

## MÉ MORANDUM TECHNIQUE

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### CARACTÉRISATION GÉOCHIMIQUE DES STÉRILES, PROJET AKASABA OUEST : RÉSULTATS DU TEST DE LIXIVIATION EN CONDITION SUBMERGÉE

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## 1.0 INTRODUCTION

Ce mémorandum technique présente des résultats qui concernent l'effet potentiel de l'envoiement de stériles altérés sur la qualité de l'eau du projet minier Akasaba Ouest des Mines Agnico Eagle. Cette étude de lixiviation en condition submergée est complémentaire au programme de caractérisation géochimique des résidus miniers du projet (rapport Golder, novembre 2016).

## 2.0 OBJECTIFS

L'objectif de l'étude est d'évaluer l'option du transfert des stériles PGA dans la fosse pour y être envoyés. Le test réalisé permet de simuler la diffusion de matières dissoutes des roches submergées à l'eau sus-jacente afin d'évaluer le risque environnemental sur la qualité de l'eau à long terme.

Pendant la durée des activités minières au site Akasaba, il est prévu que les stériles soient empilés et exposés en surface pour une période de quatre à cinq ans, et qu'ils soient par la suite transférés dans la fosse où ils seront envoyés à perpétuité afin de mitiger le développement de conditions génératrices d'acide et de lixiviation accrue des métaux. Afin de simuler ces conditions, un essai cinétique en colonne submergée a été effectué pendant une période de 40 semaines sur des stériles classifiés comme étant potentiellement acidogènes et lixiviables, qui ont été préalablement altérés (oxydés) par lixiviation accélérée en colonne (décrit dans Golder, 2016).

## 3.0 MÉTHODES

Des tests en colonne submergée sont réalisés sur un échantillon mixte composé de tuf felsique et dacite 1 et 2 (seuls les échantillons potentiellement acidogènes de ces lithologies ont été utilisés). Ces stériles potentiellement acidogènes ont été préalablement soumis à des essais cinétiques de lixiviation en colonne pour une période de 60 semaines, et se sont partiellement altérés suite à ces tests. Ce test préalable simule l'altération des stériles lors de leur exposition en conditions de surface au site de la mine (Golder, 2016).



La préparation des essais en colonne submergée a été faite comme suit :

À la fin des essais de lixiviation en colonne pour une période de 60 semaines les matériaux (tuf felsique et la dacite 1 et 2) ont été retirés de leur colonnes, homogénéisés séparément, mélangés et placés dans une large colonne différente (plus grosse) pour l'essai en condition submergée. Une fraction de cet échantillon combiné (environ 1 kg) a été retirée pour des essais statiques (potentiel acidogène (ABA), TCLP et composition chimique) et la quantité restante du mélange (~23 kg) a été placée dans la colonne.

La colonne est fabriquée d'un tuyau de PVC translucide, d'un diamètre de 25,4 cm et d'une hauteur de 127 cm (Figure 1). Ces dimensions ont été choisies pour contenir 1/3 de stériles au fond de la colonne et 2/3 d'eau dé-ionisée au-dessus des stériles. Des ports d'échantillonnage d'eau (ouvertures contrôlées pas des valves) ont été installés à différents niveaux afin d'échantillonner l'eau des colonnes. Quatre positions différentes ont été choisies relativement à l'interface entre stériles et eau comme suit :

Port 1 : 10 cm en dessous de l'interface stérile/eau

Port 2 : 5 cm en dessous de l'interface stérile/eau

Port 3 : 5 cm au-dessus de l'interface stérile/eau

Port 4 : 25 cm au-dessus de l'interface stérile/eau



Figure 1: Colonne du test de lixiviation en condition submergée avant ennoisement, illustrant la position des ports 3 et 4.

La qualité de l'eau interstitielle a été mesurée périodiquement à partir des deux ports d'échantillonnage situés en dessous de l'interface stérile/eau (ports 1 et 2) et la qualité de l'eau sus-jacente aux stériles à partir des deux ports situés dans la colonne d'eau (ports 3 et 4). L'eau ainsi retirée a été remplacée par de l'eau déionisée par le haut de la colonne.

Les tests ont débuté au mois de juin 2016 et ont été poursuivis sur une période de 40 semaines jusqu'en avril 2017.

L'envoiement des échantillons constitue le jour 0 du test. L'échantillonnage de chaque port a été effectué aux jours 1, 2, 3, 5, 7, 10, 15, 20, 25, et aux semaines 5, 7, 10, 15 et 20, 25, 30, 35 et 40. Les lixiviats ont été analysés pour les paramètres suivants : pH, conductivité, alcalinité, acidité, fluorure, chlorure, phosphore, bromure, nitrite et nitrate, et métaux dissous.

#### 4.0 CRITÈRES COMPARATIFS

Les résultats des essais sont comparés aux critères RES de résurgence en surface de l'eau de souterraine MDDELCC<sup>1</sup> (2016). À titre indicatif, les résultats sont aussi comparés aux critères CVAC de la qualité de l'eau de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique) (MDDELCC, 2013).

#### 5.0 RÉSULTATS

Les résultats sont présentés aux figures A-1 à A-14 et au tableau A-1 de l'annexe A. Le sommaire des dépassements est présenté au tableau 1.

Aucun dépassement des critères RES n'est observé pendant la durée du test. La comparaison à titre indicatif aux critères de qualité de l'eau de surface CVAC indique seulement quelques dépassements pour le vanadium pendant les deux premiers jours de réaction en début de l'essai; les teneurs du vanadium baissent considérablement par la suite (figure A-13).

**Tableau 1 : Sommaire des dépassements des critères de qualité d'eau suite aux tests cinétiques submergés après 40 semaines d'essai**

Échantillon	Port	Localisation	Dépassements des critères (nombre)	
			CVAC <sup>1</sup>	RES <sup>2</sup>
Stérile mixte : 50 % tuf felsique 50 % dacite 1 et 2	1	10 cm en dessous de l'interface stérile/eau	V(2)	-
	2	5 cm en dessous de l'interface stérile/eau	V(2)	-
	3	5 cm au-dessus de l'interface stérile/eau	-	-
	4	25 cm au-dessus de l'interface stérile/eau	V(1)	-

1- Critères de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MDDELCC, (2013).

2- Critères de l'eau souterraine pour résurgence dans l'eau de surface, MDDELCC (2016).

Le pH est resté constant pendant la durée du test à des valeurs proches de la neutralité (figure A-1) et la concentration de sulfate ainsi que la conductivité sont demeurées relativement stables tout au long du test,

<sup>1</sup> MDDELCC : ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques du Québec, anciennement connu comme le ministère du Développement durable, de l'Environnement, de la Faune et des Parcs (MDDEFP), le ministère du Développement durable, de l'Environnement et des Parcs du Québec (MDDEP), le ministère de l'Environnement du Québec (MENV) ou le ministère de l'Environnement et de la Faune du Québec (MEF).

indiquant que les conditions submergées contrôlent l'oxydation des stériles et, par conséquent empêchent la génération d'acide. Les valeurs de conductivité plus élevée dans l'eau interstitielle (ports 1 et 2) au cycle 0 (figure A-2) indiquent une solubilisation rapide initiale des espèces vraisemblablement accumulées sur la surface du stérile lors du test d'altération qui a précédé le test submergé, dont le sulfate, le calcium et magnésium, le sodium ainsi que certain métaux traces. Suite à ceci, la conductivité de l'eau interstitielle ainsi que de l'eau sus-jacente se stabilise jusqu'à la fin du test (figure A-2), indiquant qu'après quelques mois de réaction la solubilisation et la diffusion des éléments solubilisés vers la colonne d'eau sus-jacente sont faibles et que les teneurs de la majorité des paramètres se stabilisent ou diminuent.

Des gradients de concentration sont observés pour plusieurs paramètres dont le sulfate, l'aluminium, le calcium, l'antimoine, l'arsenic, le cobalt, le manganèse, le magnésium, le molybdène et l'uranium, à partir du port 1 (eau interstitielle) jusqu'au port 4 (eau sus-jacente). Dans la majorité des cas, l'ampleur du transfert est mineure et les charges chimiques de la solution interstitielle et de la solution sus-jacente restent faibles, étant généralement bien en dessous des critères RES et CVAC.

Plusieurs paramètres qui ont été surveillés de près (dont le cobalt, le manganèse), en raison de leur augmentation constante pendant la période initiale du test (70 jours), se sont stabilisés à des valeurs nettement inférieures aux critères RES ou CVAC après 40 semaines.

Les concentrations de Cd, Pb et Mo sont légèrement montantes mais ont une tendance à la stabilisation en fin de test et demeurent largement inférieures aux critères comparatifs. Le cadmium et le plomb ont des concentrations variables en début du test, mais leurs teneurs restent toujours bien en dessous des critères (environ deux ordres de grandeur en dessous du critère RES et un ordre de grandeur en dessous du critère CVAC) à la fin des 40 semaines. En ce qui concerne le Mo les résultats après 40 semaines montrent des augmentations légères mais soutenues entre les semaines 30 et 40 (jours 210 à 280) qui suggèrent que la teneur du Mo est vraisemblablement en train de se stabiliser.

Les seuls dépassements des critères CVAC sont observés pour le vanadium dans les premiers cycles de l'essai; suite à quoi, les teneurs baissent de manière significative et demeurent stables jusqu'à la 40<sup>e</sup> semaine.

## 6.0 CONCLUSION

L'ennoiement de stériles en colonne submergée pendant 40 semaines indique un faible transfert de métaux vers la solution interstitielle et la solution aqueuse sus-jacente et aucun dépassement des critères RES; les critères d'eau de surface du Québec (CVAC) sont dépassés seulement par le vanadium et en tout début de l'essai seulement. Dans la majorité des cas, l'ampleur du transfert vers la solution est mineure. Généralement, les charges chimiques de la solution interstitielle et de la solution sus-jacente restent faibles et montrent des tendances à se stabiliser, ou diminuer.

Les teneurs du Cd, Pb et Mo sont bien en dessous des critères, et montrent une tendance à la stabilisation après une légère augmentation durant le test; ces éléments seraient à surveiller.

Considérant les résultats obtenus après 40 semaines de réaction, il est attendu que sous conditions géochimiques similaires, la qualité de l'eau de la fosse ne soit pas affectée de manière significative par la lixiviation de métaux suite à l'ennoiement de stériles comparables à ceux examinés ici.

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# ANNEXE A

## Tableaux et figures

Projet Akasaba, Agrico Eagle

PARAMÈTRES	unités	CVAC <sup>1</sup>	RES <sup>2</sup>	Akasaba Port 1																	
				Jour 1	Jour 2	Jour 3	Jour 5	Jour 7	Jour 10	Jour 15	Jour 20	Jour 25	Semaine 5 35 jours	Semaine 7 49 jours	Semaine 10 70 jours	Semaine 15 105 jours	Semaine 20 140 jours	Semaine 25 175 jours	Semaine 30 210 jours	Semaine 35 245 jours	Semaine 40 280 jours
<b>PARAMÈTRES PHYSIQUES</b>																					
Volume lixiviat	mL			992	988	1020	953	1006	757	761	737	755	811	805	720	777	1220	1426	1435	1372	1375
pH	unités			7,57	7,59	7,68	8,13	7,8	7,74	7,64	7,7	7,74	7,68	7,6	7,75	7,81	7,89	7,89	7,49	7,88	7,93
Conductivité	µS/cm			145	91	68	68	61	70	87	95	92	107	120	132	169	128	128	121	118	114
Alcalinité	mg/L (CaCO <sub>3</sub> )			15	29	13	15	14	24	21	24	22	29	30	34	29	31	31	41	43	36
Acidité	mg/L (CaCO <sub>3</sub> )			< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
<b>ANIONS ET NUTRIENTS</b>																					
Fluorure	mg/L		4	---	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06
Chlorure	mg/L		860	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Sulfate	mg/L		50	26	15	14	12	14	20	20	20	22	27	31	40	28	35	31	27	27	27
Bromure	mg/L		0,4	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3
Nitrite (N)	mg/L			< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03
Nitrate (N)	mg/L		290	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06
<b>MÉTAUX DISSOUS</b>																					
Ra226	mg/L		---	---	---	---	---	---	---	---	---	---	---	---	---	---	< 0,010	< 0,010	< 0,010	< 0,010	< 0,010
Mercurie	mg/L		0,00091	0,0000013	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001
Argent	mg/L		0,0001	0,00002	< 0,00002	< 0,00002	< 0,00002	< 0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002	0,00002
Aluminium	mg/L		0,02	0,05	0,074	0,068	0,083	0,077	0,092	0,082	0,082	0,082	0,082	0,082	0,082	0,082	0,082	0,082	0,082	0,082	0,082
Arsenic	mg/L		0,15	0,34	0,0013	0,0015	0,0018	0,0018	0,0018	0,0018	0,0018	0,0018	0,0018	0,0018	0,0018	0,0018	0,0018	0,0018	0,0018	0,0018	0,0018
Baryum	mg/L		0,21	0,6	0,0189	0,00751	0,0050	0,0061	0,0054	0,0078	0,0110	0,0110	0,0108	0,0124	0,0152	0,0141	0,0188	0,0074	0,0178	0,0186	0,0184
Béryllium	mg/L		0,000415	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007
Bore	mg/L		5	28	0,0039	0,0039	0,0018	0,0037	0,0022	0,0032	0,0032	0,001	0,0025	0,0005	0,0013	< 0,002	< 0,002	0,003	0,003	0,003	0,003
Bismuth	mg/L			0,000008	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	0,000009	< 0,000007	< 0,000007	< 0,000007	0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007
Calcium	mg/L		22,7	15	11,7	11,3	10,6	11,7	15,8	16,3	16,3	20,9	21,7	23,5	20,9	32,4	24,1	29,9	28,8	30,4	30,4
Castrium	mg/L		0,00016	0,0011	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	0,000008	0,000008	< 0,000003	0,000008	< 0,000013	0,000017	0,000029	0,000017	0,000029	0,000021
Cobalt	mg/L		0,1	0,37	0,000036	0,000007	0,000009	0,000018	0,000012	0,000019	0,000015	0,000021	0,00002	0,000031	0,000046	0,000061	0,000098	0,000106	0,000077	0,000096	0,000085
Chrome	mg/L		0,011	0,016	< 0,00003	< 0,00003	0,000003	< 0,000003	0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003
Cuivre	mg/L		0,0052	0,0073	0,0009	0,0009	0,00103	0,00105	0,00087	0,00068	0,00083	0,0007	0,00058	0,00035	0,00051	0,00054	0,00125	0,00094	0,00086	0,00045	0,00067
Fer	mg/L		1,3	< 0,007	< 0,007	< 0,007	0,009	< 0,007	0,011	0,014	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007
Potassium	mg/L		0,367	0,29	0,248	0,248	0,284	0,209	0,232	0,248	0,283	0,25	0,277	0,299	0,291	0,348	0,306	0,363	0,35	0,334	0,347
Lithium	mg/L		0,44	0,0788	0,00765	0,00476	0,00468	0,0038	0,00409	0,00484	0,00539	0,00371	0,00545	0,00556	0,00556	0,0043	0,0036	0,0024	0,0033	0,0035	0,0036
Magnésium	mg/L		1,19	0,465	0,341	0,34	0,312	0,361	0,455	0,479	0,464	0,566	0,666	0,634	0,791	0,697	0,751	0,697	0,751	0,672	0,634
Manganèse	mg/L		1,05	2,3	0,00087	0,00105	0,00093	0,00092	0,00114	0,00112	0,00216	0,00319	0,00345	0,00319	0,00326	0,00321	0,00324	0,00286	0,00251	0,00321	0,00286
Molybdène	mg/L		3,2	29	0,00914	0,00423	0,00317	0,00463	0,00276	0,00363	0,00453	0,00441	0,00507	0,00579	0,00778	0,0101	0,0141	0,0117	0,0177	0,0207	0,0234
Sodium	mg/L			0,51	0,26	0,22	0,28	0,17	0,19	0,25	0,23	0,22	0,32	0,32	0,33	0,46	0,44	0,45	0,44	0,45	0,43
Nickel	mg/L		0,029	0,26	0,0003	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001
Phosphore	mg/L			0,006	0,004	0,004	0,005	0,006	0,004	0,004	0,007	< 0,003	0,008	0,008	0,006	0,007	< 0,003	0,003	0,005	< 0,003	0,006
Plomb	mg/L		0,00132	0,034	< 0,00001	< 0,00001	0,00002	< 0,00001	0,00002	0,00002	0,00002	0,00001	< 0,00001	0,00002	< 0,00001	< 0,00001	0,00003	0,00002	0,00001	< 0,00001	0,00002
Antimoine	mg/L		0,24	1,1	< 0,0002	< 0,0002	< 0,0002	< 0,0002	0,0005	0,0009	0,001	0,001	0,0009	0,0015	0,0015	0,0011	0,0015	0,0011	0,0008	0,0004	0,0003
Sélénium	mg/L		0,005	0,082	0,00221	0,00174	0,00133	0,00117	0,00109	0,00104	0,00124	0,00138	0,00134	0,0017	0,00164	0,00151	0,0018	0,00178	0,00214	0,00161	0,00153
Silicium	mg/L			1,77	1,62	1,27	1,36	1,31	1,4	1,66	1,7	1,6	1,75	1,8	1,75	2,31	2,4	1,99	2,32	2,69	2,7
Etain	mg/L			0,0804	0,108	0,101	0,0964	0,0783	0,078	0,0802	0,0724	0,082	0,0888	0,0748	0,0512	0,0774	0,0621	0,0618	0,0447	0,0432	0,0384
Tiétane	mg/L			< 0,00005	< 0,00005	0,00016	0,00007	< 0,00005	0,00019	< 0,00005	0,00012	0,00006	0,00009	< 0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005	0,00011
Thallium	mg/L		0,0072	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005
Uranium	mg/L		0,14	0,32	0,000056	0,000038	0,000025	0,000039	0,000038	0,000068	0,000143	0,000132	0,000165	0,000197	0,000344	0,000446	0,000676	0,000536	0,000647	0,000833	0,00105
Vanadium	mg/L		0,012	0,0721	0,00131	0,00705	0,00558	0,00385	0,00387	0,00283	0,00249	0,00194	0,00181	0,00168	0,00154	0,001	0,00099	0,00077	0,00068	0,00067	0,00061
Zinc	mg/L		0,067	0,067	< 0,002	< 0,002	< 0,002	0,004	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002

Notes:  
1 - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique) MDE/CC (2013).  
2 - RES - Rastringement dans l'eau de surface; critères de qualité d'eau souterraine; Guide d'interprétation PSRTC, MDE/CC, Juin 2016.  
Une analyse de 50 mg/L CaCO<sub>3</sub> a été utilisée pour la comparaison critique de la Bc, Ca, Cu, Mn, Ni, Pb, U, Zn.  
--- = non mesuré



Projet Akasaba, Agrico Eagle

PARAMÈTRES	unités	CVAC	RES <sup>1</sup>	Akasaba Port 2																	
				Jour 1	Jour 2	Jour 3	Jour 5	Jour 7	Jour 10	Jour 15	Jour 20	Jour 25	Semaine 5 35 jours	Semaine 7 49 jours	Semaine 10 70 jours	Semaine 15 105 jours	Semaine 20 140 jours	Semaine 25 175 jours	Semaine 30 210 jours	Semaine 35 245 jours	Semaine 40 280 jours
<b>PARAMÈTRES PHYSIQUES</b>																					
Volume lixiviat	ml			979	972	988	946	1035	700	757	706	740	805	740	723	732	1440	1393	1469	1404	1424
pH	unités			7,46	7,47	7,45	8,23	7,63	7,57	7,67	7,3	7,03	7,48	7,58	7,6	7,63	7,68	7,44	7,33	7,76	7,63
Conductivité	µS/cm			112	42	30	32	28	33	43	44	16	51	66	66	97	85	88	90	89	82
Alcalinité	mg/L (CaCO <sub>3</sub> )			12	9	9	10	9	10	13	12	5	22	22	26	27	29	29	29	30	27
Acidité	mg/L (CaCO <sub>3</sub> )			< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
<b>ANIONS ET NUTRIENTS</b>																					
Fluorure	mg/L		4	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06
Chlorure	mg/L		860	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Sulfate	mg/L		36	7	4	4	3	3	3	6	5	6	8	8	9	16	12	17	17	14	15
Bromure	mg/L		0,4	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3
Nitrite (N)	mg/L			< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03
Nitrate (N)	mg/L		290	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06
<b>MÉTAUX DISSOUS</b>																					
Bz226	mg/L		---	---	---	---	---	---	---	---	---	---	---	---	---	---	< 0,010	< 0,010	< 0,010	< 0,010	---
Argent	mg/L	0,00091	0,0000013	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001
Mercur	mg/L	0,00002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002	< 0,000002
Aluminium	mg/L	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013
Arsenic	mg/L	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013	0,0013
Barium	mg/L	0,21	0,6	0,03398	0,00348	0,0036	0,00373	0,00356	0,00386	0,00389	0,00342	0,0131	0,0174	0,015	0,0238	0,0222	0,013	0,0228	0,0222	0,02	0,0192
Beryllium	mg/L	0,000415	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007
Bore	mg/L	5	28	0,0034	0,0035	0,0028	0,0015	0,003	0,002	0,0004	0,0015	0,0002	0,0004	0,0002	0,0002	0,0002	0,0003	0,0003	0,0003	0,0003	0,0002
Bismuth	mg/L		< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007	< 0,000007
Calcium	mg/L	0,00016	0,0011	17,4	6,6	5,11	5,35	4,81	5,69	7,79	7,3	7,28	8,48	11	12,4	17,6	15,6	20,2	20,9	20,4	20,6
Calcium	mg/L	0,00016	0,0011	< 0,000003	< 0,000003	0,000004	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003	< 0,000003
Cobalt	mg/L	0,1	0,37	0,000024	0,000007	0,000007	0,000011	0,000004	0,000013	0,000009	0,000009	< 0,000004	0,000013	0,000011	0,000019	0,000029	0,000045	0,000013	0,000041	0,000041	0,000042
Chrome	mg/L	0,011	0,016	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003
Cuivre	mg/L	0,0052	0,0073	0,00096	0,00109	0,00128	0,00138	0,00092	0,00069	0,00061	0,00065	0,00049	0,00021	0,0004	0,00032	0,00039	0,00056	0,00043	0,00023	0,00046	0,0004
Fer	mg/L	1,3		< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007
Potassium	mg/L	0,273	0,146	0,127	0,164	0,092	0,1	0,117	0,112	0,11	0,112	0,11	0,12	0,138	0,139	0,169	0,159	0,183	0,182	0,177	0,189
Lithium	mg/L	0,44		0,0801	0,00541	0,00368	0,00428	0,00356	0,00437	0,00506	0,00487	0,00382	0,00535	0,00531	0,004	0,0043	0,0025	0,0039	0,004	0,0034	0,0026
Magnésium	mg/L	1,05	2,3	0,00032	0,00014	0,00022	0,00006	0,00011	0,00007	0,00007	0,00007	0,00007	0,00059	0,00156	0,00423	0,0109	0,0125	0,0156	0,0147	0,0125	0,0098
Manganèse	mg/L	3,2	29	0,00767	0,002	0,00143	0,00234	0,00095	0,00109	0,00209	0,00135	0,00189	0,00262	0,00503	0,00434	0,00866	0,00847	0,0155	0,018	0,021	0,0217
Sodium	mg/L	0,38	0,13	0,1	0,13	0,07	0,08	0,12	0,09	0,09	0,14	0,12	0,15	0,19	0,17	0,22	0,2	0,2	0,48	0,23	0,23
Nickel	mg/L	0,629	0,26	0,0002	< 0,0001	< 0,0001	0,0002	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001
Phosphore	mg/L	0,009	0,004	0,0009	0,004	< 0,003	0,006	0,003	0,003	0,003	< 0,003	0,005	0,004	0,008	0,005	< 0,003	< 0,003	< 0,003	< 0,003	< 0,003	< 0,003
Plomb	mg/L	0,00132	0,034	0,00001	0,00002	0,00002	< 0,00001	< 0,00001	0,00002	0,00005	0,00001	0,00002	< 0,00001	< 0,00001	< 0,00001	< 0,00001	0,00003	0,00003	0,00002	0,00001	< 0,00001
Antimoine	mg/L	0,24	1,1	< 0,0002	< 0,0002	< 0,0002	< 0,0002	< 0,0002	0,0004	0,0005	0,0006	0,0004	0,0008	0,0008	0,0006	0,0008	0,0007	0,0005	0,0007	0,0005	0,0004
Sélénium	mg/L	0,005	0,062	0,00192	0,00086	0,00063	0,00057	0,00045	0,0004	0,00052	0,00051	0,00047	0,00059	0,00062	0,0007	0,00065	0,00082	0,00104	0,00082	0,00098	0,00075
Silicium	mg/L	1,43	0,96	0,77	0,83	0,71	1,01	0,81	1,01	0,89	0,99	1,19	1,29	1,39	1,18	1,37	1,82	1,82	1,61	1,61	
Etain	mg/L	0,0983	0,104	0,088	0,091	0,0738	0,077	0,0762	0,0657	0,0744	0,0723	0,0608	0,0446	0,0632	0,0548	0,0552	0,0367	0,0344	0,0297	0,0297	
Tiame	mg/L	0,00008	< 0,00005	0,00006	< 0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005	0,00011	0,00011	< 0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005
Thallium	mg/L	0,0072	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005
Uranium	mg/L	0,14	0,32	0,000347	0,000021	0,000017	0,000017	0,000019	0,000028	0,000055	0,000048	0,000056	0,00009	0,00014	0,000148	0,000332	0,000235	0,000305	0,000342	0,000359	0,000358
Vanadium	mg/L	0,012	0,0128	0,00715	0,00543	0,00343	0,00365	0,00264	0,00234	0,00194	0,00157	0,00115	0,00122	0,00087	0,00067	0,00065	0,00056	0,00056	0,0006	0,00047	0,00047
Zinc	mg/L	0,067	0,067	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002	< 0,002

Notes:  
1 - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique) MODELC (2016)  
2 - RES - Réassurance dans l'eau de surface, critères de qualité de l'eau souterraine, Guide d'évaluation PBT/C, MODELC, Juin 2016  
Une dose de 10 mg/L CaCO<sub>3</sub> a été utilisée pour la calculer des critères de Res, Res, Cst, Cst, M, P, R, S, Z.  
\* - Non mesuré

Projet Akasaba, Agrico Eagle

PARAMÈTRES	unités	CYAC <sup>1</sup>	RES <sup>2</sup>	Akasaba Port 3																	
				Jour 1	Jour 2	Jour 3	Jour 5	Jour 7	Jour 10	Jour 15	Jour 20	Jour 25	Semaine 5 35 jours	Semaine 7 49 jours	Semaine 10 70 jours	Semaine 15 105 jours	Semaine 20 140 jours	Semaine 25 175 jours	Semaine 30 210 jours	Semaine 35 245 jours	Semaine 40 280 jours
<b>PARAMÈTRES PHYSIQUES</b>																					
Volume lixiviat	ml			976	985	1003	934	986	776	758	720	772	746	753	792	773	1442	1416	1431	1428	1387
pH	unités			6,41	6,56	6,4	6,8	7,04	6,87	7,13	7,12	5,08	7,25	7,11	7,34	7,59	7,51	7,3	7,17	7,59	7,39
Conductivité	µS/cm			9	11	8	12	11	11	18	16	90	21	26	29	42	49	56	57	60	57
Alcalinité	mg/L (CaCO <sub>3</sub> )			< 2	2	< 2	3	4	4	5	< 2	8	9	15	16	20	21	20	20	21	21
Acidité	mg/L (CaCO <sub>3</sub> )			< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
<b>ANIONS ET NUTRIENTS</b>																					
Fluorure	mg/L		4	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06
Chlorure	mg/L		860	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Sulfate	mg/L		3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Bromure	mg/L		0,4	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3	< 0,3
Nitrite (N)	mg/L			< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03	< 0,03
Nitrate (N)	mg/L		290	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06	< 0,06
<b>MÉTAUX DISSOUS</b>																					
Ba2+25	mg/L		---	---	---	---	---	---	---	---	---	---	---	---	---	---	< 0,010	< 0,010	< 0,010	< 0,010	---
Mercurure	mg/L		0,00091	0,0000013	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001	< 0,00001
Argent	mg/L		0,00062	< 0,00002	< 0,00002	< 0,00002	< 0,00002	< 0,00002	0,00002	< 0,00002	0,00002	< 0,00002	< 0,00002	< 0,00002	< 0,00002	< 0,00002	< 0,00002	< 0,00002	< 0,00002	< 0,00002	< 0,00002
Aluminium	mg/L			0,011	0,018	0,018	0,021	0,025	0,032	0,032	0,034	0,034	0,03	0,03	0,032	0,032	0,043	0,045	0,042	0,043	0,045
Arsenic	mg/L		0,15	0,34	0,0002	< 0,0002	< 0,0002	0,0002	0,0003	0,0003	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0004	0,0003	0,0003
Baryum	mg/L		0,21	0,6	0,00514	0,00434	0,00382	0,00368	0,00468	0,00519	0,00554	0,00779	0,00537	0,013	0,0159	0,0172	0,0175	0,00851	0,0163	0,015	0,0146
Beryllium	mg/L		0,000415	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007
Bore	mg/L		5	28	0,0006	0,0011	0,0012	0,0012	0,0005	0,0011	0,0012	0,0012	0,0005	0,0005	0,0005	0,0005	0,0005	0,0005	0,0005	0,0005	0,0005
Bismuth	mg/L			< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007	< 0,00007
Calcium	mg/L			1,31	1,29	1,34	1,42	1,53	1,74	2,26	2,57	2,68	3,77	4,15	4,96	5,15	10	10,6	10,6	11,1	11,1
Cadmium	mg/L		0,00016	0,0011	< 0,00003	< 0,00003	0,000043	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	0,000006	0,000003	0,00001	0,00007
Cobalt	mg/L		0,1	0,37	0,000006	0,000007	0,000009	0,000013	0,000016	0,000011	0,000008	0,000013	0,000007	0,00002	0,00002	0,000036	0,000045	0,000031	0,000004	0,000015	0,000021
Chrome	mg/L		0,011	0,016	< 0,0003	0,00024	0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003	< 0,00003
Cuivre	mg/L		0,0052	0,0073	0,00171	0,00192	0,00188	0,00139	0,00102	0,00062	0,00065	0,00059	0,00055	0,00038	0,00061	0,00023	0,00032	0,00042	0,00036	0,00017	0,00034
Fer	mg/L		1,3		< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007	< 0,007
Potassium	mg/L		0,03	0,031	0,033	0,038	0,036	0,039	0,038	0,046	0,043	0,047	0,049	0,052	0,068	0,083	0,087	0,081	0,086	0,106	0,106
Lithium	mg/L		0,44	0,0049	0,00584	0,00382	0,00347	0,00338	0,00287	0,00271	0,00264	0,00215	0,00263	0,0022	0,002	0,0021	0,002	0,0022	0,0022	0,0019	0,0016
Magnésium	mg/L		1,05	0,059	0,076	0,082	0,076	0,073	0,084	0,106	0,113	0,104	0,122	0,122	0,113	0,138	0,155	0,174	0,172	0,162	0,156
Manganèse	mg/L		2,3	0,00005	0,00003	0,00027	0,00005	0,00035	0,00021	0,00017	0,00031	0,00049	0,00049	0,00245	0,00303	0,0037	0,00241	0,00178	0,00124	0,00124	0,00109
Molybdène	mg/L		0,2	0,00107	0,00054	0,00047	0,00029	0,00039	0,00041	0,0007	0,00044	0,00064	0,00082	0,00061	0,00097	0,00238	0,00399	0,00633	0,00732	0,00683	0,0109
Sodium	mg/L		0,4	0,6	0,4	0,6	0,3	0,4	0,6	0,4	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6
Nickel	mg/L		0,029	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	0,0001	0,0001	< 0,0001	0,0001	< 0,0001	0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001	< 0,0001
Phosphore	mg/L			< 0,003	0,004	< 0,003	< 0,003	< 0,003	< 0,003	< 0,003	< 0,003	< 0,003	0,004	0,004	< 0,003	< 0,003	< 0,003	< 0,003	< 0,003	< 0,003	< 0,003
Plomb	mg/L		0,00132	0,034	0,00008	< 0,00001	0,00004	0,00001	< 0,00001	0,00002	0,00003	0,00002	0,00007	0,00002	0,00003	< 0,00001	0,00003	0,00001	< 0,00001	0,00002	< 0,00001
Antimoine	mg/L		0,24	1,1	< 0,0002	< 0,0002	< 0,0002	< 0,0002	< 0,0002	< 0,0002	0,0003	0,0002	0,0004	0,0003	0,0003	0,0003	0,0003	0,0003	0,0003	0,0003	0,0003
Sélénium	mg/L		0,005	0,062	0,00016	0,00009	0,00014	0,00015	0,00011	0,00012	0,00011	0,00015	0,00011	0,00017	0,00016	0,00023	0,00016	0,00021	0,00031	0,00035	0,00039
Silicium	mg/L			0,06	0,14	0,13	0,16	0,17	0,19	0,29	0,29	0,36	0,42	0,49	0,59	0,64	0,83	0,83	0,85	0,85	0,85
Strontium	mg/L			0,114	0,117	0,0861	0,0955	0,0771	0,0759	0,0777	0,0695	0,077	0,0781	0,0827	0,0654	0,0652	0,0638	0,0651	0,0318	0,0318	0,029
Tiène	mg/L			< 0,00005	< 0,00005	0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005	0,00011	0,00038	< 0,00005	< 0,00005	0,00006	< 0,00005	< 0,00005	< 0,00005	< 0,00005	< 0,00005
Thallium	mg/L		0,0072	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005	< 0,000005
Uranium	mg/L		0,14	0,32	0,000003	< 0,000002	0,000002	0,000004	0,000004	0,000003	0,000003	0,000016	0,000005	0,000017	0,000011	0,000028	0,000016	0,000028	0,000034	0,000034	0,000042
Vanadium	mg/L		0,012	0,0558	0,00734	0,0047	0,00394	0,00288	0,00259	0,00234	0,00214	0,00176	0,00153	0,00134	0,00106	0,00081	0,00069	0,00067	0,0006	0,00055	0,00044
Zinc	mg/L		0,067	< 0,002	< 0,002	0,002	0,002	< 0,002	0,002	< 0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002

Notes:  
1 - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MODELEC (2013).  
2 - RES - Résurgence dans l'eau de surface, critères de qualité (eau souterraine, Guide d'interprétation PSBTC, MODELEC, juillet 2016).  
Une dose de 20 mg/L CaCO<sub>3</sub> a été utilisée pour le calcul des critères de la Ba, Be, Co, Cu, Ni, Pb, Zn, Sr.  
\* non mesuré

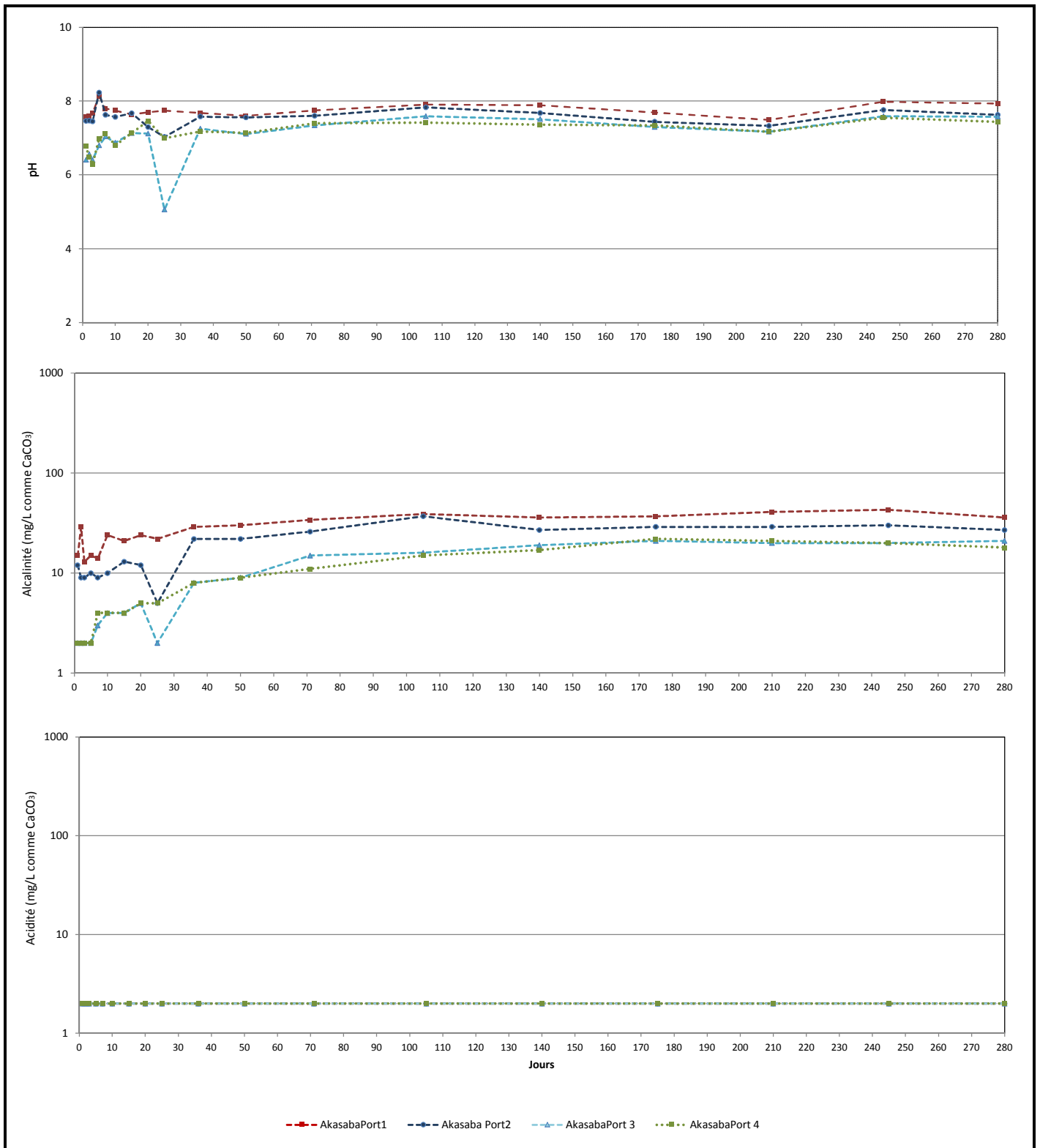


Projet Akasaba, Agrico Eagle

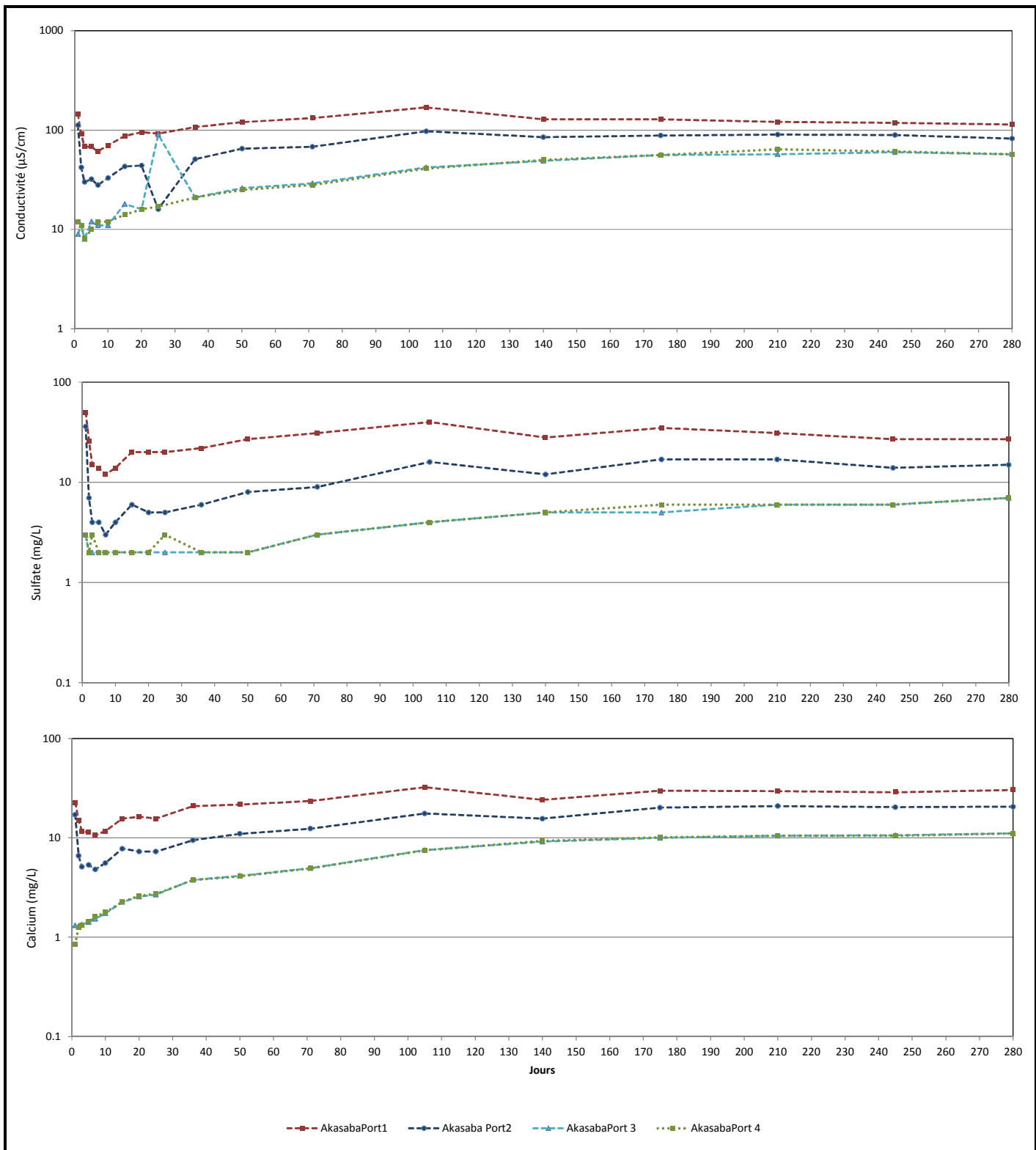
PARAMÈTRES	unités	CVAC <sup>1</sup>	RES <sup>2</sup>	Akasaba Port 4																	
				Jour 1	Jour 2	Jour 3	Jour 5	Jour 7	Jour 10	Jour 15	Jour 20	Jour 25	Semaine 5 35 jours	Semaine 7 49 jours	Semaine 10 70 jours	Semaine 15 105 jours	Semaine 20 140 jours	Semaine 25 175 jours	Semaine 30 210 jours	Semaine 35 245 jours	Semaine 40 280 jours
<b>PARAMÈTRES PHYSIQUES</b>																					
Volume lixiviat	mL			1012	1017	1024	1022	988	753	759	710	783	698	791	718	742	1345	1425	1497	1420	1373
pH	unités			6.78	6.47	6.29	6.98	7.12	6.8	7.13	7.46	6.99	7.18	7.14	7.4	7.42	7.36	7.34	7.17	7.55	7.44
Conductivité	µS/cm			12	11	8	10	12	12	14	16	17	21	25	28	41	50	56	64	61	57
Alcalinité	mg/L (CaCO <sub>3</sub> )			2	<2	<2	2	4	4	4	5	5	8	9	11	15	17	22	21	20	18
Acidité	mg/L (CaCO <sub>3</sub> )			<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
<b>ANIONS ET NUTRIENTS</b>																					
Fluorure	mg/L		4	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Chlorure	mg/L		860	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulfate	mg/L		3	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Bromure	mg/L		0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Nitrite (N)	mg/L			<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nitrate (N)	mg/L		290	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
<b>MÉTALLS DISSOUS</b>																					
Ra226	mg/L		---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.010	<0.010	<0.010	<0.010	---
Mercur	mg/L	<b>0.00091</b>	0.0000013	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Argent	mg/L	<b>0.0001</b>	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Aluminium	mg/L		<b>0.15</b>	0.013	0.015	0.015	0.02	0.023	0.031	0.031	0.031	0.033	0.031	0.03	0.024	0.031	0.048	0.049	0.05	0.045	0.047
Arsenic	mg/L		<b>0.15</b>	0.0024	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0004	0.0004	0.0003	0.0004	0.0003	0.0004	0.0004	0.0004	0.0003	0.0006
Barium	mg/L		<b>0.21</b>	0.6	0.00985	0.00684	0.00558	0.0048	0.00587	0.00652	0.00821	0.01	0.0117	0.0156	0.019	0.0201	0.0204	0.02996	0.0178	0.0193	0.017
Berillium	mg/L	<b>0.000415</b>		<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007	<0.00007
Bore	mg/L		<b>5</b>	28	0.0025	0.001	0.0017	0.001	0.0015	0.0013	<0.0002	0.0009	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Bismuth	mg/L			<0.000007	<0.000007	<0.000007	0.000007	<0.000007	<0.000007	<0.000007	0.000008	<0.000007	<0.000007	<0.000007	<0.000007	<0.000007	<0.000007	<0.000007	<0.000007	<0.000007	<0.000007
Calcium	mg/L		<b>0.65</b>	1.66	1.32	1.43	1.61	1.78	2.27	2.61	2.73	3.25	4.1	4.84	7.5	9.32	10.1	15.5	10.5	11.1	11.1
Cadmium	mg/L	<b>0.00016</b>	0.0011	0.000007	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003
Cobalt	mg/L		<b>0.1</b>	0.37	0.000011	0.000008	0.000011	0.000007	0.000014	0.000008	0.000014	0.000004	0.000016	0.000022	0.000036	0.000031	0.00003	0.000318	0.000019	0.000022	0.000023
Chrome	mg/L		<b>0.11</b>	0.016	0.00007	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Cuivre	mg/L	<b>0.0052</b>	0.00165	0.00161	0.00162	0.00137	0.001	0.00077	0.00061	0.00059	0.00052	0.00019	0.00037	0.00027	0.00031	0.00037	0.00031	0.00037	0.00135	0.0002	0.00058
Fer	mg/L		<b>1.3</b>	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Potassium	mg/L		<b>0.4</b>	0.03	0.032	0.054	0.046	0.036	0.038	0.041	0.044	0.048	0.049	0.051	0.07	0.083	0.087	0.082	0.084	0.087	0.107
Lithium	mg/L		<b>1.05</b>	0.0246	0.0059	0.00373	0.00345	0.00309	0.00296	0.00253	0.00258	0.00214	0.00259	0.00204	0.0021	0.0021	0.002	0.0021	0.0022	0.0019	0.0015
Magnésium	mg/L		<b>0.44</b>	0.377	0.077	0.06	0.074	0.072	0.09	0.084	0.107	0.106	0.129	0.121	0.114	0.141	0.156	0.176	0.196	0.18	0.162
Manganèse	mg/L		<b>1.45</b>	2.3	0.00024	0.00004	0.00009	0.00006	0.00006	0.00007	0.0001	0.00017	0.00085	0.00134	0.00211	0.00288	0.0037	0.0031	0.00318	0.00138	0.0013
Molybdène	mg/L		<b>3.2</b>	29	0.00119	0.00042	0.00037	0.0007	0.00033	0.00031	0.00046	0.00037	0.00052	0.00063	0.00059	0.00092	0.00232	0.00424	0.00602	0.00734	0.00885
Sodium	mg/L		<b>0.08</b>	0.08	0.04	0.04	0.05	0.04	0.03	0.05	0.03	0.04	0.09	0.03	0.06	0.06	0.08	0.08	0.07	0.28	0.12
Nickel	mg/L	<b>0.029</b>	0.28	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Phosphore	mg/L		<b>0.00132</b>	0.005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Plomb	mg/L	<b>0.00132</b>	0.034	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sélénium	mg/L	<b>0.24</b>	1.1	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Stannum	mg/L	<b>0.005</b>	0.062	0.00014	0.0001	0.00012	0.00013	0.00012	0.0001	0.00011	0.00013	0.00017	0.00015	0.00024	0.00015	0.00022	0.0003	0.00032	0.00027	0.00047	0.00047
Silicium	mg/L			0.14	0.14	0.12	0.15	0.18	0.2	0.24	0.31	0.3	0.36	0.41	0.49	0.59	0.65	0.54	0.84	0.86	0.85
Étain	mg/L			0.105	0.108	0.102	0.0941	0.0764	0.081	0.08	0.0704	0.076	0.0777	0.063	0.0591	0.0644	0.0531	0.053	0.0355	0.0241	0.0285
Titane	mg/L			<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Thallium	mg/L	<b>0.0072</b>		<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Uranium	mg/L		<b>0.14</b>	0.32	0.000003	<0.000002	0.000003	0.000002	0.000003	<0.000002	0.000003	0.000004	0.000007	0.000009	0.000009	0.000016	0.000018	0.000022	0.000026	0.00003	0.00004
Vanadium	mg/L		<b>0.12</b>	0.246	0.0083	0.0046	0.00379	0.00339	0.00292	0.00215	0.00206	0.00182	0.00154	0.00134	0.00111	0.00089	0.00067	0.00069	0.00057	0.00055	0.00048
Zinc	mg/L		<b>0.667</b>	0.067	0.002	<0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002

Notes:  
1 - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique) (MDESLCC 2013)  
2 - RES - Résurgence dans l'eau de surface, critères de qualité d'eau souterraine, Guide d'interprétation PSRTC, MDESLCC, Juillet 2016.  
Une durée de 30 mg/L CaCO<sub>3</sub> est utilisée pour le calcul des critères d'acidité (pH, Ca, Cu, Ni, Pb, Zn).  
--- non mesuré





Notes:	<b>Localisation des ports:</b> Port 1: 10 cm en dessous de l'interface roche/eau Port 2: 5 cm en dessous de l'interface roche/eau Port 3: 5 cm au dessus de l'interface roche/eau Port 4: 25 cm au dessus de l'interface roche/eau <b>Type de roche:</b> Stériles	<b>pH</b>		<b>Test de lixiviation en colonne submergée</b> Projet Akasaba, Agnico Eagle	
		<b>Alcalinité</b>			
Valeurs inférieures à la limite de détection sont affichées à la valeur même.		DESSINÉ	CC	DATE	Mai 2017
		RÉVISÉ	CWT	NO PROJET	1406970
		APPROUVÉ	VJB	PHASE	
<b>FIGURE</b>					<b>1</b>



**Notes:**

Valeurs inférieures à la limite de détection sont affichées à la valeur même.

**Localisation des ports:**

Port 1: 10 cm en dessous de l'interface roche/eau


Port 2: 5 cm en dessous de l'interface roche/eau

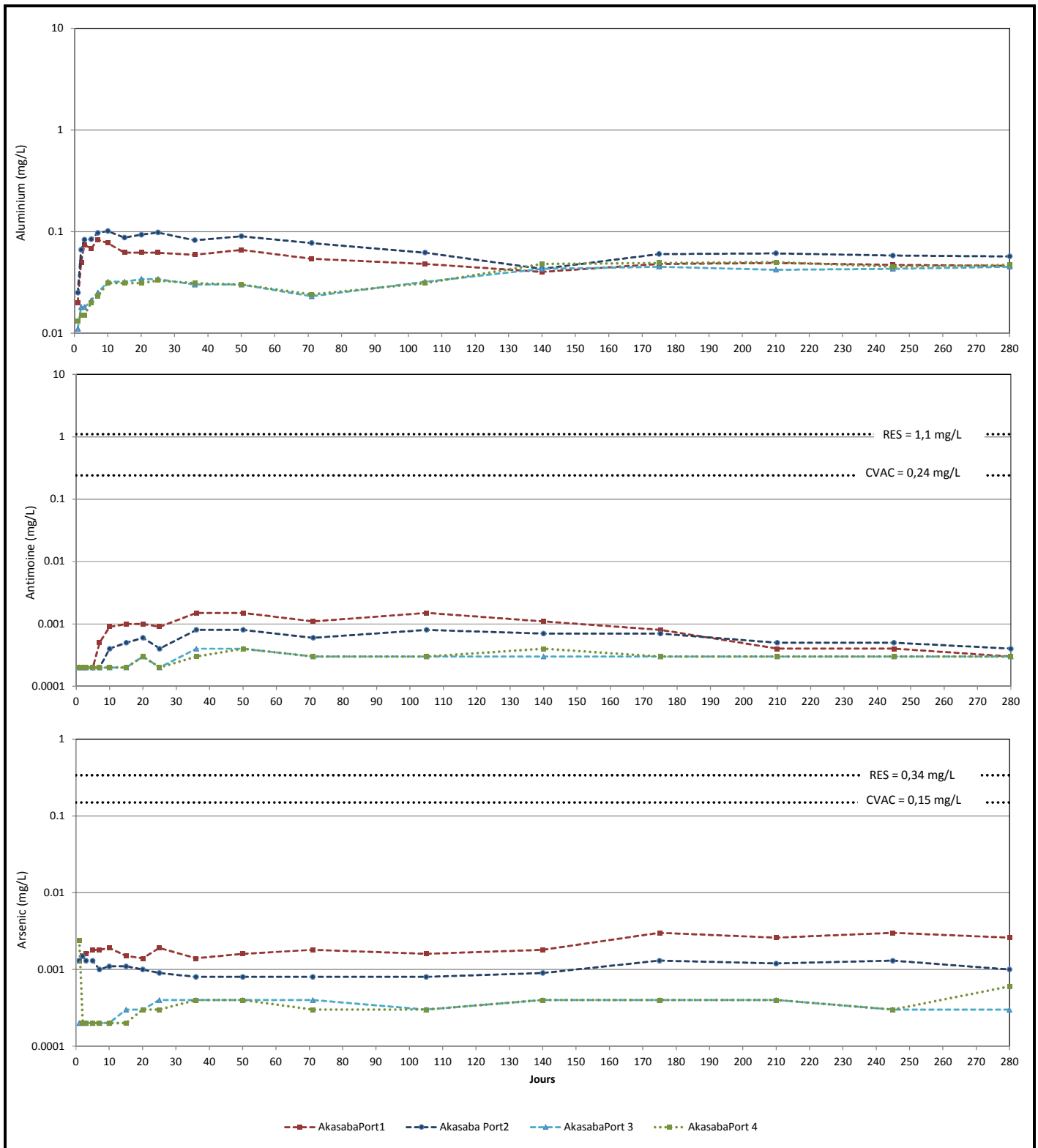
Port 3: 5 cm au dessus de l'interface roche/eau

Port 4: 25 cm au dessus de l'interface roche/eau

**Type de roche:** Stériles

Conductivité Sulfate Calcium			
DESSINÉ	CC	DATE	Mai 2017
RÉVISÉ	CWT	NO PROJET	1406970
APPROUVÉ	VJB	PHASE	

Test de lixiviation en colonne submergée Projet Akasaba, Agnico Eagle	
	
<b>FIGURE</b>	<b>2</b>

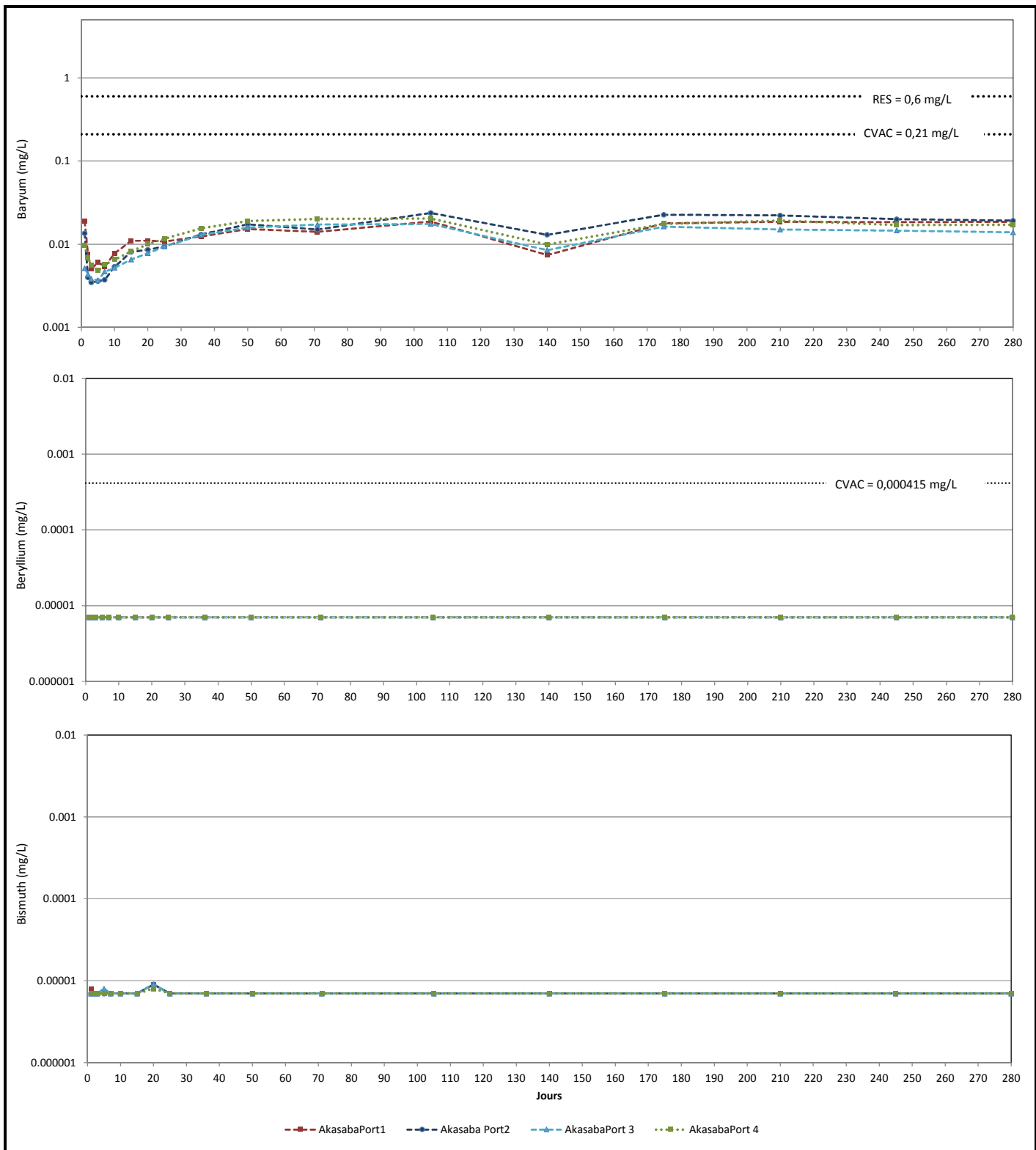


**Notes:**  
 RES - Résurgence dans l'eau de surface - critères de qualité des eaux souterraines, Guide d'intervention PSRTC, MDDELCC (2016).  
 CVAC - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MDDELCC (2013).  
 Valeurs inférieures à la limite de détection sont affichées à la valeur même.

**Localisation des ports:**  
 Port 1: 10 cm en dessous de l'interface roche/eau  
 Port 2: 5 cm en dessous de l'interface roche/eau  
 Port 3: 5 cm au dessus de l'interface roche/eau  
 Port 4: 25 cm au dessus de l'interface roche/eau  
**Type de roche:** Stériles

Aluminium		Antimoine		Arsenic	
DESSINÉ	CC	DATE	Mai 2017		
RÉVISÉ	CWT	NO PROJET	1406970		
APPROUVÉ	VJB	PHASE			

Test de lixiviation en colonne submergée Projet Akasaba, Agnico Eagle	
	<b>FIGURE 3</b>

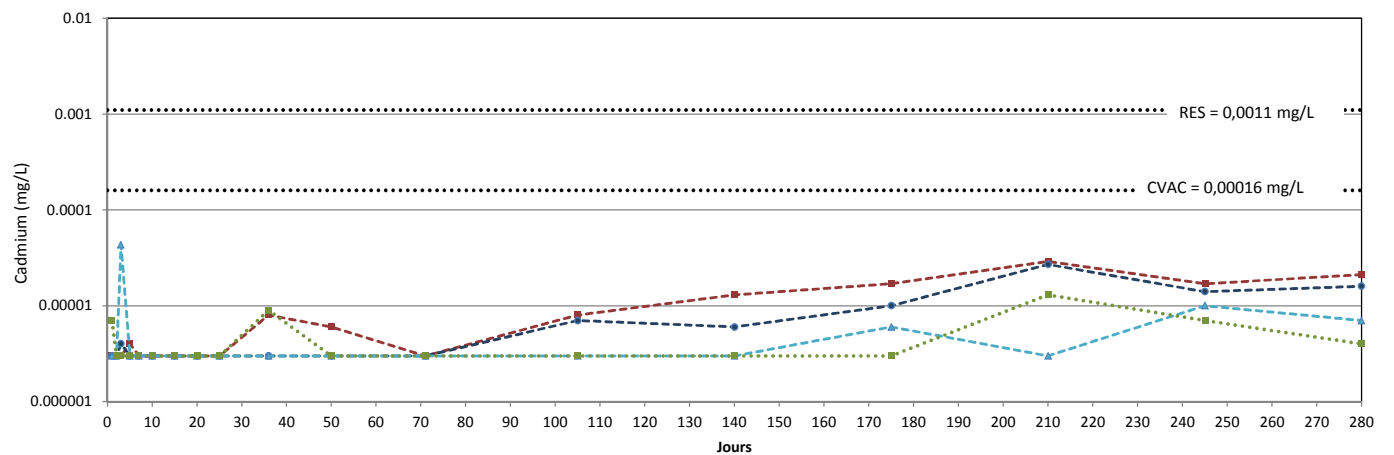
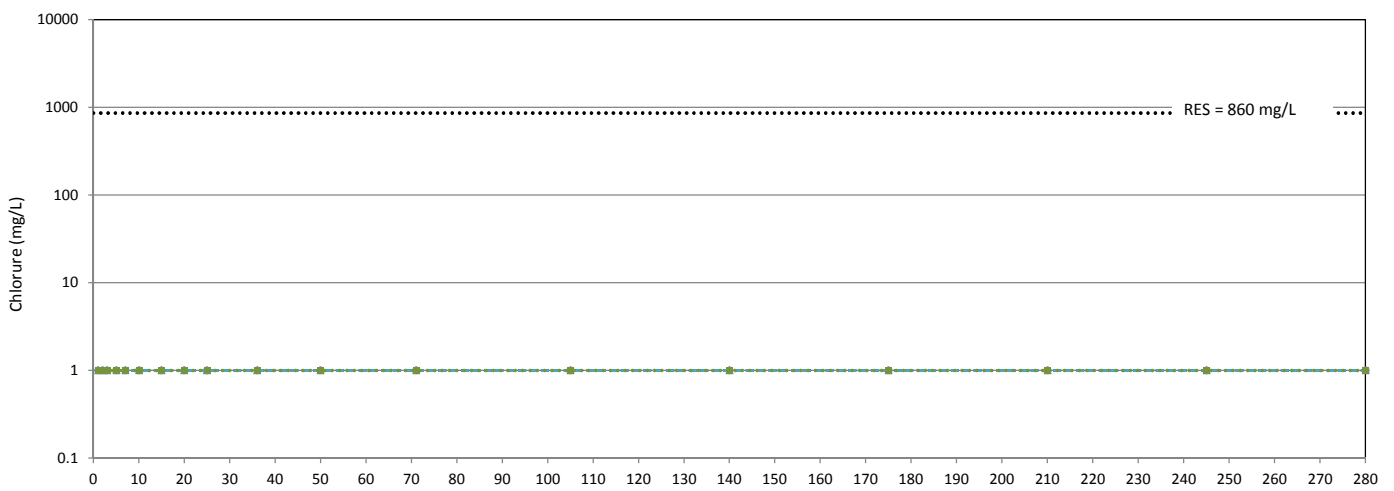
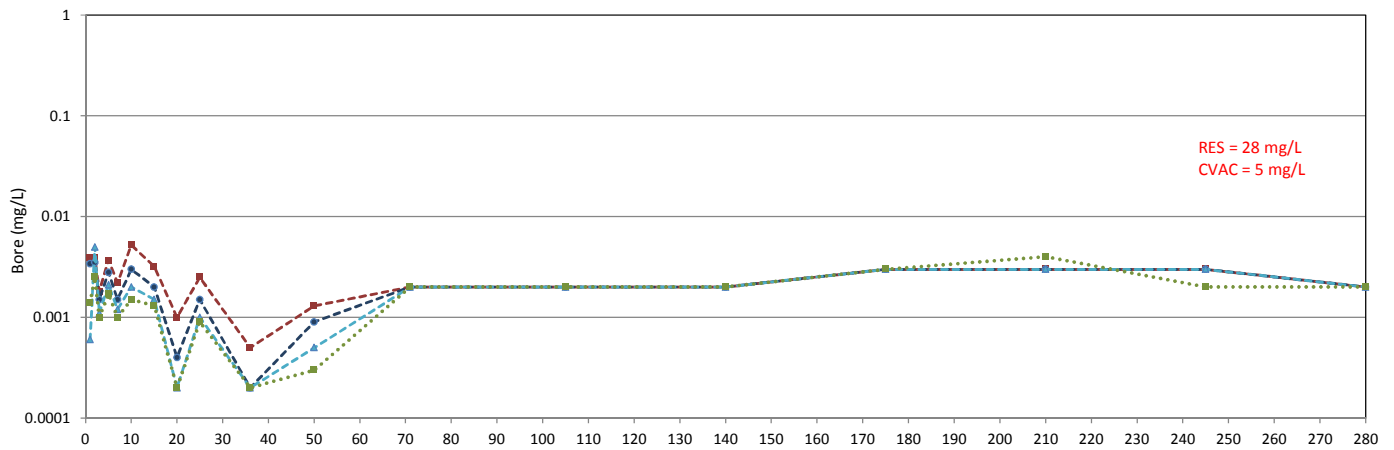


**Notes:**  
 RES - Résurgence dans l'eau de surface - critères de qualité des eaux souterraines, Guide d'intervention PSRTC, MDDELCC (2016).  
 CVAC - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MDDELCC (2013).  
 Valeurs inférieures à la limite de détection sont affichées à la valeur même.

**Localisation des ports:**  
 Port 1: 10 cm en dessous de l'interface roche/eau  
 Port 2: 5 cm en dessous de l'interface roche/eau  
 Port 3: 5 cm au dessus de l'interface roche/eau  
 Port 4: 25 cm au dessus de l'interface roche/eau  
 Type de roche: Stériles

Baryum		Beryllium		Bismuth	
DESSINÉ	CC	DATE	Mai 2017		
RÉVISÉ	CWT	NO PROJET	1406970		
APPROUVÉ	VJB	PHASE			

Test de lixiviation en colonne submergée Projet Akasaba, Agnico Eagle	
	Golder Associates
FIGURE	4




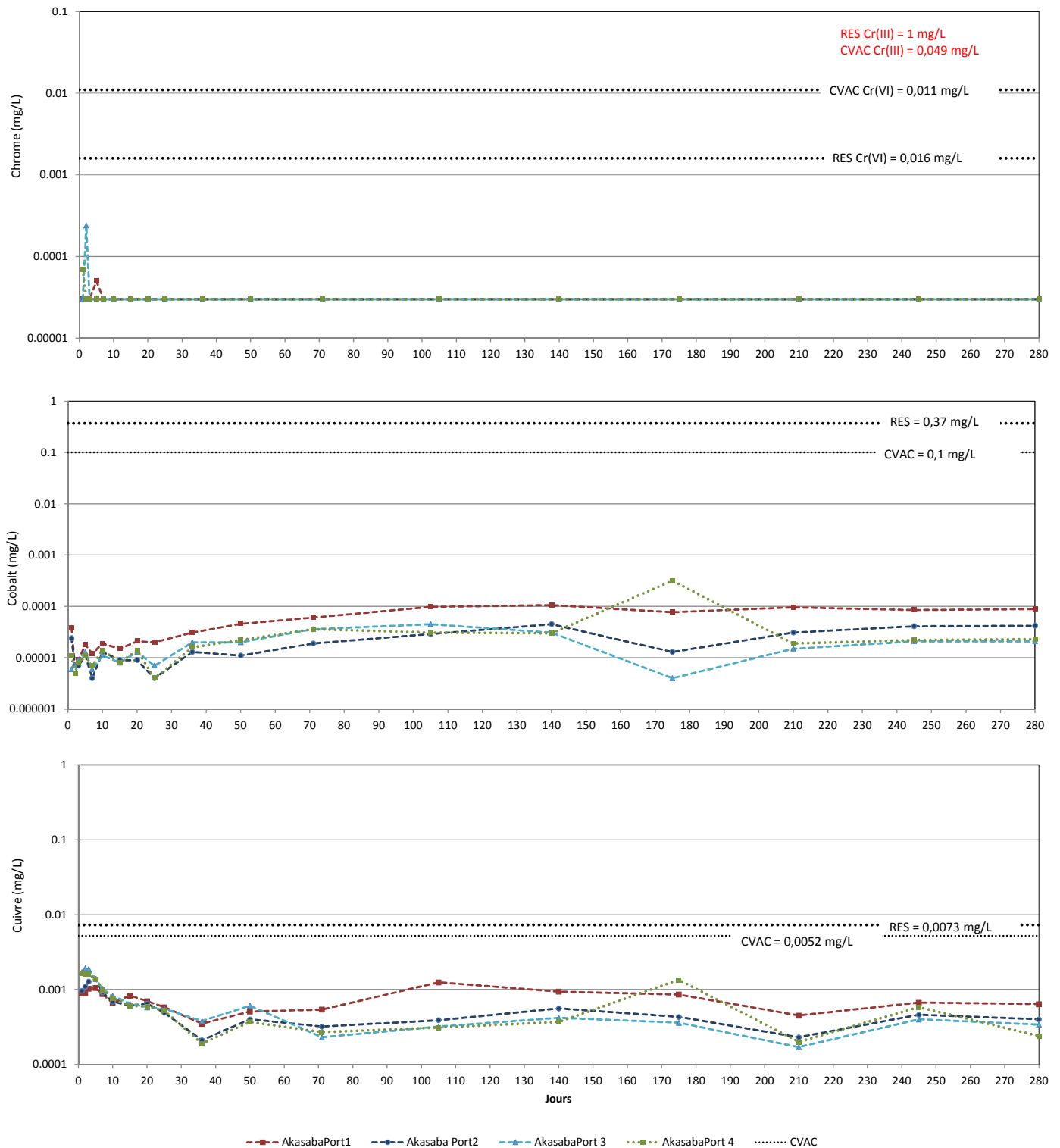
--- AkasabaPort1    --- Akasaba Port2    --- AkasabaPort 3    --- AkasabaPort 4

**Notes:**  
 RES - Résurgence dans l'eau de surface - critères de qualité des eaux souterraines, Guide d'intervention PSRTC, MDDELCC (2016).  
 CVAC - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MDDELCC (2013).  
 Valeurs inférieures à la limite de détection sont affichées à la valeur même.

**Localisation des ports:**  
 Port 1: 10 cm en dessous de l'interface roche/eau  
 Port 2: 5 cm en dessous de l'interface roche/eau  
 Port 3: 5 cm au dessus de l'interface roche/eau  
 Port 4: 25 cm au dessus de l'interface roche/eau  
**Type de roche:** Stériles

Bore		Chlorure		Cadmium	
DESSINE	CC	DATE	Mai 2017		
RÉVISÉ	CWT	NO PROJET	1406970		
APPROUVÉ	VJB	PHASE			


Test de lixiviation en colonne submergée Projet Akasaba, Agnico Eagle	
	<b>FIGURE 5</b>



**Notes:**  
RES - Résurgence dans l'eau de surface - critères de qualité des eaux souterraines, Guide d'intervention PSRTC, MDDELCC (2016).  
CVAC - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MDDELCC (2013).  
Valeurs inférieures à la limite de détection sont affichées à la valeur même.

**Localisation des ports:**  
Port 1: 10 cm en dessous de l'interface roche/eau  
Port 2: 5 cm en dessous de l'interface roche/eau  
Port 3: 5 cm au dessus de l'interface roche/eau  
Port 4: 25 cm au dessus de l'interface roche/eau  
Type de roche: Stériles

Chrome		Cobalt		Cuivre	
DESSINÉ	CC	DATE	Mai 2017		
RÉVISÉ	CWT	NO PROJET	1406970		
APPROUVÉ	VJB	PHASE			

Test de lixiviation en colonne submergée Projet Akasaba, Agnico Eagle	
	<b>FIGURE 6</b>

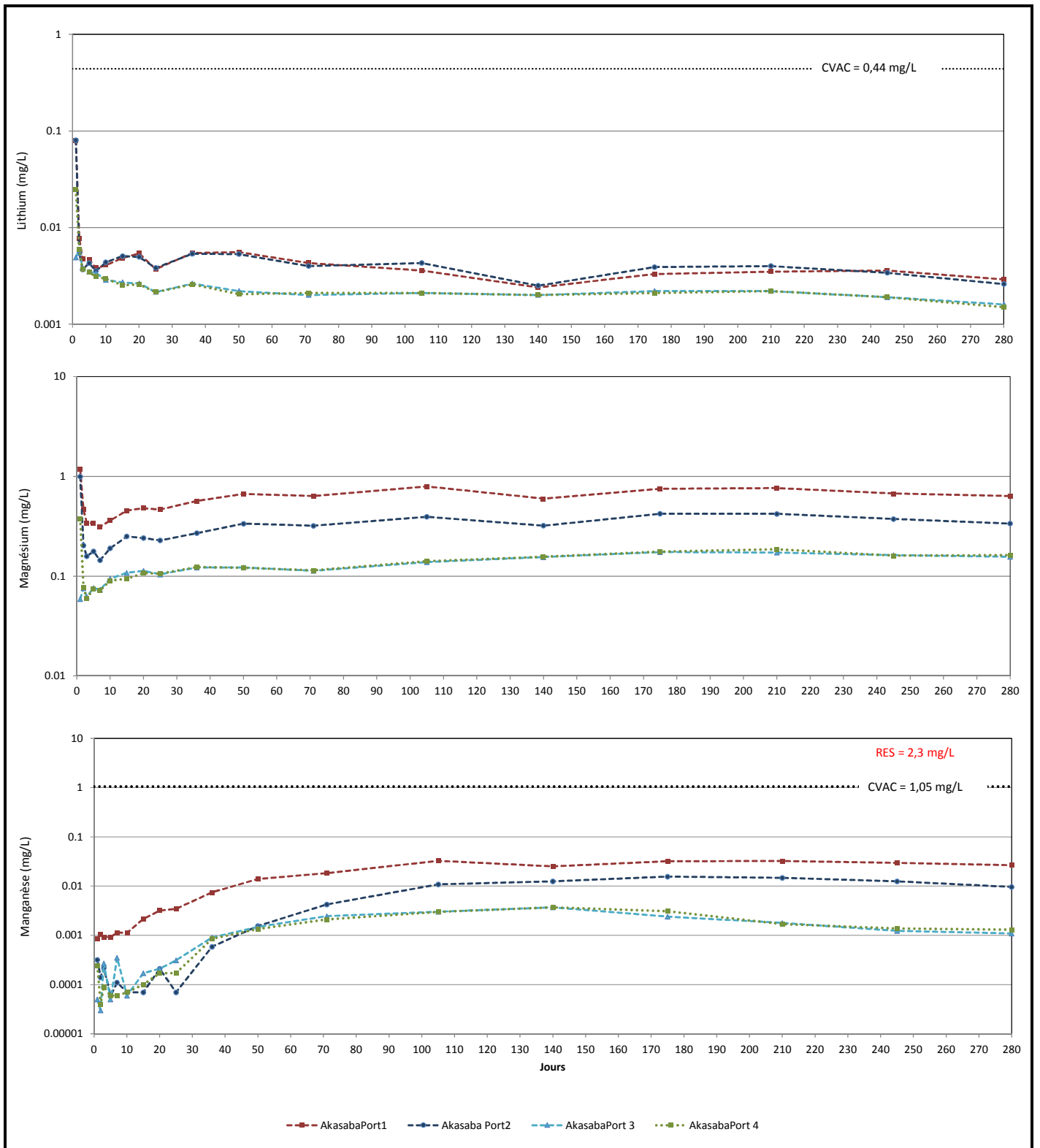


**Notes:**  
 RES - Résurgence dans l'eau de surface - critères de qualité des eaux souterraines, Guide d'intervention PSRTC, MDDELCC (2016).  
 CVAC - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MDDELCC (2013).  
 Valeurs inférieures à la limite de détection sont affichées à la valeur même.

**Localisation des ports:**  
 Port 1: 10 cm en dessous de l'interface roche/eau  
 Port 2: 5 cm en dessous de l'interface roche/eau  
 Port 3: 5 cm au dessus de l'interface roche/eau  
 Port 4: 25 cm au dessus de l'interface roche/eau  
**Type de roche:** Stériles

Fluorure		Fer		Plomb	
DESSINÉ	CC	DATE	Mai 2017		
RÉVISÉ	CWT	NO PROJET	1406970		
APPROUVÉ	VJB	PHASE			

Test de lixiviation en colonne submergée Projet Akasaba, Agnico Eagle	
	Golder Associates
<b>FIGURE</b>	<b>7</b>

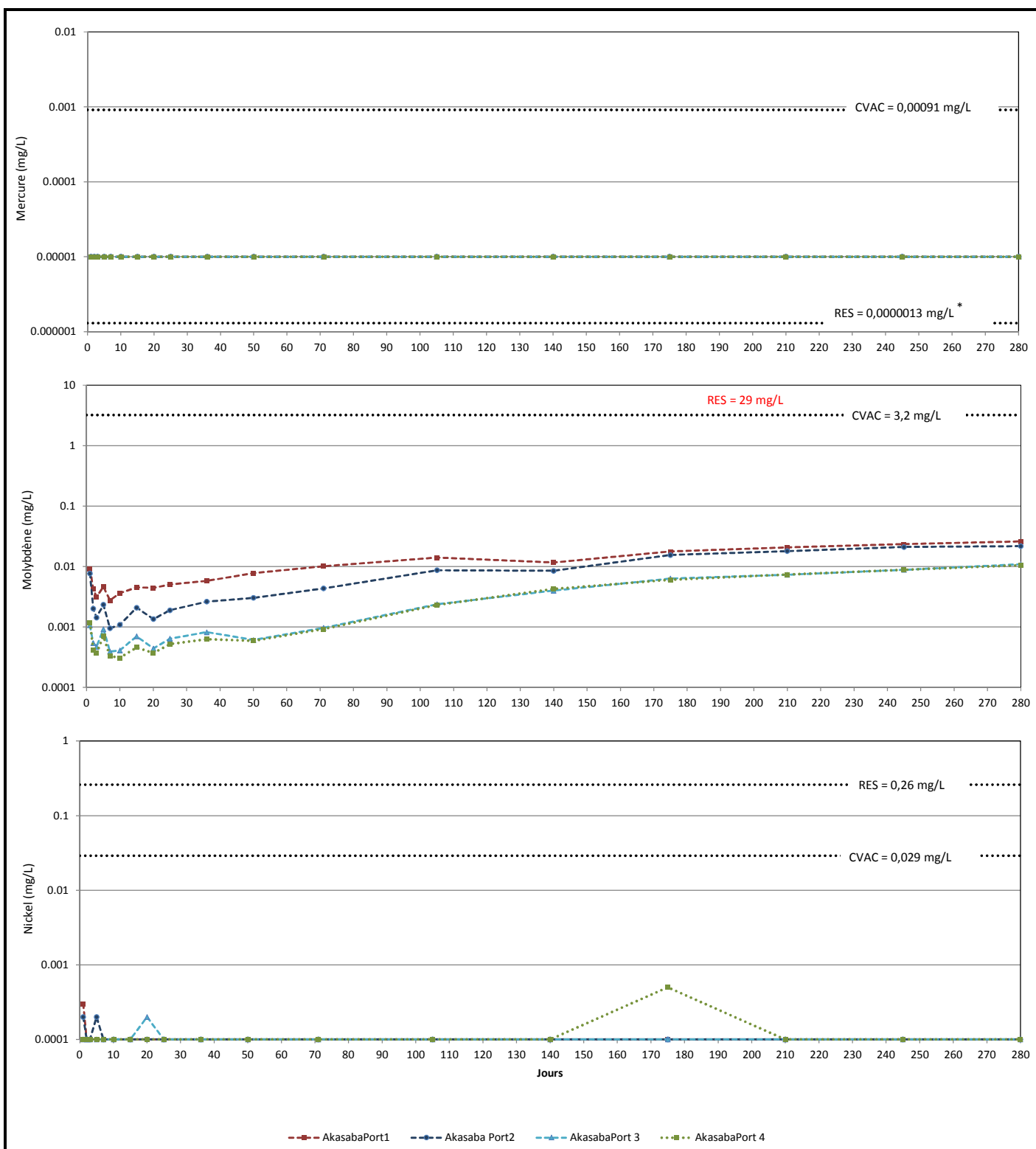


**Notes:**  
RES - Résurgence dans l'eau de surface - critères de qualité des eaux souterraines, Guide d'intervention PSRTC, MDDELCC (2016).  
CVAC - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MDDELCC (2013).  
Valeurs inférieures à la limite de détection sont affichées à la valeur même.

**Localisation des ports:**  
Port 1: 10 cm en dessous de l'interface roche/eau  
Port 2: 5 cm en dessous de l'interface roche/eau  
Port 3: 5 cm au dessus de l'interface roche/eau  
Port 4: 25 cm au dessus de l'interface roche/eau  
**Type de roche:** Stériles

Lithium		Magnésium		Manganèse	
DESSINÉ	CC	DATE	Mai 2017		
RÉVISÉ	CWT	NO PROJET	1406970		
APPROUVÉ	VJB	PHASE			

Test de lixiviation en colonne submergée Projet Akasaba, Agnico Eagle	
	Golder Associates
<b>FIGURE</b>	<b>8</b>




**Notes:**  
 \* Nouveaux critères RES pour Hg sont en dessus de la limite de détection (0.00001 mg/L).  
 RES - Résurgence dans l'eau de surface - critères de qualité des eaux souterraines, Guide d'intervention PSRTC, MDDELCC (2016).  
 CVAC - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MDDELCC (2013).  
 Valeurs inférieures à la limite de détection sont affichées à la valeur même.

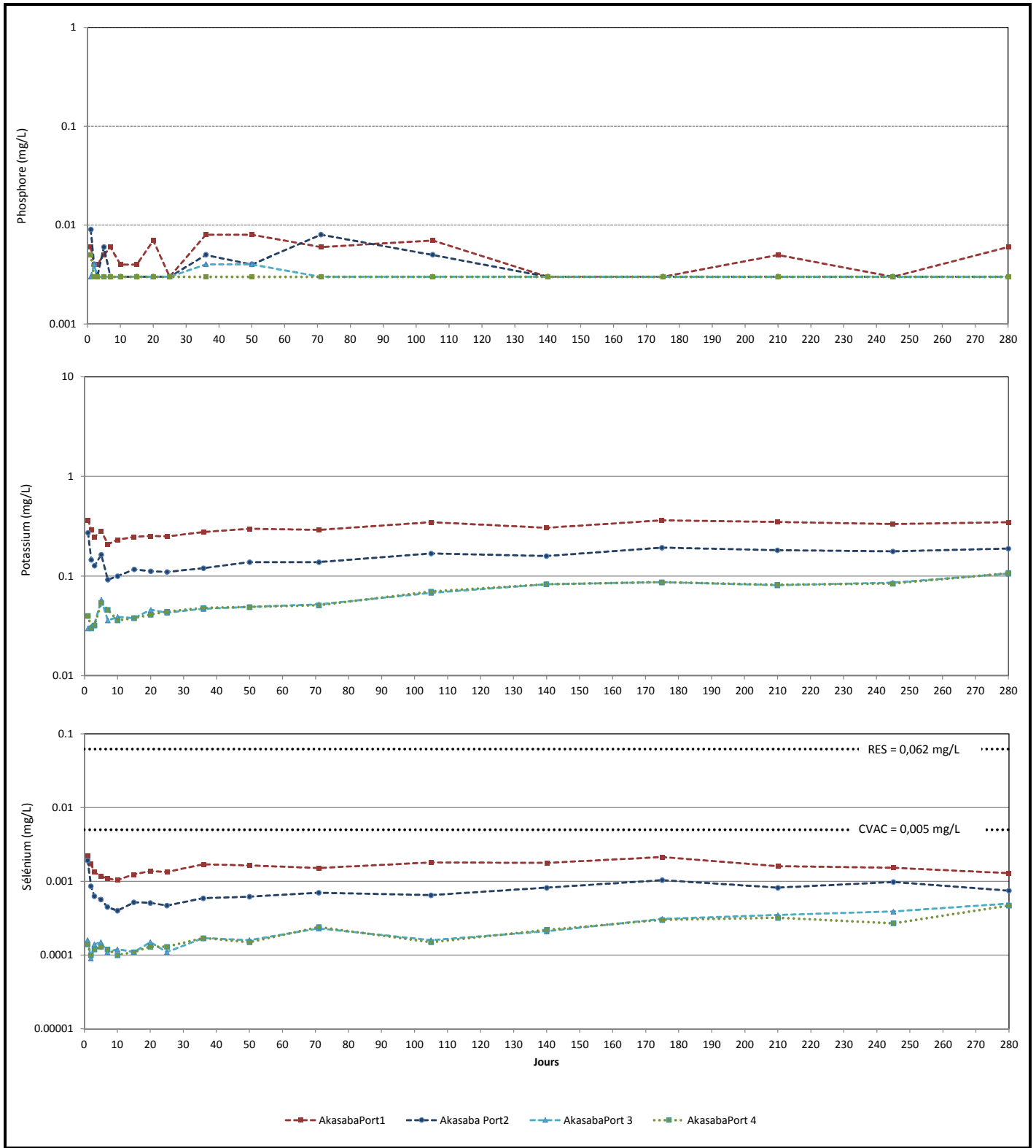
**Localisation des ports:**  
 Port 1: 10 cm en dessous de l'interface roche/eau  
 Port 2: 5 cm en dessous de l'interface roche/eau  
 Port 3: 5 cm au dessus de l'interface roche/eau  
 Port 4: 25 cm au dessus de l'interface roche/eau  
**Type de roche:** Stériles

Mercure		Molybdène		Nickel	
DESSINÉ	CC	DATE	Mai 2017		
RÉVISÉ	CWT	NO PROJET	1406970		
APPROUVÉ	VJB	PHASE			

**Test de lixiviation en colonne submergée**  
**Projet Akasaba, Agnico Eagle**



**FIGURE 9**




**Notes:**  
 RES - Résurgence dans l'eau de surface - critères de qualité des eaux souterraines, Guide d'intervention PSRTC, MDDELCC (2016).  
 CVAC - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MDDELCC (2013).  
 Valeurs inférieures à la limite de détection sont affichées à la valeur même.

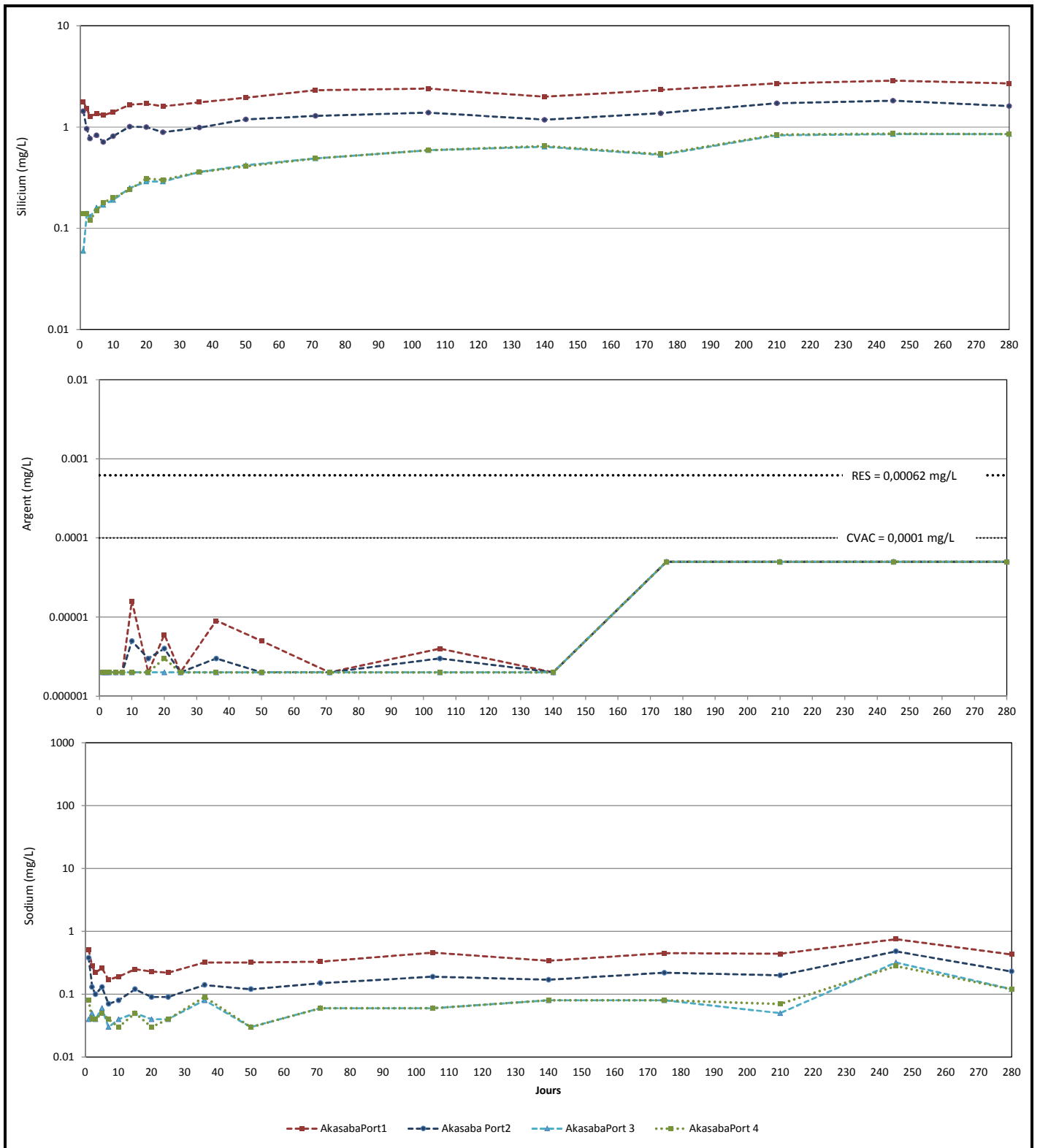
**Localisation des ports:**  
 Port 1: 10 cm en dessous de l'interface roche/eau  
 Port 2: 5 cm en dessous de l'interface roche/eau  
 Port 3: 5 cm au dessus de l'interface roche/eau  
 Port 4: 25 cm au dessus de l'interface roche/eau  
**Type de roche:** Stériles

Phosphore		Potassium		Sélénium	
DESSINÉ	CC	DATE	Mai 2017		
RÉVISÉ	CWT	NO PROJET	1406970		
APPROUVÉ	VJB	PHASE			

Test de lixiviation en colonne submergée  
 Projet Akasaba, Agnico Eagle



**FIGURE 10**




**Notes:**  
 RES - Résurgence dans l'eau de surface - critères de qualité des eaux souterraines, Guide d'intervention PSRTC, MDDELCC (2016).  
 CVAC - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MDDELCC (2013).  
 Valeurs inférieures à la limite de détection sont affichées à la valeur même.

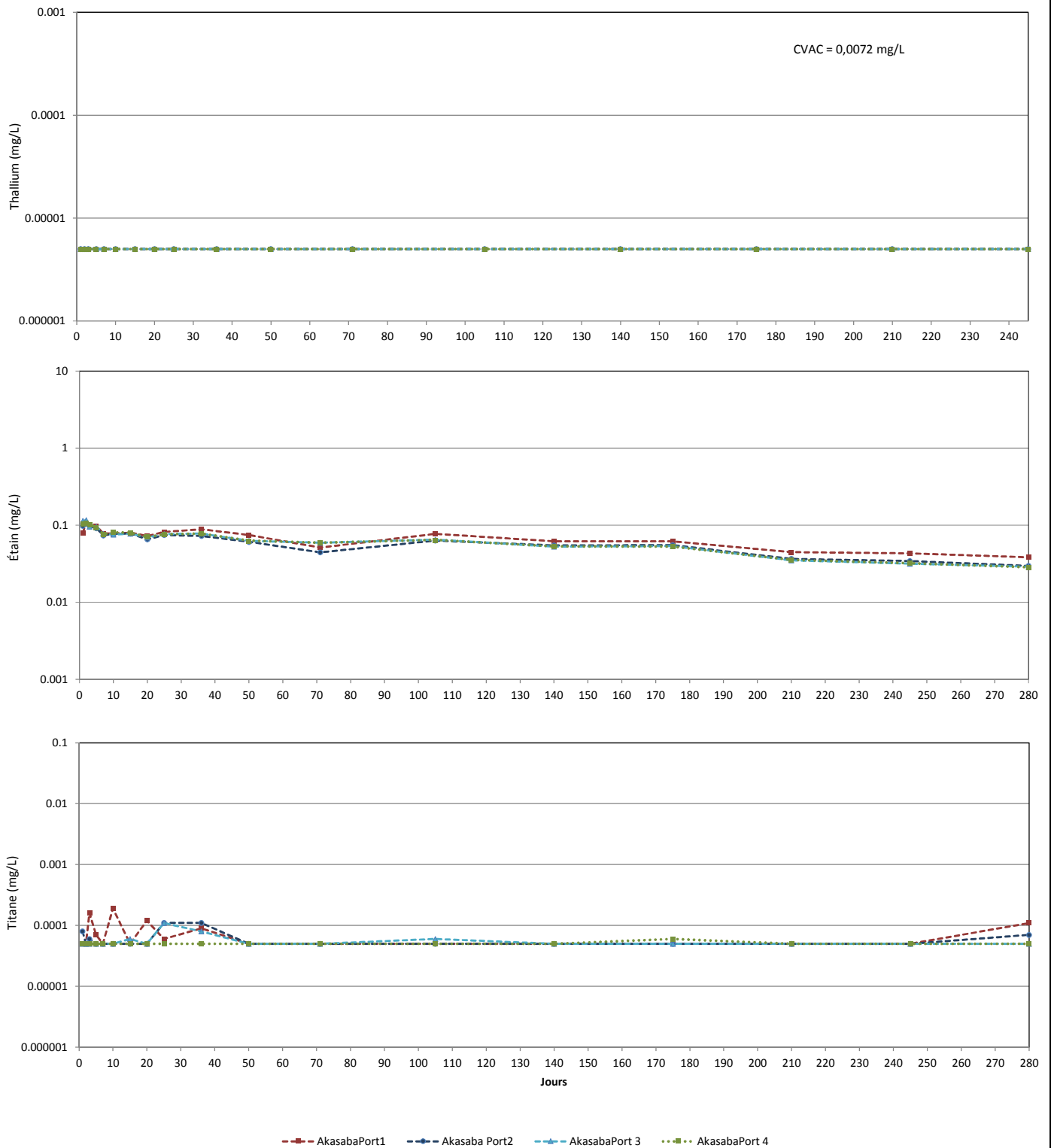
**Localisation des ports:**  
 Port 1: 10 cm en dessous de l'interface roche/eau  
 Port 2: 5 cm en dessous de l'interface roche/eau  
 Port 3: 5 cm au dessus de l'interface roche/eau  
 Port 4: 25 cm au dessus de l'interface roche/eau  
**Type de roche:** Stériles

Silicium		Argent		Sodium	
DESSINÉ	CC	DATE	Mai 2017		
RÉVISÉ	CWT	NO PROJET	1406970		
APPROUVÉ	VJB	PHASE			

**Test de lixiviation en colonne submergée**  
**Projet Akasaba, Agnico Eagle**



**FIGURE 11**

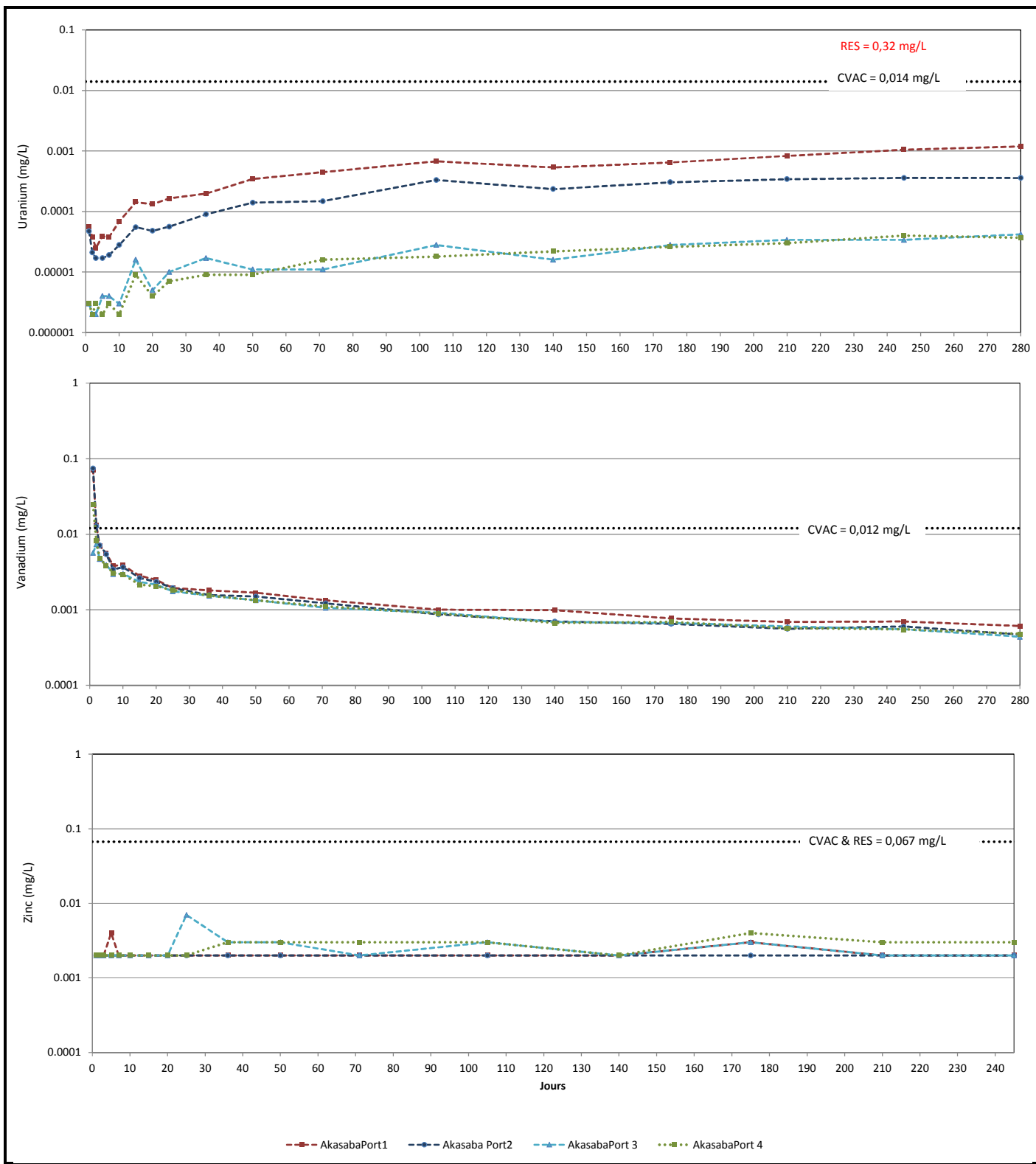


Notes:  
Valeurs inférieures à la limite de détection sont affichées à la valeur même.

Localisation des ports:  
 Port 1: 10 cm en dessous de l'interface roche/eau  
 Port 2: 5 cm en dessous de l'interface roche/eau  
 Port 3: 5 cm au dessus de l'interface roche/eau  
 Port 4: 25 cm au dessus de l'interface roche/eau  
 Type de roche: Stériles

Thallium		Étain		Titane	
DESSINÉ	CC	DATE	Mai 2017		
REVISÉ	CWT	NO PROJET	1406970		
APPROUVÉ	VJB	PHASE			

Test de lixiviation en colonne submergée Projet Akasaba, Agnico Eagle	
	Golder Associates
FIGURE	12

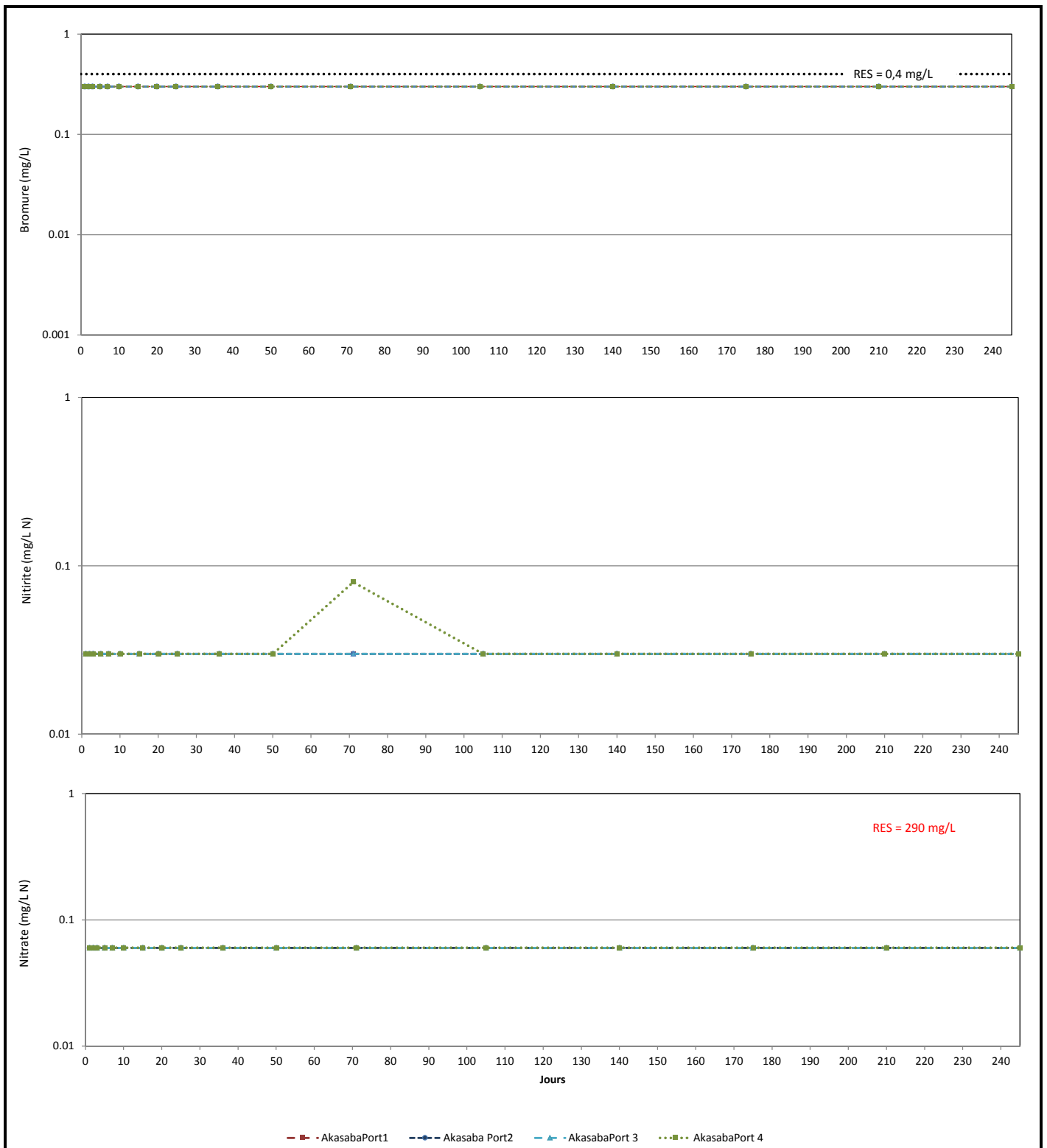


**Notes:**  
 RES - Résurgence dans l'eau de surface - critères de qualité des eaux souterraines, Guide d'intervention PSRTC, MDDELCC (2016).  
 CVAC - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MDDELCC (2013).  
 Valeurs inférieures à la limite de détection sont affichées à la valeur même.

**Localisation des ports:**  
 Port 1: 10 cm en dessous de l'interface roche/eau  
 Port 2: 5 cm en dessous de l'interface roche/eau  
 Port 3: 5 cm au dessus de l'interface roche/eau  
 Port 4: 25 cm au dessus de l'interface roche/eau  
**Type de roche:** Stériles

Uranium		Vanadium		Zinc	
DESSINE	CC	DATE	Mai 2017		
RÉVISE	CWT	NO PROJET	1406970		
APPROUVÉ	VJB	PHASE			

Test de lixiviation en colonne submergée Projet Akasaba, Agnico Eagle	
	<b>FIGURE 13</b>




**Notes:**  
 \* critères indiqués pour bromates (Guide d'intervention - PSRTC, MDDELCC, July 2016) sont en dessus des limites de détection (0,3 mg/L).  
 RES - Résurgence dans l'eau de surface - critères de qualité des eaux souterraines, Guide d'intervention PSRTC, MDDELCC (2016).  
 CVAC - Critères de qualité de l'eau de surface pour la protection de la vie aquatique (eau douce, effet chronique), MDDELCC (2013).  
 Valeurs inférieures à la limite de détection sont affichées à la valeur même.

**Localisation des ports:**  
 Port 1: 10 cm en dessous de l'interface roche/eau  
 Port 2: 5 cm en dessous de l'interface roche/eau  
 Port 3: 5 cm au dessus de l'interface roche/eau  
 Port 4: 25 cm au dessus de l'interface roche/eau  
**Type de roche:** Stériles

Bromure		Nitrite (N)		Nitrate (N)	
DESSINÉ	CC	DATE	Mai 2017		
RÉVISÉ	CWT	NO PROJET	1406970		
APPROUVÉ	VJB	PHASE			

**Test de lixiviation en colonne submergée**  
**Projet Akasaba, Agnico Eagle**



**FIGURE 14**

# ANNEXE B

## Certificats d'analyse



SGS Canada Inc.

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Lakefield - Ontario - K0L 2H0

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25-November-2016

**Agnico Eagle Mines Limited**

Attn : Serge Ouellet

10200, route de Pressac, Rouyn-Noranda

Canada, J0Y 1C0

Phone: 819.759.3700 x5820, Fax:(819) 759-3663

Date Rec. : 28 June 2016

LR Report: CA10110-JUN16

Reference: Day #1

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3:	4:	5:	6:	7:	8:	9:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#1	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#1	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#1	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Dup Day#1	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#1
Sample Date & Time			28-Jun-16	28-Jun-16	28-Jun-16	28-Jun-16	28-Jun-16
Hum Cell Leachate Volume [mL]	29-Jun-16	08:15	992	979	976	1013	1012
Total Suspended Solids [mg/L]	05-Jul-16	13:19	< 2	< 2	< 2	< 2	< 2
pH [no unit]	30-Jun-16	10:25	7.57	7.46	6.41	6.51	6.78
Conductivity [uS/cm]	30-Jun-16	10:25	145	112	9	11	12
Alkalinity [mg/L as CaCO3]	30-Jun-16	14:46	15	12	< 2	2	2
Acidity [mg/L as CaCO3]	30-Jun-16	10:25	< 2	< 2	< 2	< 2	< 2
Fluoride [mg/L]	29-Jun-16	14:32	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	06-Jul-16	11:24	< 1	< 1	< 1	< 1	< 1
Sulphate [mg/L]	06-Jul-16	11:24	50	36	3	3	3
Bromide [mg/L]	04-Jul-16	15:23	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	04-Jul-16	15:23	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	04-Jul-16	15:23	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (total) [mg/L]	04-Jul-16	10:46	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (total) [mg/L]	04-Jul-16	15:10	0.000007	0.000007	0.000002	0.000003	0.000004
Aluminum (total) [mg/L]	04-Jul-16	15:10	0.021	0.029	0.012	0.016	0.018
Arsenic (total) [mg/L]	04-Jul-16	15:10	0.0012	0.0012	0.0002	0.0003	0.0022
Barium (total) [mg/L]	04-Jul-16	15:10	0.0190	0.0138	0.00516	0.00718	0.0100
Beryllium (total) [mg/L]	04-Jul-16	15:10	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (total) [mg/L]	04-Jul-16	15:10	0.005	0.004	< 0.002	0.002	< 0.002
Bismuth (total) [mg/L]	04-Jul-16	15:10	0.000039	0.000021	0.000018	0.000048	0.000031
Calcium (total) [mg/L]	04-Jul-16	15:10	24.8	18.2	1.35	0.90	0.90
Cadmium (total) [mg/L]	04-Jul-16	15:10	0.000003	0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt (total) [mg/L]	04-Jul-16	15:10	0.000041	0.000030	0.000007	0.000019	0.000010
Chromium (total) [mg/L]	04-Jul-16	15:10	0.00090	0.00076	0.00075	0.00064	0.00066
Copper (total) [mg/L]	04-Jul-16	15:10	0.00105	0.00144	0.00175	0.00186	0.00174
Iron (total) [mg/L]	04-Jul-16	15:10	< 0.007	< 0.007	< 0.007	0.008	< 0.007
Potassium (total) [mg/L]	04-Jul-16	15:10	0.370	0.297	0.029	0.054	0.045
Lithium (total) [mg/L]	04-Jul-16	15:10	0.0835	0.0802	0.00493	0.0620	0.0256

Online LIMS

0000846795



SGS Canada Inc.

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Lakefield - Ontario - K0L 2H0

Phone: 705-652-2000 FAX: 705-652-6365

LR Report : CA10110-JUN16

Analysis	3:	4:	5:	6:	7:	8:	9:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#1	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#1	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#1	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Dup Day#1	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#1
Magnesium (total) [mg/L]	04-Jul-16	15:10	1.16	1.08	0.058	0.439	0.406
Manganese (total) [mg/L]	04-Jul-16	15:10	0.00086	0.00033	0.00003	0.00005	0.00012
Molybdenum (total) [mg/L]	04-Jul-16	15:10	0.00985	0.00880	0.00078	0.00223	0.00111
Sodium (total) [mg/L]	04-Jul-16	15:10	0.51	0.41	0.04	0.14	0.09
Nickel (total) [mg/L]	04-Jul-16	15:10	0.0003	0.0003	< 0.0001	0.0003	0.0002
Phosphorus (total) [mg/L]	04-Jul-16	15:10	0.010	0.015	< 0.003	0.004	0.003
Lead (total) [mg/L]	04-Jul-16	15:10	< 0.00001	< 0.00001	0.00003	< 0.00001	< 0.00001
Antimony (total) [mg/L]	04-Jul-16	15:10	0.0009	0.0008	0.0002	< 0.0002	< 0.0002
Selenium (total) [mg/L]	04-Jul-16	15:10	0.00197	0.00155	0.00014	0.00012	0.00011
Silicon (total) [mg/L]	04-Jul-16	15:10	1.86	1.53	0.06	0.20	0.15
Tin (total) [mg/L]	04-Jul-16	15:10	0.0735	0.0889	0.129	0.111	0.117
Titanium (total) [mg/L]	04-Jul-16	15:10	0.00030	0.00014	0.00024	0.00021	0.00027
Thallium (total) [mg/L]	04-Jul-16	15:10	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (total) [mg/L]	04-Jul-16	15:10	0.000055	0.000045	0.000003	0.000004	0.000004
Vanadium (total) [mg/L]	04-Jul-16	15:10	0.0718	0.0826	0.00540	0.0507	0.0263
Zinc (total) [mg/L]	04-Jul-16	15:10	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Mercury (dissolved) [mg/L]	07-Jul-16	15:41	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	04-Jul-16	15:10	< 0.000002	< 0.000002	< 0.000002	< 0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	04-Jul-16	15:10	0.020	0.025	0.011	0.013	0.013
Arsenic (dissolved) [mg/L]	04-Jul-16	15:10	0.0013	0.0013	0.0002	0.0003	0.0024
Barium (dissolved) [mg/L]	04-Jul-16	15:10	0.0189	0.0135	0.00514	0.00673	0.00965
Beryllium (dissolved) [mg/L]	04-Jul-16	15:10	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	04-Jul-16	15:10	0.0039	0.0034	0.0006	0.0020	0.0014
Bismuth (dissolved) [mg/L]	04-Jul-16	15:10	0.000008	< 0.000007	< 0.000007	0.000014	< 0.000007
Calcium (dissolved) [mg/L]	04-Jul-16	15:10	22.7	17.1	1.31	0.88	0.85
Cadmium (dissolved) [mg/L]	04-Jul-16	15:10	< 0.000003	< 0.000003	< 0.000003	< 0.000003	0.000007
Cobalt (dissolved) [mg/L]	04-Jul-16	15:10	0.000038	0.000024	0.000006	0.000019	0.000011
Chromium (dissolved) [mg/L]	04-Jul-16	15:10	< 0.00003	< 0.00003	< 0.00003	< 0.00003	0.00007
Copper (dissolved) [mg/L]	04-Jul-16	15:10	0.00090	0.00096	0.00171	0.00166	0.00165
Iron (dissolved) [mg/L]	04-Jul-16	15:10	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	04-Jul-16	15:10	0.367	0.273	0.030	0.050	0.040
Lithium (dissolved) [mg/L]	04-Jul-16	15:10	0.0798	0.0801	0.00490	0.0579	0.0246
Magnesium (dissolved) [mg/L]	04-Jul-16	15:10	1.18	0.996	0.059	0.414	0.377
Manganese (dissolved) [mg/L]	04-Jul-16	15:10	0.00087	0.00032	0.00005	0.00003	0.00024
Molybdenum (dissolved) [mg/L]	04-Jul-16	15:10	0.00914	0.00767	0.00107	0.00205	0.00119
Sodium (dissolved) [mg/L]	04-Jul-16	15:10	0.51	0.38	0.04	0.13	0.08
Nickel (dissolved) [mg/L]	04-Jul-16	15:10	0.0003	0.0002	< 0.0001	0.0003	0.0001
Phosphorus (dissolved) [mg/L]	04-Jul-16	15:10	0.006	0.009	< 0.003	< 0.003	0.005
Lead (dissolved) [mg/L]	04-Jul-16	15:10	< 0.00001	0.00001	0.00008	< 0.00001	< 0.00001
Antimony (dissolved) [mg/L]	04-Jul-16	15:10	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Selenium (dissolved) [mg/L]	04-Jul-16	15:10	0.00221	0.00192	0.00016	0.00016	0.00014
Silicon (dissolved) [mg/L]	04-Jul-16	15:10	1.77	1.43	0.06	0.20	0.14
Tin (dissolved) [mg/L]	04-Jul-16	15:10	0.0804	0.0983	0.114	0.109	0.105
Titanium (dissolved) [mg/L]	04-Jul-16	15:10	< 0.00005	0.00008	< 0.00005	< 0.00005	< 0.00005

OnLine LIMS

0000846795

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LR Report : CA10110-JUN16

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#1	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#1	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#1	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Dup Day#1	9: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#1
Thallium (dissolved) [mg/L]	04-Jul-16	15:10	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	04-Jul-16	15:10	0.000056	0.000047	0.000003	0.000003	0.000003
Vanadium (dissolved) [mg/L]	04-Jul-16	15:10	0.0721	0.0748	0.00568	0.0481	0.0246
Zinc (dissolved) [mg/L]	04-Jul-16	15:10	< 0.002	< 0.002	< 0.002	< 0.002	0.002

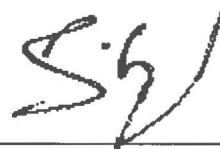
ODWS - Ontario Drinking Water Standards

MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration

AO/OG - Aesthetic Objective / Operational Guideline

\* Exceeds ODWS limit

\*\* No ODWS limit



*Brian Graham B.Sc.  
Project Specialist  
Environmental Services, Analytical*



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P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

25-November-2016

**Agnico Eagle Mines Limited**

Attn : Serge Ouellet

Date Rec. : 29 June 2016  
LR Report: CA10111-JUN16  
Reference: Day #2

10200, route de Pressac, Rouyn-Noranda  
Canada, J0Y 1C0  
Phone: 819.759.3700 x5820, Fax:(819) 759-3663

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#2	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#2	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#2	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#2
Sample Date & Time			29-Jun-16	29-Jun-16	29-Jun-16	29-Jun-16
Hum Cell Leachate Volume [mL]	05-Jul-16	08:54	988	972	985	1017
Total Suspended Solids [mg/L]	04-Jul-16	16:03	< 2	< 2	< 2	< 2
pH [no unit]	30-Jun-16	10:46	7.59	7.47	6.56	6.47
Conductivity [uS/cm]	30-Jun-16	10:46	91	42	11	11
Alkalinity [mg/L as CaCO3]	30-Jun-16	10:46	29	9	2	< 2
Acidity [mg/L as CaCO3]	30-Jun-16	10:46	< 2	< 2	< 2	< 2
Fluoride [mg/L]	30-Jun-16	11:03	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	07-Jul-16	11:36	< 1	< 1	< 1	< 1
Sulphate [mg/L]	07-Jul-16	11:36	26	7	2	2
Bromide [mg/L]	05-Jul-16	15:16	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	05-Jul-16	15:16	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	05-Jul-16	15:16	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (total) [mg/L]	04-Jul-16	10:47	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (total) [mg/L]	04-Jul-16	15:11	< 0.000002	< 0.000002	< 0.000002	< 0.000002
Aluminum (total) [mg/L]	04-Jul-16	15:11	0.050	0.065	0.018	0.018
Arsenic (total) [mg/L]	04-Jul-16	15:11	0.0013	0.0012	< 0.0002	< 0.0002
Barium (total) [mg/L]	04-Jul-16	15:11	0.00798	0.00426	0.00434	0.00737
Beryllium (total) [mg/L]	04-Jul-16	15:11	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (total) [mg/L]	04-Jul-16	15:11	0.009	0.006	0.005	0.004
Bismuth (total) [mg/L]	04-Jul-16	15:11	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (total) [mg/L]	04-Jul-16	15:11	15.4	6.84	1.29	1.30
Cadmium (total) [mg/L]	04-Jul-16	15:11	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt (total) [mg/L]	04-Jul-16	15:11	0.000011	0.000005	0.000007	0.000008
Chromium (total) [mg/L]	04-Jul-16	15:11	0.00027	0.00033	0.00024	0.00034
Copper (total) [mg/L]	04-Jul-16	15:11	0.00132	0.00130	0.00192	0.00179
Iron (total) [mg/L]	04-Jul-16	15:11	0.012	< 0.007	< 0.007	< 0.007
Potassium (total) [mg/L]	04-Jul-16	15:11	0.283	0.152	0.031	0.032
Lithium (total) [mg/L]	04-Jul-16	15:11	0.00781	0.00543	0.00584	0.00600

Online LIMS

0000846796



SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.

Lakefield - Ontario - KOL 2HO

Phone: 705-652-2000 FAX: 705-652-6365

LR Report : CA10111-JUN16

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#2	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#2	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#2	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#2
Magnesium (total) [mg/L]	04-Jul-16	15:11	0.451	0.208	0.076	0.080
Manganese (total) [mg/L]	04-Jul-16	15:11	0.00104	0.00011	0.00003	0.00008
Molybdenum (total) [mg/L]	04-Jul-16	15:11	0.00511	0.00213	0.00054	0.00038
Sodium (total) [mg/L]	04-Jul-16	15:11	0.27	0.14	0.05	0.05
Nickel (total) [mg/L]	04-Jul-16	15:11	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus (total) [mg/L]	04-Jul-16	15:13	0.006	0.005	0.004	< 0.003
Lead (total) [mg/L]	04-Jul-16	15:13	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Antimony (total) [mg/L]	04-Jul-16	15:13	0.0005	0.0002	< 0.0002	< 0.0002
Selenium (total) [mg/L]	04-Jul-16	15:13	0.00125	0.00067	0.00009	0.00008
Silicon (total) [mg/L]	04-Jul-16	15:13	1.54	0.96	0.14	0.14
Tin (total) [mg/L]	04-Jul-16	15:13	0.0993	0.108	0.117	0.116
Titanium (total) [mg/L]	04-Jul-16	15:13	0.00008	0.00006	< 0.00005	< 0.00005
Thallium (total) [mg/L]	04-Jul-16	15:13	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (total) [mg/L]	04-Jul-16	15:13	0.000041	0.000020	< 0.000002	< 0.000002
Vanadium (total) [mg/L]	04-Jul-16	15:13	0.0129	0.0130	0.00734	0.00868
Zinc (total) [mg/L]	04-Jul-16	15:13	< 0.002	< 0.002	< 0.002	0.003
Mercury (dissolved) [mg/L]	04-Jul-16	15:13	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	04-Jul-16	15:13	< 0.000002	< 0.000002	< 0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	04-Jul-16	15:13	0.050	0.066	0.016	0.015
Arsenic (dissolved) [mg/L]	04-Jul-16	15:13	0.0015	0.0015	< 0.0002	0.0002
Barium (dissolved) [mg/L]	04-Jul-16	15:13	0.00751	0.00398	0.00425	0.00684
Beryllium (dissolved) [mg/L]	04-Jul-16	15:13	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	04-Jul-16	15:13	0.0039	0.0035	0.0027	0.0025
Bismuth (dissolved) [mg/L]	04-Jul-16	15:13	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	04-Jul-16	15:13	15.0	6.60	1.24	1.26
Cadmium (dissolved) [mg/L]	04-Jul-16	15:13	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt (dissolved) [mg/L]	04-Jul-16	15:13	0.000007	0.000007	0.000006	0.000005
Chromium (dissolved) [mg/L]	04-Jul-16	15:13	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	04-Jul-16	15:13	0.00090	0.00109	0.00160	0.00161
Iron (dissolved) [mg/L]	04-Jul-16	15:13	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	04-Jul-16	15:13	0.290	0.146	0.032	0.030
Lithium (dissolved) [mg/L]	04-Jul-16	15:13	0.00765	0.00541	0.00555	0.00590
Magnesium (dissolved) [mg/L]	04-Jul-16	15:13	0.465	0.203	0.074	0.077
Manganese (dissolved) [mg/L]	04-Jul-16	15:13	0.00105	0.00014	0.00014	0.00004
Molybdenum (dissolved) [mg/L]	04-Jul-16	15:13	0.00423	0.00200	0.00058	0.00042
Sodium (dissolved) [mg/L]	04-Jul-16	15:13	0.28	0.13	0.04	0.04
Nickel (dissolved) [mg/L]	04-Jul-16	15:13	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus (dissolved) [mg/L]	04-Jul-16	15:13	0.004	0.004	< 0.003	< 0.003
Lead (dissolved) [mg/L]	04-Jul-16	15:13	< 0.00001	0.00002	< 0.00001	< 0.00001
Antimony (dissolved) [mg/L]	04-Jul-16	15:13	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Selenium (dissolved) [mg/L]	04-Jul-16	15:13	0.00174	0.00086	0.00015	0.00010
Silicon (dissolved) [mg/L]	04-Jul-16	15:13	1.52	0.96	0.13	0.14
Tin (dissolved) [mg/L]	04-Jul-16	15:13	0.108	0.104	0.116	0.108
Titanium (dissolved) [mg/L]	04-Jul-16	15:13	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium (dissolved) [mg/L]	04-Jul-16	15:13	< 0.000005	< 0.000005	< 0.000005	< 0.000005

Online LIMS

0000846796

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Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#2	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#2	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#2	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#2
Uranium (dissolved) [mg/L]	04-Jul-16	15:13	0.000038	0.000021	< 0.000002	< 0.000002
Vanadium (dissolved) [mg/L]	04-Jul-16	15:13	0.0131	0.0128	0.00746	0.00830
Zinc (dissolved) [mg/L]	04-Jul-16	15:13	< 0.002	< 0.002	< 0.002	< 0.002

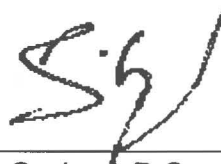
ODWS - Ontario Drinking Water Standards

MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration

AO/OG - Aesthetic Objective / Operational Guideline

\* Exceeds ODWS limit

\*\* No ODWS limit



*Brian Graham B.Sc.*  
*Project Specialist*  
*Environmental Services, Analytical*



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25-November-2016

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Date Rec. : 30 June 2016  
LR Report: CA10112-JUN16  
Reference: Day #3

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#3	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#3	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#3	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#3
Sample Date & Time			30-Jun-16	30-Jun-16	30-Jun-16	30-Jun-16
Hum Cell Leachate Volume [mL]	05-Jul-16	08:56	1020	986	1003	1024
Total Suspended Solids [mg/L]	06-Jul-16	09:34	< 2	< 2	< 2	< 2
pH [no unit]	05-Jul-16	15:39	7.68	7.45	6.40	6.29
Conductivity [uS/cm]	05-Jul-16	15:39	68	30	8	8
Alkalinity [mg/L as CaCO3]	05-Jul-16	15:39	13	9	< 2	< 2
Acidity [mg/L as CaCO3]	05-Jul-16	15:39	< 2	< 2	< 2	< 2
Fluoride [mg/L]	05-Jul-16	13:00	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	07-Jul-16	11:37	< 1	< 1	< 1	< 1
Sulphate [mg/L]	07-Jul-16	11:37	15	4	2	3
Bromide [mg/L]	06-Jul-16	11:47	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	06-Jul-16	11:47	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	06-Jul-16	11:47	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (total) [mg/L]	05-Jul-16	10:01	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (total) [mg/L]	06-Jul-16	11:58	0.000006	0.000004	0.000002	0.000002
Aluminum (total) [mg/L]	06-Jul-16	11:58	0.070	0.078	0.018	0.017
Arsenic (total) [mg/L]	06-Jul-16	11:58	0.0015	0.0011	< 0.0002	< 0.0002
Barium (total) [mg/L]	06-Jul-16	11:58	0.00506	0.00350	0.00392	0.00572
Beryllium (total) [mg/L]	06-Jul-16	11:58	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (total) [mg/L]	06-Jul-16	11:58	0.004	< 0.002	< 0.002	< 0.002
Bismuth (total) [mg/L]	06-Jul-16	11:58	< 0.000007	0.000022	0.000022	0.000013
Calcium (total) [mg/L]	06-Jul-16	11:58	12.0	5.27	1.29	1.28
Cadmium (total) [mg/L]	06-Jul-16	11:58	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt (total) [mg/L]	06-Jul-16	11:58	0.000007	0.000004	0.000006	0.000005
Chromium (total) [mg/L]	06-Jul-16	11:58	0.00021	0.00004	0.00012	0.00006
Copper (total) [mg/L]	06-Jul-16	11:58	0.00124	0.00137	0.00180	0.00174
Iron (total) [mg/L]	06-Jul-16	11:58	< 0.007	0.008	< 0.007	< 0.007
Potassium (total) [mg/L]	06-Jul-16	11:58	0.238	0.115	0.031	0.031
Lithium (total) [mg/L]	06-Jul-16	11:58	0.00391	0.00329	0.00357	0.00357

Online LIMS

0000846797



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Magnesium (total) [mg/L]	06-Jul-16	11:58	0.326	0.146	0.060	0.059
Manganese (total) [mg/L]	06-Jul-16	11:58	0.00087	0.00005	0.00011	0.00004
Molybdenum (total) [mg/L]	06-Jul-16	11:58	0.00326	0.00123	0.00036	0.00032
Sodium (total) [mg/L]	06-Jul-16	11:58	0.22	0.09	0.04	0.04
Nickel (total) [mg/L]	06-Jul-16	11:58	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus (total) [mg/L]	06-Jul-16	11:58	0.005	0.008	0.004	< 0.003
Lead (total) [mg/L]	06-Jul-16	11:58	0.00002	0.00003	0.00002	0.00002
Antimony (total) [mg/L]	06-Jul-16	11:58	0.0007	0.0005	0.0002	0.0002
Selenium (total) [mg/L]	06-Jul-16	11:58	0.00103	0.00051	0.00008	0.00007
Silicon (total) [mg/L]	06-Jul-16	11:58	1.25	0.76	0.12	0.12
Tin (total) [mg/L]	06-Jul-16	11:58	0.108	0.105	0.112	0.108
Titanium (total) [mg/L]	06-Jul-16	11:58	0.00013	0.00010	0.00026	0.00014
Thallium (total) [mg/L]	06-Jul-16	11:58	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (total) [mg/L]	06-Jul-16	11:58	0.000033	0.000016	0.000003	0.000003
Vanadium (total) [mg/L]	06-Jul-16	11:58	0.00650	0.00658	0.00462	0.00464
Zinc (total) [mg/L]	06-Jul-16	11:58	< 0.002	< 0.002	< 0.002	< 0.002
Mercury (dissolved) [mg/L]	06-Jul-16	11:58	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	06-Jul-16	11:58	< 0.000002	< 0.000002	< 0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	06-Jul-16	11:58	0.074	0.083	0.018	0.015
Arsenic (dissolved) [mg/L]	06-Jul-16	11:58	0.0016	0.0013	< 0.0002	0.0002
Barium (dissolved) [mg/L]	06-Jul-16	11:58	0.00499	0.00348	0.00382	0.00556
Beryllium (dissolved) [mg/L]	06-Jul-16	11:58	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	06-Jul-16	11:58	0.0018	0.0015	0.0011	0.0010
Bismuth (dissolved) [mg/L]	06-Jul-16	11:58	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	06-Jul-16	11:58	11.7	5.11	1.34	1.32
Cadmium (dissolved) [mg/L]	06-Jul-16	11:58	< 0.000003	0.000004	0.000043	< 0.000003
Cobalt (dissolved) [mg/L]	06-Jul-16	11:58	0.000009	0.000007	0.000009	0.000008
Chromium (dissolved) [mg/L]	06-Jul-16	11:58	0.00003	< 0.00003	0.00003	< 0.00003
Copper (dissolved) [mg/L]	06-Jul-16	11:58	0.00103	0.00128	0.00188	0.00162
Iron (dissolved) [mg/L]	06-Jul-16	11:58	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	06-Jul-16	11:58	0.248	0.127	0.033	0.032
Lithium (dissolved) [mg/L]	06-Jul-16	11:58	0.00476	0.00368	0.00382	0.00373
Magnesium (dissolved) [mg/L]	06-Jul-16	11:58	0.341	0.158	0.062	0.060
Manganese (dissolved) [mg/L]	06-Jul-16	11:58	0.00093	0.00022	0.00027	0.00009
Molybdenum (dissolved) [mg/L]	06-Jul-16	11:58	0.00317	0.00143	0.00047	0.00037
Sodium (dissolved) [mg/L]	06-Jul-16	11:58	0.22	0.10	0.04	0.04
Nickel (dissolved) [mg/L]	06-Jul-16	11:58	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus (dissolved) [mg/L]	06-Jul-16	11:58	0.004	< 0.003	< 0.003	< 0.003
Lead (dissolved) [mg/L]	06-Jul-16	11:58	0.00002	0.00002	0.00004	0.00002
Antimony (dissolved) [mg/L]	06-Jul-16	11:58	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Selenium (dissolved) [mg/L]	06-Jul-16	11:58	0.00133	0.00063	0.00014	0.00012
Silicon (dissolved) [mg/L]	06-Jul-16	11:58	1.27	0.77	0.13	0.12
Tin (dissolved) [mg/L]	06-Jul-16	11:58	0.101	0.0980	0.0961	0.102
Titanium (dissolved) [mg/L]	06-Jul-16	11:58	0.00016	0.00006	0.00005	< 0.00005
Thallium (dissolved) [mg/L]	06-Jul-16	11:58	< 0.000005	< 0.000005	< 0.000005	< 0.000005

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Uranium (dissolved) [mg/L]	06-Jul-16	11:58	0.000025	0.000017	0.000002	0.000003
Vanadium (dissolved) [mg/L]	06-Jul-16	11:58	0.00705	0.00715	0.00470	0.00480
Zinc (dissolved) [mg/L]	06-Jul-16	11:58	< 0.002	< 0.002	0.002	< 0.002

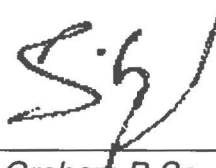
ODWS - Ontario Drinking Water Standards

MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration

AO/OG - Aesthetic Objective / Operational Guideline

\* Exceeds ODWS limit

\*\* No ODWS limit



\_\_\_\_\_  
 Brian Graham B.Sc.  
 Project Specialist  
 Environmental Services, Analytical



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P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

25-November-2016

**Agnico Eagle Mines Limited**

Attn : Serge Ouellet

10200, route de Pressac, Rouyn-Noranda  
Canada, J0Y 1C0  
Phone: 819.759.3700 x5820, Fax:(819) 759-3663

Date Rec. : 02 July 2016  
LR Report: CA10000-JUL16  
Reference: Day #5

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#5	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#5	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#5	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#5
Sample Date & Time			02-Jul-16	02-Jul-16	02-Jul-16	02-Jul-16
Hum Cell Leachate Volume [mL]	05-Jul-16	12:01	953	946	934	1022
Total Suspended Solids [mg/L]	07-Jul-16	10:26	< 2	< 2	< 2	< 2
pH [no unit]	06-Jul-16	10:14	8.13	8.23	6.80	6.98
Conductivity [uS/cm]	06-Jul-16	10:14	68	32	12	10
Alkalinity [mg/L as CaCO3]	06-Jul-16	10:14	15	10	2	2
Acidity [mg/L as CaCO3]	06-Jul-16	10:14	< 2	< 2	< 2	< 2
Fluoride [mg/L]	05-Jul-16	20:56	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	08-Jul-16	10:47	< 1	< 1	< 1	< 1
Sulphate [mg/L]	08-Jul-16	10:47	14	4	2	2
Bromide [mg/L]	11-Jul-16	12:26	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	11-Jul-16	12:26	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	11-Jul-16	12:26	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (total) [mg/L]	06-Jul-16	12:40	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (total) [mg/L]	07-Jul-16	11:16	0.000003	< 0.000002	< 0.000002	0.000002
Aluminum (total) [mg/L]	07-Jul-16	11:16	0.065	0.076	0.023	0.022
Arsenic (total) [mg/L]	07-Jul-16	11:16	0.0016	0.0011	< 0.0002	< 0.0002
Barium (total) [mg/L]	07-Jul-16	11:16	0.00577	0.00385	0.00395	0.00509
Beryllium (total) [mg/L]	07-Jul-16	11:16	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (total) [mg/L]	08-Jul-16	10:59	0.005	< 0.002	0.006	0.005
Bismuth (total) [mg/L]	07-Jul-16	11:17	0.000011	0.000010	0.000009	0.000014
Calcium (total) [mg/L]	07-Jul-16	11:17	12.7	5.31	1.45	1.46
Cadmium (total) [mg/L]	07-Jul-16	11:17	0.000018	0.000003	< 0.000003	0.000006
Cobalt (total) [mg/L]	07-Jul-16	11:17	0.000043	0.000015	0.000010	0.000011
Chromium (total) [mg/L]	07-Jul-16	11:17	0.00004	0.00004	0.00003	0.00009
Copper (total) [mg/L]	07-Jul-16	11:17	0.00106	0.00133	0.00156	0.00162
Iron (total) [mg/L]	07-Jul-16	11:17	< 0.007	< 0.007	< 0.007	0.052
Potassium (total) [mg/L]	07-Jul-16	11:17	0.390	0.215	0.092	0.071
Lithium (total) [mg/L]	07-Jul-16	11:17	0.00413	0.00394	0.00365	0.00318

OnLine LIMS

0000846799



SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.

Lakefield - Ontario - KOL 2HO

Phone: 705-652-2000 FAX: 705-652-6365

LR Report : CA10000-JUL16

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#5	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#5	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#5	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#5
Magnesium (total) [mg/L]	07-Jul-16	11:17	0.330	0.165	0.077	0.073
Manganese (total) [mg/L]	07-Jul-16	11:17	0.00083	0.00007	0.00006	0.00025
Molybdenum (total) [mg/L]	08-Jul-16	10:59	0.00640	0.00212	0.00242	0.00153
Sodium (total) [mg/L]	07-Jul-16	11:17	0.35	0.18	0.10	0.09
Nickel (total) [mg/L]	07-Jul-16	11:17	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus (total) [mg/L]	07-Jul-16	11:17	0.008	0.005	< 0.003	0.004
Lead (total) [mg/L]	07-Jul-16	11:17	0.00003	0.00001	< 0.00001	0.00068
Antimony (total) [mg/L]	07-Jul-16	11:17	0.0010	0.0004	< 0.0002	< 0.0002
Selenium (total) [mg/L]	07-Jul-16	11:17	0.00132	0.00063	0.00023	0.00019
Silicon (total) [mg/L]	07-Jul-16	11:17	1.32	0.79	0.15	0.15
Tin (total) [mg/L]	07-Jul-16	11:17	0.115	0.109	0.111	0.113
Titanium (total) [mg/L]	07-Jul-16	11:17	0.00009	0.00015	0.00009	0.00024
Thallium (total) [mg/L]	07-Jul-16	11:17	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (total) [mg/L]	07-Jul-16	11:17	0.000056	0.000021	0.000005	0.000004
Vanadium (total) [mg/L]	07-Jul-16	11:17	0.00542	0.00497	0.00394	0.00362
Zinc (total) [mg/L]	07-Jul-16	11:17	< 0.002	< 0.002	0.003	0.002
Mercury (dissolved) [mg/L]	07-Jul-16	11:17	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	07-Jul-16	11:17	0.000002	< 0.000002	< 0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	07-Jul-16	11:17	0.068	0.084	0.021	0.020
Arsenic (dissolved) [mg/L]	07-Jul-16	11:17	0.0018	0.0013	< 0.0002	< 0.0002
Barium (dissolved) [mg/L]	07-Jul-16	11:17	0.00609	0.00360	0.00368	0.00480
Beryllium (dissolved) [mg/L]	07-Jul-16	11:17	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	07-Jul-16	11:17	0.0037	0.0028	0.0021	0.0017
Bismuth (dissolved) [mg/L]	07-Jul-16	11:17	< 0.000007	< 0.000007	0.000008	0.000007
Calcium (dissolved) [mg/L]	07-Jul-16	11:17	11.3	5.35	1.42	1.43
Cadmium (dissolved) [mg/L]	07-Jul-16	11:17	0.000004	< 0.000003	< 0.000003	< 0.000003
Cobalt (dissolved) [mg/L]	07-Jul-16	11:17	0.000018	0.000011	0.000013	0.000011
Chromium (dissolved) [mg/L]	07-Jul-16	11:17	0.00005	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	07-Jul-16	11:17	0.00105	0.00138	0.00139	0.00137
Iron (dissolved) [mg/L]	07-Jul-16	11:17	0.009	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	07-Jul-16	11:17	0.284	0.164	0.058	0.054
Lithium (dissolved) [mg/L]	07-Jul-16	11:17	0.00468	0.00428	0.00347	0.00345
Magnesium (dissolved) [mg/L]	07-Jul-16	11:17	0.340	0.177	0.076	0.074
Manganese (dissolved) [mg/L]	07-Jul-16	11:17	0.00092	0.00006	0.00005	0.00006
Molybdenum (dissolved) [mg/L]	07-Jul-16	11:17	0.00463	0.00234	0.00092	0.00070
Sodium (dissolved) [mg/L]	07-Jul-16	11:17	0.26	0.13	0.06	0.05
Nickel (dissolved) [mg/L]	07-Jul-16	11:17	< 0.0001	0.0002	< 0.0001	< 0.0001
Phosphorus (dissolved) [mg/L]	07-Jul-16	11:17	0.005	0.006	< 0.003	< 0.003
Lead (dissolved) [mg/L]	07-Jul-16	11:17	< 0.00001	< 0.00001	0.00001	< 0.00001
Antimony (dissolved) [mg/L]	07-Jul-16	11:17	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Selenium (dissolved) [mg/L]	07-Jul-16	11:17	0.00117	0.00057	0.00015	0.00013
Silicon (dissolved) [mg/L]	07-Jul-16	11:17	1.36	0.83	0.16	0.15
Tin (dissolved) [mg/L]	07-Jul-16	11:17	0.0964	0.0910	0.0955	0.0941
Titanium (dissolved) [mg/L]	07-Jul-16	11:17	0.00007	< 0.00005	< 0.00005	< 0.00005
Thallium (dissolved) [mg/L]	07-Jul-16	11:17	< 0.000005	< 0.000005	< 0.000005	< 0.000005

SGS Canada Inc.

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 Lakefield - Ontario - K0L 2H0  
 Phone: 705-652-2000 FAX: 705-652-6365

LR Report : CA10000-JUL16

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#5	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#5	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#5	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#5
Uranium (dissolved) [mg/L]	07-Jul-16	11:17	0.000039	0.000017	0.000004	0.000002
Vanadium (dissolved) [mg/L]	07-Jul-16	11:17	0.00558	0.00543	0.00394	0.00379
Zinc (dissolved) [mg/L]	07-Jul-16	11:17	0.004	0.002	0.002	0.002

ODWS - Ontario Drinking Water Standards

MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration

AO/OG - Aesthetic Objective / Operational Guideline

\* Exceeds ODWS limit

\*\* No ODWS limit



*Brian Graham B.Sc.*  
*Project Specialist*  
*Environmental Services, Analytical*



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25-November-2016

**Agnico Eagle Mines Limited**

Attn : Serge Ouellet

Date Rec. : 04 July 2016  
LR Report: CA10001-JUL16  
Reference: Day #7

10200, route de Pressac, Rouyn-Noranda  
Canada, J0Y 1C0  
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Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#7	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#7	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#7	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#7
Sample Date & Time			04-Jul-16	04-Jul-16	04-Jul-16	04-Jul-16
Hum Cell Leachate Volume [mL]	06-Jul-16	10:07	1006	1035	986	968
pH [no unit]	07-Jul-16	14:49	7.80	7.63	7.04	7.12
Conductivity [uS/cm]	07-Jul-16	14:49	61	28	11	12
Alkalinity [mg/L as CaCO3]	07-Jul-16	14:49	14	9	3	4
Acidity [mg/L as CaCO3]	07-Jul-16	14:49	< 2	< 2	< 2	< 2
Fluoride [mg/L]	08-Jul-16	14:22	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	07-Jul-16	15:39	< 1	< 1	< 1	< 1
Sulphate [mg/L]	07-Jul-16	15:39	12	3	2	2
Bromide [mg/L]	11-Jul-16	11:12	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	11-Jul-16	11:12	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	11-Jul-16	11:12	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	08-Jul-16	08:35	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	08-Jul-16	10:42	< 0.000002	< 0.000002	< 0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	08-Jul-16	10:42	0.083	0.097	0.025	0.023
Arsenic (dissolved) [mg/L]	08-Jul-16	10:42	0.0018	0.0010	< 0.0002	0.0002
Barium (dissolved) [mg/L]	08-Jul-16	10:42	0.00538	0.00373	0.00468	0.00567
Beryllium (dissolved) [mg/L]	08-Jul-16	10:42	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	08-Jul-16	10:42	0.0022	0.0015	0.0012	0.0010
Bismuth (dissolved) [mg/L]	08-Jul-16	10:42	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	08-Jul-16	10:42	10.6	4.81	1.53	1.61
Cadmium (dissolved) [mg/L]	08-Jul-16	10:42	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt (dissolved) [mg/L]	08-Jul-16	10:42	0.000012	0.000004	0.000006	0.000007
Chromium (dissolved) [mg/L]	08-Jul-16	10:42	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	08-Jul-16	10:42	0.00087	0.00092	0.00102	0.00100
Iron (dissolved) [mg/L]	08-Jul-16	10:42	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	08-Jul-16	10:42	0.209	0.092	0.036	0.046
Lithium (dissolved) [mg/L]	08-Jul-16	10:42	0.00380	0.00356	0.00338	0.00309
Magnesium (dissolved) [mg/L]	08-Jul-16	10:42	0.312	0.144	0.073	0.072

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#7	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#7	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#7	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#7
Manganese (dissolved) [mg/L]	08-Jul-16	10:42	0.00114	0.00011	0.00035	0.00006
Molybdenum (dissolved) [mg/L]	08-Jul-16	10:42	0.00276	0.00095	0.00039	0.00033
Sodium (dissolved) [mg/L]	08-Jul-16	10:42	0.17	0.07	0.03	0.04
Nickel (dissolved) [mg/L]	08-Jul-16	10:42	< 0.0001	< 0.0001	< 0.0001	0.0001
Phosphorus (dissolved) [mg/L]	08-Jul-16	10:42	0.006	0.003	< 0.003	< 0.003
Lead (dissolved) [mg/L]	08-Jul-16	10:42	0.00002	< 0.00001	< 0.00001	< 0.00001
Antimony (dissolved) [mg/L]	08-Jul-16	10:42	0.0005	< 0.0002	< 0.0002	< 0.0002
Selenium (dissolved) [mg/L]	08-Jul-16	10:42	0.00109	0.00045	0.00011	0.00012
Silicon (dissolved) [mg/L]	08-Jul-16	10:42	1.31	0.71	0.17	0.18
Tin (dissolved) [mg/L]	08-Jul-16	10:42	0.0783	0.0738	0.0771	0.0764
Titanium (dissolved) [mg/L]	08-Jul-16	10:42	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium (dissolved) [mg/L]	08-Jul-16	10:42	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	08-Jul-16	10:42	0.000038	0.000019	0.000004	0.000003
Vanadium (dissolved) [mg/L]	08-Jul-16	10:42	0.00385	0.00343	0.00298	0.00309
Zinc (dissolved) [mg/L]	08-Jul-16	10:42	< 0.002	< 0.002	< 0.002	0.002

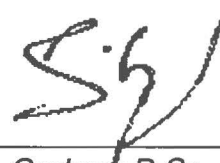
ODWS - Ontario Drinking Water Standards

MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration

AO/OG - Aesthetic Objective / Operational Guideline

\* Exceeds ODWS limit

\*\* No ODWS limit



Brian Graham B.Sc.  
 Project Specialist  
 Environmental Services, Analytical



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25-November-2016

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Date Rec. : 07 July 2016

LR Report: CA10002-JUL16

Reference: Day #10

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#10	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#10	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#10	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#10
Sample Date & Time			07-Jul-16	07-Jul-16	07-Jul-16	07-Jul-16
Hum Cell Leachate Volume [mL]	07-Jul-16	10:39	757	700	776	753
pH [no unit]	08-Jul-16	09:32	7.74	7.57	6.87	6.80
Conductivity [uS/cm]	08-Jul-16	09:32	70	33	11	12
Alkalinity [mg/L as CaCO3]	08-Jul-16	09:32	24	10	4	4
Acidity [mg/L as CaCO3]	08-Jul-16	09:32	< 2	< 2	< 2	< 2
Fluoride [mg/L]	11-Jul-16	11:03	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	14-Jul-16	09:11	< 1	< 1	< 1	< 1
Sulphate [mg/L]	14-Jul-16	09:11	14	4	2	2
Bromide [mg/L]	14-Jul-16	12:36	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	14-Jul-16	12:36	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	14-Jul-16	12:36	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	11-Jul-16	13:06	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	12-Jul-16	09:27	0.000016	0.000005	0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	12-Jul-16	09:27	0.077	0.101	0.032	0.031
Arsenic (dissolved) [mg/L]	12-Jul-16	09:27	0.0019	0.0011	0.0002	0.0002
Barium (dissolved) [mg/L]	12-Jul-16	09:27	0.00777	0.00536	0.00519	0.00652
Beryllium (dissolved) [mg/L]	12-Jul-16	09:27	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	12-Jul-16	09:27	0.0052	0.0030	0.0020	0.0015
Bismuth (dissolved) [mg/L]	12-Jul-16	09:27	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	12-Jul-16	09:27	11.7	5.59	1.74	1.78
Cadmium (dissolved) [mg/L]	12-Jul-16	09:27	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt (dissolved) [mg/L]	12-Jul-16	09:27	0.000019	0.000013	0.000011	0.000014
Chromium (dissolved) [mg/L]	12-Jul-16	09:27	0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	12-Jul-16	09:27	0.00066	0.00069	0.00082	0.00077
Iron (dissolved) [mg/L]	12-Jul-16	09:27	0.011	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	12-Jul-16	09:27	0.232	0.100	0.039	0.036
Lithium (dissolved) [mg/L]	12-Jul-16	09:27	0.00409	0.00437	0.00287	0.00296
Magnesium (dissolved) [mg/L]	12-Jul-16	09:27	0.361	0.190	0.094	0.090

OnLine LIMS

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Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#10	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#10	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#10	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#10
Manganese (dissolved) [mg/L]	12-Jul-16	09:27	0.00112	0.00007	0.00006	0.00007
Molybdenum (dissolved) [mg/L]	12-Jul-16	09:27	0.00363	0.00109	0.00041	0.00031
Sodium (dissolved) [mg/L]	12-Jul-16	09:27	0.19	0.08	0.04	0.03
Nickel (dissolved) [mg/L]	12-Jul-16	09:27	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus (dissolved) [mg/L]	12-Jul-16	09:27	0.004	0.003	< 0.003	< 0.003
Lead (dissolved) [mg/L]	12-Jul-16	09:27	0.00002	< 0.00001	0.00002	< 0.00001
Antimony (dissolved) [mg/L]	12-Jul-16	09:27	0.0009	0.0004	< 0.0002	< 0.0002
Selenium (dissolved) [mg/L]	12-Jul-16	09:27	0.00104	0.00040	0.00012	0.00010
Silicon (dissolved) [mg/L]	12-Jul-16	09:27	1.40	0.81	0.19	0.20
Tin (dissolved) [mg/L]	12-Jul-16	09:27	0.0780	0.0770	0.0759	0.0810
Titanium (dissolved) [mg/L]	12-Jul-16	09:27	0.00019	< 0.00005	< 0.00005	< 0.00005
Thallium (dissolved) [mg/L]	12-Jul-16	09:27	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	12-Jul-16	09:27	0.000068	0.000028	0.000003	< 0.000002
Vanadium (dissolved) [mg/L]	12-Jul-16	09:27	0.00387	0.00365	0.00299	0.00292
Zinc (dissolved) [mg/L]	12-Jul-16	09:27	< 0.002	< 0.002	0.002	0.002

ODWS - Ontario Drinking Water Standards  
 MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration  
 AO/OG - Aesthetic Objective / Operational Guideline  
 \* Exceeds ODWS limit  
 \*\* No ODWS limit



\_\_\_\_\_  
 Brian Graham B.Sc.  
 Project Specialist  
 Environmental Services, Analytical



SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - KOL 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

25-November-2016

**Agnico Eagle Mines Limited**

Attn : Blandine Arseneault

10200, route de Pressac, Rouyn-Noranda  
Canada, JOY 1C0  
Phone: 819.759.3700 x5820, Fax:(819) 759-3663

Date Rec. : 12 July 2016  
LR Report: CA10037-JUL16  
Reference: Day #15

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#15	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#15	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#15	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#15
Sample Date & Time			12-Jul-16	12-Jul-16	12-Jul-16	12-Jul-16
Hum Cell Leachate Volume [mL]	12-Jul-16	09:30	761	757	758	759
pH [no unit]	19-Jul-16	15:46	7.64	7.67	7.13	7.13
Conductivity [uS/cm]	19-Jul-16	15:46	87	43	18	14
Alkalinity [mg/L as CaCO3]	19-Jul-16	15:46	21	13	4	4
Acidity [mg/L as CaCO3]	19-Jul-16	15:46	< 2	< 2	< 2	< 2
Fluoride [mg/L]	13-Jul-16	13:01	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	18-Jul-16	08:46	< 1	< 1	< 1	< 1
Sulphate [mg/L]	18-Jul-16	08:46	20	6	2	2
Bromide [mg/L]	19-Jul-16	08:25	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	19-Jul-16	08:25	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	19-Jul-16	08:25	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	14-Jul-16	08:10	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	14-Jul-16	13:33	< 0.000002	0.000003	< 0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	14-Jul-16	13:33	0.062	0.087	0.032	0.031
Arsenic (dissolved) [mg/L]	14-Jul-16	13:33	0.0015	0.0011	0.0003	< 0.0002
Barium (dissolved) [mg/L]	14-Jul-16	13:33	0.0110	0.00808	0.00654	0.00821
Beryllium (dissolved) [mg/L]	14-Jul-16	13:33	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	14-Jul-16	13:33	0.0032	0.0020	0.0015	0.0013
Bismuth (dissolved) [mg/L]	14-Jul-16	13:33	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	14-Jul-16	13:33	15.6	7.79	2.26	2.27
Cadmium (dissolved) [mg/L]	14-Jul-16	13:33	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt (dissolved) [mg/L]	14-Jul-16	13:33	0.000015	0.000009	0.000008	0.000008
Chromium (dissolved) [mg/L]	14-Jul-16	13:33	0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	14-Jul-16	13:32	0.00083	0.00061	0.00065	0.00061
Iron (dissolved) [mg/L]	14-Jul-16	13:32	0.014	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	14-Jul-16	13:32	0.248	0.117	0.038	0.038
Lithium (dissolved) [mg/L]	14-Jul-16	13:32	0.00484	0.00506	0.00271	0.00253
Magnesium (dissolved) [mg/L]	14-Jul-16	13:32	0.455	0.250	0.108	0.094

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#15	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#15	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#15	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#15
Manganese (dissolved) [mg/L]	14-Jul-16	13:32	0.00216	0.00007	0.00017	0.00010
Molybdenum (dissolved) [mg/L]	14-Jul-16	13:32	0.00453	0.00209	0.00070	0.00046
Sodium (dissolved) [mg/L]	14-Jul-16	13:32	0.25	0.12	0.05	0.05
Nickel (dissolved) [mg/L]	14-Jul-16	13:32	< 0.0001	< 0.0001	0.0001	< 0.0001
Phosphorus (dissolved) [mg/L]	14-Jul-16	13:32	0.004	0.003	< 0.003	< 0.003
Lead (dissolved) [mg/L]	14-Jul-16	13:32	0.00003	0.00002	0.00003	0.00001
Antimony (dissolved) [mg/L]	14-Jul-16	13:32	0.0010	0.0005	< 0.0002	< 0.0002
Selenium (dissolved) [mg/L]	14-Jul-16	13:32	0.00124	0.00052	0.00011	0.00011
Silicon (dissolved) [mg/L]	14-Jul-16	13:32	1.66	1.01	0.25	0.24
Tin (dissolved) [mg/L]	14-Jul-16	13:32	0.0802	0.0782	0.0777	0.0800
Titanium (dissolved) [mg/L]	14-Jul-16	13:32	< 0.00005	< 0.00005	0.00006	< 0.00005
Thallium (dissolved) [mg/L]	14-Jul-16	13:32	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	14-Jul-16	13:32	0.000143	0.000055	0.000016	0.000009
Vanadium (dissolved) [mg/L]	14-Jul-16	13:32	0.00283	0.00264	0.00234	0.00215
Zinc (dissolved) [mg/L]	14-Jul-16	13:32	< 0.002	< 0.002	< 0.002	< 0.002

ODWS - Ontario Drinking Water Standards  
MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration  
AO/OG - Aesthetic Objective / Operational Guideline  
\* Exceeds ODWS limit  
\*\* No ODWS limit



*Brian Graham B.Sc.  
Project Specialist  
Environmental Services, Analytical*



SGS Canada Inc.

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Phone: 705-652-2000 FAX: 705-652-6365

25-November-2016

**Agnico Eagle Mines Limited**

Attn : Blandine Arseneault

10200, route de Pressac, Rouyn-Noranda  
Canada, J0Y 1C0  
Phone: 819.759.3700 x5820, Fax:(819) 759-3663

Date Rec. : 17 July 2016  
LR Report: CA10038-JUL16  
Reference: Day #20

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

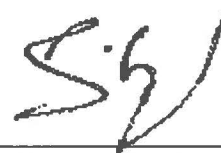
Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#20	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#20	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#20	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#20
Sample Date & Time			17-Jul-16	17-Jul-16	17-Jul-16	17-Jul-16
Hum Cell Leachate Volume [mL]	19-Jul-16	08:09	737	706	720	710
pH [no unit]	19-Jul-16	16:26	7.70	7.30	7.12	7.46
Conductivity [uS/cm]	19-Jul-16	16:26	95	44	16	16
Alkalinity [mg/L as CaCO3]	19-Jul-16	16:26	24	12	5	5
Acidity [mg/L as CaCO3]	19-Jul-16	16:26	< 2	< 2	< 2	< 2
Fluoride [mg/L]	21-Jul-16	13:06	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	21-Jul-16	12:13	< 1	< 1	< 1	< 1
Sulphate [mg/L]	21-Jul-16	12:06	20	5	2	2
Bromide [mg/L]	23-Jul-16	09:17	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	23-Jul-16	09:17	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	21-Jul-16	10:19	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	19-Jul-16	08:59	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	19-Jul-16	11:32	0.000006	0.000004	0.000002	0.000003
Aluminum (dissolved) [mg/L]	19-Jul-16	11:32	0.062	0.093	0.034	0.031
Arsenic (dissolved) [mg/L]	19-Jul-16	11:32	0.0014	0.0010	0.0003	0.0003
Barium (dissolved) [mg/L]	19-Jul-16	11:32	0.0110	0.00859	0.00779	0.0100
Beryllium (dissolved) [mg/L]	19-Jul-16	11:32	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	19-Jul-16	11:32	0.0010	0.0004	< 0.0002	< 0.0002
Bismuth (dissolved) [mg/L]	19-Jul-16	11:32	0.000009	0.000009	0.000009	0.000008
Calcium (dissolved) [mg/L]	19-Jul-16	11:32	16.3	7.30	2.57	2.61
Cadmium (dissolved) [mg/L]	19-Jul-16	11:32	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt (dissolved) [mg/L]	19-Jul-16	11:32	0.000021	0.000009	0.000013	0.000014
Chromium (dissolved) [mg/L]	19-Jul-16	11:32	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	19-Jul-16	11:32	0.00070	0.00065	0.00058	0.00059
Iron (dissolved) [mg/L]	19-Jul-16	11:32	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	19-Jul-16	11:32	0.253	0.112	0.046	0.041
Lithium (dissolved) [mg/L]	19-Jul-16	11:32	0.00539	0.00497	0.00264	0.00258
Magnesium (dissolved) [mg/L]	19-Jul-16	11:32	0.479	0.240	0.113	0.107

Online LIMS

0000946809

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#20	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#20	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#20	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#20
Manganese (dissolved) [mg/L]	19-Jul-16	11:32	0.00319	0.00021	0.00021	0.00017
Molybdenum (dissolved) [mg/L]	19-Jul-16	11:32	0.00441	0.00135	0.00044	0.00037
Sodium (dissolved) [mg/L]	19-Jul-16	11:32	0.23	0.09	0.04	0.03
Nickel (dissolved) [mg/L]	19-Jul-16	11:32	< 0.0001	< 0.0001	0.0002	0.0001
Phosphorus (dissolved) [mg/L]	19-Jul-16	11:32	0.007	< 0.003	< 0.003	< 0.003
Lead (dissolved) [mg/L]	19-Jul-16	11:32	0.00001	0.00050	0.00002	0.00003
Antimony (dissolved) [mg/L]	19-Jul-16	11:32	0.0010	0.0006	0.0003	0.0003
Selenium (dissolved) [mg/L]	19-Jul-16	11:32	0.00138	0.00051	0.00015	0.00013
Silicon (dissolved) [mg/L]	19-Jul-16	11:32	1.70	1.00	0.29	0.31
Tin (dissolved) [mg/L]	19-Jul-16	11:32	0.0724	0.0657	0.0695	0.0704
Titanium (dissolved) [mg/L]	19-Jul-16	11:32	0.00012	0.00005	< 0.00005	< 0.00005
Thallium (dissolved) [mg/L]	19-Jul-16	11:32	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	19-Jul-16	11:32	0.000132	0.000048	0.000005	0.000004
Vanadium (dissolved) [mg/L]	19-Jul-16	11:32	0.00249	0.00234	0.00214	0.00206
Zinc (dissolved) [mg/L]	19-Jul-16	11:32	< 0.002	< 0.002	0.002	0.002

ODWS - Ontario Drinking Water Standards  
 MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration  
 AO/OG - Aesthetic Objective / Operational Guideline  
 \* Exceeds ODWS limit  
 \*\* No ODWS limit



*Brian Graham B.Sc.  
 Project Specialist  
 Environmental Services, Analytical*



SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.  
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Phone: 705-652-2000 FAX: 705-652-6365

25-November-2016

**Agnico Eagle Mines Limited**

Attn : Blandine Arseneault

Date Rec. : 22 July 2016  
LR Report: CA10075-JUL16  
Reference: Day #25

10200, route de Pressac, Rouyn-Noranda  
Canada, J0Y 1C0  
Phone: 819.759.3700 x5820, Fax:(819) 759-3663

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#25	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#25	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#25	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#25
Sample Date & Time			22-Jul-16	22-Jul-16	22-Jul-16	22-Jul-16
Hum Cell Leachate Volume [mL]	22-Jul-16	10:27	755	740	772	783
pH [no unit]	22-Jul-16	16:11	7.74	7.03	5.06	6.99
Conductivity [uS/cm]	22-Jul-16	16:11	92	16	90	17
Alkalinity [mg/L as CaCO3]	22-Jul-16	16:11	22	5	< 2	5
Acidity [mg/L as CaCO3]	22-Jul-16	16:11	< 2	< 2	< 2	< 2
Fluoride [mg/L]	26-Jul-16	14:57	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	25-Jul-16	08:56	< 1	< 1	< 1	< 1
Sulphate [mg/L]	25-Jul-16	08:56	20	5	2	3
Bromide [mg/L]	28-Jul-16	08:12	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	28-Jul-16	08:12	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	28-Jul-16	08:12	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	27-Jul-16	09:54	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	27-Jul-16	10:04	0.000002	< 0.000002	< 0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	27-Jul-16	10:04	0.062	0.098	0.034	0.033
Arsenic (dissolved) [mg/L]	27-Jul-16	10:04	0.0019	0.0009	0.0004	0.0003
Barium (dissolved) [mg/L]	27-Jul-16	10:04	0.0108	0.00942	0.00937	0.0117
Beryllium (dissolved) [mg/L]	27-Jul-16	10:04	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	27-Jul-16	10:04	0.0025	0.0015	0.0010	0.0009
Bismuth (dissolved) [mg/L]	27-Jul-16	10:04	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	27-Jul-16	10:04	15.6	7.28	2.68	2.73
Cadmium (dissolved) [mg/L]	27-Jul-16	10:04	0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt (dissolved) [mg/L]	27-Jul-16	10:04	0.000020	< 0.000004	0.000007	0.000004
Chromium (dissolved) [mg/L]	27-Jul-16	10:04	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	27-Jul-16	10:04	0.00058	0.00049	0.00055	0.00052
Iron (dissolved) [mg/L]	27-Jul-16	10:04	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	27-Jul-16	10:04	0.250	0.110	0.043	0.044
Lithium (dissolved) [mg/L]	27-Jul-16	10:04	0.00371	0.00382	0.00215	0.00214
Magnesium (dissolved) [mg/L]	27-Jul-16	10:04	0.464	0.228	0.104	0.106

Online LIMS

0000846814

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Day#25	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Day#25	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Day#25	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Day#25
Manganese (dissolved) [mg/L]	27-Jul-16	10:04	0.00345	0.00007	0.00031	0.00017
Molybdenum (dissolved) [mg/L]	27-Jul-16	10:04	0.00507	0.00189	0.00064	0.00052
Sodium (dissolved) [mg/L]	27-Jul-16	10:04	0.22	0.09	0.04	0.04
Nickel (dissolved) [mg/L]	27-Jul-16	10:04	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus (dissolved) [mg/L]	27-Jul-16	10:04	< 0.003	< 0.003	< 0.003	< 0.003
Lead (dissolved) [mg/L]	27-Jul-16	10:04	< 0.00001	0.00001	0.00007	0.00001
Antimony (dissolved) [mg/L]	27-Jul-16	10:04	0.0009	0.0004	0.0002	< 0.0002
Selenium (dissolved) [mg/L]	27-Jul-16	10:04	0.00134	0.00047	0.00011	0.00013
Silicon (dissolved) [mg/L]	27-Jul-16	10:04	1.60	0.89	0.29	0.30
Tin (dissolved) [mg/L]	27-Jul-16	10:04	0.0820	0.0744	0.0770	0.0760
Titanium (dissolved) [mg/L]	27-Jul-16	10:04	0.00006	0.00011	0.00011	< 0.00005
Thallium (dissolved) [mg/L]	27-Jul-16	10:04	0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	27-Jul-16	10:04	0.000165	0.000056	0.000010	0.000007
Vanadium (dissolved) [mg/L]	27-Jul-16	10:04	0.00194	0.00194	0.00176	0.00182
Zinc (dissolved) [mg/L]	27-Jul-16	10:04	< 0.002	< 0.002	0.007	0.002

ODWS - Ontario Drinking Water Standards  
 MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration  
 AO/OG - Aesthetic Objective / Operational Guideline  
 \* Exceeds ODWS limit  
 \*\* No ODWS limit

*Brian Graham B.Sc.  
 Project Specialist  
 Environmental Services, Analytical*



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Phone: 705-652-2000 FAX: 705-652-6365

25-November-2016

**Agnico Eagle Mines Limited**

Attn : Blandine Arseneault

Date Rec. : 02 August 2016  
LR Report: CA10006-AUG16  
Reference: Week #5

10200, route de Pressac, Rouyn-Noranda  
Canada, J0Y 1C0  
Phone: 819.759.3700 x5820, Fax:(819) 759-3663

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week# 5	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week# 5	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week# 5	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week# 5
Sample Date & Time			02-Aug-16	02-Aug-16	02-Aug-16	02-Aug-16
Hum Cell Leachate Volume [mL]	03-Aug-16	09:35	811	805	746	698
pH [no unit]	08-Aug-16	08:58	7.68	7.58	7.25	7.18
Conductivity [uS/cm]	08-Aug-16	08:58	107	51	21	21
Alkalinity [mg/L as CaCO3]	08-Aug-16	08:58	29	22	8	8
Acidity [mg/L as CaCO3]	08-Aug-16	08:58	< 2	< 2	< 2	< 2
Fluoride [mg/L]	03-Aug-16	15:13	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	05-Aug-16	08:19	< 1	< 1	< 1	< 1
Sulphate [mg/L]	05-Aug-16	08:19	22	6	2	2
Bromide [mg/L]	08-Aug-16	10:33	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	08-Aug-16	10:33	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	08-Aug-16	10:33	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	04-Aug-16	09:38	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	04-Aug-16	12:07	0.000009	0.000003	< 0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	04-Aug-16	12:07	0.059	0.082	0.030	0.031
Arsenic (dissolved) [mg/L]	04-Aug-16	12:07	0.0014	0.0008	0.0004	0.0004
Barium (dissolved) [mg/L]	04-Aug-16	12:07	0.0124	0.0131	0.0130	0.0155
Beryllium (dissolved) [mg/L]	04-Aug-16	12:07	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	04-Aug-16	12:07	0.0005	0.0002	< 0.0002	< 0.0002
Bismuth (dissolved) [mg/L]	04-Aug-16	12:07	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	04-Aug-16	12:07	20.9	9.48	3.77	3.75
Cadmium (dissolved) [mg/L]	04-Aug-16	12:07	0.000008	< 0.000003	< 0.000003	0.000009
Cobalt (dissolved) [mg/L]	04-Aug-16	12:07	0.000031	0.000013	0.000020	0.000016
Chromium (dissolved) [mg/L]	04-Aug-16	12:07	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	04-Aug-16	12:07	0.00035	0.00021	0.00038	0.00019
Iron (dissolved) [mg/L]	04-Aug-16	12:07	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	04-Aug-16	12:07	0.277	0.120	0.047	0.048
Lithium (dissolved) [mg/L]	04-Aug-16	12:07	0.00545	0.00535	0.00263	0.00259
Magnesium (dissolved) [mg/L]	04-Aug-16	12:07	0.566	0.269	0.122	0.123

OnLine LIMS

0000846818

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week# 5	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week# 5	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week# 5	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week# 5
Manganese (dissolved) [mg/L]	04-Aug-16	12:07	0.00750	0.00059	0.00091	0.00085
Molybdenum (dissolved) [mg/L]	04-Aug-16	12:07	0.00579	0.00262	0.00082	0.00063
Sodium (dissolved) [mg/L]	04-Aug-16	12:07	0.32	0.14	0.08	0.09
Nickel (dissolved) [mg/L]	04-Aug-16	12:07	< 0.0001	< 0.0001	0.0001	< 0.0001
Phosphorus (dissolved) [mg/L]	04-Aug-16	12:07	0.008	0.005	0.004	< 0.003
Lead (dissolved) [mg/L]	04-Aug-16	12:07	0.00002	0.00002	0.00002	0.00006
Antimony (dissolved) [mg/L]	04-Aug-16	12:07	0.0015	0.0008	0.0004	0.0003
Selenium (dissolved) [mg/L]	04-Aug-16	12:07	0.00170	0.00059	0.00017	0.00017
Silicon (dissolved) [mg/L]	04-Aug-16	12:07	1.75	0.99	0.36	0.36
Tin (dissolved) [mg/L]	04-Aug-16	12:07	0.0888	0.0723	0.0781	0.0777
Titanium (dissolved) [mg/L]	04-Aug-16	12:07	0.00009	0.00011	0.00008	< 0.00005
Thallium (dissolved) [mg/L]	04-Aug-16	12:07	0.000005	0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	04-Aug-16	12:07	0.000197	0.000090	0.000017	0.000009
Vanadium (dissolved) [mg/L]	04-Aug-16	12:07	0.00181	0.00157	0.00153	0.00154
Zinc (dissolved) [mg/L]	04-Aug-16	12:07	< 0.002	< 0.002	0.003	0.003

ODWS - Ontario Drinking Water Standards  
 MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration  
 AO/OG - Aesthetic Objective / Operational Guideline  
 \* Exceeds ODWS limit  
 \*\* No ODWS limit



\_\_\_\_\_  
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25-November-2016

**Agnico Eagle Mines Limited**

Attn : Blandine Arseneault

Date Rec. : 16 August 2016  
LR Report: CA10076-AUG16  
Reference: Week #7

10200, route de Pressac, Rouyn-Noranda  
Canada, J0Y 1C0  
Phone: 819.759.3700 x5820, Fax:(819) 759-3663

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#7	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#7	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#7	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#7
Sample Date & Time			16-Aug-16	16-Aug-16	16-Aug-16	16-Aug-16
Hum Cell Leachate Volume [mL]	16-Aug-16	11:50	805	740	753	791
pH [no unit]	17-Aug-16	15:57	7.60	7.56	7.11	7.14
Conductivity [uS/cm]	17-Aug-16	15:57	120	65	26	25
Alkalinity [mg/L as CaCO3]	17-Aug-16	15:57	30	22	9	9
Acidity [mg/L as CaCO3]	17-Aug-16	15:57	< 2	< 2	< 2	< 2
Fluoride [mg/L]	17-Aug-16	11:19	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	22-Aug-16	09:06	< 1	< 1	< 1	< 1
Sulphate [mg/L]	22-Aug-16	09:06	27	8	2	2
Bromide [mg/L]	19-Aug-16	12:08	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	19-Aug-16	12:08	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	19-Aug-16	12:08	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	18-Aug-16	09:41	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	18-Aug-16	13:37	0.000005	< 0.000002	< 0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	18-Aug-16	13:37	0.066	0.090	0.030	0.030
Arsenic (dissolved) [mg/L]	18-Aug-16	13:37	0.0016	0.0008	0.0004	0.0004
Barium (dissolved) [mg/L]	18-Aug-16	13:37	0.0152	0.0174	0.0159	0.0190
Beryllium (dissolved) [mg/L]	18-Aug-16	13:37	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	18-Aug-16	13:37	0.0013	0.0009	0.0005	0.0003
Bismuth (dissolved) [mg/L]	18-Aug-16	13:37	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	18-Aug-16	13:37	21.7	11.0	4.15	4.10
Cadmium (dissolved) [mg/L]	18-Aug-16	13:37	0.000006	< 0.000003	0.000003	< 0.000003
Cobalt (dissolved) [mg/L]	18-Aug-16	13:37	0.000046	0.000011	0.000020	0.000022
Chromium (dissolved) [mg/L]	18-Aug-16	13:37	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	18-Aug-16	13:37	0.00051	0.00040	0.00061	0.00037
Iron (dissolved) [mg/L]	18-Aug-16	13:37	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	18-Aug-16	13:37	0.299	0.138	0.049	0.049
Lithium (dissolved) [mg/L]	18-Aug-16	13:37	0.00556	0.00531	0.00220	0.00204
Magnesium (dissolved) [mg/L]	18-Aug-16	13:37	0.666	0.335	0.122	0.121

Online LIMS

0000846822

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#7	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#7	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#7	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#7
Manganese (dissolved) [mg/L]	18-Aug-16	13:37	0.0139	0.00156	0.00149	0.00134
Molybdenum (dissolved) [mg/L]	18-Aug-16	13:37	0.00778	0.00303	0.00061	0.00059
Sodium (dissolved) [mg/L]	18-Aug-16	13:37	0.32	0.12	0.03	0.03
Nickel (dissolved) [mg/L]	18-Aug-16	13:37	< 0.0001	< 0.0001	< 0.0001	0.0001
Phosphorus (dissolved) [mg/L]	18-Aug-16	13:37	0.008	0.004	0.004	< 0.003
Lead (dissolved) [mg/L]	18-Aug-16	13:37	< 0.00001	< 0.00001	0.00003	< 0.00001
Antimony (dissolved) [mg/L]	18-Aug-16	13:37	0.0015	0.0008	0.0004	0.0004
Selenium (dissolved) [mg/L]	18-Aug-16	13:37	0.00164	0.00062	0.00016	0.00015
Silicon (dissolved) [mg/L]	18-Aug-16	13:37	1.95	1.19	0.42	0.41
Tin (dissolved) [mg/L]	18-Aug-16	13:37	0.0748	0.0608	0.0627	0.0630
Titanium (dissolved) [mg/L]	18-Aug-16	13:37	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium (dissolved) [mg/L]	18-Aug-16	13:37	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	18-Aug-16	13:37	0.000344	0.000140	0.000011	0.000009
Vanadium (dissolved) [mg/L]	18-Aug-16	13:37	0.00168	0.00150	0.00134	0.00134
Zinc (dissolved) [mg/L]	18-Aug-16	13:37	< 0.002	< 0.002	0.003	0.003

ODWS - Ontario Drinking Water Standards  
 MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration  
 AO/OG - Aesthetic Objective / Operational Guideline  
 \* Exceeds ODWS limit  
 \*\* No ODWS limit



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25-November-2016

**Agnico Eagle Mines Limited**

Attn : Blandine Arseneault

Date Rec. : 06 September 2016

LR Report: CA10000-SEP16

Reference: Week #10

10200, route de Pressac, Rouyn-Noranda  
Canada, J0Y 1C0  
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Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#10	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#10	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#10	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#10
Sample Date & Time			06-Sep-16	06-Sep-16	06-Sep-16	06-Sep-16
Hum Cell Leachate Volume [mL]	07-Sep-16	10:26	720	723	792	718
pH [no unit]	07-Sep-16	15:51	7.75	7.60	7.34	7.40
Conductivity [uS/cm]	07-Sep-16	15:51	132	68	29	28
Alkalinity [mg/L as CaCO3]	07-Sep-16	15:51	34	26	15	11
Acidity [mg/L as CaCO3]	07-Sep-16	15:51	< 2	< 2	< 2	< 2
Fluoride [mg/L]	07-Sep-16	08:39	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	08-Sep-16	10:46	1	< 1	< 1	< 1
Sulphate [mg/L]	08-Sep-16	10:46	31	9	3	3
Bromide [mg/L]	09-Sep-16	11:37	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	09-Sep-16	11:37	< 0.03	< 0.03	< 0.03	0.08
Nitrate (as N) [mg/L]	09-Sep-16	11:37	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	07-Sep-16	16:03	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	08-Sep-16	13:40	< 0.000002	< 0.000002	< 0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	08-Sep-16	13:40	0.054	0.077	0.023	0.024
Arsenic (dissolved) [mg/L]	08-Sep-16	13:40	0.0018	0.0008	0.0004	0.0003
Barium (dissolved) [mg/L]	08-Sep-16	13:40	0.0141	0.0150	0.0172	0.0201
Beryllium (dissolved) [mg/L]	08-Sep-16	13:40	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	08-Sep-16	13:40	< 0.002	< 0.002	< 0.002	< 0.002
Bismuth (dissolved) [mg/L]	08-Sep-16	13:40	0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	08-Sep-16	13:40	23.5	12.4	4.96	4.94
Cadmium (dissolved) [mg/L]	08-Sep-16	13:40	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt (dissolved) [mg/L]	08-Sep-16	13:40	0.000061	0.000019	0.000036	0.000036
Chromium (dissolved) [mg/L]	08-Sep-16	13:40	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	08-Sep-16	13:40	0.00054	0.00032	0.00023	0.00027
Iron (dissolved) [mg/L]	08-Sep-16	13:40	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	08-Sep-16	13:40	0.291	0.138	0.052	0.051
Lithium (dissolved) [mg/L]	08-Sep-16	13:40	0.0043	0.0040	0.0020	0.0021
Magnesium (dissolved) [mg/L]	08-Sep-16	13:40	0.634	0.319	0.113	0.114

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#10	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#10	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#10	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#10
Manganese (dissolved) [mg/L]	08-Sep-16	13:40	0.0184	0.00423	0.00245	0.00211
Molybdenum (dissolved) [mg/L]	08-Sep-16	13:40	0.0101	0.00434	0.00097	0.00092
Sodium (dissolved) [mg/L]	08-Sep-16	13:40	0.33	0.15	0.06	0.06
Nickel (dissolved) [mg/L]	08-Sep-16	13:40	< 0.0001	< 0.0001	0.0001	0.0001
Phosphorus (dissolved) [mg/L]	08-Sep-16	13:40	0.006	0.008	< 0.003	< 0.003
Lead (dissolved) [mg/L]	08-Sep-16	13:40	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Antimony (dissolved) [mg/L]	08-Sep-16	13:40	0.0011	0.0006	0.0003	0.0003
Selenium (dissolved) [mg/L]	08-Sep-16	13:40	0.00151	0.00070	0.00023	0.00024
Silicon (dissolved) [mg/L]	08-Sep-16	13:40	2.31	1.29	0.49	0.49
Tin (dissolved) [mg/L]	08-Sep-16	13:40	0.0512	0.0446	0.0594	0.0591
Titanium (dissolved) [mg/L]	08-Sep-16	13:40	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium (dissolved) [mg/L]	08-Sep-16	13:40	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	08-Sep-16	13:40	0.000446	0.000148	0.000011	0.000016
Vanadium (dissolved) [mg/L]	08-Sep-16	13:40	0.00134	0.00122	0.00106	0.00111
Zinc (dissolved) [mg/L]	08-Sep-16	13:40	0.002	< 0.002	0.002	0.003

ODWS - Ontario Drinking Water Standards  
 MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration  
 AO/OG - Aesthetic Objective / Operational Guideline  
 \* Exceeds ODWS limit  
 \*\* No ODWS limit


---

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25-November-2016

**Agnico Eagle Mines Limited**

Attn : Blandine Arseneault

10200, route de Pressac, Rouyn-Noranda  
Canada, J0Y 1C0  
Phone: 819.759.3700 x5820, Fax:(819) 759-3663

Date Rec. : 11 October 2016  
LR Report: CA10035-OCT16  
Reference: Week #15

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#15	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#15	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#15	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#15
Sample Date & Time			11-Oct-16	11-Oct-16	11-Oct-16	11-Oct-16
Hum Cell Leachate Volume [mL]	13-Oct-16	12:42	777	732	773	742
pH [no unit]	12-Oct-16	13:28	7.91	7.83	7.59	7.42
Conductivity [uS/cm]	12-Oct-16	13:28	169	97	42	41
Alkalinity [mg/L as CaCO3]	12-Oct-16	13:28	39	37	16	15
Acidity [mg/L as CaCO3]	12-Oct-16	13:28	< 2	< 2	< 2	< 2
Fluoride [mg/L]	12-Oct-16	12:09	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	14-Oct-16	09:00	< 1	< 1	< 1	< 1
Sulphate [mg/L]	14-Oct-16	09:53	40	16	4	4
Bromide [mg/L]	17-Oct-16	13:10	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	17-Oct-16	13:10	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	17-Oct-16	13:10	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	13-Oct-16	15:02	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	13-Oct-16	15:06	0.000004	0.000003	0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	13-Oct-16	15:06	0.048	0.062	0.032	0.031
Arsenic (dissolved) [mg/L]	13-Oct-16	15:06	0.0016	0.0008	0.0003	0.0003
Barium (dissolved) [mg/L]	13-Oct-16	15:06	0.0188	0.0238	0.0175	0.0204
Beryllium (dissolved) [mg/L]	13-Oct-16	15:06	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	13-Oct-16	15:06	< 0.002	< 0.002	< 0.002	< 0.002
Bismuth (dissolved) [mg/L]	13-Oct-16	15:06	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	13-Oct-16	15:06	32.4	17.6	7.53	7.50
Cadmium (dissolved) [mg/L]	13-Oct-16	15:06	0.000008	0.000007	< 0.000003	< 0.000003
Cobalt (dissolved) [mg/L]	13-Oct-16	15:06	0.000098	0.000029	0.000045	0.000031
Chromium (dissolved) [mg/L]	13-Oct-16	15:06	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	13-Oct-16	15:06	0.00125	0.00039	0.00032	0.00031
Iron (dissolved) [mg/L]	13-Oct-16	15:06	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	13-Oct-16	15:06	0.348	0.169	0.068	0.070
Lithium (dissolved) [mg/L]	13-Oct-16	15:06	0.0036	0.0043	0.0021	0.0021
Magnesium (dissolved) [mg/L]	13-Oct-16	15:06	0.791	0.393	0.138	0.141

Online LIMS

0000846830

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#15	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#15	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#15	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#15
Manganese (dissolved) [mg/L]	13-Oct-16	15:06	0.0326	0.0109	0.00303	0.00298
Molybdenum (dissolved) [mg/L]	13-Oct-16	15:06	0.0141	0.00866	0.00238	0.00232
Sodium (dissolved) [mg/L]	13-Oct-16	15:06	0.46	0.19	0.06	0.06
Nickel (dissolved) [mg/L]	13-Oct-16	15:06	0.0001	< 0.0001	< 0.0001	0.0001
Phosphorus (dissolved) [mg/L]	13-Oct-16	15:06	0.007	0.005	< 0.003	< 0.003
Lead (dissolved) [mg/L]	13-Oct-16	15:06	0.00003	< 0.00001	< 0.00001	< 0.00001
Antimony (dissolved) [mg/L]	13-Oct-16	15:06	0.0015	0.0008	0.0003	0.0003
Selenium (dissolved) [mg/L]	13-Oct-16	15:06	0.00180	0.00065	0.00016	0.00015
Silicon (dissolved) [mg/L]	13-Oct-16	15:06	2.40	1.39	0.59	0.59
Tin (dissolved) [mg/L]	13-Oct-16	15:06	0.0774	0.0632	0.0652	0.0644
Titanium (dissolved) [mg/L]	13-Oct-16	15:06	< 0.00005	< 0.00005	0.00006	< 0.00005
Thallium (dissolved) [mg/L]	13-Oct-16	15:06	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	13-Oct-16	15:06	0.000676	0.000332	0.000028	0.000018
Vanadium (dissolved) [mg/L]	13-Oct-16	15:06	0.00100	0.00087	0.00091	0.00089
Zinc (dissolved) [mg/L]	13-Oct-16	15:06	< 0.002	< 0.002	0.003	0.003

ODWS - Ontario Drinking Water Standards  
 MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration  
 AO/OG - Aesthetic Objective / Operational Guideline  
 \* Exceeds ODWS limit  
 \*\* No ODWS limit



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 Project Specialist  
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25-November-2016

**Agnico Eagle Mines Limited**

Attn : Blandine Arseneault

Date Rec. : 15 November 2016

LR Report: CA10068-NOV16

Reference: Week #20

10200, route de Pressac, Rouyn-Noranda  
Canada, J0Y 1C0  
Phone: 819.759.3700 x5820, Fax:(819) 759-3663

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#20	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#20	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#20	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#20
Sample Date & Time			15-Nov-16	15-Nov-16	15-Nov-16	15-Nov-16
Hum Cell Leachate Volume [mL]	16-Nov-16	10:10	1220	1240	1442	1345
pH [no unit]	17-Nov-16	13:54	7.89	7.68	7.51	7.36
Conductivity [uS/cm]	17-Nov-16	13:54	128	85	49	50
Alkalinity [mg/L as CaCO3]	17-Nov-16	13:54	36	27	19	17
Acidity [mg/L as CaCO3]	17-Nov-16	13:54	< 2	< 2	< 2	< 2
Fluoride [mg/L]	16-Nov-16	14:03	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	18-Nov-16	15:20	< 1	< 1	< 1	< 1
Sulphate [mg/L]	18-Nov-16	15:20	28	12	5	5
Bromide [mg/L]	17-Nov-16	13:48	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	17-Nov-16	13:48	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	17-Nov-16	13:48	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	16-Nov-16	15:15	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	18-Nov-16	09:22	0.000002	< 0.000002	< 0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	18-Nov-16	09:22	0.040	0.043	0.043	0.048
Arsenic (dissolved) [mg/L]	18-Nov-16	09:22	0.0018	0.0009	0.0004	0.0004
Barium (dissolved) [mg/L]	18-Nov-16	09:22	0.00740	0.0130	0.00851	0.00996
Beryllium (dissolved) [mg/L]	18-Nov-16	09:22	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	18-Nov-16	09:22	< 0.002	< 0.002	< 0.002	< 0.002
Bismuth (dissolved) [mg/L]	18-Nov-16	09:22	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	18-Nov-16	09:22	24.1	15.6	9.15	9.32
Cadmium (dissolved) [mg/L]	18-Nov-16	09:22	0.000013	0.000006	< 0.000003	< 0.000003
Cobalt (dissolved) [mg/L]	18-Nov-16	09:22	0.000106	0.000045	0.000031	0.000030
Chromium (dissolved) [mg/L]	18-Nov-16	09:22	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	18-Nov-16	09:22	0.00094	0.00056	0.00042	0.00037
Iron (dissolved) [mg/L]	18-Nov-16	09:22	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	18-Nov-16	09:22	0.306	0.159	0.083	0.083
Lithium (dissolved) [mg/L]	18-Nov-16	09:22	0.0024	0.0025	0.0020	0.0020
Magnesium (dissolved) [mg/L]	18-Nov-16	09:22	0.597	0.320	0.155	0.156

OnLine LIMS

0000846833

SGS Canada Inc.

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 Lakefield - Ontario - KOL 2H0  
 Phone: 705-652-2000 FAX: 705-652-6365

LR Report : CA10068-NOV16

Analysis	3:	4:	5:	6:	7:	8:
	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#20	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#20	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#20	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#20
Manganese (dissolved) [mg/L]	18-Nov-16	09:22	0.0251	0.0125	0.00370	0.00370
Molybdenum (dissolved) [mg/L]	18-Nov-16	09:22	0.0117	0.00847	0.00399	0.00424
Sodium (dissolved) [mg/L]	18-Nov-16	09:22	0.34	0.17	0.08	0.08
Nickel (dissolved) [mg/L]	18-Nov-16	09:22	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus (dissolved) [mg/L]	18-Nov-16	09:22	< 0.003	< 0.003	< 0.003	< 0.003
Lead (dissolved) [mg/L]	18-Nov-16	09:22	0.00002	0.00003	0.00003	< 0.00001
Antimony (dissolved) [mg/L]	18-Nov-16	09:22	0.0011	0.0007	0.0003	0.0004
Selenium (dissolved) [mg/L]	18-Nov-16	09:22	0.00178	0.00082	0.00021	0.00022
Silicon (dissolved) [mg/L]	18-Nov-16	09:22	1.99	1.18	0.64	0.65
Tin (dissolved) [mg/L]	18-Nov-16	09:22	0.0621	0.0546	0.0528	0.0531
Titanium (dissolved) [mg/L]	18-Nov-16	09:22	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium (dissolved) [mg/L]	18-Nov-16	09:22	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	18-Nov-16	09:22	0.000536	0.000235	0.000016	0.000022
Vanadium (dissolved) [mg/L]	18-Nov-16	09:22	0.00099	0.00070	0.00069	0.00067
Zinc (dissolved) [mg/L]	18-Nov-16	09:22	< 0.002	< 0.002	< 0.002	< 0.002

ODWS - Ontario Drinking Water Standards  
 MAC/IMAC - Maximum / Interim Maximum Acceptable Concentration  
 AO/OG - Aesthetic Objective / Operational Guideline  
 \* Exceeds ODWS limit  
 \*\* No ODWS limit



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**Agnico Eagle Mines Limited**

Attn : Blandine Arseneault

10200, route de Pressac, Rouyn-Noranda  
Canada, J0Y 1C0  
Phone: 819.759.3700 x5820, Fax:(819) 759-3663

25-November-2016

**Date Rec. :** 15 November 2016  
**LR Report:** CA10068-NOV16  
**Reference:** Week #20  
  
**Copy:** #1

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#20	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#20	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#20	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#20
Sample Date & Time					15-Nov-16	15-Nov-16	15-Nov-16	15-Nov-16
Hum Cell Leachate Volume [mL]	15-Nov-16	09:59	16-Nov-16	10:10	1220	1240	1442	1345
pH [no unit]	16-Nov-16	14:59	17-Nov-16	13:54	7.89	7.68	7.51	7.36
Conductivity [uS/cm]	16-Nov-16	14:59	17-Nov-16	13:54	128	85	49	50
Alkalinity [mg/L as CaCO3]	16-Nov-16	14:59	17-Nov-16	13:54	36	27	19	17
Acidity [mg/L as CaCO3]	16-Nov-16	14:59	17-Nov-16	13:54	< 2	< 2	< 2	< 2
Fluoride [mg/L]	15-Nov-16	14:07	16-Nov-16	14:03	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	16-Nov-16	09:58	18-Nov-16	15:20	< 1	< 1	< 1	< 1
Sulphate [mg/L]	16-Nov-16	09:55	18-Nov-16	15:20	28	12	5	5
Bromide [mg/L]	16-Nov-16	11:56	17-Nov-16	13:48	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	16-Nov-16	11:56	17-Nov-16	13:48	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	16-Nov-16	11:56	17-Nov-16	13:48	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	16-Nov-16	15:07	16-Nov-16	15:15	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.000002	< 0.000002	< 0.000002	< 0.000002
Aluminum (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.040	0.043	0.043	0.048
Arsenic (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.0018	0.0009	0.0004	0.0004
Barium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.00740	0.0130	0.00851	0.00996
Beryllium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	< 0.002	< 0.002	< 0.002	< 0.002

Analysis	1:	2:	3:	4:	5:	6:	7:	8:
	Analysis Start Date	Analysis Start Time	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#20	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#20	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#20	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#20
Bismuth (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	24.1	15.6	9.15	9.32
Cadmium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.000013	0.000006	< 0.000003	< 0.000003
Cobalt (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.000106	0.000045	0.000031	0.000030
Chromium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.00094	0.00056	0.00042	0.00037
Iron (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.306	0.159	0.083	0.083
Lithium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.0024	0.0025	0.0020	0.0020
Magnesium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.597	0.320	0.155	0.156
Manganese (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.0251	0.0125	0.00370	0.00370
Molybdenum (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.0117	0.00847	0.00399	0.00424
Sodium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.34	0.17	0.08	0.08
Nickel (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	< 0.003	< 0.003	< 0.003	< 0.003
Lead (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.00002	0.00003	0.00003	< 0.00001
Antimony (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.0011	0.0007	0.0003	0.0004
Selenium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.00178	0.00082	0.00021	0.00022
Silicon (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	1.99	1.18	0.64	0.65
Tin (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.0621	0.0546	0.0528	0.0531
Titanium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.000536	0.000235	0.000016	0.000022
Vanadium (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	0.00099	0.00070	0.00069	0.00067
Zinc (dissolved) [mg/L]	16-Nov-16	16:53	18-Nov-16	09:22	< 0.002	< 0.002	< 0.002	< 0.002

**Brian Graham B.Sc.**  
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06-February-2017

**Date Rec. :** 20 December 2016  
**LR Report:** CA10062-DEC16  
**Reference:** Week #25

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#25	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#25	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#25	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#25
Sample Date & Time					20-Dec-16	20-Dec-16	20-Dec-16	20-Dec-16
Hum Cell Leachate Volume [mL]	20-Dec-16	10:03	20-Dec-16	13:43	1426	1393	1416	1425
pH [no unit]	20-Dec-16	13:27	21-Dec-16	15:47	7.69	7.44	7.30	7.34
Conductivity [uS/cm]	20-Dec-16	13:27	21-Dec-16	15:47	128	88	56	56
Alkalinity [mg/L as CaCO3]	20-Dec-16	13:27	21-Dec-16	15:47	37	29	21	22
Acidity [mg/L as CaCO3]	20-Dec-16	13:27	21-Dec-16	15:47	< 2	< 2	< 2	< 2
Fluoride [mg/L]	21-Dec-16	12:40	22-Dec-16	11:52	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	21-Dec-16	12:19	22-Dec-16	14:27	< 1	< 1	< 1	< 1
Sulphate [mg/L]	21-Dec-16	12:18	22-Dec-16	14:27	35	17	5	6
Bromide [mg/L]	21-Dec-16	21:09	22-Dec-16	12:17	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	21-Dec-16	21:09	22-Dec-16	12:17	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	21-Dec-16	21:09	22-Dec-16	12:17	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	22-Dec-16	08:20	22-Dec-16	10:25	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	0.048	0.060	0.045	0.049
Arsenic (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	0.0030	0.0013	0.0004	0.0004
Barium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	0.0178	0.0226	0.0163	0.0176
Beryllium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	0.003	0.003	0.003	0.003
Bismuth (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	< 0.000007	< 0.000007	< 0.000007	< 0.000007

OnLine LIMS

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Analysis	1:	2:	3:	4:	5:	6:	7:	8:
	Analysis Start Date	Analysis Start Time	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite
					Port 1 Week#25	Port 2 Week#25	Port 3 Week#25	Port 4 Week#25
Calcium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	29.9	20.2	10.0	10.1
Cadmium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	0.000017	0.000010	0.000006	< 0.000003
Cobalt (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	0.000077	0.000013	0.000004	0.000318
Chromium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	0.00086	0.00043	0.00036	0.00135
Iron (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	0.363	0.193	0.087	0.087
Lithium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	0.0033	0.0039	0.0022	0.0021
Magnesium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	0.751	0.421	0.174	0.176
Manganese (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	0.0321	0.0156	0.00241	0.00310
Molybdenum (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:51	0.0177	0.0155	0.00633	0.00602
Sodium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	0.45	0.22	0.08	0.08
Nickel (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	0.0001	< 0.0001	0.0001	0.0005
Phosphorus (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	0.003	< 0.003	< 0.003	< 0.003
Lead (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	0.00001	0.00003	0.00001	0.00001
Antimony (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	0.0008	0.0007	0.0003	0.0003
Selenium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	0.00214	0.00104	0.00031	0.00030
Silicon (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	2.32	1.37	0.53	0.54
Tin (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	0.0618	0.0552	0.0536	0.0530
Titanium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	< 0.00005	0.00005	< 0.00005	0.00006
Thallium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	0.000647	0.000305	0.000028	0.000026
Vanadium (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	0.00077	0.00065	0.00067	0.00069
Zinc (dissolved) [mg/L]	21-Dec-16	09:42	23-Dec-16	08:52	0.003	0.002	0.003	0.004

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06-February-2017

Date Rec. : 24 January 2017  
LR Report: CA10100-JAN17  
Reference: Week #30

# CERTIFICATE OF ANALYSIS Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#30	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#30	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#30	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#30
Sample Date & Time					24-Jan-17	24-Jan-17	24-Jan-17	24-Jan-17
Hum Cell Leachate Volume [mL]	24-Jan-17	09:09	24-Jan-17	13:06	1435	1469	1431	1497
pH [no unit]	24-Jan-17	13:18	25-Jan-17	10:26	7.49	7.33	7.17	7.17
Conductivity [uS/cm]	24-Jan-17	13:18	25-Jan-17	10:26	121	90	57	64
Alkalinity [mg/L as CaCO3]	24-Jan-17	13:18	25-Jan-17	10:26	41	29	20	21
Acidity [mg/L as CaCO3]	24-Jan-17	13:18	25-Jan-17	10:26	< 2	< 2	< 2	< 2
Fluoride [mg/L]	25-Jan-17	08:25	25-Jan-17	13:27	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	24-Jan-17	15:58	28-Jan-17	13:43	< 1	< 1	< 1	< 1
Sulphate [mg/L]	24-Jan-17	16:05	28-Jan-17	13:43	31	17	6	6
Bromide [mg/L]	25-Jan-17	22:52	27-Jan-17	15:22	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	25-Jan-17	22:52	27-Jan-17	15:22	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	25-Jan-17	22:52	27-Jan-17	15:22	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	25-Jan-17	15:37	25-Jan-17	16:11	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.049	0.061	0.042	0.050
Arsenic (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.0026	0.0012	0.0004	0.0004
Barium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.0186	0.0222	0.0150	0.0193
Beryllium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.003	0.003	0.003	0.004
Bismuth (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	< 0.000007	< 0.000007	< 0.000007	< 0.000007

OnLine LIMS

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Analysis	1:	2:	3:	4:	5:	6:	7:	8:
	Analysis Start Date	Analysis Start Time	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite
					Port 1 Week#30	Port 2 Week#30	Port 3 Week#30	Port 4 Week#30
Calcium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	29.5	20.9	10.5	10.5
Cadmium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.000029	0.000027	0.000003	0.000013
Cobalt (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.000096	0.000031	0.000015	0.000019
Chromium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.00045	0.00023	0.00017	0.00020
Iron (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.350	0.182	0.081	0.082
Lithium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.0035	0.0040	0.0022	0.0022
Magnesium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.761	0.420	0.172	0.186
Manganese (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.0324	0.0147	0.00178	0.00170
Molybdenum (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.0207	0.0180	0.00732	0.00734
Sodium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.44	0.20	0.05	0.07
Nickel (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.005	< 0.003	< 0.003	< 0.003
Lead (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	< 0.00001	0.00002	< 0.00001	< 0.00001
Antimony (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.0004	0.0005	0.0003	0.0003
Selenium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.00161	0.00082	0.00035	0.00032
Silicon (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	2.69	1.72	0.83	0.84
Tin (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.0447	0.0367	0.0351	0.0355
Titanium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.000833	0.000342	0.000034	0.000030
Vanadium (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	0.00069	0.00056	0.00060	0.00057
Zinc (dissolved) [mg/L]	25-Jan-17	10:40	27-Jan-17	09:37	< 0.002	< 0.002	< 0.002	0.003

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21-March-2017

**Date Rec. :** 28 February 2017  
**LR Report:** CA10140-FEB17  
**Reference:** Week #35

# CERTIFICATE OF ANALYSIS

## Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#35	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#35	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#35	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#35
Sample Date & Time					28-Feb-17	28-Feb-17	28-Feb-17	28-Feb-17
Hum Cell Leachate Volume [mL]	28-Feb-17	08:51	28-Feb-17	14:12	1372	1404	1428	1420
pH [no unit]	28-Feb-17	12:51	02-Mar-17	15:48	7.98	7.76	7.59	7.55
Conductivity [uS/cm]	28-Feb-17	12:51	02-Mar-17	15:48	118	89	60	61
Alkalinity [mg/L as CaCO3]	28-Feb-17	12:51	02-Mar-17	15:48	43	30	20	20
Acidity [mg/L as CaCO3]	28-Feb-17	12:51	02-Mar-17	15:48	< 2	< 2	< 2	< 2
Fluoride [mg/L]	01-Mar-17	11:41	02-Mar-17	11:01	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	02-Mar-17	11:07	02-Mar-17	13:22	< 1	< 1	< 1	< 1
Sulphate [mg/L]	02-Mar-17	11:07	02-Mar-17	13:22	27	14	6	6
Bromide [mg/L]	28-Feb-17	20:50	01-Mar-17	14:05	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	28-Feb-17	20:50	01-Mar-17	14:05	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	28-Feb-17	20:50	01-Mar-17	14:05	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	02-Mar-17	06:51	02-Mar-17	10:59	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.047	0.058	0.043	0.045
Arsenic (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.0030	0.0013	0.0003	0.0003
Barium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.0184	0.0200	0.0146	0.0170
Beryllium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.003	0.003	0.003	0.002
Bismuth (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.000007	< 0.000007	< 0.000007	< 0.000007

OnLine LIMS

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Analysis	1:	2:	3:	4:	5:	6:	7:	8:
	Analysis Start Date	Analysis Start Time	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite
					Port 1 Week#35	Port 2 Week#35	Port 3 Week#35	Port 4 Week#35
Calcium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	28.8	20.4	10.6	10.5
Cadmium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.000017	0.000014	0.000010	0.000007
Cobalt (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.000085	0.000041	0.000021	0.000022
Chromium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.00067	0.00046	0.00040	0.00058
Iron (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.334	0.177	0.086	0.084
Lithium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.0036	0.0034	0.0019	0.0019
Magnesium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.672	0.373	0.162	0.160
Manganese (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.0296	0.0125	0.00124	0.00138
Molybdenum (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.0234	0.0210	0.00883	0.00885
Sodium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.75	0.48	0.32	0.28
Nickel (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.0001	0.0001	0.0001	0.0001
Phosphorus (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	< 0.003	< 0.003	< 0.003	< 0.003
Lead (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.00002	0.00001	0.00002	0.00009
Antimony (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.0004	0.0005	0.0003	0.0003
Selenium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.00153	0.00098	0.00039	0.00027
Silicon (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	2.87	1.82	0.85	0.86
Tin (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.0432	0.0344	0.0318	0.0321
Titanium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.00105	0.000359	0.000034	0.000040
Vanadium (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	0.00070	0.00060	0.00055	0.00055
Zinc (dissolved) [mg/L]	01-Mar-17	10:35	03-Mar-17	09:07	< 0.002	< 0.002	0.002	0.003

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17-April-2017

Date Rec. : 04 April 2017  
LR Report: CA10000-APR17  
Reference: Week #40

Copy: #1

## CERTIFICATE OF ANALYSIS Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 1 Week#40	6: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 2 Week#40	7: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 3 Week#40	8: Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite Port 4 Week#40
Sample Date & Time					04-Apr-17	04-Apr-17	04-Apr-17	04-Apr-17
Hum Cell Leachate Volume [mL]	04-Apr-17	08:23	04-Apr-17	11:44	1375	1424	1387	1373
pH [no unit]	04-Apr-17	11:22	05-Apr-17	11:28	7.93	7.63	7.58	7.44
Conductivity [uS/cm]	04-Apr-17	11:22	05-Apr-17	11:28	114	82	57	57
Alkalinity [mg/L as CaCO3]	04-Apr-17	11:22	05-Apr-17	11:28	36	27	21	18
Acidity [mg/L as CaCO3]	04-Apr-17	11:22	05-Apr-17	11:28	< 2	< 2	< 2	< 2
Fluoride [mg/L]	05-Apr-17	10:47	06-Apr-17	10:44	< 0.06	< 0.06	< 0.06	< 0.06
Chloride [mg/L]	07-Apr-17	13:31	10-Apr-17	14:07	< 1	< 1	< 1	< 1
Sulphate [mg/L]	07-Apr-17	13:26	10-Apr-17	14:07	27	15	7	7
Bromide [mg/L]	07-Apr-17	00:01	11-Apr-17	12:06	< 0.3	< 0.3	< 0.3	< 0.3
Nitrite (as N) [mg/L]	07-Apr-17	00:01	11-Apr-17	12:06	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	07-Apr-17	00:01	11-Apr-17	12:06	< 0.06	< 0.06	< 0.06	< 0.06
Mercury (dissolved) [mg/L]	05-Apr-17	13:04	06-Apr-17	09:34	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.046	0.057	0.045	0.047
Arsenic (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.0026	0.0010	0.0003	0.0006
Barium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.0186	0.0192	0.0139	0.0171
Beryllium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Boron (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.002	0.002	0.002	0.002

Analysis	1:	2:	3:	4:	5:	6:	7:	8:
	Analysis Start Date	Analysis Start Time	Analysis Approval Date	Analysis Approval Time	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite	Col-4 Tuff Fels/Col-6 Dacite 1-2 Composite
					Port 1 Week#40	Port 2 Week#40	Port 3 Week#40	Port 4 Week#40
Bismuth (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	30.4	20.6	11.1	11.1
Cadmium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.000021	0.000016	0.000007	0.000004
Cobalt (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.000089	0.000042	0.000021	0.000023
Chromium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.00064	0.00040	0.00034	0.00024
Iron (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.347	0.189	0.106	0.107
Lithium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.0029	0.0026	0.0016	0.0015
Magnesium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.634	0.336	0.156	0.162
Manganese (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.02656	0.00957	0.00109	0.00130
Molybdenum (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.0260	0.0217	0.0109	0.0105
Sodium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.43	0.23	0.12	0.12
Nickel (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	< 0.0001	0.0001	< 0.0001	< 0.0001
Phosphorus (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.006	< 0.003	< 0.003	< 0.003
Lead (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.00006	< 0.00001	< 0.00001	< 0.00001
Antimony (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.0003	0.0004	0.0003	0.0003
Selenium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.00129	0.00075	0.00050	0.00047
Silicon (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	2.70	1.61	0.85	0.85
Tin (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.0384	0.0297	0.0290	0.0285
Titanium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.00011	0.00007	0.00005	< 0.00005
Thallium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.00119	0.000358	0.000042	0.000037
Vanadium (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	0.00061	0.00047	0.00044	0.00048
Zinc (dissolved) [mg/L]	05-Apr-17	12:00	07-Apr-17	09:25	< 0.002	< 0.002	< 0.002	0.002

**Brian Graham B.Sc.**  
 Project Specialist  
 Environmental Services, Analytical



**SGS Canada Inc.**

P.O. Box 4300 - 185 Concession St.

Lakefield - Ontario - KOL 2H0

Phone: 705-652-2000 FAX: 705-652-6365

**LR Report :**

**CA10000-APR17**

**Attention: Brian Graham**

SGS Canada Inc  
Postal Bag 4300  
185 Concession St  
Lakefield, ON  
Canada K0L 2H0

**Report Date: 2016/12/02**  
Report #: R4272110  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6P3710**  
**Received: 2016/11/22, 12:00**

Sample Matrix: Water  
# Samples Received: 4

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Radium Isotopes by Alpha Spectrometry (1)	4	N/A	2016/12/01	BQL SOP-00006 BQL SOP-00017 BQL SOP-00032	Alpha Spectrometry

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods. Results relate to samples tested.

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

(1) Radium-226 results have not been corrected for blanks.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Simona Vatamanescu, Project Manager  
Email: SVatamanescu@maxxam.ca  
Phone# (905)826-3080

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

**RESULTS OF ANALYSES OF WATER**

Maxxam ID		DML655	DML656	DML657	DML660		
Sampling Date		2016/11/15	2016/11/15	2016/11/15	2016/11/15		
	UNITS	5/8 COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 1 WEEK #20	6/8 COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 2 WEEK #20	7/8 COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 3 WEEK #20	8/8 COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 4 WEEK #20	RDL	QC Batch
Radium-226	Bq/L	<0.010	<0.010	<0.010	<0.010	0.010	4768119
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

**GENERAL COMMENTS**

**Results relate only to the items tested.**

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4768119	FA5	Spiked Blank	Radium-226	2016/11/30		97	%	85 - 115
4768119	FA5	Method Blank	Radium-226	2016/12/01	<0.010		Bq/L	
4768119	FA5	RPD	Radium-226	2016/11/30	NC		%	N/A

N/A = Not Applicable

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

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

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

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

### VALIDATION SIGNATURE PAGE

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



---

Donald Burgess, Senior Scientific Specialist

---

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**Attention: Brian Graham**

SGS Canada Inc  
Postal Bag 4300  
185 Concession St  
Lakefield, ON  
Canada K0L 2H0

**Report Date: 2017/01/04**

Report #: R4310542

Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6R8286**

**Received: 2016/12/22, 11:40**

Sample Matrix: Water  
# Samples Received: 4

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Radium Isotopes by Alpha Spectrometry (1)	4	N/A	2017/01/03	BQL SOP-00006 BQL SOP-00017 BQL SOP-00032	Alpha Spectrometry

**Remarks:**

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods. Results relate to samples tested.

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

(1) Radium-226 results have not been corrected for blanks.

**Encryption Key**

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

Simona Vatamanescu, Project Manager

Email: SVatamanescu@maxxam.ca

Phone# (905)826-3080

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**RESULTS OF ANALYSES OF WATER**

Maxxam ID		DRB989	DRB990	DRB991	DRB992		
Sampling Date		2016/12/20	2016/12/20	2016/12/20	2016/12/20		
	UNITS	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 1 WEEK#25	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 2 WEEK#25	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 3 WEEK#25	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 4 WEEK#25	RDL	QC Batch
Radium-226	Bq/L	<0.010	<0.010	<0.010	<0.010	0.010	4804264
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

**GENERAL COMMENTS**

**Results relate only to the items tested.**

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4804264	FA5	Spiked Blank	Radium-226	2017/01/02		87	%	85 - 115
4804264	FA5	Method Blank	Radium-226	2017/01/02	<0.010		Bq/L	
4804264	FA5	RPD	Radium-226	2017/01/02	NC		%	N/A

N/A = Not Applicable

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

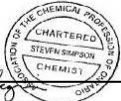
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

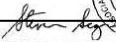
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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

### VALIDATION SIGNATURE PAGE

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



  
\_\_\_\_\_  
Steven Simpson, Lab Director

---

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**Attention: Brian Graham**

SGS Canada Inc  
Postal Bag 4300  
185 Concession St  
Lakefield, ON  
Canada K0L 2H0

**Report Date: 2017/02/07**  
Report #: R4352292  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B718170**  
**Received: 2017/01/27, 12:15**

Sample Matrix: WATER  
# Samples Received: 4

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Radium Isotopes by Alpha Spectrometry (1)	4	N/A	2017/02/03	BQL SOP-00006 BQL SOP-00017 BQL SOP-00032	Alpha Spectrometry

**Remarks:**

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

(1) Radium-226 results have not been corrected for blanks.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Simona Vatamanescu, Project Manager  
Email: SVatamanescu@maxxam.ca  
Phone# (905)826-3080

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**RESULTS OF ANALYSES OF WATER**

Maxxam ID		DVA266	DVA267	DVA268	DVA269		
Sampling Date		2017/01/24	2017/01/24	2017/01/24	2017/01/24		
	UNITS	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 1 WEEK#30	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 2 WEEK#30	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 3 WEEK#30	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 4 WEEK#30	RDL	QC Batch
Radium-226	Bq/L	<0.010	<0.010	<0.010	<0.010	0.010	4845809
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

**GENERAL COMMENTS**

**Results relate only to the items tested.**

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4845809	FA5	Spiked Blank	Radium-226	2017/02/03		88	%	85 - 115
4845809	FA5	Method Blank	Radium-226	2017/02/03	<0.010		Bq/L	
4845809	FA5	RPD	Radium-226	2017/02/03	NC		%	N/A

N/A = Not Applicable

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

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

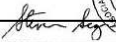
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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

### VALIDATION SIGNATURE PAGE

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



  
\_\_\_\_\_  
Steven Simpson, Lab Director

---

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**Attention: Brian Graham**

SGS Canada Inc  
Postal Bag 4300  
185 Concession St  
Lakefield, ON  
Canada K0L 2H0

**Report Date: 2017/03/21**

Report #: R4398220

Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B751024**

**Received: 2017/03/14, 11:28**

Sample Matrix: Water  
# Samples Received: 4

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Radium Isotopes by Alpha Spectrometry (1)	4	N/A	2017/03/17	BQL SOP-00006 BQL SOP-00017 BQL SOP-00032	Alpha Spectrometry

**Remarks:**

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Results relate to samples tested.

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

(1) Radium-226 results have not been corrected for blanks.

Your Project #: CA10140-FEB17

**Attention: Brian Graham**

SGS Canada Inc  
Postal Bag 4300  
185 Concession St  
Lakefield, ON  
Canada K0L 2H0

**Report Date: 2017/03/21**  
Report #: R4398220  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B751024**  
**Received: 2017/03/14, 11:28**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Simona Vatamanescu, Project Manager  
Email: SVatamanescu@maxxam.ca  
Phone# (905)826-3080

=====  
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**RESULTS OF ANALYSES OF WATER**

Maxxam ID		EAY747	EAY748	EAY749	EAY750		
Sampling Date		2017/02/28	2017/02/28	2017/02/28	2017/02/28		
	UNITS	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 1 WEEK#35	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 2 WEEK#35	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 3 WEEK#35	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 4 WEEK#35	RDL	QC Batch
Radium-226	Bq/L	<0.010	<0.010	<0.010	<0.010	0.010	4897232
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

**GENERAL COMMENTS**

**Results relate only to the items tested.**

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4897232	FA5	Spiked Blank	Radium-226	2017/03/17		97	%	85 - 115
4897232	FA5	Method Blank	Radium-226	2017/03/17	<0.010		Bq/L	
4897232	FA5	RPD	Radium-226	2017/03/17	NC		%	N/A

N/A = Not Applicable

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

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

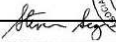
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference  $\leq 2x$  RDL).

### VALIDATION SIGNATURE PAGE

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



  
Steven Simpson, Lab Director

---

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**Attention: Brian Graham**

SGS Canada Inc  
Postal Bag 4300  
185 Concession St  
Lakefield, ON  
Canada K0L 2H0

**Report Date: 2017/04/26**

Report #: R4439399

Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B772671**

**Received: 2017/04/12, 11:30**

Sample Matrix: Water  
# Samples Received: 4

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Radium Isotopes by Alpha Spectrometry (1)	4	N/A	2017/04/24	BQL SOP-00006 BQL SOP-00017 BQL SOP-00032	Alpha Spectrometry

**Remarks:**

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested.

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

(1) Radium-226 results have not been corrected for blanks.

Your Project #: CA10000-APR17

**Attention: Brian Graham**

SGS Canada Inc  
Postal Bag 4300  
185 Concession St  
Lakefield, ON  
Canada K0L 2H0

**Report Date: 2017/04/26**  
Report #: R4439399  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B772671**  
**Received: 2017/04/12, 11:30**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Simona Vatamanescu, Project Manager  
Email: SVatamanescu@maxxam.ca  
Phone# (905)826-3080

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**RESULTS OF ANALYSES OF WATER**

Maxxam ID		EEW350	EEW351	EEW352	EEW353		
Sampling Date		2017/04/04	2017/04/04	2017/04/04	2017/04/04		
	UNITS	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 1 WEEK #40	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 2 WEEK #40	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 3 WEEK #40	COL-4 TUFF FELS/COL-6 DACITE 1-2 COMPOSITE PORT 4 WEEK #40	RDL	QC Batch
Radium-226	Bq/L	<0.010	<0.010	<0.010	<0.010	0.010	4941553
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

**GENERAL COMMENTS**

**Results relate only to the items tested.**

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4941553	FA5	Spiked Blank	Radium-226	2017/04/24		99	%	85 - 115
4941553	FA5	Method Blank	Radium-226	2017/04/24	<0.010		Bq/L	
4941553	FA5	RPD	Radium-226	2017/04/24	NC		%	N/A

N/A = Not Applicable

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

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

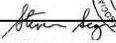
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference  $\leq 2x$  RDL).

### VALIDATION SIGNATURE PAGE

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



  
Steven Simpson, Lab Director

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