.31	2	< 2	6	< 0.06	< 0.3	< 0.2
7	CA11011-MAR19	13-mars-19	1000	976	7.02	4	< 2	6	< 0.06	< 0.3	< 0.2
8	CA11041-MAR19	20-mars-19	1000	958	6.90	3	< 2	5	< 0.06	< 0.3	< 0.2
9	CA11053-MAR19	27-mars-19	1000	936	6.85	2	< 2	5	< 0.06	< 0.3	< 0.2
10	CA10028-APR19	03-avr-19	1000	997	6.54	3	< 2	6	< 0.06	< 0.3	< 0.2
11	CA10116-APR19	10-avr-19	1000	961	6.55	< 2	< 2	3	< 0.06	< 0.3	< 0.2
12	CA10203-APR19	17-avr-19	1000	984	6.34	< 2	2	5	< 0.06	< 0.3	< 0.2
13	CA10233-APR19	24-avr-19	1000	991	6.70	2	< 2	4	< 0.06	< 0.3	< 0.2
14	CA10010-MAY19	01-mai-19	1000	972	6.19	< 2	< 2	4	< 0.06	< 0.3	< 0.2
15	CA10088-MAY19	08-mai-19	1000	990	6.43	2	< 2	6	< 0.06	< 0.3	< 0.2
16	CA10244-MAY19	15-mai-19	1000	1026	6.11	< 2	3	5	< 0.06	< 0.3	< 0.2
17	CA10388-MAY19	22-mai-19	1000	1004	6.41	2	3	5	< 0.06	< 0.3	< 0.2
18	CA10505-MAY19	29-mai-19	1000	1013	6.33	2	< 2	5	< 0.06	< 0.3	< 0.2
19	CA10028-JUN19	05-juin-19	1000	998	6.31	2	< 2	5	< 0.06	< 0.3	< 0.2
20	CA10256-JUN19	12-juin-19	1000	941	6.24	< 2	2	4	< 0.06	< 0.3	< 0.2

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: Waste Composite Dup
Weight: 1 kg
Cell Type Waste Rock

Analyte		Hg	Ag	Al	As	Ba	B	Be	Bi	Ca	Cd
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.00001	< 0.0001	0.057	< 0.0002	0.00073	0.004	< 0.000007	< 0.000007	1,99	< 0.000003
1	CA11045-JAN19	< 0.00001	< 0.0001	0.040	0.0002	0.00057	0.004	< 0.000007	< 0.000007	1.60	< 0.000003
2	CA11005-FEB19	< 0.00001	< 0.0001	0.035	0.0004	0.00104	0.002	< 0.000007	< 0.000007	0.84	< 0.000003
3	CA11012-FEB19	< 0.00001	< 0.0001	0.043	< 0.0002	0.00034	0.002	< 0.000007	< 0.000007	0.72	< 0.000003
4	CA11025-FEB19	< 0.00001	< 0.00005	0.033	0.0007	0.00022	0.003	< 0.000007	< 0.000007	0.64	< 0.000003
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.00001	< 0.00005	0.026	< 0.0002	0.00016	< 0.002	< 0.000007	< 0.000007	0.54	< 0.000003
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	< 0.00001	< 0.00005	0.019	< 0.0002	0.00018	< 0.002	< 0.000007	< 0.000007	0.53	< 0.000003
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	< 0.00001	< 0.00005	0.008	< 0.0002	0.00028	< 0.002	< 0.000007	< 0.000007	0.58	< 0.000003
16	CA10244-MAY19	< 0.00001	< 0.00005	0.015	< 0.0002	0.00020	< 0.002	< 0.000007	< 0.000007	0.65	< 0.000003
17	CA10388-MAY19	< 0.00001	< 0.00005	0.012	< 0.0002	0.00015	< 0.002	< 0.000007	< 0.000007	0.56	0.000004
18	CA10505-MAY19	< 0.00001	< 0.00005	0.009	< 0.0002	0.00017	< 0.002	< 0.000007	< 0.000007	0.54	0.000003
19	CA10028-JUN19	< 0.00001	< 0.00005	0.010	0.0006	0.00018	< 0.002	< 0.000007	< 0.000007	0.56	< 0.000003
20	CA10256-JUN19	0.00001	< 0.00005	0.016	< 0.0002	0.00025	< 0.002	< 0.000007	< 0.000007	0.43	0.000004

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: Waste Composite Dup
Weight: 1 kg
Cell Type Waste Rock

Analyte		Co	Cr	Cu	Fe	K	Li	Mg	Mn	Mo	Na
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,000073	0,00007	0,00139	0,012	1,64	0,0375	0,228	0,00243	0,00057	2,31
1	CA11045-JAN19	0.000104	0.00005	0.00170	0.012	0.863	0.0220	0.209	0.00306	0.00019	1.51
2	CA11005-FEB19	0.000038	< 0.00003	0.00074	0.023	0.461	0.0111	0.103	0.00156	0.00029	0.66
3	CA11012-FEB19	0.000024	< 0.00003	0.00057	< 0.007	0.374	0.0097	0.084	0.00119	0.00034	0.43
4	CA11025-FEB19	< 0.000004	< 0.00003	0.00088	< 0.007	0.299	0.0070	0.072	0.00082	0.00011	0.30
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000004	< 0.00008	0.0004	< 0.007	0.178	0.0039	0.056	0.00078	0.00007	0.15
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	0.000026	< 0.00008	0.0003	< 0.007	0.109	0.0026	0.054	0.00102	< 0.00004	< 0.01
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.000032	< 0.00008	0.0005	< 0.007	0.119	0.0019	0.051	0.00212	0.00024	0.04
16	CA10244-MAY19	0.000008	< 0.00008	< 0.0002	< 0.007	0.130	0.0021	0.047	0.00128	< 0.00004	0.04
17	CA10388-MAY19	0.000027	< 0.00008	< 0.0002	< 0.007	0.081	0.0015	0.048	0.00136	< 0.00004	< 0.01
18	CA10505-MAY19	0.000017	< 0.00008	< 0.0002	< 0.007	0.064	0.0015	0.041	0.00147	< 0.00004	< 0.01
19	CA10028-JUN19	0.000045	< 0.00008	< 0.0002	0.019	0.055	0.0015	0.044	0.00160	0.00060	0.05
20	CA10256-JUN19	0.000017	< 0.00008	< 0.0002	< 0.007	0.073	0.0016	0.028	0.00088	< 0.00004	0.11

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: Waste Composite Dup
Weight: 1 kg
Cell Type Waste Rock

Analyte		Ni	P	Pb	Sb	Se	Si	Sn	Sr	Ta	Ti
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	0,0028	0,006	0,00007	0.0002	0,00016	0,26	0,00024	0,0069	< 0.0001	0,00066
1	CA11045-JAN19	0.0020	< 0.003	0.00007	0.0003	0.00016	0.18	0.00019	0.00619	< 0.0001	0.00075
2	CA11005-FEB19	0.0007	< 0.003	< 0.00001	0.0003	0.00018	0.14	0.00025	0.00348	< 0.0001	0.00034
3	CA11012-FEB19	0.0004	< 0.003	0.00002	< 0.0002	< 0.00004	0.22	0.00027	0.00322	< 0.0001	0.00035
4	CA11025-FEB19	0.0002	< 0.003	< 0.00001	< 0.0002	< 0.00004	0.16	0.00014	0.00268	< 0.0001	0.00022
5	CA11042-FEB19	---	---	---	---	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---	---	---	---	---
8	CA11041-MAR19	< 0.0001	< 0.003	0.00004	< 0.0009	< 0.00004	0.16	0.00028	0.00224	< 0.0001	0.00007
9	CA11053-MAR19	---	---	---	---	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---	---	---	---	---
12	CA10203-APR19	0.0002	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.15	0.00007	0.00189	< 0.0001	< 0.00005
13	CA10233-APR19	---	---	---	---	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---	---	---	---	---
15	CA10088-MAY19	0.0002	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.17	0.00013	0.00220	< 0.0001	< 0.00005
16	CA10244-MAY19	< 0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.20	0.00010	0.00217	< 0.0001	0.00006
17	CA10388-MAY19	0.0001	< 0.003	< 0.00001	< 0.0009	< 0.00004	0.18	0.00006	0.00191	< 0.0001	< 0.00005
18	CA10505-MAY19	< 0.0001	< 0.003	0.00001	< 0.0009	< 0.00004	0.16	< 0.00006	0.00193	< 0.0001	0.00006
19	CA10028-JUN19	0.0004	< 0.003	< 0.00001	< 0.0009	0.00005	0.14	< 0.00006	0.00190	< 0.0001	< 0.00005
20	CA10256-JUN19	< 0.0001	< 0.003	0.00002	< 0.0009	< 0.00004	0.13	0.00008	0.00151	< 0.0001	< 0.00005

Humidity Cell Results
Customer: Critical Elements
Humidity Cell: Waste Composite Dup
Weight: 1 kg
Cell Type Waste Rock

Analyte		Tl	U	V	W	Y	Zn
Week/Event	LIMS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	CA11044-JAN19	< 0.000005	0,000672	0,00041	0,0004	0,000331	< 0.002
1	CA11045-JAN19	< 0.000005	0.000851	0.00039	0.00023	0.000179	0.003
2	CA11005-FEB19	< 0.000005	0.00100	0.00035	0.00039	0.000106	< 0.002
3	CA11012-FEB19	< 0.000005	0.00127	0.00044	0.00055	0.000076	< 0.002
4	CA11025-FEB19	< 0.000005	0.000814	0.00032	0.00025	0.000040	< 0.002
5	CA11042-FEB19	---	---	---	---	---	---
6	CA11003-MAR19	---	---	---	---	---	---
7	CA11011-MAR19	---	---	---	---	---	---
8	CA11041-MAR19	< 0.000005	0.000468	0.00026	0.00052	0.000013	< 0.002
9	CA11053-MAR19	---	---	---	---	---	---
10	CA10028-APR19	---	---	---	---	---	---
11	CA10116-APR19	---	---	---	---	---	---
12	CA10203-APR19	< 0.000005	0.000274	0.00017	0.00008	0.000012	< 0.002
13	CA10233-APR19	---	---	---	---	---	---
14	CA10010-MAY19	---	---	---	---	---	---
15	CA10088-MAY19	< 0.000005	0.000149	0.00017	0.00004	0.000002	< 0.002
16	CA10244-MAY19	< 0.000005	0.000237	0.00018	0.00006	< 0.000002	< 0.002
17	CA10388-MAY19	< 0.000005	0.000186	0.00015	0.00009	0.000003	< 0.002
18	CA10505-MAY19	< 0.000005	0.000156	0.00012	0.00004	0.000004	< 0.002
19	CA10028-JUN19	< 0.000005	0.000231	0.00006	0.00004	0.000004	0.002
20	CA10256-JUN19	< 0.000005	0.000166	0.00015	0.00003	0.000004	< 0.002

ANNEXE G

Certificats d'analyse

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Critical Elements Corporation
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ABA - Modified Sobek

Project : PO#R160070

16-August-2019

Date Rec. : 24 July 2019
LR Report: **CA11011-JUL19**
Reference: Hum Cell Shut Down

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705	6: S659707	7: S659735	8: S659745	9: S659719	10: S659724	11: S659714
Sample Date & Time					13-Jun-19	13-Jun-19	13-Jun-19	13-Jun-19	13-Jun-19	13-Jun-19	13-Jun-19
Paste pH [no unit]	14-Aug-19	09:56	16-Aug-19	13:18	10.26	10.19	10.28	10.14	10.22	9.77	9.92
Fizz Rate [no unit]	14-Aug-19	09:56	16-Aug-19	13:18	1	1	1	1	1	1	1
Sample weight [g]	14-Aug-19	09:56	16-Aug-19	13:18	2.01	1.97	2.03	2.00	2.02	1.98	2.02
HCl Added [mL]	15-Aug-19	08:12	16-Aug-19	13:18	20.00	20.00	28.00	28.00	27.00	20.00	20.00
HCl [Normality]	14-Aug-19	09:56	16-Aug-19	13:18	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	14-Aug-19	09:56	16-Aug-19	13:18	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	15-Aug-19	08:12	16-Aug-19	13:18	18.55	18.32	23.45	22.09	22.13	16.00	15.83
Final pH [no unit]	15-Aug-19	08:12	16-Aug-19	13:18	1.23	1.25	1.57	1.77	1.54	1.76	1.45
NP [t CaCO3/1000 t]	15-Aug-19	08:12	16-Aug-19	13:18	3.6	4.3	11.2	14.8	12.0	10.1	10.3
AP [t CaCO3/1000 t]	16-Aug-19	13:18	16-Aug-19	13:18	0.62	0.62	1.56	1.56	1.56	0.62	0.94
Net NP [t CaCO3/1000 t]	16-Aug-19	13:18	16-Aug-19	13:18	2.98	3.68	9.64	13.2	10.4	9.48	9.36
NP/AP [ratio]	16-Aug-19	13:18	16-Aug-19	13:18	5.76	6.88	7.17	9.47	7.68	16.2	11.0
Sulphur (total) [%]	09-Aug-19	10:10	14-Aug-19	11:13	< 0.005	< 0.005	0.057	0.052	0.059	< 0.005	0.036
Acid Leachable SO4-S [%]	14-Aug-19	14:15	14-Aug-19	11:13	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Sulphide [%]	13-Aug-19	14:15	14-Aug-19	11:13	< 0.02	< 0.02	0.05	0.05	0.05	< 0.02	0.03

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ABA - Modified Sobek

Project : PO#R160070

LR Report : **CA11011-JUL19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705	6: S659707	7: S659735	8: S659745	9: S659719	10: S659724	11: S659714
Carbon (total) [%]	09-Aug-19	10:10	12-Aug-19	13:53	0.008	0.021	0.011	0.008	0.010	0.040	0.017
Carbonate [%]	12-Aug-19	10:46	12-Aug-19	13:53	0.030	< 0.025	< 0.025	< 0.025	< 0.025	0.105	< 0.025
Weight [g]	---	---	---	---	997	997	1000	998	999	1008	995

Analysis	12: S659711	13: S659711 Dup	14: Waste Composite Dup
Sample Date & Time	13-Jun-19	13-Jun-19	13-Jun-19
Paste pH [no unit]	10.20	10.24	10.14
Fizz Rate [no unit]	1	1	1
Sample weight [g]	2.01	2.02	2.01
HCl Added [mL]	20.00	20.00	20.00
HCl [Normality]	0.10	0.10	0.10
NaOH [Normality]	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	15.66	15.35	15.60
Final pH [no unit]	1.73	1.89	1.89
NP [t CaCO3/1000 t]	10.8	11.5	11.0
AP [t CaCO3/1000 t]	0.62	0.62	0.62
Net NP [t CaCO3/1000 t]	10.2	10.9	10.4
NP/AP [ratio]	17.3	18.4	17.6
Sulphur (total) [%]	< 0.005	< 0.005	0.024
Acid Leachable SO4-S [%]	< 0.02	< 0.02	< 0.02
Sulphide [%]	< 0.02	< 0.02	0.02
Carbon (total) [%]	0.009	0.008	0.008
Carbonate [%]	< 0.025	< 0.025	< 0.025
Weight [g]	997	992	997

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ABA - Modified Sobek

Project : PO#R160070

LR Report : **CA11011-JUL19**

*NP (Neutralization Potential)
= 50 x (N of HCL x Total HCL added - N NaOH x NaOH added)

Weight of Sample

*AP (Acid Potential) = % Sulphide Sulphur x 31.25
*Net NP (Net Neutralization Potential) = NP-AP
NP/AP Ratio = NP/AP
*Results expressed as tonnes CaCO3 equivalent/1000 tonnes of material
Samples with a % Sulphide value of <0.02 will be calculated using a 0.02 value.

<originale signé par>

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Project Specialist,
Environment, Health & Safety

OnLine LIMS

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ABA - Modified Sobek

Project : PO#R160070

19-September-2019

Date Rec. : 29 August 2019
LR Report: **CA11012-AUG19**
Reference: Hum Cell Shut Down

Copy: #1

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CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709	6: Waste Composite
Sample Date & Time					29-Aug-19	29-Aug-19
Paste pH [no unit]	17-Sep-19	10:59	19-Sep-19	06:22	10.09	10.00
Fizz Rate [no unit]	17-Sep-19	10:59	19-Sep-19	06:22	1	1
Sample weight [g]	17-Sep-19	10:59	19-Sep-19	06:22	2.02	1.99
HCl Added [mL]	18-Sep-19	08:07	19-Sep-19	06:22	20.00	20.00
HCl [Normality]	17-Sep-19	10:59	19-Sep-19	06:22	0.10	0.10
NaOH [Normality]	17-Sep-19	10:59	19-Sep-19	06:22	0.10	0.10
NaOH to pH=8.3 [mL]	18-Sep-19	08:07	19-Sep-19	06:22	19.69	18.27
Final pH [no unit]	18-Sep-19	08:07	19-Sep-19	06:22	1.02	1.23
NP [t CaCO3/1000 t]	18-Sep-19	08:07	19-Sep-19	06:22	0.8	4.4
AP [t CaCO3/1000 t]	19-Sep-19	11:46	19-Sep-19	06:22	0.62	0.94
Net NP [t CaCO3/1000 t]	19-Sep-19	11:46	19-Sep-19	06:22	0.18	3.46
NP/AP [ratio]	19-Sep-19	11:46	19-Sep-19	06:22	1.28	4.69
Sulphur (total) [%]	18-Sep-19	13:16	18-Sep-19	14:34	0.005	0.055
Acid Leachable SO4-S [%]	18-Sep-19	14:43	18-Sep-19	14:34	< 0.02	0.02
Sulphide [%]	18-Sep-19	14:30	18-Sep-19	14:34	< 0.02	0.03
Carbon (total) [%]	18-Sep-19	13:16	18-Sep-19	13:24	0.011	0.011
Carbonate [%]	18-Sep-19	13:19	18-Sep-19	13:24	< 0.025	< 0.025
Weight [g]	---	---	---	---	1016	1001

<originale signé par>

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Project Specialist,
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Project : PO#R160070
LR Report : **CA11012-AUG19**

*NP (Neutralization Potential)

$$= \frac{50 \times (\text{N of HCL} \times \text{Total HCL added} - \text{N NaOH} \times \text{NaOH added})}{\text{Weight of Sample}}$$

*AP (Acid Potential) = % Sulphide Sulphur x 31.25
*Net NP (Net Neutralization Potential) = NP-AP
NP/AP Ratio = NP/AP
*Results expressed as tonnes CaCO3 equivalent/1000 tonnes of material
Samples with a % Sulphide value of <0.02 will be calculated using a 0.02 value.

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Quebec MA200-Met 1.2 Digest

Project : PO#R160070

26-August-2019

Date Rec. : 24 July 2019
LR Report: **CA11012-JUL19**
Reference: Hum Cell Shut Down

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705	6: S659707	7: S659735	8: S659745	9: S659719	10: S659724	11: S659714	12: S659711	13: S659711 Dup	14: Waste Composite Dup
Sample Date & Time					13-Jun-19	13-Jun-19	13-Jun-19	13-Jun-19	13-Jun-19	13-Jun-19	13-Jun-19	13-Jun-19	13-Jun-19	13-Jun-19
Fluoride [µg/g]	15-Aug-19	11:16	20-Aug-19	15:33	6	10	4	6	3	2	2	2	3	4
Bromide [µg/g]	06Aug 19	21:08	09-Aug-19	12:41	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Mercury [µg/g]	14-Aug-19	11:30	14-Aug-19	16:22	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Silver [µg/g]	15-Aug-19	17:07	19-Aug-19	16:02	0.03	0.07	0.05	0.04	0.04	0.01	0.08	0.02	0.02	0.03
Aluminum [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	3300	4000	12000	17000	15000	10000	7500	12000	13000	14000
Arsenic [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Boron [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	< 1	< 1	< 1	< 1	1	10	2	< 1	< 1	2
Barium [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	4.0	0.70	270	180	170	31	22	73	81	190
Beryllium [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	2.1	1.9	0.12	0.12	0.12	0.19	0.26	0.07	0.08	0.13
Bismuth [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	9.6	197	0.72	0.32	0.12	< 0.09	0.62	0.10	0.10	0.11
Calcium [µg/g]	15-Aug-19	12:25	19-Aug-19	16:05	280	400	2400	7900	4300	5100	9000	5000	5300	5400
Cadmium [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	0.03	3.7	0.03	0.03	< 0.02	0.05	0.02	< 0.02	< 0.02	0.02
Cobalt [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	0.64	0.70	7.7	13	11	5.6	10	8.3	8.8	9.5
Chromium [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	120	128	100	49	85	79	49	66	54	58
Copper [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	3.9	42	78	38	55	5.4	75	1.9	2.7	34
Iron [µg/g]	15-Aug-19	12:25	19-Aug-19	16:05	2900	3300	18000	3200	18000	16000	12000	13000	13000	20000
Potassium [µg/g]	15-Aug-19	12:25	19-Aug-19	16:05	1600	2400	5400	6500	6100	2000	830	4500	4800	5300
Lithium [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	85	72	310	210	220	81	41	120	130	240
Magnesium [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	35	120	4900	9600	9400	4300	6700	7800	8100	7200
Manganese [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	230	100	350	490	340	250	290	200	230	350

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Quebec MA200-Met 1.2 Digest

Project : PO#R160070
LR Report : **CA11012-JUL19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705	6: S659707	7: S659735	8: S659745	9: S659719	10: S659724	11: S659714	12: S659711	13: S659711 Dup	14: Waste Composite Dup
Molybdenum [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	3.2	6.9	2.7	2.6	1.8	4.1	3.8	2.3	0.9	2.6
Sodium [µg/g]	15-Aug-19	12:25	19-Aug-19	16:05	1200	1000	1500	1800	1400	1200	1200	1500	1600	1400
Nickel [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	6.0	5.8	13	7.7	25	8.5	32	38	40	14
Phosphorus [µg/g]	15-Aug-19	12:25	19-Aug-19	16:05	53	57	360	550	180	400	230	310	310	400
Lead [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	3.0	8.0	2.3	1.7	4.4	4.5	10	0.94	1.2	2.5
Antimony [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Selenium [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Tin [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	0.9	1.3	1.3	< 0.5	0.9	< 0.5	< 0.5	< 0.5	< 0.5	0.8
Strontium [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	1.4	1.2	21	22	18	17	9.0	16	16	19
Titanium [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	76	9.6	1800	2500	1500	760	1600	1300	1400	2000
Thallium [µg/g]	15-Aug-19	13:05	20-Aug-19	16:22	1.0	1.5	0.14	0.58	0.29	0.06	0.03	0.15	0.17	0.18
Uranium [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	2.6	3.2	0.83	0.40	3.1	0.47	0.047	0.31	0.30	0.68
Vanadium [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	3	1	30	63	41	16	48	35	38	42
Zinc [µg/g]	15-Aug-19	13:05	19-Aug-19	16:05	29	300	39	67	44	62	18	33	33	49

Method Descriptions

Parameter	SGS Method Code	Reference Method Code	PALA
Anions by IC	ME-CA-[ENV]IC-LAK-AN-001	EPA300/MA300-Ions1.3	N
Flouride by Specific Ion Electrode	ME-CA-[ENV}EWL-LAK-AN-014	E3263	Y
Mercury by CVAAS	ME-CA-[ENV]SPE-LAK-AN-004	EPA 7471A/EPA 245	Y
Metals, ICP-MS	ME-CA-[ENV]SPE-LAK-AN-007	MA200_MET.1.2	Y
Metals, ICP-OES	ME-CA-[ENV]SPE-LAK-AN-001	MA200.MET.1.2/200.7	Y

<originale signé par>

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Quebec MA200-Met 1.2 Digest

Project : PO#R160070
LR Report : **CA11012-JUL19**

Quality Control Report

Inorganic Analysis													
Parameter	Reporting Limit	Unit	Method Blank	Duplicate				LCS / Spike Blank			Matrix Spike / Reference Material		
				Result 1	Result 2	RPD	Acceptance Criteria	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
							%		Low	High		Low	High
Anions by IC - QCBatchID: DIO0067-AUG19													
Bromide	1.5	µg/g	<1.5			ND	20	95	80	120	98	75	125
Flouride by Specific Ion Electrode - QCBatchID: EWL0230-AUG19													
Fluoride	1	µg/g	0.01			10	30	106	80	120	NV	70	130
Mercury by CVAAS - QCBatchID: EHG0015-AUG19													
Mercury	0.05	µg/g	<0.05			ND	20	101	80	120	111	70	130
Metals, ICP-MS - QCBatchID: EMS0080-AUG19													
Aluminum	3	µg/g	<3			1	20	96	70	130	99	70	130
Antimony	0.8	µg/g	<0.8			19	20	100	70	130	114	70	130
Arsenic	0.5	µg/g	<0.5			1	20	101	70	130	94	70	130
Barium	0.01	µg/g	<0.01			1	20	106	70	130	110	70	130
Beryllium	0.02	µg/g	<0.02			2	20	98	70	130	127	70	130
Bismuth	0.09	µg/g	<0.09			ND	20	100	70	130	NV	70	130
Boron	1	µg/g	<1			4	20	101	70	130	NV	70	130
Cadmium	0.02	µg/g	<0.02			6	20	101	70	130	106	70	130
Chromium	0.5	µg/g	<0.5			0	20	106	70	130	108	70	130
Cobalt	0.01	µg/g	<0.01			7	20	103	70	130	105	70	130
Copper	0.1	µg/g	<0.1			12	20	104	70	130	100	70	130
Lead	0.05	µg/g	<0.05			3	20	103	70	130	118	70	130
Lithium	2	µg/g	<2			ND	20	98	70	130	122	70	130
Magnesium	1	µg/g	<1			1	20	114	70	130	110	70	130
Manganese	0.1	µg/g	<0.1			1	20	105	70	130	105	70	130
Molybdenum	0.1	µg/g	<0.1			3	20	102	70	130	110	70	130
Nickel	0.1	µg/g	<0.1			2	20	102	70	130	104	70	130
Selenium	0.7	µg/g	<0.7			ND	20	103	70	130	NV	70	130
Strontium	0.02	µg/g	<0.02			1	20	105	70	130	101	70	130
Thallium	0.02	µg/g	<0.02			3	20	100	70	130	NV	70	130
Tin	0.5	µg/g	<0.5			2	20	100	70	130	102	70	130
Titanium	0.1	µg/g	<0.1			6	20	100	70	130	NV	70	130
Uranium	0.002	µg/g	<0.002			4	20	103	70	130	104	70	130
Vanadium	1	µg/g	<1			5	20	104	70	130	115	70	130
Zinc	0.7	µg/g	<0.7			2	20	101	70	130	105	70	130
Metals, ICP-MS - QCBatchID: EMS0081-AUG19													
Silver	0.01	µg/g	<0.01			ND	20	100	70	130	120	70	130
Metals, ICP-OES - QCBatchID: ESG0030-AUG19													
Calcium	1	µg/g	< 1			4	20	100	80	120	91	70	130

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Quebec MA200-Met 1.2 Digest

Project : PO#R160070
LR Report : **CA11012-JUL19**

Inorganic Analysis														
Parameter	Reporting Limit	Unit	Method Blank	Duplicate				LCS / Spike Blank			Matrix Spike / Reference Material			
				Result 1	Result 2	RPD	Acceptance Criteria	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
							%		Low	High		Low	High
Iron	0.3	µg/g	< 0.3			4	20	99	80	120	102	70	130
Phosphorus	3	µg/g	< 3			ND	20	97	80	120	96	70	130
Potassium	0.3	µg/g	< 0.3			3	20	108	80	120	96	70	130
Sodium	1	µg/g	< 1			1	20	90	80	120	101	70	130

OnLine LIMS

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26-September-2019

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Date Rec. : 29 August 2019
LR Report: **CA11013-AUG19**
Reference: Hum Cell Shut Down

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709	6: Waste Composite
Sample Date & Time					29-Aug-19	29-Aug-19
Fluoride [µg/g]	20-Sep-19	12:38	23-Sep-19	08:50	6.28	< 1
Bromide [µg/g]	13-Sep-19	17:33	17-Sep-19	11:22	< 1.5	< 1.5
Mercury [ug/g]	24-Sep-19	08:55	24-Sep-19	09:55	< 0.05	< 0.05
Silver [µg/g]	24-Sep-19	10:16	24-Sep-19	10:50	0.05	0.03
Aluminum [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	1600	9000
Arsenic [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	< 0.5	< 0.5
Boron [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	< 1	< 1
Barium [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	2.2	130
Beryllium [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	2.5	0.08
Bismuth [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	260	1.7
Calcium [µg/g]	24-Sep-19	09:47	24-Sep-19	11:49	340	3900
Cadmium [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	0.63	< 0.02
Cobalt [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	0.33	8.0
Chromium [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	3.3	8.9
Copper [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	53	43
Iron [µg/g]	24-Sep-19	09:47	24-Sep-19	11:49	2300	19000
Potassium [µg/g]	24-Sep-19	09:47	24-Sep-19	11:49	800	5600
Lithium [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	56	200
Magnesium [µg/g]	24-Sep-19	09:47	24-Sep-19	11:49	36	4900
Manganese [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	58	250
Molybdenum [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	1.1	0.8
Sodium [µg/g]	24-Sep-19	09:47	24-Sep-19	11:49	620	680
Nickel [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	0.4	9.2
Phosphorus [µg/g]	24-Sep-19	09:47	24-Sep-19	11:49	51	460
Lead [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	7.1	1.8
Antimony [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	< 0.8	< 0.8
Selenium [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	< 0.7	< 0.7
Tin [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	0.6	0.6
Strontium [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	3.7	9.0
Titanium [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	8.2	1400

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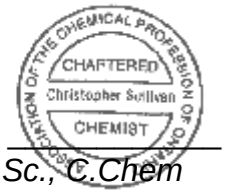
LR Report : CA11013-AUG19

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709	6: Waste Composite
Thallium [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	0.30	0.21
Uranium [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	10	0.61
Vanadium [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	< 1	31
Zinc [µg/g]	24-Sep-19	08:27	24-Sep-19	10:50	87	35

Method Descriptions

Parameter	SGS Method Code	Reference Method Code	PALA
Anions by IC	ME-CA-[ENV]IC-LAK-AN-001	EPA300/MA300-Ions1.3	N
Flouride by Specific Ion Electrode	ME-CA-[ENV}EWL-LAK-AN-014	E3263	Y
Mercury by CVAAS	ME-CA-[ENV]SPE-LAK-AN-004	EPA 7471A/EPA 245	Y
Metals, ICP-MS	ME-CA-[ENV]SPE-LAK-AN-007	MA200_MET.1.2	Y

<originale signé par>



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Quality Control Report

Inorganic Analysis													
Parameter	Reporting Limit	Unit	Method Blank	Duplicate				LCS / Spike Blank			Matrix Spike / Reference Material		
				Result 1	Result 2	RPD	Acceptance Criteria	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
							%		Low	High		Low	High
Anions by IC - QCBatchID: DIO0189-SEP19													
Bromide	1.5	µg/g	<1.5			ND	20	103	80	120	104	75	125
Flouride by Specific Ion Electrode - QCBatchID: EWL0319-SEP19													
Fluoride	1	µg/g	0.02			ND	30	101	80	120	92	70	130
Mercury by CVAAS - QCBatchID: EHG0029-SEP19													
Mercury	0.05	ug/g	<0.05			ND	20	96	80	120	100	70	130
Metals, ICP-MS - QCBatchID: EMS0152-SEP19													
Aluminum	3	µg/g	<3			4	20	100	70	130	108	70	130
Antimony	0.8	µg/g	<0.8			ND	20	100	70	130	124	70	130
Arsenic	0.5	µg/g	<0.5			ND	20	96	70	130	109	70	130
Barium	0.01	µg/g	<0.01			0	20	108	70	130	98	70	130
Beryllium	0.02	µg/g	<0.02			3	20	102	70	130	118	70	130
Bismuth	0.09	µg/g	<0.09			0	20	97	70	130	NV	70	130
Boron	1	µg/g	<1			ND	20	108	70	130	NV	70	130
Cadmium	0.02	µg/g	<0.02			5	20	96	70	130	108	70	130
Chromium	0.5	µg/g	<0.5			ND	20	102	70	130	116	70	130
Cobalt	0.01	µg/g	<0.01			9	20	99	70	130	112	70	130
Copper	0.1	µg/g	<0.1			5	20	96	70	130	105	70	130
Lead	0.05	µg/g	<0.05			6	20	103	70	130	103	70	130
Lithium	2	µg/g	<2			3	20	107	70	130	124	70	130
Manganese	0.1	µg/g	<0.1			9	20	104	70	130	116	70	130
Molybdenum	0.1	µg/g	<0.1			ND	20	91	70	130	111	70	130
Nickel	0.1	µg/g	<0.1			ND	20	96	70	130	110	70	130
Selenium	0.7	µg/g	<0.7			ND	20	99	70	130	NV	70	130
Strontium	0.02	µg/g	<0.02			6	20	98	70	130	107	70	130
Thallium	0.02	µg/g	<0.02			1	20	100	70	130	104	70	130
Tin	0.5	µg/g	<0.5			ND	20	100	70	130	83	70	130
Titanium	0.1	µg/g	<0.1			ND	20	93	70	130	NV	70	130
Uranium	0.002	µg/g	<0.002			17	20	100	70	130	91	70	130
Vanadium	1	µg/g	<1			ND	20	100	70	130	123	70	130
Zinc	0.7	µg/g	<0.7			4	20	95	70	130	110	70	130
Metals, ICP-MS - QCBatchID: EMS0153-SEP19													
Silver	0.01	µg/g	<0.01			15	20	91	70	130	101	70	130
Metals, ICP-OES - QCBatchID: ESG0070-SEP19													
Calcium	1	µg/g	< 1			NV	20	105	80	120	98	70	130
Iron	0.3	µg/g	< 0.3			9	20	105	80	120	109	70	130

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Quebec MA200-Met 1.2 Digest

LR Report : **CA11013-AUG19**

Inorganic Analysis														
Parameter	Reporting Limit	Unit	Method Blank	Duplicate				LCS / Spike Blank			Matrix Spike / Reference Material			
				Result 1	Result 2	RPD	Acceptance Criteria	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)		
							%		Low	High		Low	High	
Magnesium	0.1	µg/g	< 0.1			NV	20	103	80	120	110	70	130	
Phosphorus	3	µg/g	< 3			3	20	109	80	120	109	70	130	
Potassium	0.3	µg/g	< 0.3			4	20	115	80	120	99	70	130	
Sodium	1	µg/g	< 1			5	20	104	80	120	103	70	130	

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08-October-2019

Critical Elements Corporation
Attn : Paul Bonneville

Date Rec. : 23 January 2019
LR Report: **CA11044-JAN19**
Reference: Wk#0

1080 Côte du Beaver Hall, Suite 2101
Montreal, QC
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CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#0	6: S659707 Wk#0	7: S659709 Wk#0	8: S659735 Wk#0	9: S659745 Wk#0	10: S659719 Wk#0
Sample Date & Time					23-Jan-19	23-Jan-19	23-Jan-19	23-Jan-19	23-Jan-19	23-Jan-19
Hum Cell Leachate Volume [mL]	23-Jan-19	09:02	23-Jan-19	13:35	780	842	830	833	858	860
pH [no unit]	23-Jan-19	13:59	25-Jan-19	13:46	6.91	7.26	6.94	7.16	7.06	7.28
Alkalinity [mg/L as CaCO3]	23-Jan-19	13:59	25-Jan-19	13:46	4	7	4	4	4	5
Acidity [mg/L as CaCO3]	23-Jan-19	13:59	25-Jan-19	13:46	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	23-Jan-19	13:59	25-Jan-19	13:46	36	45	33	20	24	25
Fluoride [mg/L]	23-Jan-19	15:00	24-Jan-19	10:58	< 0.06	0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	23-Jan-19	16:30	24-Jan-19	14:48	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	23-Jan-19	16:30	28-Jan-19	14:41	2.2	2.2	2.8	0.8	1.1	1.8
Mercury [mg/L]	24-Jan-19	15:50	26-Jan-19	13:36	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aluminum [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	0.033	0.048	0.022	0.032	0.045	0.035
Arsenic [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	0.0003	0.0003	0.0002	< 0.0002	< 0.0002	< 0.0002
Barium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	0.00015	0.00019	0.00015	0.00041	0.00027	0.00035
Boron [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	0.004	0.005	0.002	0.002	0.002	0.003
Beryllium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	0.000577	0.000189	0.000098	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	0.00150	0.00125	0.000156	< 0.000007	< 0.000007	< 0.000007

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LR Report : **CA11044-JAN19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#0	6: S659707 Wk#0	7: S659709 Wk#0	8: S659735 Wk#0	9: S659745 Wk#0	10: S659719 Wk#0
Calcium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	0.70	2.36	2.15	0.93	0.56	1.01
Cadmium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	0.000012	0.000039	0.000013	0.000004	< 0.000003	< 0.000003
Cobalt [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	0.00120	0.00331	0.00120	0.000006	< 0.000004	< 0.000004
Chromium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	0.00022	0.00040	0.00006	0.00009	< 0.00003	0.00004
Copper [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	0.00500	0.0166	0.00376	0.00177	0.00120	0.00140
Iron [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	0.018	0.021	< 0.007	0.024	< 0.007	0.007
Potassium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:48	2.38	2.81	0.404	1.18	1.74	1.97
Lithium [mg/L]	24-Jan-19	09:40	29-Jan-19	14:30	0.283	0.184	0.196	0.0516	0.0250	0.0301
Magnesium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.108	0.135	0.064	0.108	0.091	0.146
Manganese [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.0156	0.0309	0.0165	0.00269	0.00122	0.00115
Molybdenum [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.00445	0.00112	0.00042	0.00012	0.00021	0.00033
Sodium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	3.15	3.48	2.68	1.57	2.45	1.91
Nickel [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.0004	0.0004	0.0002	0.0004	0.0002	0.0003
Phosphorus [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.009	0.017	0.009	0.004	0.006	< 0.003
Lead [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.00051	0.00174	0.00015	0.00011	0.00001	0.00002
Antimony [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.0002	0.0003	0.0002	0.0002	0.0002	0.0003
Selenium (total) [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.00012	0.00027	0.00018	< 0.00004	0.00012	0.00010
Silicon [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.32	0.45	0.35	0.25	0.16	0.30
Tin [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.00020	0.00056	0.00021	0.00017	0.00027	0.00031
Strontium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.00233	0.00808	0.0127	0.00451	0.00219	0.00369
Tantalum [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.0008	0.0007	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.00019	0.00022	0.00009	0.00072	0.00109	0.00084
Thallium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.000128	0.000163	0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.00728	0.0119	0.00876	0.000963	0.000035	0.000951
Vanadium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.00015	0.00013	0.00005	0.00020	0.00026	0.00031
Tungsten [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.00321	0.00150	0.00057	0.00053	0.00014	0.00024
Yttrium [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.000685	0.000552	0.000045	0.000730	0.000015	0.000468
Zinc [mg/L]	24-Jan-19	09:40	28-Jan-19	12:49	0.009	0.004	0.005	< 0.002	< 0.002	< 0.002

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LR Report : **CA11044-JAN19**

Analysis	11: S659724 Wk#0	12: S659713 Wk#0	13: S659714 Wk#0	14: S659711 Wk#0	15: S659711 Dup Wk#0	16: Waste Composite Wk#0	17: Waste Composite Dup Wk#0
Sample Date & Time	23-Jan-19	23-Jan-19	23-Jan-19	23-Jan-19	23-Jan-19	23-Jan-19	23-Jan-19
Hum Cell Leachate Volume [mL]	855	881	861	845	864	902	887
pH [no unit]	8.50	6.86	7.77	6.96	6.93	7.10	7.23
Alkalinity [mg/L as CaCO3]	17	4	8	4	5	6	7
Acidity [mg/L as CaCO3]	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	50	48	30	20	24	30	33
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	1.2	10	2.1	1.5	2.0	1.5	1.5
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aluminum [mg/L]	0.036	0.020	0.033	0.041	0.041	0.048	0.057
Arsenic [mg/L]	0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Barium [mg/L]	0.00040	0.00092	0.00045	0.00029	0.00041	0.00074	0.00073
Boron [mg/L]	0.008	0.004	0.002	< 0.002	0.002	0.003	0.004
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	4.40	3.47	2.96	0.75	1.00	1.92	1.99
Cadmium [mg/L]	< 0.000003	0.000009	0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	< 0.000004	0.0241	< 0.000004	< 0.000004	0.000020	0.000092	0.000073
Chromium [mg/L]	< 0.00003	0.00016	< 0.00003	0.00005	0.00006	0.00006	0.00007
Copper [mg/L]	0.00046	0.00206	0.00044	0.00086	0.00122	0.00126	0.00139
Iron [mg/L]	< 0.007	0.026	< 0.007	0.007	0.007	0.013	0.012
Potassium [mg/L]	1.07	1.11	0.526	1.43	1.63	1.38	1.64
Lithium [mg/L]	0.0139	0.0114	0.0088	0.0159	0.0163	0.0263	0.0375
Magnesium [mg/L]	0.131	0.962	0.319	0.154	0.199	0.208	0.228
Manganese [mg/L]	0.00262	0.0279	0.00082	0.00141	0.00204	0.00270	0.00243
Molybdenum [mg/L]	0.00024	0.00090	0.00065	0.00138	0.00112	0.00029	0.00057
Sodium [mg/L]	3.53	1.78	1.24	1.48	1.75	1.95	2.31

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LR Report : **CA11044-JAN19**

Analysis	11: S659724 Wk#0	12: S659713 Wk#0	13: S659714 Wk#0	14: S659711 Wk#0	15: S659711 Dup Wk#0	16: Waste Composite Wk#0	17: Waste Composite Dup Wk#0
Nickel [mg/L]	< 0.0001	0.228	0.0004	0.0004	0.0007	0.0034	0.0028
Phosphorus [mg/L]	< 0.003	< 0.003	< 0.003	0.035	0.028	< 0.003	0.006
Lead [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00007	0.00007
Antimony [mg/L]	0.0003	< 0.0002	< 0.0002	0.0003	0.0003	0.0003	0.0002
Selenium (total) [mg/L]	0.00012	0.00190	0.00028	0.00004	0.00006	0.00015	0.00016
Silicon [mg/L]	0.53	0.17	0.18	0.26	0.24	0.20	0.26
Tin [mg/L]	0.00029	0.00028	0.00030	0.00029	0.00050	0.00028	0.00024
Strontium [mg/L]	0.00694	0.0108	0.00408	0.00239	0.00325	0.00641	0.00690
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	0.00039	0.00080	0.00026	0.00074	0.00049	0.00053	0.00066
Thallium [mg/L]	< 0.000005	0.000055	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.000207	0.000078	0.000017	0.000098	0.000115	0.000681	0.000672
Vanadium [mg/L]	0.00014	0.00040	0.00086	0.00045	0.00043	0.00032	0.00041
Tungsten [mg/L]	0.00026	0.00029	0.00012	0.00021	0.00021	0.00040	0.00040
Yttrium [mg/L]	0.000016	0.000079	< 0.000002	0.000017	0.000027	0.000368	0.000331
Zinc [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

<originale signé par>

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SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

08-October-2019

Critical Elements Corporation
Attn : Paul Bonneville

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Montreal, QC
H2Z 1S8, Canada

Phone: (819) 355-9717
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Date Rec. : 30 January 2019
LR Report: **CA11045-JAN19**
Reference: Wk#1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#1	6: S659707 Wk#1	7: S659709 Wk#1	8: S659735 Wk#1	9: S659745 Wk#1	10: S659719 Wk#1
Sample Date & Time					30-Jan-19	30-Jan-19	30-Jan-19	30-Jan-19	30-Jan-19	30-Jan-19
Hum Cell Leachate Volume [mL]	30-Jan-19	08:07	31-Jan-19	15:04	979	920	973	901	931	932
pH [no unit]	31-Jan-19	08:48	05-Feb-19	11:59	7.29	7.02	7.41	7.76	7.31	7.50
Alkalinity [mg/L as CaCO3]	31-Jan-19	08:48	05-Feb-19	11:59	9	9	8	7	3	4
Acidity [mg/L as CaCO3]	31-Jan-19	08:48	05-Feb-19	11:59	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	31-Jan-19	08:48	05-Feb-19	11:59	36	37	39	23	20	20
Fluoride [mg/L]	30-Jan-19	14:57	31-Jan-19	09:45	0.06	0.08	0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	31-Jan-19	06:03	01-Feb-19	17:00	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	31-Jan-19	06:03	01-Feb-19	17:00	2.8	2.2	3.2	1.6	1.3	2.4
Mercury [mg/L]	31-Jan-19	14:44	01-Feb-19	10:18	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aluminum [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.044	0.028	0.015	0.033	0.048	0.039
Arsenic [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.0003	0.0006	0.0004	< 0.0002	< 0.0002	< 0.0002
Barium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.00043	0.00030	0.00029	0.00056	0.00033	0.00038
Boron [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.008	0.008	0.006	0.005	0.004	0.005
Beryllium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.000492	0.000108	0.000069	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.000802	0.00196	0.000812	< 0.000007	< 0.000007	< 0.000007

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LR Report : **CA11045-JAN19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#1	6: S659707 Wk#1	7: S659709 Wk#1	8: S659735 Wk#1	9: S659745 Wk#1	10: S659719 Wk#1
Calcium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	1.41	2.95	2.58	1.22	0.61	1.03
Cadmium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.000015	0.000029	0.000011	0.000006	< 0.000003	< 0.000003
Cobalt [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.00116	0.00162	0.000594	0.000045	< 0.000004	< 0.000004
Chromium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.00020	0.00031	0.00004	0.00008	< 0.00003	< 0.00003
Copper [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.00798	0.0142	0.00343	0.00321	0.00209	0.00145
Iron [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.009	0.010	< 0.007	0.026	0.010	< 0.007
Potassium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	2.85	2.14	0.505	1.09	1.58	1.65
Lithium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.314	0.191	0.309	0.102	0.0303	0.0380
Magnesium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.236	0.191	0.086	0.151	0.111	0.182
Manganese [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.0226	0.0218	0.0128	0.00230	0.00115	0.00147
Molybdenum [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.00714	0.00394	0.00093	0.00027	0.00044	0.00057
Sodium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	3.78	3.35	4.50	2.65	2.57	1.90
Nickel [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.0005	0.0003	0.0001	0.0008	< 0.0001	0.0002
Phosphorus [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.009	0.013	0.004	< 0.003	< 0.003	< 0.003
Lead [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.00036	0.00090	0.00011	0.00018	0.00003	0.00006
Antimony [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.0007	0.0007	0.0007	0.0004	0.0003	0.0003
Selenium (total) [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.00018	0.00055	0.00024	0.00005	0.00014	0.00009
Silicon [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	1.16	0.48	0.61	0.24	0.20	0.25
Tin [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.00013	0.00151	0.00017	0.00063	0.00016	0.00016
Strontium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.00542	0.0112	0.0113	0.00945	0.00260	0.00431
Tantalum [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.0003	0.0003	0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.00015	0.00019	< 0.00005	0.00100	0.00124	0.00048
Thallium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.000076	0.000084	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.0118	0.0941	0.225	0.00407	0.000196	0.00345
Vanadium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.00017	0.00011	0.00004	0.00033	0.00054	0.00045
Tungsten [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.00604	0.00267	0.00154	0.00141	0.00018	0.00038
Yttrium [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.000524	0.000302	0.000031	0.000607	0.000019	0.000280
Zinc [mg/L]	31-Jan-19	11:39	01-Feb-19	13:47	0.008	0.005	0.005	0.003	< 0.002	< 0.002

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LR Report : **CA11045-JAN19**

Analysis	11: S659724 Wk#1	12: S659713 Wk#1	13: S659714 Wk#1	14: S659711 Wk#1	15: S659711 Dup Wk#1	16: Waste Composite Wk#1	17: Waste Composite Dup Wk#1
Sample Date & Time	30-Jan-19	30-Jan-19	30-Jan-19	30-Jan-19	30-Jan-19	30-Jan-19	30-Jan-19
Hum Cell Leachate Volume [mL]	930	962	900	946	937	960	964
pH [no unit]	7.70	6.74	6.79	7.42	7.06	7.19	7.43
Alkalinity [mg/L as CaCO3]	9	2	4	3	2	31	5
Acidity [mg/L as CaCO3]	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	38	30	22	18	14	17	20
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	1.6	8.2	2.9	2.0	1.4	1.5	1.4
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aluminum [mg/L]	0.040	0.012	0.024	0.028	0.027	0.033	0.040
Arsenic [mg/L]	0.0002	< 0.0002	< 0.0002	0.0002	< 0.0002	< 0.0002	0.0002
Barium [mg/L]	0.00053	0.00098	0.00060	0.00038	0.00031	0.00063	0.00057
Boron [mg/L]	0.014	0.005	0.004	0.003	0.003	0.004	0.004
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	3.20	3.34	2.21	0.62	0.53	1.51	1.60
Cadmium [mg/L]	< 0.000003	0.000012	< 0.000003	0.000007	< 0.000003	0.000003	< 0.000003
Cobalt [mg/L]	< 0.000004	0.0187	< 0.000004	0.000031	0.000019	0.000137	0.000104
Chromium [mg/L]	< 0.00003	0.00014	0.00003	< 0.00003	0.00005	0.00004	0.00005
Copper [mg/L]	0.00082	0.00538	0.00103	0.00089	0.00099	0.00185	0.00170
Iron [mg/L]	< 0.007	0.025	0.007	< 0.007	< 0.007	0.014	0.012
Potassium [mg/L]	0.916	1.23	0.540	1.46	1.25	0.768	0.863
Lithium [mg/L]	0.0131	0.0099	0.0112	0.0231	0.0158	0.0171	0.0220
Magnesium [mg/L]	0.175	0.940	0.407	0.176	0.134	0.206	0.209
Manganese [mg/L]	0.00336	0.0299	0.00160	0.00113	0.00119	0.00381	0.00306
Molybdenum [mg/L]	0.00043	0.00055	0.00112	0.00294	0.00219	0.00023	0.00019
Sodium [mg/L]	4.02	1.82	1.65	2.16	1.67	1.48	1.51

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LR Report : **CA11045-JAN19**

Analysis	11: S659724 Wk#1	12: S659713 Wk#1	13: S659714 Wk#1	14: S659711 Wk#1	15: S659711 Dup Wk#1	16: Waste Composite Wk#1	17: Waste Composite Dup Wk#1
Nickel [mg/L]	< 0.0001	0.172	0.0006	0.0007	0.0006	0.0025	0.0020
Phosphorus [mg/L]	< 0.003	0.150	< 0.003	0.018	0.019	< 0.003	< 0.003
Lead [mg/L]	0.00002	0.00007	0.00003	< 0.00001	0.00004	0.00006	0.00007
Antimony [mg/L]	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Selenium (total) [mg/L]	0.00004	0.00143	0.00035	0.00005	0.00004	0.00015	0.00016
Silicon [mg/L]	0.35	0.23	0.22	0.23	0.20	0.15	0.18
Tin [mg/L]	0.00022	0.00159	0.00016	0.00028	0.00014	0.00016	0.00019
Strontium [mg/L]	0.00646	0.00927	0.00358	0.00211	0.00172	0.00584	0.00619
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	0.00051	0.00063	0.00042	0.00034	0.00038	0.00081	0.00075
Thallium [mg/L]	< 0.000005	0.000030	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.000455	0.000044	0.000052	0.000395	0.000233	0.000817	0.000851
Vanadium [mg/L]	0.00025	0.00037	0.00156	0.00057	0.00051	0.00041	0.00039
Tungsten [mg/L]	0.00055	0.00009	0.00020	0.00052	0.00029	0.00030	0.00023
Yttrium [mg/L]	0.000026	0.000043	0.000003	0.000010	0.000024	0.000247	0.000179
Zinc [mg/L]	< 0.002	0.009	< 0.002	< 0.002	0.002	0.004	0.003

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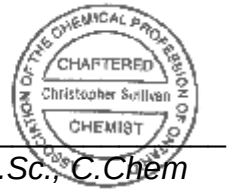

Chris Sullivan, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

OnLine LIMS

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SGS Canada Inc.
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Quoted for 20 Weeks

Project : PO R160070

08-October-2019

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Date Rec. : 06 February 2019
LR Report: **CA11005-FEB19**
Reference: Wk# 2

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk# 2	6: S659707 Wk# 2	7: S659709 Wk# 2	8: S659735 Wk# 2	9: S659745 Wk# 2	10: S659719 Wk# 2
Sample Date & Time					06-Feb-19	06-Feb-19	06-Feb-19	06-Feb-19	06-Feb-19	06-Feb-19
Hum Cell Leachate Volume [mL]	06-Feb-19	08:35	08-Feb-19	11:29	989	985	990	929	907	1019
pH [no unit]	06-Feb-19	14:32	08-Feb-19	08:26	6.82	7.32	7.21	7.38	7.12	7.10
Alkalinity [mg/L as CaCO3]	06-Feb-19	14:32	08-Feb-19	08:26	7	10	7	6	5	7
Acidity [mg/L as CaCO3]	06-Feb-19	14:32	08-Feb-19	08:26	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	06-Feb-19	14:32	08-Feb-19	08:26	17	26	23	14	21	19
Fluoride [mg/L]	06-Feb-19	16:51	07-Feb-19	11:23	0.06	0.07	0.07	< 0.06	0.06	< 0.06
Bromide [mg/L]	07-Feb-19	04:00	12-Feb-19	11:45	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	07-Feb-19	04:00	12-Feb-19	11:45	0.9	1.0	1.4	0.7	1.5	1.4
Mercury [mg/L]	06-Feb-19	15:55	07-Feb-19	09:43	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aluminum [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.025	0.020	0.019	0.025	0.040	0.028
Arsenic [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.0003	0.0005	0.0005	< 0.0002	< 0.0002	0.0002
Barium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00027	0.00060	0.00027	0.00032	0.00035	0.00103
Boron [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.003	0.005	0.003	0.003	0.003	0.005
Beryllium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.000216	0.000070	0.000045	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.000268	0.00142	0.000533	0.000011	0.000011	< 0.000007

OnLine LIMS

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SGS Canada Inc.
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Quoted for 20 Weeks

Project : PO R160070

LR Report : **CA11005-FEB19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk# 2	6: S659707 Wk# 2	7: S659709 Wk# 2	8: S659735 Wk# 2	9: S659745 Wk# 2	10: S659719 Wk# 2
Calcium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.40	2.36	1.54	0.71	0.44	1.18
Cadmium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.000004	0.000051	0.000012	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.000291	0.000827	0.000275	0.000019	< 0.000004	< 0.000004
Chromium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00008	0.00013	< 0.00003	0.00003	< 0.00003	< 0.00003
Copper [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00263	0.00516	0.00155	0.00145	0.00042	0.00059
Iron [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	< 0.007	< 0.007	< 0.007	0.007	< 0.007	< 0.007
Potassium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	1.05	1.37	0.303	0.749	1.40	1.44
Lithium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.0873	0.0832	0.129	0.0497	0.0302	0.0282
Magnesium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.065	0.151	0.049	0.095	0.093	0.204
Manganese [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00696	0.0218	0.0108	0.00126	0.00070	0.00101
Molybdenum [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00315	0.00471	0.00114	0.00064	0.00074	0.00053
Sodium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	1.22	1.54	2.18	1.48	2.25	1.26
Nickel [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.0002	0.0001	0.0001	0.0003	< 0.0001	0.0001
Phosphorus [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.008	0.015	0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00009	0.00049	0.00003	< 0.00001	< 0.00001	< 0.00001
Antimony [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.0007	0.0008	0.0006	0.0004	0.0004	0.0005
Selenium (total) [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00011	0.00050	0.00015	< 0.00004	0.00012	0.00006
Silicon [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	1.06	0.82	0.61	0.24	0.17	0.42
Tin [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00009	0.00030	0.00013	0.00027	0.00023	0.00010
Strontium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00163	0.00942	0.00593	0.00579	0.00190	0.00548
Tantalum [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.0002	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00008	0.00006	< 0.00005	0.00031	0.00082	0.00009
Thallium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.000044	0.000097	0.000013	< 0.000005	< 0.000005	0.000008
Uranium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00258	0.0555	0.117	0.00748	0.000816	0.00489
Vanadium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00014	0.00006	0.00003	0.00030	0.00051	0.00041
Tungsten [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.00350	0.00218	0.00100	0.00164	0.00048	0.00047
Yttrium [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.000182	0.000208	0.000010	0.000267	0.000004	0.000126
Zinc [mg/L]	07-Feb-19	14:52	13-Feb-19	09:05	0.003	0.003	0.002	< 0.002	< 0.002	< 0.002

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Quoted for 20 Weeks

Project : PO R160070

LR Report : **CA11005-FEB19**

Analysis	11: S659724 Wk# 2	12: S659713 Wk# 2	13: S659714 Wk# 2	14: S659711 Wk# 2	15: S659711 Dup Wk# 2	16: Waste Composite Wk# 2	17: Waste Composite Dup Wk# 2
Sample Date & Time	06-Feb-19	06-Feb-19	06-Feb-19	06-Feb-19	06-Feb-19	06-Feb-19	06-Feb-19
Hum Cell Leachate Volume [mL]	923	953	914	916	955	987	973
pH [no unit]	7.26	6.72	7.38	7.30	7.01	7.18	7.08
Alkalinity [mg/L as CaCO3]	7	2	6	4	4	3	4
Acidity [mg/L as CaCO3]	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	29	13	19	13	10	10	11
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	1.2	2.7	2.3	0.9	0.6	0.4	0.5
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aluminum [mg/L]	0.032	0.007	0.021	0.030	0.027	0.026	0.035
Arsenic [mg/L]	< 0.0002	< 0.0002	< 0.0002	0.0003	< 0.0002	< 0.0002	0.0004
Barium [mg/L]	0.00132	0.00048	0.00047	0.00021	0.00030	0.00040	0.00104
Boron [mg/L]	0.010	0.003	0.003	0.002	0.010	0.004	0.002
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	1.78	0.86	1.23	0.27	0.28	0.68	0.84
Cadmium [mg/L]	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	< 0.000004	0.00466	< 0.000004	0.000014	0.000011	0.000049	0.000038
Chromium [mg/L]	< 0.00003	0.00004	< 0.00003	< 0.00003	0.00003	< 0.00003	< 0.00003
Copper [mg/L]	0.00037	0.00178	0.00069	0.00031	0.00050	0.00066	0.00074
Iron [mg/L]	< 0.007	0.007	< 0.007	< 0.007	< 0.007	< 0.007	0.023
Potassium [mg/L]	0.610	0.345	0.429	0.990	0.798	0.372	0.461
Lithium [mg/L]	0.0097	0.0045	0.0101	0.0154	0.0107	0.0077	0.0111
Magnesium [mg/L]	0.103	0.281	0.378	0.071	0.073	0.085	0.103
Manganese [mg/L]	0.00175	0.00760	0.00100	0.00033	0.00036	0.00151	0.00156
Molybdenum [mg/L]	0.00039	0.00041	0.00045	0.00199	0.00203	0.00056	0.00029
Sodium [mg/L]	2.76	0.48	1.46	1.26	0.87	0.56	0.66

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Quoted for 20 Weeks

Project : PO R160070

LR Report : **CA11005-FEB19**

Analysis	11: S659724 Wk# 2	12: S659713 Wk# 2	13: S659714 Wk# 2	14: S659711 Wk# 2	15: S659711 Dup Wk# 2	16: Waste Composite Wk# 2	17: Waste Composite Dup Wk# 2
Nickel [mg/L]	< 0.0001	0.0410	0.0007	0.0004	0.0006	0.0008	0.0007
Phosphorus [mg/L]	< 0.003	< 0.003	< 0.003	0.018	0.010	< 0.003	< 0.003
Lead [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Antimony [mg/L]	0.0003	0.0004	0.0003	0.0003	0.0004	0.0003	0.0003
Selenium (total) [mg/L]	< 0.00004	0.00042	0.00029	< 0.00004	< 0.00004	0.00006	0.00018
Silicon [mg/L]	0.33	0.18	0.21	0.23	0.16	0.12	0.14
Tin [mg/L]	0.00010	0.00007	0.00012	0.00018	0.00016	0.00027	0.00025
Strontium [mg/L]	0.00415	0.00254	0.00226	0.00102	0.00087	0.00258	0.00348
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	0.00024	0.00031	0.00029	0.00035	0.00043	0.00032	0.00034
Thallium [mg/L]	< 0.000005	0.000018	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.000585	0.000062	0.000082	0.000581	0.000269	0.000813	0.00100
Vanadium [mg/L]	0.00020	0.00031	0.00150	0.00061	0.00049	0.00035	0.00035
Tungsten [mg/L]	0.00086	0.00021	0.00024	0.00064	0.00043	0.00039	0.00039
Yttrium [mg/L]	0.000021	0.000014	0.000003	0.000003	0.000008	0.000118	0.000106
Zinc [mg/L]	< 0.002	0.003	< 0.002	0.003	< 0.002	< 0.002	< 0.002

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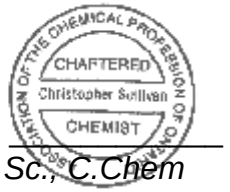

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OnLine LIMS

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Project : PO R160070

08-October-2019

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Date Rec. : 13 February 2019
LR Report: **CA11012-FEB19**
Reference: Wk# 3

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705Wk# 3	6: S659707Wk# 3	7: S659709Wk# 3	8: S659735Wk# 3	9: S659745Wk# 3
Sample Date & Time					13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19
Hum Cell Leachate Volume [mL]	13-Feb-19	14:15	14-Feb-19	14:44	1011	933	977	914	923
pH [no unit]	13-Feb-19	14:44	20-Feb-19	16:21	6.92	7.47	7.08	7.39	7.09
Alkalinity [mg/L as CaCO3]	13-Feb-19	14:44	20-Feb-19	16:21	3	7	4	5	3
Acidity [mg/L as CaCO3]	13-Feb-19	14:44	20-Feb-19	16:21	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	13-Feb-19	14:44	20-Feb-19	16:21	7	14	16	10	15
Fluoride [mg/L]	13-Feb-19	17:13	14-Feb-19	11:16	0.06	< 0.06	0.07	< 0.06	0.06
Bromide [mg/L]	14-Feb-19	06:54	14-Feb-19	14:42	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	14-Feb-19	06:54	14-Feb-19	14:42	0.5	0.5	0.6	0.3	1.1
Mercury [mg/L]	14-Feb-19	15:47	15-Feb-19	11:26	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001
Aluminum [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.028	0.030	0.029	0.033	0.044
Arsenic [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.0005	0.0003	< 0.0002	< 0.0002	< 0.0002
Barium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.00011	0.00015	0.00013	0.00036	0.00022
Boron [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	< 0.002	< 0.002	< 0.002	0.003	< 0.002
Beryllium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.000180	0.000041	0.000055	< 0.000007	< 0.000007
Bismuth [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.000140	0.00116	0.000742	0.000028	< 0.000007

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Project : PO R160070

LR Report : CA11012-FEB19

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705Wk# 3	6: S659707Wk# 3	7: S659709Wk# 3	8: S659735Wk# 3	9: S659745Wk# 3
Calcium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.23	1.12	1.14	0.58	0.33
Cadmium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	< 0.000003	0.000039	0.000007	< 0.000003	< 0.000003
Cobalt [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.000148	0.000267	0.000192	0.000011	0.000006
Chromium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.00004	0.00006	< 0.00003	< 0.00003	< 0.00003
Copper [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.00098	0.00208	0.00072	0.00097	0.00063
Iron [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.665	0.740	0.218	0.580	1.13
Lithium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.0451	0.0344	0.0817	0.0344	0.0268
Magnesium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.040	0.071	0.035	0.080	0.074
Manganese [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.00510	0.0118	0.0118	0.00103	0.00060
Molybdenum [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.00131	0.00278	0.00052	0.00337	0.00033
Sodium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.60	0.58	1.19	0.79	1.44
Nickel [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	< 0.0001	< 0.0001	0.0001	0.0001	< 0.0001
Phosphorus [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	< 0.003	0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.00006	0.00022	0.00003	0.00004	0.00002
Antimony [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.0004	0.0003	0.0004	< 0.0002	< 0.0002
Selenium (total) [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.00007	0.00027	0.00013	0.00004	0.00008
Silicon [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	1.02	0.50	0.65	0.34	0.22
Tin [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.00008	0.00018	0.00012	0.00031	0.00022
Strontium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.00132	0.00461	0.00447	0.00482	0.00177
Tantalum [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.0001	0.0001	< 0.0001	0.0001	< 0.0001
Titanium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	< 0.00005	0.00005	< 0.00005	0.00037	0.00054
Thallium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.000034	0.000047	0.000009	< 0.000005	< 0.000005
Uranium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.00172	0.0206	0.112	0.00366	0.000154
Vanadium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.00012	0.00003	0.00002	0.00039	0.00056
Tungsten [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.00166	0.00077	0.00059	0.00201	0.00018
Yttrium [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.000076	0.000070	0.000003	0.000135	0.000003
Zinc [mg/L]	15-Feb-19	12:44	19-Feb-19	11:51	0.003	0.002	< 0.002	< 0.002	< 0.002

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Project : PO R160070

LR Report : **CA11012-FEB19**

Analysis	10: S659719Wk# 3	11: S659724Wk# 3	12: S659713Wk# 3	13: S659714Wk# 3	14: S659711Wk# 3	15: S659711 DupWk# 3	16: Waste CompositeWk# 3	17: Waste Composite DupWk# 3
Sample Date & Time	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19
Hum Cell Leachate Volume [mL]	979	929	938	920	997	948	1001	980
pH [no unit]	6.85	7.49	6.58	7.18	7.34	7.14	6.85	7.31
Alkalinity [mg/L as CaCO3]	4	7	< 2	4	5	3	2	4
Acidity [mg/L as CaCO3]	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	12	20	7	13	13	7	6	8
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	0.9	0.6	1.5	1.0	0.4	0.2	0.3	0.3
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aluminum [mg/L]	0.036	0.052	0.011	0.029	0.032	0.032	0.033	0.043
Arsenic [mg/L]	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0002	0.0005	< 0.0002	< 0.0002
Barium [mg/L]	0.00032	0.00045	0.00022	0.00030	0.00047	0.00022	0.00030	0.00034
Boron [mg/L]	0.003	0.008	0.002	0.002	0.003	< 0.002	< 0.002	0.002
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000011	< 0.000007	< 0.000007
Bismuth [mg/L]	0.000016	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000016	< 0.000007
Calcium [mg/L]	0.64	1.42	0.50	0.94	0.60	0.25	0.55	0.72
Cadmium [mg/L]	0.000037	< 0.000003	< 0.000003	< 0.000003	0.000010	< 0.000003	0.000006	< 0.000003
Cobalt [mg/L]	0.000005	< 0.000004	0.00277	0.000020	0.000010	0.000007	0.000031	0.000024
Chromium [mg/L]	0.00020	< 0.00003	0.00004	< 0.00003	0.00003	< 0.00003	< 0.00003	< 0.00003
Copper [mg/L]	0.00088	0.00047	0.00153	0.00035	0.00072	0.00028	0.00051	0.00057
Iron [mg/L]	0.024	< 0.007	0.008	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	0.880	0.499	0.238	0.292	1.10	0.722	0.282	0.374
Lithium [mg/L]	0.0192	0.0086	0.0029	0.0082	0.0138	0.0086	0.0068	0.0097
Magnesium [mg/L]	0.118	0.084	0.157	0.274	0.147	0.053	0.066	0.084
Manganese [mg/L]	0.00069	0.00156	0.00426	0.00096	0.00049	0.00037	0.00111	0.00119
Molybdenum [mg/L]	0.00030	0.00027	0.00049	0.00018	0.00106	0.00112	0.00082	0.00034
Sodium [mg/L]	0.59	1.97	0.28	0.81	0.84	0.56	0.35	0.43

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Project : PO R160070
LR Report : **CA11012-FEB19**

Analysis	10: S659719Wk# 3	11: S659724Wk# 3	12: S659713Wk# 3	13: S659714Wk# 3	14: S659711Wk# 3	15: S659711 DupWk# 3	16: Waste CompositeWk# 3	17: Waste Composite DupWk# 3
Nickel [mg/L]	< 0.0001	< 0.0001	0.0241	0.0003	0.0002	0.0001	0.0004	0.0004
Phosphorus [mg/L]	< 0.003	< 0.003	< 0.003	< 0.003	0.018	0.014	< 0.003	< 0.003
Lead [mg/L]	0.00003	0.00002	0.00005	< 0.00001	0.00002	< 0.00001	0.00001	0.00002
Antimony [mg/L]	0.0003	< 0.0002	< 0.0002	< 0.0002	0.0002	< 0.0002	< 0.0002	< 0.0002
Selenium (total) [mg/L]	< 0.00004	< 0.00004	0.00024	0.00023	< 0.00004	< 0.00004	0.00012	< 0.00004
Silicon [mg/L]	0.34	0.44	0.27	0.29	0.54	0.29	0.18	0.22
Tin [mg/L]	0.00012	0.00013	0.00045	0.00013	0.00015	0.00018	0.00029	0.00027
Strontium [mg/L]	0.00340	0.00368	0.00171	0.00192	0.00254	0.00104	0.00239	0.00322
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	0.00011	0.00072	0.00064	0.00049	0.00012	0.00023	0.00026	0.00035
Thallium [mg/L]	< 0.000005	< 0.000005	0.000012	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.00598	0.000818	0.000300	0.000054	0.000632	0.000279	0.00122	0.00127
Vanadium [mg/L]	0.00038	0.00027	0.00043	0.00165	0.00070	0.00067	0.00040	0.00044
Tungsten [mg/L]	0.00028	0.00126	0.00062	0.00015	0.00060	0.00027	0.00039	0.00055
Yttrium [mg/L]	0.000078	0.000023	0.000015	0.000005	0.000005	0.000005	0.000101	0.000076
Zinc [mg/L]	0.007	< 0.002	0.002	< 0.002	0.003	< 0.002	< 0.002	< 0.002

<originale signé par>

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Quoted for 20 Weeks

Project : PO R160070

08-October-2019

Date Rec. : 20 February 2019
LR Report: **CA11025-FEB19**
Reference: Wk# 4

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk# 4	6: S659707 Wk# 4	7: S659709 Wk# 4	8: S659735 Wk# 4	9: S659745 Wk# 4	10: S659719 Wk# 4
Sample Date & Time					20-Feb-19	20-Feb-19	20-Feb-19	20-Feb-19	20-Feb-19	20-Feb-19
Hum Cell Leachate Volume [mL]	20-Feb-19	08:08	21-Feb-19	14:22	960	978	998	891	916	970
pH [no unit]	20-Feb-19	13:10	26-Feb-19	13:03	6.84	7.41	7.15	7.02	6.96	7.21
Alkalinity [mg/L as CaCO3]	20-Feb-19	13:10	26-Feb-19	13:03	2	7	5	4	4	4
Acidity [mg/L as CaCO3]	20-Feb-19	13:10	26-Feb-19	13:03	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	20-Feb-19	13:10	26-Feb-19	13:03	5	15	12	7	13	11
Fluoride [mg/L]	20-Feb-19	12:24	21-Feb-19	08:24	0.06	< 0.06	0.07	< 0.06	0.06	< 0.06
Bromide [mg/L]	20-Feb-19	16:00	23-Feb-19	13:47	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	27-Feb-19	12:09	28-Feb-19	11:21	0.4	0.5	0.4	0.3	1.1	0.7
Mercury [mg/L]	22-Feb-19	13:50	22-Feb-19	15:21	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	22-Feb-19	15:27	27-Feb-19	13:29	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.011	0.025	0.023	0.028	0.032	0.038
Arsenic [mg/L]	22-Feb-19	15:27	27-Feb-19	13:29	0.0004	0.0007	0.0003	0.0002	0.0006	0.0003
Barium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.00009	0.00016	0.00013	0.00014	0.00018	0.00021
Boron [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	< 0.002	0.002	< 0.002	0.003	0.003	0.003
Beryllium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.000139	0.000041	0.000038	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.000125	0.00137	0.000570	< 0.000007	< 0.000007	< 0.000007

OnLine LIMS

0001918216

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Quoted for 20 Weeks

Project : PO R160070

LR Report : **CA11025-FEB19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk# 4	6: S659707 Wk# 4	7: S659709 Wk# 4	8: S659735 Wk# 4	9: S659745 Wk# 4	10: S659719 Wk# 4
Calcium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.16	1.65	1.20	0.53	0.31	0.72
Cadmium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.000003	0.000045	0.000011	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.000079	0.000274	0.000115	< 0.000004	< 0.000004	< 0.000004
Chromium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.00057	0.00103	0.00090	0.00036	0.00032	0.00065
Iron [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.482	0.673	0.182	0.509	1.07	0.836
Lithium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.0241	0.0262	0.0505	0.0243	0.0246	0.0142
Magnesium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.027	0.097	0.032	0.070	0.063	0.123
Manganese [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.00328	0.0192	0.0137	0.00062	0.00077	0.00083
Molybdenum [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.00060	0.00183	0.00023	0.00005	0.00026	0.00011
Sodium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.38	0.44	0.84	0.56	1.13	0.46
Nickel [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	< 0.00001	0.00011	0.00001	< 0.00001	< 0.00001	< 0.00001
Antimony [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002
Selenium (total) [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	< 0.00004	0.00027	0.00009	< 0.00004	0.00006	< 0.00004
Silicon [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.76	0.68	0.60	0.25	0.19	0.34
Tin [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.00007	0.00010	0.00006	0.00014	0.00012	0.00006
Strontium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.00078	0.00596	0.00368	0.00370	0.00158	0.00330
Tantalum [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.00511	< 0.00005	< 0.00005	0.00021	0.00036	0.00018
Thallium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.000022	0.000059	0.000010	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.000944	0.0214	0.0624	0.00191	0.000182	0.00340
Vanadium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.00008	0.00003	0.00003	0.00026	0.00041	0.00040
Tungsten [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.00113	0.00076	0.00063	0.00053	0.00019	0.00027
Yttrium [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.000025	0.000051	0.000003	0.000063	0.000003	0.000040
Zinc [mg/L]	22-Feb-19	15:27	25-Feb-19	14:21	0.004	0.003	< 0.002	< 0.002	< 0.002	< 0.002

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Quoted for 20 Weeks

Project : PO R160070

LR Report : **CA11025-FEB19**

Analysis	11: S659724 Wk# 4	12: S659713 Wk# 4	13: S659714 Wk# 4	14: S659711 Wk# 4	15: S659711 Dup Wk# 4	16: Waste Composite Wk# 4	17: Waste Composite Dup Wk# 4
Sample Date & Time	20-Feb-19	20-Feb-19	20-Feb-19	20-Feb-19	20-Feb-19	20-Feb-19	20-Feb-19
Hum Cell Leachate Volume [mL]	896	920	905	892	942	963	962
pH [no unit]	7.24	6.29	7.03	6.96	6.94	6.81	6.86
Alkalinity [mg/L as CaCO3]	8	2	5	4	5	3	3
Acidity [mg/L as CaCO3]	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	18	5	12	6	6	5	7
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	0.6	1.2	0.9	0.2	< 0.2	< 0.2	0.2
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.040	0.005	0.021	0.036	0.023	0.023	0.033
Arsenic [mg/L]	0.0005	0.0004	0.0003	0.0006	0.0005	< 0.0002	0.0007
Barium [mg/L]	0.00019	0.00021	0.00020	0.00015	0.00018	0.00023	0.00022
Boron [mg/L]	0.007	0.002	0.003	0.002	0.002	0.004	0.003
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	1.31	0.39	0.84	0.21	0.22	0.43	0.64
Cadmium [mg/L]	< 0.000003	0.000003	0.000011	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	< 0.000004	0.002094	< 0.000004	< 0.000004	0.000015	0.000021	< 0.000004
Chromium [mg/L]	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper [mg/L]	0.00034	0.00111	0.00062	0.00050	0.00059	0.00036	0.00088
Iron [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	0.454	0.188	0.249	0.711	0.652	0.236	0.299
Lithium [mg/L]	0.0080	0.0022	0.0071	0.0077	0.0063	0.0047	0.0070
Magnesium [mg/L]	0.076	0.126	0.264	0.052	0.049	0.051	0.072
Manganese [mg/L]	0.00099	0.00298	0.00061	0.00021	0.00018	0.00085	0.00082
Molybdenum [mg/L]	0.00012	0.00023	0.00016	0.00060	0.00062	0.00010	0.00011
Sodium [mg/L]	1.55	0.20	0.60	0.51	0.38	0.26	0.30

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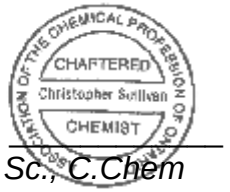
Quoted for 20 Weeks

Project : PO R160070

LR Report : **CA11025-FEB19**

Analysis	11: S659724 Wk# 4	12: S659713 Wk# 4	13: S659714 Wk# 4	14: S659711 Wk# 4	15: S659711 Dup Wk# 4	16: Waste Composite Wk# 4	17: Waste Composite Dup Wk# 4
Nickel [mg/L]	< 0.0001	0.0180	0.0002	< 0.0001	< 0.0001	0.0003	0.0002
Phosphorus [mg/L]	< 0.003	< 0.003	< 0.003	0.013	0.008	< 0.003	< 0.003
Lead [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Antimony [mg/L]	< 0.0002	0.0002	< 0.0002	< 0.0002	0.0002	0.0005	< 0.0002
Selenium (total) [mg/L]	< 0.00004	0.00014	0.00012	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	0.33	0.20	0.23	0.26	0.22	0.11	0.16
Tin [mg/L]	0.00013	0.00005	0.00009	0.00014	0.00012	0.00010	0.00014
Strontium [mg/L]	0.00309	0.00129	0.00146	0.00084	0.00089	0.00170	0.00268
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	0.00019	0.00016	0.00016	0.00038	0.00012	0.00007	0.00022
Thallium [mg/L]	< 0.000005	0.000010	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.000797	0.000028	0.000050	0.000241	0.000233	0.000500	0.000814
Vanadium [mg/L]	0.00022	0.00033	0.00120	0.00055	0.00051	0.00028	0.00032
Tungsten [mg/L]	0.00133	0.00010	0.00015	0.00026	0.00022	0.00022	0.00025
Yttrium [mg/L]	0.000014	0.000006	< 0.000002	0.000002	0.000003	0.000044	0.000040
Zinc [mg/L]	< 0.002	< 0.002	0.003	< 0.002	< 0.002	< 0.002	< 0.002

<originale signé par>



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Project Specialist,
Environment, Health & Safety

OnLine LIMS

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Quoted for 20 Weeks

08-October-2019

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Date Rec. : 27 February 2019
LR Report: **CA11042-FEB19**
Reference: Wk#5

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#3	6: S659707 Wk#3	7: S659709 Wk#3	8: S659735 Wk#3	9: S659745 Wk#3	10: S659719 Wk#3
Sample Date & Time					27-Feb-19	27-Feb-19	27-Feb-19	27-Feb-19	27-Feb-19	27-Feb-19
Hum Cell Leachate Volume [mL]	27-Feb-19	08:07	27-Feb-19	16:33	980	960	978	974	922	1004
pH [no unit]	27-Feb-19	12:52	04-Mar-19	10:21	6.79	7.00	7.10	7.11	6.97	7.18
Alkalinity [mg/L as CaCO3]	27-Feb-19	12:52	04-Mar-19	10:21	2	4	6	6	2	5
Acidity [mg/L as CaCO3]	27-Feb-19	12:52	04-Mar-19	10:21	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	27-Feb-19	12:52	04-Mar-19	10:21	5	10	11	10	8	12
Fluoride [mg/L]	01-Mar-19	09:34	05-Mar-19	14:02	< 0.06	< 0.06	0.07	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	01-Mar-19	15:35	06-Mar-19	13:06	0.4	0.4	0.3	< 0.2	0.6	0.7
Bromide [mg/L]	01-Mar-19	15:35	06-Mar-19	13:06	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Analysis	11: S659724 Wk#3	12: S659713 Wk#3	13: S659714 Wk#3	14: S659711 Wk#3	15: S659711 Dup Wk#3	16: Waste Composite Wk#3	17: Waste Composite Dup Wk#3
Sample Date & Time	27-Feb-19	27-Feb-19	27-Feb-19	27-Feb-19	27-Feb-19	27-Feb-19	27-Feb-19
Hum Cell Leachate Volume [mL]	937	967	900	995	967	1003	986
pH [no unit]	7.43	6.09	7.15	7.08	6.83	6.99	6.75
Alkalinity [mg/L as CaCO3]	7	2	3	4	2	2	4

OnLine LIMS

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Quoted for 20 Weeks

LR Report : **CA11042-FEB19**

Analysis	11: S659724 Wk#3	12: S659713 Wk#3	13: S659714 Wk#3	14: S659711 Wk#3	15: S659711 Dup Wk#3	16: Waste Composite Wk#3	17: Waste Composite Dup Wk#3
Acidity [mg/L as CaCO3]	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	15	6	10	8	5	6	6
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	0.4	1.2	0.6	< 0.2	< 0.2	0.2	0.2
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

<originale signé par>

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Project Specialist,
Environment, Health & Safety

OnLine LIMS

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Quoted for 20 Weeks

08-October-2019

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Date Rec. : 06 March 2019
LR Report: **CA11003-MAR19**
Reference: Wk#6

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#6	6: S659707 Wk#6	7: S659709 Wk#6	8: S659735 Wk#6	9: S659745 Wk#6	10: S659719 Wk#6
Sample Date & Time					06-Mar-19	06-Mar-19	06-Mar-19	06-Mar-19	06-Mar-19	06-Mar-19
Hum Cell Leachate Volume [mL]	06-Mar-19	09:57	08-Mar-19	10:36	992	977	968	1002	912	941
pH [no unit]	06-Mar-19	14:36	11-Mar-19	10:15	7.96	7.37	7.11	7.46	7.03	6.98
Alkalinity [mg/L as CaCO3]	06-Mar-19	14:36	11-Mar-19	10:15	2	5	5	5	4	3
Acidity [mg/L as CaCO3]	06-Mar-19	14:36	11-Mar-19	10:15	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	06-Mar-19	14:36	11-Mar-19	10:15	5	16	10	12	7	7
Fluoride [mg/L]	06-Mar-19	19:29	08-Mar-19	09:35	0.07	< 0.06	0.08	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	06-Mar-19	23:12	13-Mar-19	17:22	0.4	0.4	1.5	< 0.2	0.6	0.5
Bromide [mg/L]	06-Mar-19	23:12	13-Mar-19	17:22	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Analysis	11: S659724 Wk#6	12: S659713 Wk#6	13: S659714 Wk#6	14: S659711 Wk#6	15: S659711 Dup Wk#6	16: Waste Composite Wk#6	17: Waste Composite Dup Wk#6
Sample Date & Time	06-Mar-19	06-Mar-19	06-Mar-19	06-Mar-19	06-Mar-19	06-Mar-19	06-Mar-19
Hum Cell Leachate Volume [mL]	917	955	897	915	924	974	956
pH [no unit]	6.74	5.99	6.54	6.32	6.05	6.34	6.31
Alkalinity [mg/L as CaCO3]	6	< 2	4	2	< 2	< 2	2

OnLine LIMS

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Quoted for 20 Weeks

LR Report : **CA11003-MAR19**

Analysis	11: S659724 Wk#6	12: S659713 Wk#6	13: S659714 Wk#6	14: S659711 Wk#6	15: S659711 Dup Wk#6	16: Waste Composite Wk#6	17: Waste Composite Dup Wk#6
Acidity [mg/L as CaCO3]	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	15	5	8	5	5	4	6
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	0.3	1.1	0.4	< 0.2	< 0.2	< 0.2	< 0.2
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

<originale signé par>

CHARTERED
Christopher Sullivan
CHEMIST

Chris Sullivan, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

OnLine LIMS

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Quoted for 20 Weeks

08-October-2019

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Date Rec. : 13 March 2019
LR Report: **CA11011-MAR19**
Reference: Wk#7

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#7	6: S659707 Wk#7	7: S659709 Wk#7	8: S659735 Wk#7	9: S659745 Wk#7	10: S659719 Wk#7
Sample Date & Time					13-Mar-19	13-Mar-19	13-Mar-19	13-Mar-19	13-Mar-19	13-Mar-19
Hum Cell Leachate Volume [mL]	13-Mar-19	12:52	13-Mar-19	13:29	892	967	967	916	838	993
pH [no unit]	13-Mar-19	13:05	15-Mar-19	13:00	6.71	6.96	6.94	6.99	6.89	6.80
Alkalinity [mg/L as CaCO3]	13-Mar-19	13:05	15-Mar-19	13:00	2	6	4	4	3	4
Acidity [mg/L as CaCO3]	13-Mar-19	13:05	15-Mar-19	13:00	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	13-Mar-19	13:05	15-Mar-19	13:00	4	12	10	7	8	11
Fluoride [mg/L]	13-Mar-19	16:44	14-Mar-19	11:38	< 0.06	< 0.06	0.10	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	13-Mar-19	20:33	20-Mar-19	11:25	0.4	0.4	0.5	0.3	0.6	0.6
Bromide [mg/L]	13-Mar-19	20:33	20-Mar-19	11:25	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Analysis	11: S659724 Wk#7	12: S659713 Wk#7	13: S659714 Wk#7	14: S659711 Wk#7	15: S659711 Dup Wk#7	16: Waste Composite Wk#7	17: Waste Composite Dup Wk#7
Sample Date & Time	13-Mar-19	13-Mar-19	13-Mar-19	13-Mar-19	13-Mar-19	13-Mar-19	13-Mar-19
Hum Cell Leachate Volume [mL]	963	920	896	947	951	971	976
pH [no unit]	7.04	5.86	7.16	7.18	6.86	6.39	7.02
Alkalinity [mg/L as CaCO3]	8	< 2	5	4	2	< 2	4

OnLine LIMS

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Quoted for 20 Weeks

LR Report : **CA11011-MAR19**

Analysis	11: S659724 Wk#7	12: S659713 Wk#7	13: S659714 Wk#7	14: S659711 Wk#7	15: S659711 Dup Wk#7	16: Waste Composite Wk#7	17: Waste Composite Dup Wk#7
Acidity [mg/L as CaCO3]	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	18	6	9	7	4	4	6
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	0.3	1.2	0.4	< 0.2	< 0.2	< 0.2	< 0.2
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

<originale signé par>

Chris Sullivan, B.Sc., C.Chem
Project Specialist,
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OnLine LIMS

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Quoted for 20 Weeks

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08-October-2019

Date Rec. : 20 March 2019
LR Report: **CA11041-MAR19**
Reference: Wk#8

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#8	6: S659707 Wk#8	7: S659709 Wk#8	8: S659735 Wk#8	9: S659745 Wk#8	10: S659719 Wk#8
Sample Date & Time					20-Mar-19	20-Mar-19	20-Mar-19	20-Mar-19	20-Mar-19	20-Mar-19
Hum Cell Leachate Volume [mL]	20-Mar-19	08:04	20-Mar-19	11:48	969	987	982	999	918	978
pH [no unit]	20-Mar-19	13:49	22-Mar-19	10:03	6.61	6.96	7.01	6.95	6.54	6.80
Alkalinity [mg/L as CaCO3]	20-Mar-19	13:49	22-Mar-19	10:03	2	6	4	5	3	3
Acidity [mg/L as CaCO3]	20-Mar-19	13:49	22-Mar-19	10:03	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	20-Mar-19	13:49	22-Mar-19	10:03	5	13	9	12	7	10
Fluoride [mg/L]	20-Mar-19	13:07	21-Mar-19	13:06	< 0.06	< 0.06	0.08	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	20-Mar-19	22:34	27-Mar-19	10:05	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	20-Mar-19	22:34	27-Mar-19	10:05	0.4	0.4	0.3	0.2	0.5	0.8
Mercury [mg/L]	21-Mar-19	16:20	22-Mar-19	10:23	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.009	0.021	0.021	0.026	0.022	0.025
Arsenic [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0004
Barium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.00008	0.00012	0.00005	0.00031	0.00021	0.00024
Boron [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.007
Beryllium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.000136	0.000025	0.000029	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.000043	0.000951	0.000724	0.000026	0.000020	< 0.000007

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LR Report : **CA11041-MAR19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#8	6: S659707 Wk#8	7: S659709 Wk#8	8: S659735 Wk#8	9: S659745 Wk#8	10: S659719 Wk#8
Calcium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.14	1.51	0.98	1.21	0.31	0.68
Cadmium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.000003	0.000076	0.000031	0.000003	0.000003	0.000013
Cobalt [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.000068	0.000137	0.000053	< 0.000004	< 0.000004	< 0.000004
Chromium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.0006	0.0009	0.0005	0.0006	0.0004	0.0006
Iron [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	0.011
Potassium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.284	0.314	0.112	0.348	0.642	0.451
Lithium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.0081	0.0095	0.0152	0.0122	0.0096	0.0058
Magnesium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.025	0.065	0.022	0.116	0.063	0.113
Manganese [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.00385	0.0223	0.0160	0.00168	0.00043	0.00072
Molybdenum [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.00019	0.00058	0.00014	0.00005	0.00008	0.00010
Sodium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.23	0.22	0.38	0.30	0.37	0.22
Nickel [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.00001	0.00004	0.00002	0.00010	< 0.00001	0.00001
Antimony [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	< 0.00004	0.00024	0.00012	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.66	0.54	0.47	0.49	0.22	0.30
Tin [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	< 0.00006	0.00017	0.00011	0.00015	0.00026	0.00016
Strontium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.00079	0.00476	0.00268	0.00666	0.00165	0.00305
Tantalum [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	< 0.00005	< 0.00005	< 0.00005	0.00015	0.00051	< 0.00005
Thallium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.000022	0.000040	0.000015	< 0.000005	< 0.000005	0.000005
Uranium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.000304	0.0116	0.0299	0.00143	0.000091	0.00226
Vanadium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.00003	0.00002	0.00002	0.00023	0.00032	0.00025
Tungsten [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.00038	0.00023	0.00015	0.00024	0.00010	0.00022
Yttrium [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.000006	0.000013	0.000002	0.000032	< 0.000002	0.000018
Zinc [mg/L]	23-Mar-19	10:16	25-Mar-19	16:43	0.003	0.006	0.006	0.003	< 0.002	0.003

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Quoted for 20 Weeks

LR Report : **CA11041-MAR19**

Analysis	11: S659724 Wk#8	12: S659713 Wk#8	13: S659714 Wk#8	14: S659711 Wk#8	15: S659711 Dup Wk#8	16: Waste Composite Wk#8	17: Waste Composite Dup Wk#8
Sample Date & Time	20-Mar-19	20-Mar-19	20-Mar-19	20-Mar-19	20-Mar-19	20-Mar-19	20-Mar-19
Hum Cell Leachate Volume [mL]	994	946	904	966	930	989	958
pH [no unit]	7.26	6.52	6.90	6.94	6.88	6.99	6.90
Alkalinity [mg/L as CaCO3]	8	< 2	4	3	3	3	3
Acidity [mg/L as CaCO3]	< 2	< 2	< 2	< 2	2	< 2	< 2
Conductivity [uS/cm]	18	6	8	5	4	4	5
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	0.2	1.3	0.4	< 0.2	< 0.2	< 0.2	< 0.2
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.027	0.003	0.021	0.016	0.015	0.019	0.026
Arsenic [mg/L]	0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0005	< 0.0002
Barium [mg/L]	0.00027	0.00016	0.00018	0.00018	0.00013	0.00017	0.00016
Boron [mg/L]	0.007	0.003	0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	2.03	0.35	0.80	0.27	0.15	0.39	0.54
Cadmium [mg/L]	< 0.000003	0.000003	0.000003	< 0.000003	< 0.000003	0.000003	< 0.000003
Cobalt [mg/L]	< 0.000004	0.00369	< 0.000004	< 0.000004	< 0.000004	0.000007	< 0.000004
Chromium [mg/L]	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	0.0003	0.0019	0.0004	0.0004	0.0005	0.0004	0.0004
Iron [mg/L]	< 0.007	0.010	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	0.302	0.121	0.139	0.475	0.416	0.138	0.178
Lithium [mg/L]	0.0054	0.0014	0.0031	0.0030	0.0026	0.0032	0.0039
Magnesium [mg/L]	0.127	0.125	0.163	0.073	0.037	0.042	0.056
Manganese [mg/L]	0.00088	0.00380	0.00045	0.00016	0.00016	0.00077	0.00078
Molybdenum [mg/L]	0.00005	0.00013	0.00006	0.00020	0.00020	0.00007	0.00007
Sodium [mg/L]	0.56	0.14	0.22	0.23	0.18	0.14	0.15

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Quoted for 20 Weeks

LR Report : **CA11041-MAR19**

Analysis	11: S659724 Wk#8	12: S659713 Wk#8	13: S659714 Wk#8	14: S659711 Wk#8	15: S659711 Dup Wk#8	16: Waste Composite Wk#8	17: Waste Composite Dup Wk#8
Nickel [mg/L]	< 0.0001	0.0226	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001
Phosphorus [mg/L]	< 0.003	< 0.003	< 0.003	0.004	0.003	< 0.003	< 0.003
Lead [mg/L]	0.00001	< 0.00001	< 0.00001	< 0.00001	0.00004	0.00002	0.00004
Antimony [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	0.0010	< 0.0009
Selenium (total) [mg/L]	< 0.00004	0.00012	0.00008	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	0.51	0.21	0.24	0.42	0.21	0.13	0.16
Tin [mg/L]	0.00033	< 0.00006	0.00015	0.00012	0.00013	0.00023	0.00028
Strontium [mg/L]	0.00574	0.00136	0.00132	0.00115	0.00068	0.00160	0.00224
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	< 0.00005	0.00017	0.00018	0.00010	0.00015	0.00011	0.00007
Thallium [mg/L]	< 0.000005	0.000013	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.00159	0.000033	0.000064	0.000090	0.000069	0.000305	0.000468
Vanadium [mg/L]	0.00020	0.00021	0.00093	0.00040	0.00033	0.00026	0.00026
Tungsten [mg/L]	0.00052	0.00016	0.00011	0.00015	0.00012	0.00063	0.00052
Yttrium [mg/L]	0.000007	0.000003	< 0.000002	0.000002	< 0.000002	0.000023	0.000013
Zinc [mg/L]	< 0.002	0.004	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

<originale signé par>

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Project Specialist,
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OnLine LIMS

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Quoted for 20 Weeks

08-October-2019

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Date Rec. : 27 March 2019
LR Report: **CA11053-MAR19**
Reference: Wk#9

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#9	6: S659707 Wk#9	7: S659709 Wk#9	8: S659735 Wk#9	9: S659745 Wk#9	10: S659719 Wk#9
Sample Date & Time					27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19
Hum Cell Leachate Volume [mL]	27-Mar-19	08:11	27-Mar-19	16:48	967	946	994	951	913	984
pH [no unit]	27-Mar-19	13:02	01-Apr-19	15:05	6.46	6.90	7.05	6.97	6.77	6.65
Alkalinity [mg/L as CaCO3]	27-Mar-19	13:02	29-Mar-19	10:25	< 2	5	5	4	3	3
Acidity [mg/L as CaCO3]	27-Mar-19	13:02	29-Mar-19	10:25	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	27-Mar-19	13:02	29-Mar-19	10:25	4	8	11	6	6	11
Fluoride [mg/L]	28-Mar-19	08:15	29-Mar-19	12:51	< 0.06	< 0.06	0.08	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	28-Mar-19	16:59	01-Apr-19	15:02	0.3	0.3	0.3	< 0.2	0.5	1.0
Bromide [mg/L]	28-Mar-19	16:59	01-Apr-19	15:02	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Analysis	11: S659724 Wk#9	12: S659713 Wk#9	13: S659714 Wk#9	14: S659711 Wk#9	15: S659711 Dup Wk#9	16: Waste Composite Wk#9	17: Waste Composite Dup Wk#9
Sample Date & Time	27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19
Hum Cell Leachate Volume [mL]	991	956	911	937	955	980	936
pH [no unit]	7.09	6.27	6.97	6.61	6.48	6.70	6.85
Alkalinity [mg/L as CaCO3]	8	< 2	3	< 2	< 2	2	2

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Quoted for 20 Weeks

LR Report : **CA11053-MAR19**

Analysis	11: S659724 Wk#9	12: S659713 Wk#9	13: S659714 Wk#9	14: S659711 Wk#9	15: S659711 Dup Wk#9	16: Waste Composite Wk#9	17: Waste Composite Dup Wk#9
Acidity [mg/L as CaCO3]	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	17	6	7	4	4	4	5
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	0.2	1.2	0.3	< 0.2	< 0.2	< 0.2	< 0.2
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

<originale signé par>

Chris Sullivan, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

OnLine LIMS

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Quoted for 20 Weeks

08-October-2019

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Date Rec. : 03 April 2019
LR Report: **CA10028-APR19**
Reference: Wk#10

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#10	6: S659707 Wk#10	7: S659709 Wk#10	8: S659735 Wk#10	9: S659745 Wk#10	10: S659719 Wk#10
Sample Date & Time					03-Apr-19	03-Apr-19	03-Apr-19	03-Apr-19	03-Apr-19	03-Apr-19
Hum Cell Leachate Volume [mL]	03-Apr-19	08:11	03-Apr-19	14:52	991	1012	1019	988	945	1000
pH [no unit]	03-Apr-19	13:05	10-Apr-19	21:16	6.41	6.32	6.32	6.60	6.49	6.57
Alkalinity [mg/L as CaCO3]	03-Apr-19	13:05	10-Apr-19	21:16	2	3	2	< 2	3	3
Acidity [mg/L as CaCO3]	03-Apr-19	13:05	12-Apr-19	15:18	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	03-Apr-19	13:05	10-Apr-19	21:16	4	12	9	6	7	10
Fluoride [mg/L]	03-Apr-19	14:02	05-Apr-19	11:03	< 0.06	< 0.06	0.08	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	03-Apr-19	17:01	06-Apr-19	12:56	0.3	0.3	0.2	< 0.2	0.4	0.9
Bromide [mg/L]	03-Apr-19	17:01	06-Apr-19	12:56	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Analysis	11: S659724 Wk#10	12: S659713 Wk#10	13: S659714 Wk#10	14: S659711 Wk#10	15: S659711 Dup Wk#10	16: Waste Composite Wk#10	17: Waste Composite Dup Wk#10
Sample Date & Time	03-Apr-19	03-Apr-19	03-Apr-19	03-Apr-19	03-Apr-19	03-Apr-19	03-Apr-19
Hum Cell Leachate Volume [mL]	992	977	919	933	964	997	997
pH [no unit]	6.85	6.20	7.11	6.51	6.48	6.42	6.54
Alkalinity [mg/L as CaCO3]	7	< 2	5	2	2	2	3

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Quoted for 20 Weeks

LR Report : **CA10028-APR19**

Analysis	11: S659724 Wk#10	12: S659713 Wk#10	13: S659714 Wk#10	14: S659711 Wk#10	15: S659711 Dup Wk#10	16: Waste Composite Wk#10	17: Waste Composite Dup Wk#10
Acidity [mg/L as CaCO3]	< 2	2	< 2	< 2	2	< 2	< 2
Conductivity [uS/cm]	17	6	10	5	4	4	6
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	0.2	1.0	0.3	< 0.2	< 0.2	< 0.2	< 0.2
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

<originale signé par>

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Quoted for 20 Weeks

08-October-2019

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Date Rec. : 10 April 2019
LR Report: **CA10116-APR19**
Reference: Wk#11

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#11	6: S659707 Wk#11	7: S659709 Wk#11	8: S659735 Wk#11	9: S659745 Wk#11	10: S659719 Wk#11
Sample Date & Time					10-Apr-19	10-Apr-19	10-Apr-19	10-Apr-19	10-Apr-19	10-Apr-19
Hum Cell Leachate Volume [mL]	10-Apr-19	12:58	10-Apr-19	15:09	963	943	993	965	913	1014
pH [no unit]	10-Apr-19	13:53	15-Apr-19	13:45	6.25	6.64	6.54	6.47	6.45	6.54
Alkalinity [mg/L as CaCO3]	10-Apr-19	13:53	15-Apr-19	13:45	< 2	4	17	3	2	3
Acidity [mg/L as CaCO3]	10-Apr-19	13:53	17-Apr-19	10:45	< 2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	10-Apr-19	13:53	15-Apr-19	13:45	3	7	6	5	5	6
Fluoride [mg/L]	10-Apr-19	18:43	11-Apr-19	15:05	< 0.06	< 0.06	0.08	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	11-Apr-19	02:04	17-Apr-19	08:20	0.2	0.3	0.2	< 0.2	0.4	0.8
Bromide [mg/L]	11-Apr-19	02:04	17-Apr-19	08:20	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Analysis	11: S659724 Wk#11	12: S659713 Wk#11	13: S659714 Wk#11	14: S659711 Wk#11	15: S659711 Dup Wk#11	16: Waste Composite Wk#11	17: Waste Composite Dup Wk#11
Sample Date & Time	10-Apr-19	10-Apr-19	10-Apr-19	10-Apr-19	10-Apr-19	10-Apr-19	10-Apr-19
Hum Cell Leachate Volume [mL]	995	942	901	933	964	965	961
pH [no unit]	6.88	6.31	6.62	6.44	6.47	6.32	6.55
Alkalinity [mg/L as CaCO3]	7	< 2	3	2	2	< 2	< 2

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Quoted for 20 Weeks

LR Report : **CA10116-APR19**

Analysis	11: S659724 Wk#11	12: S659713 Wk#11	13: S659714 Wk#11	14: S659711 Wk#11	15: S659711 Dup Wk#11	16: Waste Composite Wk#11	17: Waste Composite Dup Wk#11
Acidity [mg/L as CaCO3]	< 2	4	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	15	4	6	4	3	5	3
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	< 0.2	0.8	0.3	< 0.2	< 0.2	< 0.2	< 0.2
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

<originale signé par>

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Project Specialist,
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OnLine LIMS

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Quoted for 20 Weeks

08-October-2019

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Date Rec. : 17 April 2019
LR Report: **CA10203-APR19**
Reference: Wk#12

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#12	6: S659707 Wk#12	7: S659709 Wk#12	8: S659735 Wk#12	9: S659745 Wk#12	10: S659719 Wk#12
Sample Date & Time					17-Apr-19	17-Apr-19	17-Apr-19	17-Apr-19	17-Apr-19	17-Apr-19
Hum Cell Leachate Volume [mL]	17-Apr-19	08:07	17-Apr-19	16:14	982	946	1005	1002	941	1002
pH [no unit]	17-Apr-19	13:50	24-Apr-19	08:46	6.05	6.51	6.76	6.42	6.25	6.54
Alkalinity [mg/L as CaCO3]	17-Apr-19	13:50	23-Apr-19	11:51	< 2	3	2	5	< 2	3
Acidity [mg/L as CaCO3]	17-Apr-19	13:50	23-Apr-19	11:51	2	< 2	< 2	< 2	3	< 2
Conductivity [uS/cm]	17-Apr-19	13:50	23-Apr-19	11:51	3	11	6	6	6	8
Fluoride [mg/L]	17-Apr-19	12:57	18-Apr-19	14:05	< 0.06	< 0.06	0.07	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	22-Apr-19	20:32	25-Apr-19	08:32	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	22-Apr-19	20:32	25-Apr-19	08:32	0.2	0.3	0.2	< 0.2	0.4	0.7
Mercury [mg/L]	18-Apr-19	16:03	22-Apr-19	13:38	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.012	0.019	0.019	0.011	0.012	0.015
Arsenic [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Barium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.00023	0.00013	0.00008	0.00017	0.00021	0.00027
Boron [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.000155	0.000028	0.000037	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.000037	0.000698	0.000656	< 0.000007	< 0.000007	< 0.000007

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Quoted for 20 Weeks

LR Report : **CA10203-APR19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#12	6: S659707 Wk#12	7: S659709 Wk#12	8: S659735 Wk#12	9: S659745 Wk#12	10: S659719 Wk#12
Calcium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.17	1.23	0.93	0.56	0.32	0.75
Cadmium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.000003	0.000079	0.000013	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.000096	0.000096	0.000065	< 0.000004	< 0.000004	< 0.000004
Chromium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.0002	0.0003	0.0003	0.0003	0.0002	0.0002
Iron [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.214	0.188	0.068	0.163	0.414	0.322
Lithium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.0063	0.0055	0.0085	0.0057	0.0061	0.0038
Magnesium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.028	0.045	0.016	0.057	0.076	0.116
Manganese [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.00444	0.0200	0.0200	0.00115	0.00045	0.00118
Molybdenum [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.00014	0.00030	0.00009	< 0.00004	< 0.00004	< 0.00004
Sodium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.04	< 0.01	0.12	0.02	0.07	0.02
Nickel [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.00003	0.00003	0.00002	< 0.00001	< 0.00001	< 0.00001
Antimony [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.00004	0.00012	0.00007	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.62	0.38	0.49	0.30	0.24	0.41
Tin [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.00006	< 0.00006	< 0.00006	0.00072	0.00013	< 0.00006
Strontium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.00087	0.00317	0.00210	0.00284	0.00159	0.00293
Tantalum [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.00007	< 0.00005	< 0.00005	< 0.00005	0.00026	< 0.00005
Thallium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.000011	0.000022	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.000188	0.00561	0.00999	0.000589	0.000023	0.000929
Vanadium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.00002	0.00001	< 0.00001	0.00013	0.00027	0.00021
Tungsten [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.00022	0.00009	0.00010	0.00007	0.00003	0.00003
Yttrium [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	< 0.000002	0.000002	< 0.000002	0.000009	< 0.000002	0.000006
Zinc [mg/L]	18-Apr-19	10:35	22-Apr-19	13:38	0.003	0.003	< 0.002	< 0.002	< 0.002	< 0.002

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Quoted for 20 Weeks

LR Report : **CA10203-APR19**

Analysis	11: S659724 Wk#12	12: S659713 Wk#12	13: S659714 Wk#12	14: S659711 Wk#12	15: S659711 Dup Wk#12	16: Waste Composite Wk#12	17: Waste Composite Dup Wk#12
Sample Date & Time	17-Apr-19	17-Apr-19	17-Apr-19	17-Apr-19	17-Apr-19	17-Apr-19	17-Apr-19
Hum Cell Leachate Volume [mL]	991	957	906	962	968	996	984
pH [no unit]	6.85	6.34	6.55	6.44	6.24	6.31	6.34
Alkalinity [mg/L as CaCO3]	4	< 2	3	3	< 2	< 2	< 2
Acidity [mg/L as CaCO3]	< 2	2	< 2	< 2	3	4	2
Conductivity [uS/cm]	14	6	7	6	4	4	5
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	< 0.2	1.0	0.3	< 0.2	< 0.2	< 0.2	< 0.2
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.039	0.003	0.022	0.006	0.005	0.012	0.019
Arsenic [mg/L]	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Barium [mg/L]	0.00024	0.00014	0.00021	0.00016	0.00265	0.00014	0.00018
Boron [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000218	< 0.000007	< 0.000007
Calcium [mg/L]	1.75	0.27	0.79	0.20	0.18	0.37	0.53
Cadmium [mg/L]	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	< 0.000004	0.006064	< 0.000004	< 0.000004	< 0.000004	0.000025	0.000026
Chromium [mg/L]	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	0.0005	0.0006	< 0.0002	0.0003	0.0003	0.0003	0.0003
Iron [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	0.176	0.066	0.076	0.317	0.288	0.088	0.109
Lithium [mg/L]	0.0030	0.0010	0.0024	0.0019	0.0015	0.0020	0.0026
Magnesium [mg/L]	0.084	0.104	0.143	0.058	0.045	0.039	0.054
Manganese [mg/L]	0.00098	0.00454	0.00053	0.00018	0.00017	0.00092	0.00102
Molybdenum [mg/L]	< 0.00004	0.00008	0.00004	0.00011	0.00011	< 0.00004	< 0.00004
Sodium [mg/L]	0.17	< 0.01	0.02	0.03	< 0.01	< 0.01	< 0.01

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Quoted for 20 Weeks

LR Report : **CA10203-APR19**

Analysis	11: S659724 Wk#12	12: S659713 Wk#12	13: S659714 Wk#12	14: S659711 Wk#12	15: S659711 Dup Wk#12	16: Waste Composite Wk#12	17: Waste Composite Dup Wk#12
Nickel [mg/L]	< 0.0001	0.0314	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0002
Phosphorus [mg/L]	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Antimony [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	< 0.00004	0.00005	0.00008	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	0.30	0.17	0.22	0.30	0.25	0.10	0.15
Tin [mg/L]	0.00007	< 0.00006	< 0.00006	< 0.00006	0.00011	0.00012	0.00007
Strontium [mg/L]	0.00388	0.00099	0.00097	0.00072	0.00072	0.00131	0.00189
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	< 0.00005	< 0.00005	0.00021	0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium [mg/L]	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.000687	0.000012	0.000066	0.000063	0.000100	0.000177	0.000274
Vanadium [mg/L]	0.00014	0.00014	0.00069	0.00030	0.00025	0.00018	0.00017
Tungsten [mg/L]	0.00013	< 0.00002	< 0.00002	0.00003	0.00005	0.00006	0.00008
Yttrium [mg/L]	0.000003	< 0.000002	< 0.000002	< 0.000002	< 0.000002	0.000008	0.000012
Zinc [mg/L]	< 0.002	0.003	< 0.002	< 0.002	0.004	0.002	< 0.002

<originale signé par>

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Quoted for 20 Weeks

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Date Rec. : 24 April 2019
LR Report: **CA10233-APR19**
Reference: Wk#13

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#13	6: S659707 Wk#13	7: S659709 Wk#13	8: S659735 Wk#13	9: S659745 Wk#13	10: S659719 Wk#13
Sample Date & Time					24-Apr-19	24-Apr-19	24-Apr-19	24-Apr-19	24-Apr-19	24-Apr-19
Hum Cell Leachate Volume [mL]	24-Apr-19	13:21	24-Apr-19	15:45	973	968	984	993	944	1004
pH [no unit]	24-Apr-19	12:58	26-Apr-19	12:26	5.97	6.54	6.42	6.69	6.38	6.73
Alkalinity [mg/L as CaCO3]	24-Apr-19	12:58	25-Apr-19	15:04	< 2	2	< 2	3	< 2	3
Acidity [mg/L as CaCO3]	24-Apr-19	12:58	25-Apr-19	15:04	5	3	2	< 2	< 2	< 2
Conductivity [uS/cm]	24-Apr-19	12:58	25-Apr-19	15:04	4	8	6	5	4	6
Fluoride [mg/L]	24-Apr-19	13:14	25-Apr-19	08:35	< 0.06	0.06	0.09	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	25-Apr-19	19:31	30-Apr-19	13:38	0.3	0.3	0.2	< 0.2	0.4	0.6
Bromide [mg/L]	25-Apr-19	19:31	30-Apr-19	13:38	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Analysis	11: S659724 Wk#13	12: S659713 Wk#13	13: S659714 Wk#13	14: S659711 Wk#13	15: S659711 Dup Wk#13	16: Waste Composite Wk#13	17: Waste Composite Dup Wk#13
Sample Date & Time	24-Apr-19	24-Apr-19	24-Apr-19	24-Apr-19	24-Apr-19	24-Apr-19	24-Apr-19
Hum Cell Leachate Volume [mL]	997	950	937	966	959	995	991
pH [no unit]	7.19	6.15	6.93	6.51	6.51	6.59	6.70
Alkalinity [mg/L as CaCO3]	7	< 2	3	< 2	2	2	2

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Quoted for 20 Weeks

LR Report : **CA10233-APR19**

Analysis	11: S659724 Wk#13	12: S659713 Wk#13	13: S659714 Wk#13	14: S659711 Wk#13	15: S659711 Dup Wk#13	16: Waste Composite Wk#13	17: Waste Composite Dup Wk#13
Acidity [mg/L as CaCO3]	< 2	2	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	16	3	6	3	3	3	4
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	< 0.2	0.9	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

<originale signé par>

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Project Specialist,
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Quoted for 20 Weeks

08-October-2019

Critical Elements Corporation
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Phone: (819) 355-9717, Fax:(514) 904-1597

Date Rec. : 01 May 2019
LR Report: **CA10010-MAY19**
Reference: Wk#14

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#14	6: S659707 Wk#14	7: S659709 Wk#14	8: S659735 Wk#14	9: S659745 Wk#14	10: S659719 Wk#14
Sample Date & Time					01-May-19	01-May-19	01-May-19	01-May-19	01-May-19	01-May-19
Hum Cell Leachate Volume [mL]	01-May-19	08:28	01-May-19	13:22	983	954	998	991	943	1004
pH [no unit]	01-May-19	14:01	08-May-19	09:14	5.87	6.35	6.19	6.18	6.20	6.20
Alkalinity [mg/L as CaCO3]	01-May-19	14:01	03-May-19	13:58	< 2	5	2	2	2	2
Acidity [mg/L as CaCO3]	01-May-19	14:01	08-May-19	09:16	4	< 2	< 2	< 2	2	< 2
Conductivity [uS/cm]	01-May-19	14:01	03-May-19	13:58	3	7	5	4	4	5
Fluoride [mg/L]	01-May-19	14:58	02-May-19	13:46	< 0.06	< 0.06	0.09	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	03-May-19	04:00	08-May-19	15:59	0.3	0.3	0.2	< 0.2	0.3	0.5
Bromide [mg/L]	03-May-19	04:00	08-May-19	15:59	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Analysis	11: S659724 Wk#14	12: S659713 Wk#14	13: S659714 Wk#14	14: S659711 Wk#14	15: S659711 Dup Wk#14	16: Waste Composite Wk#14	17: Waste Composite Dup Wk#14
Sample Date & Time	01-May-19	01-May-19	01-May-19	01-May-19	01-May-19	01-May-19	01-May-19
Hum Cell Leachate Volume [mL]	993	954	956	954	995	991	972
pH [no unit]	6.44	6.11	6.35	6.67	6.16	6.15	6.19

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LR Report : **CA10010-MAY19**

Analysis	11: S659724 Wk#14	12: S659713 Wk#14	13: S659714 Wk#14	14: S659711 Wk#14	15: S659711 Dup Wk#14	16: Waste Composite Wk#14	17: Waste Composite Dup Wk#14
Alkalinity [mg/L as CaCO3]	6	< 2	6	< 2	< 2	< 2	< 2
Acidity [mg/L as CaCO3]	< 2	2	< 2	< 2	2	3	< 2
Conductivity [uS/cm]	15	4	6	4	3	4	4
Fluoride [mg/L]	< 0.06	< 0.06	0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	0.4	0.9	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

<originale signé par>

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Date Rec. : 08 May 2019
LR Report: **CA10088-MAY19**
Reference: Wk#15

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#15	6: S659707 Wk#15	7: S659709 Wk#15	8: S659735 Wk#15	9: S659745 Wk#15
Sample Date & Time					08-May-19	08-May-19	08-May-19	08-May-19	08-May-19
Hum Cell Leachate Volume [mL]	08-May-19	09:22	08-May-19	14:30	964	978	962	993	930
pH [no unit]	08-May-19	15:24	16-May-19	14:09	5.74	6.55	6.50	6.45	6.50
Alkalinity [mg/L as CaCO3]	08-May-19	15:24	16-May-19	14:09	< 2	3	3	2	2
Acidity [mg/L as CaCO3]	08-May-19	15:24	16-May-19	14:09	2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	08-May-19	15:24	16-May-19	14:09	6	10	14	5	5
Fluoride [mg/L]	08-May-19	12:57	09-May-19	14:32	< 0.06	0.07	0.10	< 0.06	< 0.06
Sulphate [mg/L]	11-May-19	12:41	15-May-19	16:01	0.2	0.3	0.2	< 0.2	0.3
Bromide [mg/L]	11-May-19	12:41	15-May-19	16:01	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Mercury [mg/L]	10-May-19	15:29	10-May-19	16:32	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	13-May-19	14:03	14-May-19	11:36	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	13-May-19	14:03	14-May-19	11:36	0.008	0.015	0.010	0.034	0.005
Arsenic [mg/L]	13-May-19	14:03	14-May-19	11:36	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Barium [mg/L]	13-May-19	14:03	14-May-19	11:36	0.00013	0.00058	0.00010	0.00367	0.00021
Boron [mg/L]	13-May-19	14:03	14-May-19	11:36	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	13-May-19	14:03	14-May-19	11:36	0.000148	0.000025	0.000026	< 0.000007	< 0.000007
Bismuth [mg/L]	13-May-19	14:03	14-May-19	11:36	0.000022	0.00114	0.000290	< 0.000007	< 0.000007

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LR Report : **CA10088-MAY19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#15	6: S659707 Wk#15	7: S659709 Wk#15	8: S659735 Wk#15	9: S659745 Wk#15
Calcium [mg/L]	13-May-19	14:03	14-May-19	11:36	0.17	1.34	0.83	0.74	0.33
Cadmium [mg/L]	13-May-19	14:03	14-May-19	11:36	< 0.000003	0.000077	0.000017	< 0.000003	< 0.000003
Cobalt [mg/L]	13-May-19	14:03	14-May-19	11:36	0.000095	0.000189	0.000064	0.000004	0.000006
Chromium [mg/L]	13-May-19	14:03	14-May-19	11:36	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	13-May-19	14:03	14-May-19	11:36	0.0006	0.0004	0.0006	0.0003	0.0006
Iron [mg/L]	13-May-19	14:03	14-May-19	11:36	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	13-May-19	14:03	14-May-19	11:36	0.177	0.157	0.059	0.155	0.357
Lithium [mg/L]	13-May-19	14:03	14-May-19	11:36	0.0050	0.0043	0.0058	0.0041	0.0035
Magnesium [mg/L]	13-May-19	14:03	14-May-19	11:36	0.028	0.044	0.014	0.079	0.074
Manganese [mg/L]	13-May-19	14:03	14-May-19	11:36	0.00468	0.0290	0.0185	0.0400	0.00072
Molybdenum [mg/L]	13-May-19	14:03	14-May-19	11:36	0.00023	0.00023	0.00015	0.00021	0.00020
Sodium [mg/L]	13-May-19	14:03	14-May-19	11:36	0.04	0.01	0.09	0.06	0.08
Nickel [mg/L]	13-May-19	14:03	14-May-19	11:36	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus [mg/L]	13-May-19	14:03	14-May-19	11:36	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	13-May-19	14:03	14-May-19	11:36	0.00005	< 0.00001	< 0.00001	0.00001	< 0.00001
Antimony [mg/L]	13-May-19	14:03	14-May-19	11:36	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	13-May-19	14:03	14-May-19	11:36	< 0.00004	0.00010	0.00006	< 0.00004	< 0.00004
Silicon [mg/L]	13-May-19	14:03	14-May-19	11:36	0.57	0.40	0.39	0.46	0.27
Tin [mg/L]	13-May-19	14:03	14-May-19	11:36	0.00007	0.00009	0.00009	0.00017	0.00014
Strontium [mg/L]	13-May-19	14:03	14-May-19	11:36	0.00093	0.00327	0.00183	0.00450	0.00152
Tantalum [mg/L]	13-May-19	14:03	14-May-19	11:36	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	13-May-19	14:03	14-May-19	11:36	0.00007	< 0.00005	< 0.00005	0.00038	< 0.00005
Thallium [mg/L]	13-May-19	14:03	14-May-19	11:36	0.000014	0.000021	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	13-May-19	14:03	14-May-19	11:36	0.000169	0.00303	0.00612	0.000183	0.000041
Vanadium [mg/L]	13-May-19	14:03	14-May-19	11:36	0.00002	< 0.00001	0.00002	0.00013	0.00028
Tungsten [mg/L]	13-May-19	14:03	14-May-19	11:36	0.00014	0.00005	0.00005	0.00005	0.00003
Yttrium [mg/L]	13-May-19	14:03	14-May-19	11:36	< 0.000002	< 0.000002	< 0.000002	0.000035	< 0.000002
Zinc [mg/L]	13-May-19	14:03	14-May-19	11:36	0.003	0.005	0.002	< 0.002	< 0.002

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Quoted for 20 Weeks

LR Report : **CA10088-MAY19**

Analysis	10: S659719 Wk#15	11: S659724 Wk#15	12: S659713 Wk#15	13: S659714 Wk#15	14: S659711 Wk#15	15: S659711 Dup Wk#15	16: Waste Composite Wk#15	17: Waste Composite Dup Wk#15
Sample Date & Time	08-May-19	08-May-19	08-May-19	08-May-19	08-May-19	08-May-19	08-May-19	08-May-19
Hum Cell Leachate Volume [mL]	994	994	932	933	1024	978	1006	990
pH [no unit]	6.51	6.87	6.37	6.57	6.34	6.09	6.45	6.43
Alkalinity [mg/L as CaCO3]	2	6	< 2	2	< 2	2	< 2	2
Acidity [mg/L as CaCO3]	< 2	< 2	3	< 2	< 2	4	2	< 2
Conductivity [uS/cm]	5	16	5	6	3	4	3	6
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Sulphate [mg/L]	0.6	< 0.2	1.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.010	0.032	0.001	0.020	0.003	0.018	0.010	0.008
Arsenic [mg/L]	< 0.0002	0.0004	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Barium [mg/L]	0.00048	0.00069	0.00022	0.00144	0.00020	0.00274	0.00114	0.00028
Boron [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	0.62	2.33	0.34	0.87	0.22	0.25	0.38	0.58
Cadmium [mg/L]	< 0.000003	< 0.000003	0.000005	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	< 0.000004	< 0.000004	0.0108	0.000016	< 0.000004	0.000017	0.000036	0.000032
Chromium [mg/L]	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	0.0017	0.0003	0.0012	0.0003	0.0003	0.0004	0.0003	0.0005
Iron [mg/L]	< 0.007	< 0.007	0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	0.255	0.169	0.070	0.068	0.292	0.256	0.084	0.119
Lithium [mg/L]	0.0022	0.0026	0.0009	0.0013	0.0011	0.0009	0.0014	0.0019
Magnesium [mg/L]	0.089	0.086	0.108	0.123	0.058	0.060	0.042	0.051
Manganese [mg/L]	0.00445	0.00341	0.00707	0.0144	0.00053	0.0289	0.0108	0.00212
Molybdenum [mg/L]	0.00032	0.00016	0.00029	0.00011	0.00015	0.00014	0.00013	0.00024
Sodium [mg/L]	0.06	0.16	0.02	0.02	0.03	0.02	< 0.01	0.04

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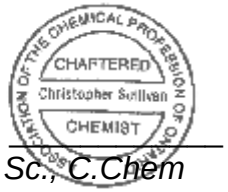
Quoted for 20 Weeks

LR Report : **CA10088-MAY19**

Analysis	10: S659719 Wk#15	11: S659724 Wk#15	12: S659713 Wk#15	13: S659714 Wk#15	14: S659711 Wk#15	15: S659711 Dup Wk#15	16: Waste Composite Wk#15	17: Waste Composite Dup Wk#15
Nickel [mg/L]	< 0.0001	0.0002	0.0494	0.0001	< 0.0001	< 0.0001	0.0002	0.0002
Phosphorus [mg/L]	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	< 0.00001	< 0.00001	< 0.00001	0.00002	0.00001	< 0.00001	0.00037	< 0.00001
Antimony [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	< 0.00004	< 0.00004	0.00007	0.00008	< 0.00004	0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	0.40	0.39	0.19	0.25	0.34	0.32	0.13	0.17
Tin [mg/L]	< 0.00006	0.00014	< 0.00006	0.00011	0.00077	0.00011	0.00012	0.00013
Strontium [mg/L]	0.00273	0.00468	0.00132	0.00157	0.00083	0.00191	0.00172	0.00220
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	< 0.00005	< 0.00005	< 0.00005	0.00015	< 0.00005	0.00016	0.00005	< 0.00005
Thallium [mg/L]	< 0.000005	< 0.000005	0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.000577	0.000554	0.000048	0.000014	0.000031	0.000018	0.000092	0.000149
Vanadium [mg/L]	0.00018	0.00013	0.00012	0.00058	0.00025	0.00021	0.00013	0.00017
Tungsten [mg/L]	0.00002	0.00009	< 0.00002	< 0.00002	0.00003	0.00003	0.00005	0.00004
Yttrium [mg/L]	0.000003	0.000004	0.000002	0.000002	< 0.000002	0.000008	0.000003	0.000002
Zinc [mg/L]	< 0.002	< 0.002	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

<originale signé par>



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08-October-2019

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Date Rec. : 15 May 2019
LR Report: **CA10244-MAY19**
Reference: Wk#16

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#16	6: S659707 Wk#16	7: S659709 Wk#16	8: S659735 Wk#16	9: S659745 Wk#16
Sample Date & Time					15-May-19	15-May-19	15-May-19	15-May-19	15-May-19
Hum Cell Leachate Volume [mL]	15-May-19	08:35	15-May-19	11:46	970	989	951	947	957
pH [no unit]	15-May-19	13:45	17-May-19	15:16	5.62	6.54	6.12	6.26	6.53
Alkalinity [mg/L as CaCO3]	15-May-19	13:45	16-May-19	14:01	< 2	3	< 2	< 2	2
Acidity [mg/L as CaCO3]	15-May-19	13:45	16-May-19	14:01	5	< 2	2	4	3
Conductivity [uS/cm]	15-May-19	13:45	16-May-19	14:01	3	6	3	5	4
Fluoride [mg/L]	16-May-19	10:23	16-May-19	14:23	< 0.06	0.06	0.08	< 0.06	< 0.06
Bromide [mg/L]	21-May-19	21:35	23-May-19	15:11	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	21-May-19	21:35	23-May-19	15:11	0.3	0.2	< 0.2	< 0.2	0.3
Mercury [mg/L]	16-May-19	13:58	17-May-19	13:38	< 0.00001	0.00001	< 0.00001	0.00001	< 0.00001
Silver [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	22-May-19	13:37	23-May-19	14:08	0.009	0.018	0.011	0.011	0.008
Arsenic [mg/L]	22-May-19	13:37	23-May-19	14:08	0.0005	< 0.0002	< 0.0002	< 0.0002	0.0003
Barium [mg/L]	22-May-19	13:37	23-May-19	14:08	0.00009	0.00009	0.00006	0.00012	0.00016
Boron [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	22-May-19	13:37	23-May-19	14:08	0.000131	0.000022	0.000027	< 0.000007	< 0.000007
Bismuth [mg/L]	22-May-19	13:37	23-May-19	14:08	0.000021	0.000893	0.000419	0.000011	< 0.000007

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Quoted for 20 Weeks

LR Report : **CA10244-MAY19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#16	6: S659707 Wk#16	7: S659709 Wk#16	8: S659735 Wk#16	9: S659745 Wk#16
Calcium [mg/L]	22-May-19	13:37	23-May-19	14:08	0.16	1.14	0.48	0.38	0.35
Cadmium [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.000003	0.000093	0.000008	< 0.000003	< 0.000003
Cobalt [mg/L]	22-May-19	13:37	23-May-19	14:08	0.000080	0.000321	0.000043	< 0.000004	0.000019
Chromium [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Iron [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	22-May-19	13:37	23-May-19	14:08	0.179	0.165	0.067	0.158	0.358
Lithium [mg/L]	22-May-19	13:37	23-May-19	14:08	0.0056	0.0045	0.0048	0.0039	0.0037
Magnesium [mg/L]	22-May-19	13:37	23-May-19	14:08	0.016	0.026	0.002	0.029	0.071
Manganese [mg/L]	22-May-19	13:37	27-May-19	15:01	0.00374	0.0199	0.0104	0.00068	0.00048
Molybdenum [mg/L]	22-May-19	13:37	23-May-19	14:08	0.00007	0.00014	< 0.00004	< 0.00004	< 0.00004
Sodium [mg/L]	22-May-19	13:37	23-May-19	14:08	0.09	0.06	0.11	0.07	0.09
Nickel [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	22-May-19	13:37	23-May-19	14:08	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Antimony [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.00004	0.00007	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	22-May-19	13:37	23-May-19	14:08	0.57	0.33	0.20	0.22	0.33
Tin [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.00006	0.00062	0.00010	0.00011	0.00007
Strontium [mg/L]	22-May-19	13:37	23-May-19	14:08	0.00078	0.00250	0.00109	0.00187	0.00122
Tantalum [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.00005	< 0.00005	< 0.00005	0.00010	0.00007
Thallium [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.000005	0.000008	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	22-May-19	13:37	23-May-19	14:08	0.000144	0.00281	0.00366	0.000402	0.000075
Vanadium [mg/L]	22-May-19	13:37	23-May-19	14:08	0.00003	0.00001	0.00002	0.00010	0.00023
Tungsten [mg/L]	22-May-19	13:37	23-May-19	14:08	0.00016	0.00005	0.00002	0.00007	0.00006
Yttrium [mg/L]	22-May-19	13:37	23-May-19	14:08	< 0.000002	< 0.000002	< 0.000002	< 0.000002	< 0.000002
Zinc [mg/L]	22-May-19	13:37	23-May-19	14:08	0.003	0.003	0.003	< 0.002	< 0.002

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LR Report : **CA10244-MAY19**

Analysis	10: S659719 Wk#16	11: S659724 Wk#16	12: S659713 Wk#16	13: S659714 Wk#16	14: S659711 Wk#16	15: S659711 Dup Wk#16	16: Waste Composite Wk#16	17: Waste Composite Dup Wk#16
Sample Date & Time	15-May-19	15-May-19	15-May-19	15-May-19	15-May-19	15-May-19	15-May-19	15-May-19
Hum Cell Leachate Volume [mL]	978	988	947	971	1007	1005	1042	1026
pH [no unit]	5.98	6.93	5.96	6.72	6.23	6.07	6.20	6.11
Alkalinity [mg/L as CaCO3]	< 2	6	< 2	3	< 2	< 2	2	< 2
Acidity [mg/L as CaCO3]	4	< 2	4	3	2	2	3	3
Conductivity [uS/cm]	4	13	5	6	4	3	4	5
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	0.4	< 0.2	0.9	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Mercury [mg/L]	0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.013	0.034	0.001	0.016	0.011	0.007	0.011	0.015
Arsenic [mg/L]	< 0.0002	0.0002	< 0.0002	0.0005	< 0.0002	0.0005	0.0004	< 0.0002
Barium [mg/L]	0.00015	0.00025	0.00016	0.00016	0.00022	0.00023	0.00018	0.00020
Boron [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	0.41	2.29	0.29	0.88	0.28	0.23	0.43	0.65
Cadmium [mg/L]	< 0.000003	< 0.000003	< 0.000003	< 0.000003	0.000006	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	< 0.000004	< 0.000004	0.009628	0.000008	< 0.000004	< 0.000004	0.000040	0.000008
Chromium [mg/L]	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Iron [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	0.213	0.179	0.076	0.074	0.442	0.341	0.090	0.130
Lithium [mg/L]	0.0024	0.0025	0.0009	0.0012	0.0018	0.0013	0.0017	0.0021
Magnesium [mg/L]	0.055	0.074	0.084	0.109	0.061	0.052	0.031	0.047
Manganese [mg/L]	0.00062	0.00070	0.00520	0.00053	0.00026	0.00019	0.00103	0.00128
Molybdenum [mg/L]	< 0.00004	< 0.00004	< 0.00004	< 0.00004	0.00015	0.00009	< 0.00004	< 0.00004
Sodium [mg/L]	0.06	0.19	0.04	0.06	0.09	0.07	0.04	0.04

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LR Report : **CA10244-MAY19**

Analysis	10: S659719 Wk#16	11: S659724 Wk#16	12: S659713 Wk#16	13: S659714 Wk#16	14: S659711 Wk#16	15: S659711 Dup Wk#16	16: Waste Composite Wk#16	17: Waste Composite Dup Wk#16
Nickel [mg/L]	< 0.0001	< 0.0001	0.0426	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001
Phosphorus [mg/L]	0.035	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Antimony [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	0.24	0.38	0.15	0.23	0.41	0.33	0.12	0.20
Tin [mg/L]	0.00011	0.00007	< 0.00006	0.00034	0.00060	0.00009	0.00015	0.00010
Strontium [mg/L]	0.00176	0.00425	0.00098	0.00099	0.00096	0.00099	0.00144	0.00217
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	< 0.00005	< 0.00005	0.00005	< 0.00005	0.00006	0.00009	< 0.00005	0.00006
Thallium [mg/L]	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.000427	0.000510	0.000034	0.000021	0.000053	0.000054	0.000169	0.000237
Vanadium [mg/L]	0.00016	0.00016	0.00013	0.00053	0.00024	0.00029	0.00018	0.00018
Tungsten [mg/L]	0.00003	0.00008	< 0.00002	< 0.00002	0.00003	0.00003	0.00007	0.00006
Yttrium [mg/L]	0.000002	< 0.000002	< 0.000002	< 0.000002	< 0.000002	< 0.000002	< 0.000002	< 0.000002
Zinc [mg/L]	0.002	< 0.002	0.003	< 0.002	0.003	0.002	< 0.002	< 0.002

<originale signé par>

Chris Sullivan, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0001918203

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Quoted for 20 Weeks

08-October-2019

Critical Elements Corporation
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Date Rec. : 22 May 2019
LR Report: **CA10388-MAY19**
Reference: Wk#17

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#17	6: S659707 Wk#17	7: S659709 Wk#17	8: S659735 Wk#17	9: S659745 Wk#17
Sample Date & Time					22-May-19	22-May-19	22-May-19	22-May-19	22-May-19
Hum Cell Leachate Volume [mL]	22-May-19	09:50	22-May-19	13:02	973	957	933	950	958
pH [no unit]	22-May-19	14:13	28-May-19	14:02	5.61	6.54	6.34	6.09	6.23
Alkalinity [mg/L as CaCO3]	22-May-19	14:13	24-May-19	12:53	< 2	2	< 2	< 2	< 2
Acidity [mg/L as CaCO3]	22-May-19	14:13	24-May-19	12:53	2	< 2	2	11	3
Conductivity [uS/cm]	22-May-19	14:13	24-May-19	12:53	8	6	3	7	4
Fluoride [mg/L]	23-May-19	15:50	23-May-19	16:32	< 0.06	0.07	0.11	< 0.06	< 0.06
Bromide [mg/L]	27-May-19	06:39	30-May-19	11:46	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	30-May-19	16:58	03-Jun-19	10:36	0.2	0.2	< 0.2	< 0.2	0.3
Mercury [mg/L]	23-May-19	15:30	24-May-19	10:51	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	25-May-19	12:36	27-May-19	13:56	0.008	0.016	0.013	0.012	0.007
Arsenic [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0006
Barium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.00022	0.00008	0.00004	0.00012	0.00017
Boron [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.000114	0.000017	0.000027	< 0.000007	< 0.000007
Bismuth [mg/L]	25-May-19	12:36	27-May-19	13:56	0.000035	0.000755	0.000603	0.000012	0.000022

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LR Report : **CA10388-MAY19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#17	6: S659707 Wk#17	7: S659709 Wk#17	8: S659735 Wk#17	9: S659745 Wk#17
Calcium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.12	1.03	0.41	0.37	0.27
Cadmium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.000011	0.000102	0.000007	< 0.000003	0.000004
Cobalt [mg/L]	25-May-19	12:36	27-May-19	13:56	0.000091	0.000074	0.000033	< 0.000004	0.000005
Chromium [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Iron [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.129	0.117	0.038	0.123	0.264
Lithium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.0039	0.0030	0.0031	0.0028	0.0024
Magnesium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.021	0.027	0.006	0.036	0.069
Manganese [mg/L]	25-May-19	12:36	27-May-19	13:56	0.00385	0.0186	0.00739	0.00070	0.00050
Molybdenum [mg/L]	25-May-19	12:36	27-May-19	13:56	0.00009	0.00014	0.00006	< 0.00004	< 0.00004
Sodium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.08	0.05	0.08	0.06	0.07
Nickel [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.003	0.003	< 0.003	0.003	0.004
Lead [mg/L]	25-May-19	12:36	27-May-19	13:56	0.00004	0.00002	0.00001	< 0.00001	< 0.00001
Antimony [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.00004	0.00007	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	25-May-19	12:36	27-May-19	13:56	0.47	0.30	0.15	0.20	0.26
Tin [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.00006	0.00008	0.00007	0.00008	0.00007
Strontium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.00067	0.00233	0.00084	0.00180	0.00108
Tantalum [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	25-May-19	12:36	27-May-19	13:56	< 0.00005	< 0.00005	< 0.00005	0.00015	0.00015
Thallium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.000016	0.000020	0.000006	< 0.000005	< 0.000005
Uranium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.000128	0.00214	0.00449	0.000223	0.000109
Vanadium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.00002	0.00001	< 0.00001	0.00013	0.00020
Tungsten [mg/L]	25-May-19	12:36	27-May-19	13:56	0.00010	0.00004	0.00003	0.00007	0.00003
Yttrium [mg/L]	25-May-19	12:36	27-May-19	13:56	0.000008	< 0.000002	< 0.000002	0.000013	< 0.000002
Zinc [mg/L]	25-May-19	12:36	27-May-19	13:56	0.004	0.006	< 0.002	< 0.002	< 0.002

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LR Report : **CA10388-MAY19**

Analysis	10: S659719 Wk#17	11: S659724 Wk#17	12: S659713 Wk#17	13: S659714 Wk#17	14: S659711 Wk#17	15: S659711 Dup Wk#17	16: Waste Composite Wk#17	17: Waste Composite Dup Wk#17
Sample Date & Time	22-May-19	22-May-19	22-May-19	22-May-19	22-May-19	22-May-19	22-May-19	22-May-19
Hum Cell Leachate Volume [mL]	974	996	951	960	979	1006	1043	1004
pH [no unit]	6.54	6.82	5.99	6.62	6.47	6.33	6.40	6.41
Alkalinity [mg/L as CaCO3]	< 2	7	< 2	2	< 2	< 2	< 2	2
Acidity [mg/L as CaCO3]	3	< 2	3	< 2	< 2	< 2	< 2	3
Conductivity [uS/cm]	5	15	3	5	4	3	5	5
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	0.3	< 0.2	0.9	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.010	0.030	0.001	0.017	0.007	0.005	0.008	0.012
Arsenic [mg/L]	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0005	< 0.0002	< 0.0002
Barium [mg/L]	0.00016	0.00020	0.00012	0.00015	0.00016	0.00015	0.00010	0.00015
Boron [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	0.000011	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	0.32	2.17	0.24	0.78	0.19	0.16	0.30	0.56
Cadmium [mg/L]	0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	0.000004
Cobalt [mg/L]	< 0.000004	< 0.000004	0.010040	0.000010	< 0.000004	< 0.000004	0.000031	0.000027
Chromium [mg/L]	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	< 0.0002	< 0.0002	0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Iron [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	0.145	0.131	0.044	0.039	0.345	0.234	0.050	0.081
Lithium [mg/L]	0.0014	0.0018	0.0006	0.0008	0.0010	0.0008	0.0010	0.0015
Magnesium [mg/L]	0.049	0.075	0.081	0.094	0.057	0.043	0.029	0.048
Manganese [mg/L]	0.00060	0.00067	0.00544	0.00046	0.00022	0.00016	0.00148	0.00136
Molybdenum [mg/L]	< 0.00004	< 0.00004	0.00004	< 0.00004	0.00012	0.00011	< 0.00004	< 0.00004
Sodium [mg/L]	0.04	0.16	0.02	0.03	0.06	0.04	< 0.01	< 0.01

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Quoted for 20 Weeks

LR Report : **CA10388-MAY19**

Analysis	10: S659719 Wk#17	11: S659724 Wk#17	12: S659713 Wk#17	13: S659714 Wk#17	14: S659711 Wk#17	15: S659711 Dup Wk#17	16: Waste Composite Wk#17	17: Waste Composite Dup Wk#17
Nickel [mg/L]	< 0.0001	< 0.0001	0.0435	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0001
Phosphorus [mg/L]	0.004	< 0.003	0.003	0.004	0.008	0.004	0.004	< 0.003
Lead [mg/L]	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Antimony [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	< 0.00004	< 0.00004	< 0.00004	0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	0.18	0.34	0.12	0.19	0.34	0.26	0.09	0.18
Tin [mg/L]	0.00014	0.00006	< 0.00006	0.00008	0.00025	< 0.00006	0.00008	0.00006
Strontium [mg/L]	0.00140	0.00400	0.00091	0.00081	0.00081	0.00067	0.00102	0.00191
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	0.00005	< 0.00005	0.00006	0.00019	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium [mg/L]	< 0.000005	< 0.000005	0.000007	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.000462	0.000513	0.000025	0.000031	0.000042	0.000039	0.000125	0.000186
Vanadium [mg/L]	0.00015	0.00011	0.00010	0.00048	0.00021	0.00020	0.00013	0.00015
Tungsten [mg/L]	< 0.00002	0.00007	0.00003	< 0.00002	0.00003	0.00003	0.00004	0.00009
Yttrium [mg/L]	0.000008	< 0.000002	< 0.000002	< 0.000002	< 0.000002	< 0.000002	0.000005	0.000003
Zinc [mg/L]	< 0.002	< 0.002	0.003	< 0.002	< 0.002	0.003	< 0.002	< 0.002

<originale signé par>

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Project Specialist,
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OnLine LIMS

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Quoted for 20 Weeks

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08-October-2019

Date Rec. : 29 May 2019
LR Report: **CA10505-MAY19**
Reference: Wk#18

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#18	6: S659707 Wk#18	7: S659709 Wk#18	8: S659735 Wk#18	9: S659745 Wk#18	10: S659719 Wk#18
Sample Date & Time					29-May-19	29-May-19	29-May-19	29-May-19	29-May-19	29-May-19
Hum Cell Leachate Volume [mL]	29-May-19	08:49	29-May-19	15:18	963	952	957	928	935	966
pH [no unit]	29-May-19	13:39	05-Jun-19	09:53	6.29	6.73	6.39	6.62	6.69	6.53
Alkalinity [mg/L as CaCO3]	29-May-19	13:39	03-Jun-19	11:40	< 2	2	2	< 2	< 2	< 2
Acidity [mg/L as CaCO3]	29-May-19	13:39	03-Jun-19	11:40	2	< 2	< 2	< 2	< 2	2
Conductivity [uS/cm]	29-May-19	13:39	03-Jun-19	11:40	5	7	6	5	6	5
Fluoride [mg/L]	29-May-19	15:19	31-May-19	11:20	< 0.06	0.07	0.10	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	03-Jun-19	17:31	05-Jun-19	12:23	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	01-Jun-19	13:37	04-Jun-19	15:22	0.2	0.2	0.2	< 0.2	0.3	0.3
Mercury [mg/L]	30-May-19	14:45	31-May-19	10:04	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	29-May-19	10:51	30-May-19	15:06	0.008	0.010	0.009	0.006	0.005	0.008
Arsenic [mg/L]	29-May-19	10:51	30-May-19	15:06	0.0004	0.0003	0.0003	0.0012	0.0002	0.0003
Barium [mg/L]	29-May-19	10:51	30-May-19	15:06	0.00011	0.00004	0.00009	0.00011	0.00016	0.00016
Boron [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	29-May-19	10:51	30-May-19	15:06	0.000158	0.000020	0.000020	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	29-May-19	10:51	30-May-19	15:06	0.000032	0.000853	0.000466	< 0.000007	< 0.000007	< 0.000007

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LR Report : **CA10505-MAY19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#18	6: S659707 Wk#18	7: S659709 Wk#18	8: S659735 Wk#18	9: S659745 Wk#18	10: S659719 Wk#18
Calcium [mg/L]	29-May-19	10:51	30-May-19	15:06	0.13	0.70	0.58	0.36	0.31	0.29
Cadmium [mg/L]	29-May-19	10:51	30-May-19	15:06	0.000015	0.000095	0.000012	0.000004	0.000003	0.000006
Cobalt [mg/L]	29-May-19	10:51	30-May-19	15:06	0.000123	0.000089	0.000046	0.000004	0.000002	0.000017
Chromium [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Iron [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.007	0.008	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	29-May-19	10:51	30-May-19	15:06	0.113	0.081	0.030	0.119	0.292	0.191
Lithium [mg/L]	29-May-19	10:51	30-May-19	15:06	0.0044	0.0028	0.0048	0.0033	0.0028	0.0019
Magnesium [mg/L]	29-May-19	10:51	30-May-19	15:06	0.018	0.015	0.005	0.033	0.070	0.042
Manganese [mg/L]	29-May-19	10:51	30-May-19	15:06	0.00443	0.0145	0.0116	0.00087	0.00066	0.00064
Molybdenum [mg/L]	29-May-19	10:51	30-May-19	15:06	0.00009	0.00014	0.00004	< 0.00004	< 0.00004	< 0.00004
Sodium [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Nickel [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	29-May-19	10:51	30-May-19	15:06	0.00006	0.00004	0.00002	< 0.00001	< 0.00001	0.00002
Antimony [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.00004	0.00008	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	29-May-19	10:51	30-May-19	15:06	0.49	0.22	0.21	0.22	0.25	0.14
Tin [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.00006	0.00032	0.00009	0.00007	< 0.00006	0.00009
Strontium [mg/L]	29-May-19	10:51	30-May-19	15:06	0.00075	0.00166	0.00127	0.00194	0.00122	0.00158
Tantalum [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.00005	< 0.00005	< 0.00005	0.00006	0.00006	< 0.00005
Thallium [mg/L]	29-May-19	10:51	30-May-19	15:06	0.000017	0.000021	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	29-May-19	10:51	30-May-19	15:06	0.000190	0.00171	0.00638	0.000232	0.000047	0.000403
Vanadium [mg/L]	29-May-19	10:51	30-May-19	15:06	< 0.00001	< 0.00001	< 0.00001	0.00010	0.00021	0.00013
Tungsten [mg/L]	29-May-19	10:51	30-May-19	15:06	0.00012	0.00004	0.00004	0.00008	0.00002	< 0.00002
Yttrium [mg/L]	29-May-19	10:51	30-May-19	15:06	0.000007	0.000004	0.000002	0.000021	< 0.000002	0.000010
Zinc [mg/L]	29-May-19	10:51	30-May-19	15:06	0.004	0.004	0.002	< 0.002	< 0.002	< 0.002

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Quoted for 20 Weeks

LR Report : **CA10505-MAY19**

Analysis	11: S659724 Wk#18	12: S659713 Wk#18	13: S659714 Wk#18	14: S659711 Wk#18	15: S659711 Dup Wk#18	16: Waste Composite Wk#18	17: Waste Composite Dup Wk#18
Sample Date & Time	29-May-19	29-May-19	29-May-19	29-May-19	29-May-19	29-May-19	29-May-19
Hum Cell Leachate Volume [mL]	991	932	953	980	971	1023	1013
pH [no unit]	6.78	5.64	6.56	6.45	6.19	6.47	6.33
Alkalinity [mg/L as CaCO3]	6	< 2	2	4	< 2	< 2	2
Acidity [mg/L as CaCO3]	< 2	3	< 2	< 2	2	2	< 2
Conductivity [uS/cm]	14	5	6	4	3	3	5
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	< 0.2	0.9	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.029	0.001	0.014	0.003	0.003	0.004	0.009
Arsenic [mg/L]	0.0003	< 0.0002	< 0.0002	0.0006	0.0002	< 0.0002	< 0.0002
Barium [mg/L]	0.00022	0.00014	0.00013	0.00014	0.00017	0.00011	0.00017
Boron [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	2.17	0.24	0.79	0.15	0.18	0.31	0.54
Cadmium [mg/L]	0.000023	0.000004	< 0.000003	< 0.000003	0.000010	0.000003	0.000003
Cobalt [mg/L]	0.000006	0.0123	0.000006	0.000002	< 0.000004	0.000047	0.000017
Chromium [mg/L]	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	< 0.0002	0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Iron [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	0.116	0.029	0.023	0.299	0.237	0.042	0.064
Lithium [mg/L]	0.0020	0.0007	0.0009	0.0009	0.0008	0.0011	0.0015
Magnesium [mg/L]	0.066	0.078	0.088	0.038	0.039	0.025	0.041
Manganese [mg/L]	0.00073	0.00646	0.00060	0.00022	0.00020	0.00097	0.00147
Molybdenum [mg/L]	< 0.00004	0.00005	< 0.00004	0.00008	0.00005	< 0.00004	< 0.00004
Sodium [mg/L]	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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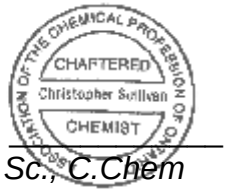
Quoted for 20 Weeks

LR Report : **CA10505-MAY19**

Analysis	11: S659724 Wk#18	12: S659713 Wk#18	13: S659714 Wk#18	14: S659711 Wk#18	15: S659711 Dup Wk#18	16: Waste Composite Wk#18	17: Waste Composite Dup Wk#18
Nickel [mg/L]	< 0.0001	0.0507	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001
Phosphorus [mg/L]	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00001
Antimony [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	< 0.00004	0.00006	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	0.35	0.13	0.19	0.23	0.23	0.10	0.16
Tin [mg/L]	0.00007	< 0.00006	< 0.00006	0.00034	< 0.00006	< 0.00006	< 0.00006
Strontium [mg/L]	0.00411	0.00101	0.00088	0.00069	0.00078	0.00115	0.00193
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	< 0.00005	0.00007	0.00013	< 0.00005	< 0.00005	< 0.00005	0.00006
Thallium [mg/L]	< 0.000005	0.000010	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.000558	0.000015	0.000045	0.000033	0.000029	0.000104	0.000156
Vanadium [mg/L]	0.00012	0.00009	0.00040	0.00020	0.00017	0.00012	0.00012
Tungsten [mg/L]	0.00008	< 0.00002	< 0.00002	0.00002	< 0.00002	0.00003	0.00004
Yttrium [mg/L]	0.000006	< 0.000002	< 0.000002	< 0.000002	< 0.000002	0.000007	0.000004
Zinc [mg/L]	< 0.002	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

<originale signé par>



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Quoted for 20 Weeks

08-October-2019

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Date Rec. : 05 June 2019
LR Report: **CA10028-JUN19**
Reference: Wk#19

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#19	6: S659707 Wk#19	7: S659709 Wk#19	8: S659735 Wk#19	9: S659745 Wk#19
Sample Date & Time					05-Jun-19	05-Jun-19	05-Jun-19	05-Jun-19	05-Jun-19
Hum Cell Leachate Volume [mL]	05-Jun-19	07:29	05-Jun-19	12:09	973	1034	997	965	960
pH [no unit]	05-Jun-19	14:11	20-Jun-19	10:10	6.48	6.82	6.62	6.41	6.36
Alkalinity [mg/L as CaCO3]	05-Jun-19	14:11	07-Jun-19	13:09	< 2	4	2	2	2
Acidity [mg/L as CaCO3]	05-Jun-19	14:11	07-Jun-19	13:09	< 2	< 2	< 2	< 2	< 2
Conductivity [uS/cm]	05-Jun-19	14:11	10-Jun-19	20:30	4	10	6	5	5
Fluoride [mg/L]	06-Jun-19	13:37	07-Jun-19	09:18	< 0.06	0.08	0.09	< 0.06	< 0.06
Bromide [mg/L]	10-Jun-19	18:58	12-Jun-19	16:25	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	10-Jun-19	12:35	12-Jun-19	11:07	< 0.2	0.4	< 0.2	< 0.2	0.2
Mercury [mg/L]	06-Jun-19	12:30	10-Jun-19	09:33	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.009	0.013	0.008	0.006	0.004
Arsenic [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.0002	0.0002	0.0005	< 0.0002	< 0.0002
Barium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.00011	0.00014	0.00006	0.00014	0.00020
Boron [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.000193	0.000033	0.000031	< 0.000007	< 0.000007

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LR Report : **CA10028-JUN19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#19	6: S659707 Wk#19	7: S659709 Wk#19	8: S659735 Wk#19	9: S659745 Wk#19
Bismuth [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.000037	0.000986	0.000445	< 0.000007	< 0.000007
Calcium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.15	1.12	0.71	0.41	0.29
Cadmium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.000018	0.000115	0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.000131	0.000129	0.000057	< 0.000004	0.000006
Chromium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Iron [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.007	0.027	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.117	0.101	0.034	0.127	0.260
Lithium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.0048	0.0035	0.0050	0.0034	0.0027
Magnesium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.024	0.035	0.010	0.045	0.076
Manganese [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.00451	0.0242	0.0167	0.00124	0.00067
Molybdenum [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.00010	0.00012	< 0.00004	< 0.00004	< 0.00004
Sodium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.06	0.05	0.10	0.06	0.07
Nickel [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.00004	0.00002	< 0.00001	0.00003	< 0.00001
Antimony [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.00004	0.00007	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.41	0.29	0.25	0.27	0.23
Tin [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.00006	0.00048	< 0.00006	< 0.00006	< 0.00006
Strontium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.00080	0.00262	0.00146	0.00220	0.00116
Tantalum [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00006
Thallium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.000014	0.000021	0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.000275	0.00265	0.00805	0.000136	0.000057
Vanadium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.00001	< 0.00001	< 0.00001	0.00009	0.00015
Tungsten [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.00011	0.00004	0.00005	0.00007	< 0.00002
Yttrium [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	< 0.000002	0.000009	< 0.000002	0.000013	< 0.000002
Zinc [mg/L]	07-Jun-19	12:31	11-Jun-19	10:31	0.005	0.004	0.002	< 0.002	< 0.002

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LR Report : **CA10028-JUN19**

Analysis	10: S659719 Wk#19	11: S659724 Wk#19	12: S659713 Wk#19	13: S659714 Wk#19	14: S659711 Wk#19	15: S659711 Dup Wk#19	16: Waste Composite Wk#19	17: Waste Composite Dup Wk#19
Sample Date & Time	05-Jun-19	05-Jun-19	05-Jun-19	05-Jun-19	05-Jun-19	05-Jun-19	05-Jun-19	05-Jun-19
Hum Cell Leachate Volume [mL]	952	981	952	976	1000	997	1039	998
pH [no unit]	6.49	7.07	5.87	6.48	6.13	6.39	6.24	6.31
Alkalinity [mg/L as CaCO3]	< 2	6	< 2	2	< 2	< 2	< 2	2
Acidity [mg/L as CaCO3]	2	< 2	6	< 2	3	< 2	< 2	< 2
Conductivity [uS/cm]	4	15	4	6	7	4	4	5
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	0.3	< 0.2	0.8	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.007	0.030	0.002	0.012	0.005	0.005	0.005	0.010
Arsenic [mg/L]	0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0008	< 0.0002	0.0006
Barium [mg/L]	0.00019	0.00024	0.00012	0.00014	0.00017	0.00021	0.00017	0.00018
Boron [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000026	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	0.36	2.26	0.22	0.78	0.21	0.22	0.40	0.56
Cadmium [mg/L]	< 0.000003	< 0.000003	0.000004	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	0.000004	0.000005	0.013090	0.000005	< 0.000004	< 0.000004	0.000046	0.000045
Chromium [mg/L]	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	< 0.0002	< 0.0002	0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Iron [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	0.019
Potassium [mg/L]	0.213	0.131	0.040	0.036	0.346	0.290	0.050	0.055
Lithium [mg/L]	0.0020	0.0019	0.0007	0.0010	0.0012	0.0010	0.0015	0.0015
Magnesium [mg/L]	0.058	0.076	0.083	0.096	0.062	0.059	0.040	0.044
Manganese [mg/L]	0.00071	0.00079	0.00649	0.00055	0.00027	0.00022	0.00126	0.00160
Molybdenum [mg/L]	< 0.00004	< 0.00004	< 0.00004	< 0.00004	0.00011	0.00010	< 0.00004	0.00060
Sodium [mg/L]	0.05	0.14	0.03	0.05	0.07	0.06	0.04	0.05

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LR Report : **CA10028-JUN19**

Analysis	10: S659719 Wk#19	11: S659724 Wk#19	12: S659713 Wk#19	13: S659714 Wk#19	14: S659711 Wk#19	15: S659711 Dup Wk#19	16: Waste Composite Wk#19	17: Waste Composite Dup Wk#19
Nickel [mg/L]	< 0.0001	< 0.0001	0.0529	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0004
Phosphorus [mg/L]	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Antimony [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	< 0.00004	< 0.00004	0.00006	0.00006	< 0.00004	< 0.00004	0.00004	0.00005
Silicon [mg/L]	0.19	0.30	0.11	0.15	0.30	0.25	0.11	0.14
Tin [mg/L]	< 0.00006	< 0.00006	< 0.00006	< 0.00006	0.00032	< 0.00006	< 0.00006	< 0.00006
Strontium [mg/L]	0.00172	0.00409	0.00088	0.00083	0.00085	0.00097	0.00137	0.00190
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	0.00007	< 0.00005	< 0.00005	< 0.00005	0.00143	0.00005	< 0.00005	< 0.00005
Thallium [mg/L]	< 0.000005	< 0.000005	0.000006	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.000519	0.000326	0.000002	0.000022	0.000029	0.000040	0.000146	0.000231
Vanadium [mg/L]	0.00013	0.00008	0.00005	0.00033	0.00018	0.00019	0.00013	0.00006
Tungsten [mg/L]	0.00002	0.00005	< 0.00002	< 0.00002	0.00002	< 0.00002	0.00004	0.00004
Yttrium [mg/L]	0.000013	< 0.000002	< 0.000002	< 0.000002	< 0.000002	0.000002	0.000008	0.000004
Zinc [mg/L]	< 0.002	< 0.002	0.003	< 0.002	< 0.002	0.002	< 0.002	0.002

<originale signé par>

Chris Sullivan, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

OnLine LIMS

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08-October-2019

Critical Elements Corporation
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Date Rec. : 12 June 2019
LR Report: **CA10256-JUN19**
Reference: Wk#20

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#20	6: S659707 Wk#20	7: S659709 Wk#20	8: S659735 Wk#20	9: S659745 Wk#20	10: S659719 Wk#20
Sample Date & Time					12-Jun-19	12-Jun-19	12-Jun-19	12-Jun-19	12-Jun-19	12-Jun-19
Hum Cell Leachate Volume [mL]	12-Jun-19	08:25	12-Jun-19	15:20	960	913	921	880	885	898
pH [no unit]	12-Jun-19	14:26	19-Jun-19	16:36	6.19	6.45	6.44	5.87	6.36	6.46
Alkalinity [mg/L as CaCO3]	12-Jun-19	14:26	20-Jun-19	10:11	< 2	2	2	< 2	< 2	2
Acidity [mg/L as CaCO3]	12-Jun-19	14:26	18-Jun-19	17:04	< 2	< 2	< 2	2	< 2	< 2
Conductivity [uS/cm]	12-Jun-19	14:26	18-Jun-19	17:04	4	7	5	4	5	5
Fluoride [mg/L]	12-Jun-19	14:23	14-Jun-19	09:59	< 0.06	0.08	0.09	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	14-Jun-19	22:53	19-Jun-19	14:06	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	14-Jun-19	01:30	19-Jun-19	09:18	0.2	0.2	< 0.2	< 0.2	0.3	< 0.2
Mercury [mg/L]	13-Jun-19	11:49	13-Jun-19	12:17	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.011	0.017	0.008	0.011	0.011	0.015
Arsenic [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Barium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.00015	0.00012	0.00007	0.00017	0.00021	0.00020
Boron [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.000258	0.000033	0.000034	< 0.000007	< 0.000007	< 0.000007

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LR Report : **CA10256-JUN19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659705 Wk#20	6: S659707 Wk#20	7: S659709 Wk#20	8: S659735 Wk#20	9: S659745 Wk#20	10: S659719 Wk#20
Bismuth [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.000041	0.00153	0.000376	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.13	0.96	0.48	0.32	0.32	0.34
Cadmium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.000006	0.000083	0.000008	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.000108	0.000072	0.000030	< 0.000004	< 0.000004	< 0.000004
Chromium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Iron [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.135	0.115	0.039	0.132	0.338	0.280
Lithium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.0061	0.0044	0.0053	0.0036	0.0037	0.0023
Magnesium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.017	0.018	0.003	0.028	0.075	0.048
Manganese [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.00427	0.0181	0.00968	0.00054	0.00039	0.00039
Molybdenum [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.00007	0.00010	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Sodium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.15	0.13	0.17	0.14	0.16	0.14
Nickel [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.00004	0.00004	0.00001	< 0.00001	< 0.00001	< 0.00001
Antimony [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.00004	0.00007	< 0.00004	< 0.00004	0.00004	< 0.00004
Silicon [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.55	0.30	0.19	0.19	0.28	0.19
Tin [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.00006	0.00008	0.00008	< 0.00006	< 0.00006	< 0.00006
Strontium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.00078	0.00213	0.00100	0.00167	0.00127	0.00163
Tantalum [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	< 0.00005	< 0.00005	< 0.00005	0.00015	0.00038	0.00012
Thallium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.000013	0.000019	0.000005	< 0.000005	< 0.000005	0.000005
Uranium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.000109	0.00227	0.00538	0.000106	0.000032	0.000474
Vanadium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.00002	< 0.00001	< 0.00001	0.00014	0.00025	0.00016
Tungsten [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.00010	0.00005	0.00004	0.00005	< 0.00002	0.00003
Yttrium [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.000002	0.000002	0.000002	0.000015	< 0.000002	0.000012
Zinc [mg/L]	13-Jun-19	11:20	14-Jun-19	13:28	0.004	0.003	< 0.002	< 0.002	< 0.002	< 0.002

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Quoted for 20 Weeks

LR Report : **CA10256-JUN19**

Analysis	11: S659724 Wk#20	12: S659713 Wk#20	13: S659714 Wk#20	14: S659711 Wk#20	15: S659711 Dup Wk#20	16: Waste Composite Wk#20	17: Waste Composite Dup Wk#20
Sample Date & Time	12-Jun-19	12-Jun-19	12-Jun-19	12-Jun-19	12-Jun-19	12-Jun-19	12-Jun-19
Hum Cell Leachate Volume [mL]	981	941	889	893	911	961	941
pH [no unit]	6.86	5.73	6.53	6.25	6.43	6.68	6.24
Alkalinity [mg/L as CaCO3]	6	< 2	2	< 2	< 2	< 2	< 2
Acidity [mg/L as CaCO3]	< 2	3	< 2	< 2	< 2	3	2
Conductivity [uS/cm]	15	4	6	3	3	3	4
Fluoride [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Bromide [mg/L]	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	< 0.2	0.8	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00001	0.00001
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.035	0.001	0.022	0.006	0.006	0.007	0.016
Arsenic [mg/L]	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Barium [mg/L]	0.00029	0.00017	0.00021	0.00014	0.00016	0.00014	0.00025
Boron [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium [mg/L]	< 0.000007	0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	2.27	0.20	0.86	0.11	0.15	0.27	0.43
Cadmium [mg/L]	< 0.000003	0.000006	0.000004	0.000008	< 0.000003	< 0.000003	0.000004
Cobalt [mg/L]	0.000004	0.0117	0.000004	< 0.000004	< 0.000004	0.000040	0.000017
Chromium [mg/L]	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	< 0.0002	0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Iron [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	0.132	0.045	0.046	0.323	0.313	0.056	0.073
Lithium [mg/L]	0.0023	0.0008	0.0012	0.0012	0.0012	0.0014	0.0016
Magnesium [mg/L]	0.063	0.066	0.097	0.030	0.035	0.020	0.028
Manganese [mg/L]	0.00067	0.00578	0.00039	0.00010	0.00007	0.00066	0.00088
Molybdenum [mg/L]	< 0.00004	0.00004	< 0.00004	0.00007	0.00007	< 0.00004	< 0.00004
Sodium [mg/L]	0.21	0.11	0.14	0.14	0.16	0.11	0.11

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Quoted for 20 Weeks

LR Report : **CA10256-JUN19**

Analysis	11: S659724 Wk#20	12: S659713 Wk#20	13: S659714 Wk#20	14: S659711 Wk#20	15: S659711 Dup Wk#20	16: Waste Composite Wk#20	17: Waste Composite Dup Wk#20
Nickel [mg/L]	< 0.0001	0.0461	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001
Phosphorus [mg/L]	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	0.00001	< 0.00001	0.00002	< 0.00001	< 0.00001	< 0.00001	0.00002
Antimony [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	< 0.00004	0.00007	0.00005	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	0.40	0.13	0.24	0.21	0.21	0.09	0.13
Tin [mg/L]	0.00009	< 0.00006	0.00007	0.00016	0.00006	< 0.00006	0.00008
Strontium [mg/L]	0.00410	0.00091	0.00091	0.00052	0.00076	0.00097	0.00151
Tantalum [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	< 0.00005	< 0.00005	0.00026	< 0.00005	0.00005	< 0.00005	< 0.00005
Thallium [mg/L]	< 0.000005	0.000008	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	0.000402	0.000004	0.000024	0.000035	0.000037	0.000110	0.000166
Vanadium [mg/L]	0.00013	0.00008	0.00055	0.00021	0.00021	0.00015	0.00015
Tungsten [mg/L]	0.00006	< 0.00002	< 0.00002	0.00004	0.00002	0.00003	0.00003
Yttrium [mg/L]	0.000003	< 0.000002	0.000002	0.000002	< 0.000002	0.000009	0.000004
Zinc [mg/L]	< 0.002	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

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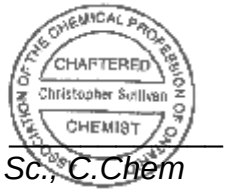

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OnLine LIMS

0001918200

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08-October-2019

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Date Rec. : 19 June 2019
LR Report: **CA10450-JUN19**
Reference: Wk#21

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709 Wk#21	6: S659713 Wk#21	7: Waste Composite Wk#21
Sample Date & Time					19-Jun-19	19-Jun-19	19-Jun-19
Hum Cell Leachate Volume [mL]	19-Jun-19	08:39	19-Jun-19	14:55	939	952	994
pH [no unit]	19-Jun-19	13:25	24-Jun-19	11:48	6.09	5.89	6.13
Alkalinity [mg/L as CaCO3]	19-Jun-19	13:25	24-Jun-19	11:48	< 2	< 2	< 2
Acidity [mg/L as CaCO3]	19-Jun-19	13:25	24-Jun-19	11:48	2	2	2
Conductivity [uS/cm]	19-Jun-19	13:25	24-Jun-19	11:48	4	4	3
Fluoride [mg/L]	20-Jun-19	09:06	20-Jun-19	15:14	0.10	< 0.06	< 0.06
Sulphate [mg/L]	20-Jun-19	18:28	25-Jun-19	15:02	< 0.2	0.8	< 0.2
Bromide [mg/L]	22-Jun-19	00:51	26-Jun-19	15:53	< 0.3	< 0.3	< 0.3

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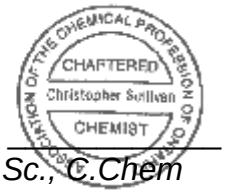

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Date Rec. : 26 June 2019
LR Report: **CA10615-JUN19**
Reference: Wk#22

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709 Wk#22	6: S659713 Wk#22	7: Waste Composite Wk#22
Sample Date & Time					26-Jun-19	26-Jun-19	26-Jun-19
Hum Cell Leachate Volume [mL]	26-Jun-19	07:48	26-Jun-19	15:21	976	931	995
pH [no unit]	26-Jun-19	11:45	28-Jun-19	13:53	6.52	5.50	6.03
Alkalinity [mg/L as CaCO3]	26-Jun-19	11:45	28-Jun-19	13:53	2	< 2	< 2
Acidity [mg/L as CaCO3]	26-Jun-19	11:45	28-Jun-19	13:53	< 2	2	2
Conductivity [uS/cm]	26-Jun-19	11:45	28-Jun-19	13:53	5	5	4
Fluoride [mg/L]	26-Jun-19	14:28	27-Jun-19	10:57	0.13	< 0.06	< 0.06
Sulphate [mg/L]	27-Jun-19	22:28	28-Jun-19	09:47	< 0.2	0.8	< 0.2
Bromide [mg/L]	26-Jun-19	18:27	27-Jun-19	14:59	< 0.3	< 0.3	< 0.3

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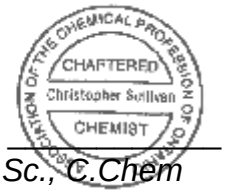

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Date Rec. : 03 July 2019
LR Report: **CA10022-JUL19**
Reference: Wk#23

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709 Wk#23	6: S659713 Wk#23	7: Waste Composite Wk#23
Sample Date & Time					03-Jul-19	03-Jul-19	03-Jul-19
Hum Cell Leachate Volume [mL]	03-Jul-19	09:10	03-Jul-19	14:23	1055	998	1053
pH [no unit]	03-Jul-19	14:36	08-Jul-19	14:38	6.50	5.80	6.84
Alkalinity [mg/L as CaCO3]	03-Jul-19	14:36	08-Jul-19	14:38	2	< 2	6
Acidity [mg/L as CaCO3]	03-Jul-19	14:36	05-Jul-19	10:40	< 2	2	< 2
Conductivity [uS/cm]	03-Jul-19	14:36	08-Jul-19	14:39	3	3	11
Fluoride [mg/L]	03-Jul-19	15:34	04-Jul-19	13:23	0.12	< 0.06	< 0.06
Sulphate [mg/L]	10-Jul-19	04:00	10-Jul-19	15:13	< 0.2	0.8	< 0.2
Bromide [mg/L]	08-Jul-19	21:20	10-Jul-19	20:31	< 0.3	< 0.3	< 0.3

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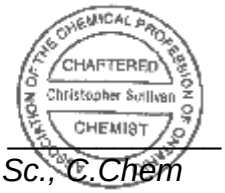

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Date Rec. : 10 July 2019
LR Report: **CA10105-JUL19**
Reference: Wk#24

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709 Wk#24	6: S659713 Wk#24	7: Waste Composite Wk#24
Sample Date & Time					10-Jul-19	10-Jul-19	10-Jul-19
Hum Cell Leachate Volume [mL]	10-Jul-19	10:23	11-Jul-19	12:30	995	925	1024
pH [no unit]	10-Jul-19	15:09	12-Jul-19	16:20	6.54	6.14	6.48
Alkalinity [mg/L as CaCO3]	10-Jul-19	15:09	12-Jul-19	16:20	2	< 2	2
Acidity [mg/L as CaCO3]	10-Jul-19	15:09	12-Jul-19	16:20	< 2	3	3
Conductivity [uS/cm]	10-Jul-19	15:09	12-Jul-19	16:20	5	3	4
Fluoride [mg/L]	19-Jul-19	09:51	19-Jul-19	13:08	0.12	< 0.06	< 0.06
Bromide [mg/L]	13-Jul-19	13:45	15-Jul-19	14:25	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	16-Jul-19	04:00	17-Jul-19	14:27	< 0.2	0.6	< 0.2
Mercury [mg/L]	11-Jul-19	14:16	12-Jul-19	11:26	< 0.00001	< 0.00001	0.00001
Silver [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.012	< 0.001	0.010
Arsenic [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	< 0.0002	< 0.0002	< 0.0002
Barium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.00013	0.00011	0.00018
Boron [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.004	< 0.002	< 0.002
Beryllium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.000035	< 0.000007	< 0.000007
Bismuth [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.000511	< 0.000007	< 0.000007
Calcium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.63	0.16	0.58
Cadmium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.000014	0.000003	< 0.000003
Cobalt [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.000058	0.0138	0.000032
Chromium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	< 0.00008	0.00008	< 0.00008
Copper [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.0004	0.0015	0.0002
Iron [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.052	0.044	0.064
Lithium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.0046	0.0006	0.0013
Magnesium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.008	0.061	0.041
Manganese [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.0164	0.00566	0.00173
Molybdenum [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.00117	0.00006	< 0.00004
Sodium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.10	0.03	0.02
Nickel [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	< 0.0001	0.0469	0.0002
Phosphorus [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	< 0.003	< 0.003	< 0.003

OnLine LIMS

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LR Report : **CA10105-JUL19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709 Wk#24	6: S659713 Wk#24	7: Waste Composite Wk#24
Lead [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.00003	< 0.00001	< 0.00001
Antimony [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.00005	0.00005	< 0.00004
Silicon [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.28	0.12	0.11
Tin [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.00013	< 0.00006	0.00020
Strontium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.00138	0.00070	0.00179
Tantalum [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	< 0.00005	< 0.00005	0.00009
Thallium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	< 0.000005	0.000005	< 0.000005
Uranium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.00492	0.000003	0.000149
Vanadium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	< 0.00001	0.00008	0.00011
Tungsten [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.00002	< 0.00002	0.00003
Yttrium [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	0.000007	0.000002	0.000007
Zinc [mg/L]	16-Jul-19	21:55	17-Jul-19	16:25	< 0.002	0.003	< 0.002

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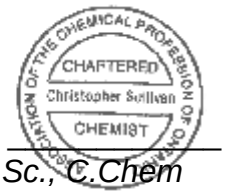

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OnLine LIMS

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Quoted for 20 Weeks, 3 Cells continuing indefinetly

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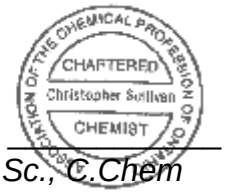
Date Rec. : 17 July 2019
LR Report: **CA10130-JUL19**
Reference: Wk#25

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709 Wk#25	6: S659713 Wk#25	7: Waste Composite Wk#25
Sample Date & Time					17-Jul-19	17-Jul-19	17-Jul-19
Hum Cell Leachate Volume [mL]	17-Jul-19	09:26	18-Jul-19	08:10	1013	1017	1051
pH [no unit]	17-Jul-19	13:52	24-Jul-19	10:24	6.40	5.94	6.50
Alkalinity [mg/L as CaCO3]	17-Jul-19	13:52	24-Jul-19	10:24	2	< 2	2
Acidity [mg/L as CaCO3]	17-Jul-19	13:52	24-Jul-19	10:24	4	2	2
Conductivity [uS/cm]	17-Jul-19	13:52	24-Jul-19	10:24	6	5	6
Fluoride [mg/L]	18-Jul-19	08:48	19-Jul-19	16:29	0.13	< 0.06	< 0.06
Sulphate [mg/L]	18-Jul-19	21:40	23-Jul-19	09:45	< 0.2	0.8	< 0.2
Bromide [mg/L]	22-Jul-19	19:07	24-Jul-19	08:20	< 0.3	< 0.3	< 0.3

<originale signé par>



Chris Sullivan, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0001918230

Quoted for 20 Weeks, 3 Cells continuing indefinetly

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

08-October-2019

Critical Elements Corporation
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1080 Côte du Beaver Hall, Suite 2101, Montreal
Canada, H2Z 1S8
Phone: (819) 355-9717, Fax:(514) 904-1597

Date Rec. : 24 July 2019
LR Report: **CA10337-JUL19**
Reference: Wk#26

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709 Wk#26	6: S659713 Wk#26	7: Waste Composite Wk#26
Sample Date & Time					24-Jul-19	24-Jul-19	24-Jul-19
Hum Cell Leachate Volume [mL]	24-Jul-19	09:01	24-Jul-19	12:09	998	1032	1014
pH [no unit]	24-Jul-19	12:20	30-Jul-19	16:35	6.41	5.53	6.19
Alkalinity [mg/L as CaCO3]	24-Jul-19	12:20	30-Jul-19	16:35	2	< 2	< 2
Acidity [mg/L as CaCO3]	24-Jul-19	12:20	30-Jul-19	16:35	< 2	2	2
Conductivity [uS/cm]	24-Jul-19	12:20	30-Jul-19	16:35	4	4	3
Fluoride [mg/L]	26-Jul-19	09:50	26-Jul-19	13:27	0.14	< 0.06	< 0.06
Sulphate [mg/L]	25-Jul-19	18:06	30-Jul-19	11:50	< 0.2	0.8	< 0.2
Bromide [mg/L]	24-Jul-19	20:35	26-Jul-19	16:23	< 0.3	< 0.3	< 0.3

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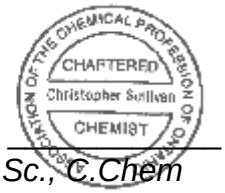
Date Rec. : 31 July 2019
LR Report: **CA10389-JUL19**
Reference: Wk#27

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709 Wk#27	6: S659713 Wk#27	7: Waste Composite Wk#27
Sample Date & Time					31-Jul-19	31-Jul-19	31-Jul-19
Hum Cell Leachate Volume [mL]	31-Jul-19	11:49	01-Aug-19	09:03	1008	1020	1010
pH [no unit]	31-Jul-19	14:26	07-Aug-19	17:12	6.55	5.78	6.02
Alkalinity [mg/L as CaCO3]	31-Jul-19	14:26	07-Aug-19	17:12	2	< 2	< 2
Acidity [mg/L as CaCO3]	31-Jul-19	14:26	07-Aug-19	17:12	2	2	3
Conductivity [uS/cm]	31-Jul-19	14:26	07-Aug-19	17:12	6	4	3
Fluoride [mg/L]	01-Aug-19	10:47	01-Aug-19	14:22	0.14	< 0.06	< 0.06
Sulphate [mg/L]	06-Aug-19	17:27	07-Aug-19	11:05	< 0.2	0.6	< 0.2
Bromide [mg/L]	06-Aug-19	17:24	07-Aug-19	11:49	< 0.3	< 0.3	< 0.3

<originale signé par>



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08-October-2019

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Date Rec. : 07 August 2019
LR Report: **CA10023-AUG19**
Reference: Wk#28

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709 Wk#28	6: S659713 Wk#28	7: Waste Composite Wk#28
Sample Date & Time					07-Aug-19	07-Aug-19	07-Aug-19
Hum Cell Leachate Volume [mL]	07-Aug-19	09:40	07-Aug-19	13:44	999	999	986
pH [no unit]	07-Aug-19	13:04	12-Aug-19	10:08	6.69	6.05	6.33
Alkalinity [mg/L as CaCO3]	07-Aug-19	13:04	12-Aug-19	10:08	2	< 2	< 2
Acidity [mg/L as CaCO3]	07-Aug-19	13:04	12-Aug-19	10:08	4	< 2	2
Conductivity [uS/cm]	07-Aug-19	13:04	12-Aug-19	10:08	5	2	< 2
Fluoride [mg/L]	07-Aug-19	14:40	08-Aug-19	11:31	0.13	< 0.06	< 0.06
Bromide [mg/L]	08-Aug-19	20:50	09-Aug-19	15:35	< 0.3	< 0.3	< 0.3
Sulphate [mg/L]	13-Aug-19	15:43	14-Aug-19	09:03	< 0.2	0.8	< 0.2
Mercury [mg/L]	09-Aug-19	08:15	12-Aug-19	13:47	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.009	< 0.001	0.004
Arsenic [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.0004	< 0.0002	< 0.0002
Barium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.00013	0.00017	0.00016
Boron [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.002	0.002	0.003
Beryllium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.000030	< 0.000007	< 0.000007
Bismuth [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.000529	< 0.000007	< 0.000007
Calcium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.80	0.23	0.36
Cadmium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.000015	< 0.000003	< 0.000003
Cobalt [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.000063	0.0224	0.000136
Chromium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.00008	< 0.00008	< 0.00008
Copper [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.0002	0.0031	0.0003
Iron [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.062	0.052	0.059
Lithium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.0039	0.0007	0.0010
Magnesium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.009	0.074	0.037
Manganese [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.0188	0.00863	0.00153
Molybdenum [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.00251	0.00288	0.00466
Sodium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.10	0.03	0.04
Nickel [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.0001	0.0754	0.0003
Phosphorus [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.003	< 0.003	< 0.003
Lead [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.00004	0.00005	< 0.00001

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LR Report : **CA10023-AUG19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659709 Wk#28	6: S659713 Wk#28	7: Waste Composite Wk#28
Antimony [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.0009	< 0.0009	< 0.0009
Selenium (total) [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.00004	0.00005	< 0.00004
Silicon [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.39	0.21	0.08
Tin [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.00006	0.00014	< 0.00006
Strontium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.00153	0.00094	0.00108
Tantalum [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.0001	< 0.0001	< 0.0001
Titanium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.00005	< 0.00005	< 0.00005
Thallium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.000005	0.000007	< 0.000005
Uranium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.00544	0.000099	0.000260
Vanadium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.00014	0.00017	0.00026
Tungsten [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.00002	< 0.00002	< 0.00002
Yttrium [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	0.000002	< 0.000002	0.000009
Zinc [mg/L]	12-Aug-19	16:09	13-Aug-19	13:12	< 0.002	0.003	< 0.002

<originale signé par>

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Quoted for 20 Weeks, 3 Cells continuing indefinetly

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08-October-2019

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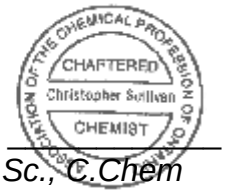
Date Rec. : 14 August 2019
LR Report: **CA10118-AUG19**
Reference: Wk#29

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	6: S659713 Wk#29
Sample Date & Time					14-Aug-19
Hum Cell Leachate Volume [mL]	14-Aug-19	08:35	15-Aug-19	12:49	1024
pH [no unit]	14-Aug-19	12:56	19-Aug-19	08:59	6.00
Alkalinity [mg/L as CaCO3]	14-Aug-19	12:56	19-Aug-19	08:59	< 2
Acidity [mg/L as CaCO3]	14-Aug-19	12:56	19-Aug-19	08:59	4
Conductivity [uS/cm]	14-Aug-19	12:56	19-Aug-19	08:59	2
Fluoride [mg/L]	14-Aug-19	13:36	16-Aug-19	14:14	< 0.06
Sulphate [mg/L]	16-Aug-19	04:00	21-Aug-19	09:28	0.8
Bromide [mg/L]	19-Aug-19	14:41	21-Aug-19	16:15	< 0.3

<originale signé par>



Chris Sullivan, B.Sc., C.Chem
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OnLine LIMS

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Quoted for 20 Weeks, 3 Cells continuing indefinetly

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08-October-2019

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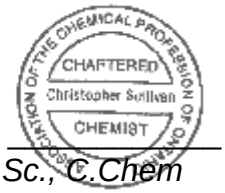
Date Rec. : 21 August 2019
LR Report: **CA10188-AUG19**
Reference: Wk#30

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	6: S659713 Wk#30
Sample Date & Time					21-Aug-19
Hum Cell Leachate Volume [mL]	21-Aug-19	08:23	21-Aug-19	10:56	977
pH [no unit]	21-Aug-19	11:51	23-Aug-19	07:15	5.93
Alkalinity [mg/L as CaCO3]	21-Aug-19	11:51	23-Aug-19	07:15	< 2
Acidity [mg/L as CaCO3]	21-Aug-19	11:51	23-Aug-19	07:15	2
Conductivity [uS/cm]	21-Aug-19	11:51	23-Aug-19	07:15	2
Fluoride [mg/L]	22-Aug-19	15:25	23-Aug-19	13:52	< 0.06
Sulphate [mg/L]	21-Aug-19	22:52	23-Aug-19	14:49	0.8
Bromide [mg/L]	22-Aug-19	17:21	23-Aug-19	16:20	< 0.3

<originale signé par>



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08-October-2019

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Date Rec. : 28 August 2019
LR Report: **CA10279-AUG19**
Reference: Wk#31

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	6: S659713 Wk#31
Sample Date & Time					28-Aug-19
Hum Cell Leachate Volume [mL]	28-Aug-19	09:18	28-Aug-19	11:22	947
pH [no unit]	28-Aug-19	13:49	04-Sep-19	09:22	5.94
Alkalinity [mg/L as CaCO3]	28-Aug-19	13:49	04-Sep-19	09:22	< 2
Acidity [mg/L as CaCO3]	28-Aug-19	13:49	04-Sep-19	09:22	3
Conductivity [uS/cm]	28-Aug-19	13:49	04-Sep-19	09:22	< 2
Fluoride [mg/L]	28-Aug-19	11:52	29-Aug-19	10:37	0.06
Sulphate [mg/L]	29-Aug-19	19:05	03-Sep-19	08:52	1.0
Bromide [mg/L]	29-Aug-19	14:29	03-Sep-19	11:58	< 0.3

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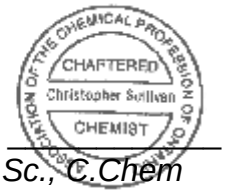

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Date Rec. : 04 September 2019
LR Report: **CA10019-SEP19**
Reference: Wk#32

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659713 Wk#32
Sample Date & Time					04-Sep-19
Hum Cell Leachate Volume [mL]	04-Sep-19	07:48	06-Sep-19	11:50	1013
pH [no unit]	04-Sep-19	13:55	06-Sep-19	13:15	5.75
Alkalinity [mg/L as CaCO3]	04-Sep-19	13:55	06-Sep-19	13:15	< 2
Acidity [mg/L as CaCO3]	04-Sep-19	13:55	06-Sep-19	13:15	2
Conductivity [uS/cm]	04-Sep-19	13:55	06-Sep-19	13:15	4
Fluoride [mg/L]	04-Sep-19	11:34	04-Sep-19	16:27	< 0.06
Bromide [mg/L]	04-Sep-19	11:41	04-Sep-19	14:52	< 0.3
Sulphate [mg/L]	06-Sep-19	17:24	10-Sep-19	10:44	0.8
Mercury [mg/L]	04-Sep-19	13:32	06-Sep-19	11:55	< 0.00001
Silver [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	< 0.00005
Aluminum [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	< 0.001
Arsenic [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	< 0.0002
Barium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.00019
Boron [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.009
Beryllium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	< 0.000007
Bismuth [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	< 0.000007
Calcium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.20
Cadmium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.000006
Cobalt [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.02327
Chromium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	< 0.00008
Copper [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.0032
Iron [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.008
Potassium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.033
Lithium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.0009
Magnesium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.061
Manganese [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.00946
Molybdenum [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.00066
Sodium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.01
Nickel [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.0767
Phosphorus [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	< 0.003
Lead [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.00001

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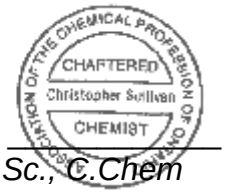
LR Report : **CA10019-SEP19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659713 Wk#32
Antimony [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	< 0.0009
Selenium (total) [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.00007
Silicon [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.24
Tin [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.00016
Strontium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.00105
Tantalum [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	< 0.0001
Titanium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	< 0.00005
Thallium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.000009
Uranium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.000003
Vanadium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.00004
Tungsten [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	< 0.00002
Yttrium [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	< 0.000002
Zinc [mg/L]	06-Sep-19	12:45	09-Sep-19	15:03	0.003

<originale signé par>



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OnLine LIMS

0001918221

Quoted for 20 Weeks, 1 Cell continuing indefinetly

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

08-October-2019

Critical Elements Lithium Corporation
Attn : Paul Bonneville

1080 Côte du Beaver Hall, Suite 2101, Montreal
Canada, H2Z 1S8
Phone: (819) 355-9717, Fax:(514) 904-1597

Date Rec. : 11 September 2019
LR Report: **CA10045-SEP19**
Reference: Wk#33

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659713 Wk#33
Sample Date & Time					11-Sep-19
Hum Cell Leachate Volume [mL]	11-Sep-19	08:48	12-Sep-19	13:55	1034
pH [no unit]	11-Sep-19	12:52	12-Sep-19	13:44	5.72
Alkalinity [mg/L as CaCO3]	11-Sep-19	12:52	12-Sep-19	13:44	< 2
Acidity [mg/L as CaCO3]	11-Sep-19	12:52	12-Sep-19	13:44	2
Conductivity [uS/cm]	11-Sep-19	12:52	12-Sep-19	13:44	2
Fluoride [mg/L]	12-Sep-19	08:06	12-Sep-19	14:14	< 0.06
Sulphate [mg/L]	12-Sep-19	17:43	17-Sep-19	11:40	0.7
Bromide [mg/L]	11-Sep-19	16:41	13-Sep-19	09:53	< 0.3

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Chris Sullivan, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

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08-October-2019

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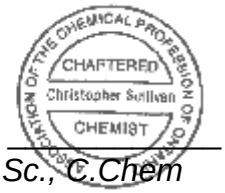
Date Rec. : 18 September 2019
LR Report: **CA10147-SEP19**
Reference: Wk#34

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659713 Wk#34
Sample Date & Time					18-Sep-19
Hum Cell Leachate Volume [mL]	18-Sep-19	08:53	18-Sep-19	10:37	1020
pH [no unit]	18-Sep-19	13:19	20-Sep-19	09:21	5.83
Alkalinity [mg/L as CaCO3]	18-Sep-19	13:19	20-Sep-19	09:21	< 2
Acidity [mg/L as CaCO3]	18-Sep-19	13:19	20-Sep-19	09:21	2
Conductivity [uS/cm]	18-Sep-19	13:19	20-Sep-19	09:21	< 2
Fluoride [mg/L]	19-Sep-19	13:35	20-Sep-19	09:54	< 0.06
Sulphate [mg/L]	24-Sep-19	11:03	24-Sep-19	15:32	0.8
Bromide [mg/L]	21-Sep-19	04:00	23-Sep-19	15:50	< 0.3

<originale signé par>



Chris Sullivan, B.Sc., C.Chem
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07-November-2019

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Date Rec. : 25 September 2019
LR Report: **CA10272-SEP19**
Reference: Wk#35

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659713 Wk#35
Sample Date & Time					25-Sep-19
Hum Cell Leachate Volume [mL]	25-Sep-19	08:58	25-Sep-19	15:07	983
pH [no unit]	02-Oct-19	13:49	03-Oct-19	13:59	5.73
Alkalinity [mg/L as CaCO3]	25-Sep-19	13:44	01-Oct-19	11:07	< 2
Acidity [mg/L as CaCO3]	08-Oct-19	13:20	09-Oct-19	14:28	3
Conductivity [uS/cm]	25-Sep-19	13:44	01-Oct-19	11:07	< 2
Fluoride [mg/L]	25-Sep-19	15:38	26-Sep-19	08:47	< 0.06
Sulphate [mg/L]	30-Sep-19	17:35	01-Oct-19	10:32	0.8
Bromide [mg/L]	30-Sep-19	12:25	01-Oct-19	11:00	< 0.3

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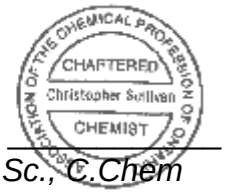

Chris Sullivan, B.Sc., C.Chem
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OnLine LIMS

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Date Rec. : 02 October 2019
LR Report: **CA10018-OCT19**
Reference: Wk#36

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659713 Wk#36
Sample Date & Time					02-Oct-19
Hum Cell Leachate Volume [mL]	02-Oct-19	08:22	02-Oct-19	11:29	1013
pH [no unit]	02-Oct-19	14:08	08-Oct-19	13:25	5.94
Alkalinity [mg/L as CaCO3]	02-Oct-19	14:08	08-Oct-19	13:25	< 2
Acidity [mg/L as CaCO3]	02-Oct-19	14:08	08-Oct-19	13:25	2
Conductivity [uS/cm]	08-Oct-19	15:47	09-Oct-19	13:35	5
Fluoride [mg/L]	02-Oct-19	13:36	03-Oct-19	08:39	< 0.06
Bromide [mg/L]	03-Oct-19	09:12	07-Oct-19	09:13	< 0.3
Sulphate [mg/L]	07-Oct-19	21:32	08-Oct-19	11:54	0.9
Mercury [mg/L]	03-Oct-19	11:04	04-Oct-19	10:34	< 0.00001
Silver [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.00005
Aluminum [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.001
Arsenic [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.0002
Barium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.00022
Boron [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.002
Beryllium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.000007
Bismuth [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.000007
Calcium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.18
Cadmium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.000006
Cobalt [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.0231
Chromium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.00008
Copper [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.0056
Iron [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.007
Potassium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.052
Lithium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.0001
Magnesium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.061
Manganese [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.00785
Molybdenum [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.00007
Sodium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.07
Nickel [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.0696
Phosphorus [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.003

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LR Report : **CA10018-OCT19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659713 Wk#36
Lead [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.00001
Antimony [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.0009
Selenium (total) [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.00005
Silicon [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.19
Tin [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.00016
Strontium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.00084
Tantalum [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.0001
Titanium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.00005
Thallium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.000009
Uranium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.000079
Vanadium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.00004
Tungsten [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.00002
Yttrium [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	< 0.000002
Zinc [mg/L]	08-Oct-19	18:15	09-Oct-19	16:04	0.003

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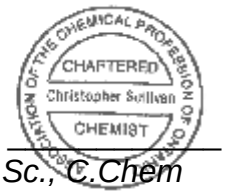

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07-November-2019

Critical Elements Lithium Corporation
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Date Rec. : 09 October 2019
LR Report: **CA10095-OCT19**
Reference: Wk#37

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659713 Wk#37
Sample Date & Time					09-Oct-19
Hum Cell Leachate Volume [mL]	09-Oct-19	08:43	09-Oct-19	10:42	972
pH [no unit]	09-Oct-19	13:43	15-Oct-19	11:32	5.95
Alkalinity [mg/L as CaCO3]	09-Oct-19	13:43	15-Oct-19	11:32	< 2
Acidity [mg/L as CaCO3]	09-Oct-19	13:43	11-Oct-19	14:38	< 2
Conductivity [uS/cm]	09-Oct-19	13:43	15-Oct-19	11:32	5
Fluoride [mg/L]	10-Oct-19	06:50	10-Oct-19	13:39	< 0.06
Sulphate [mg/L]	16-Oct-19	18:45	18-Oct-19	12:14	0.7
Bromide [mg/L]	12-Oct-19	15:19	16-Oct-19	09:21	< 0.3

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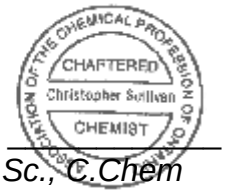

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Date Rec. : 16 October 2019
LR Report: **CA10182-OCT19**
Reference: Wk#38

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659713 Wk#38
Sample Date & Time					16-Oct-19
Hum Cell Leachate Volume [mL]	16-Oct-19	08:27	21-Oct-19	10:04	986
pH [no unit]	21-Oct-19	12:02	21-Oct-19	15:41	5.83
Alkalinity [mg/L as CaCO3]	16-Oct-19	11:31	21-Oct-19	06:39	< 2
Acidity [mg/L as CaCO3]	16-Oct-19	11:31	21-Oct-19	06:39	2
Conductivity [uS/cm]	16-Oct-19	11:31	21-Oct-19	06:39	5
Fluoride [mg/L]	16-Oct-19	11:49	17-Oct-19	09:46	< 0.06
Sulphate [mg/L]	23-Oct-19	1946	25-Oct-19	11:20	0.8
Bromide [mg/L]	18-Oct-19	18:34	22-Oct-19	11:24	< 0.3

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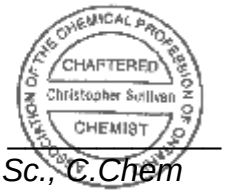

Chris Sullivan, B.Sc., C.Chem
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OnLine LIMS

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07-November-2019

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Date Rec. : 23 October 2019
LR Report: **CA10243-OCT19**
Reference: Wk#39

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659713 Wk#39
Sample Date & Time					23-Oct-19
Hum Cell Leachate Volume [mL]	23-Oct-19	08:09	23-Oct-19	11:24	971
pH [no unit]	23-Oct-19	12:58	29-Oct-19	15:25	5.65
Alkalinity [mg/L as CaCO3]	23-Oct-19	12:58	24-Oct-19	15:18	< 2
Acidity [mg/L as CaCO3]	23-Oct-19	12:58	24-Oct-19	15:18	2
Conductivity [uS/cm]	23-Oct-19	12:58	24-Oct-19	15:18	4
Fluoride [mg/L]	24-Oct-19	13:39	25-Oct-19	08:46	< 0.06
Sulphate [mg/L]	29-Oct-19	21:20	31-Oct-19	12:18	0.8
Bromide [mg/L]	24-Oct-19	07:01	25-Oct-19	10:09	< 0.3

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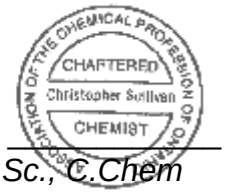

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OnLine LIMS

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08-November-2019

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Date Rec. : 30 October 2019
LR Report: **CA10373-OCT19**
Reference: Wk#40

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659713 Wk#40
Sample Date & Time					30-Oct-19
Hum Cell Leachate Volume [mL]	30-Oct-19	08:28	31-Oct-19	11:15	1008
pH [no unit]	30-Oct-19	12:18	01-Nov-19	10:15	6.08
Alkalinity [mg/L as CaCO3]	30-Oct-19	12:18	01-Nov-19	10:15	< 2
Acidity [mg/L as CaCO3]	30-Oct-19	12:18	01-Nov-19	10:15	3
Conductivity [uS/cm]	30-Oct-19	12:18	01-Nov-19	10:15	6
Fluoride [mg/L]	30-Oct-19	14:08	31-Oct-19	08:37	< 0.06
Bromide [mg/L]	04-Nov-19	06:36	06-Nov-19	10:43	< 0.3
Sulphate [mg/L]	31-Oct-19	21:23	05-Nov-19	08:29	0.8
Mercury [mg/L]	30-Oct-19	15:20	31-Oct-19	13:21	< 0.00001
Silver [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.00005
Aluminum [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.001
Arsenic [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.0002
Barium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.00023
Boron [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.002
Beryllium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.000007
Bismuth [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.000007
Calcium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.18
Cadmium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.000007
Cobalt [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.0257
Chromium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.00008
Copper [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.0080
Iron [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.007
Potassium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.031
Lithium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.0006
Magnesium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.060
Manganese [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.00880
Molybdenum [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.00027
Sodium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.01
Nickel [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.0766
Phosphorus [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.003

OnLine LIMS

0001952736

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LR Report : **CA10373-OCT19**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: S659713 Wk#40
Lead [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.00003
Antimony [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.0009
Selenium (total) [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.00005
Silicon [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.22
Tin [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.00015
Strontium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.00090
Tantalum [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.0001
Titanium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.00005
Thallium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.000007
Uranium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.000014
Vanadium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.00004
Tungsten [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.00002
Yttrium [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	< 0.000002
Zinc [mg/L]	01-Nov-19	14:13	05-Nov-19	10:19	0.004

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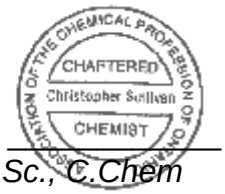

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Project Specialist,
Environment, Health & Safety

OnLine LIMS

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