

# Construction of an embankment around the M/V Kathryn Spirit, Beauharnois

## Overall Technical Score Investigations

Canadian Coast Guard  
 Fisheries and Oceans Canada



## Volume 3 – Appendixes 1 to 5



OVERALL TECHNICAL SCORE INVESTIGATIONS|045-P-0011905-0-02-000-EN-R-0100-00|JANUARY 31, 2017

### Project References:

Canadian Coast Guard - Fisheries and Oceans Canada .....	FP802-160292
Excavation René St-Pierre .....	16KSREMB
Englobe Corp. ....	P-0011905

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## Overall Technical Score Investigations

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Fisheries and Oceans Canada**

## Volume 3 – Appendixes 1 to 5

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REVISIONS AND RELEASES		
REVISION N°	DATE	DESCRIPTION OF REVISION AND/OR RELEASE
0A	December 15, 2016	Released for Investigation
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## Property and Confidentiality

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## Location of surveys carried out during the investigations

		Client : <b>St-Pierre</b> <small>(Développement) (Rehabilitation) (Acquisition)</small> N° CONTRAT : F9922-1-02022		<b>RAPPORT DE FORAGE</b> Dossier n°: P-0011905-0-02-002 Sondage n°: TF-01-16 Date: 2016-11-23	
Projet: Construction d'un remblai autour du N/M Kathryn Spirit				Coordonnées (m): Nord 5019631,0 (Y) MIM Nad 83, F-us. 8 Est 273686,0 (X) Géodésique Élévation 21,66 (Z) Prof. du roc: 12,04 m Prof. de fin: 20,42 m	
Endroit: Beauharnois, Québec					
<b>État des échantillons</b> Intact <input checked="" type="checkbox"/> Remanié <input type="checkbox"/> Perdu <input type="checkbox"/> Carotte <input type="checkbox"/>			<b>Examens organoleptiques sur les sols:</b> Aspect visuel: Instable(I); Cassé/Incl. (D); Imbibé (M) Couleur: Instable (I); Légère (L); Moyenne (M); Persistante (P)		
<b>Type d'échantillon</b> CF Carotier fendu TM Tube à paroi mince PS Tube à paroi fine CR Tube carotier TA À la tarière MA À la main TU Tube transparent PW Carotier Englobe SG Sol gelé		<b>Abréviations</b> L Limites de consistance W <sub>L</sub> Limite de liquidité (%) W <sub>P</sub> Limite de plasticité (%) I <sub>p</sub> Indice de plasticité (%) I <sub>L</sub> Indice de liquidité W Teneur en eau (%) AG Analyse granulométrique S Sédimentométrie R Refus à l'enfoncement VDS Valeur au Bleu du sol PDT Poids des tiges M.O. Matière organique (%) K Perméabilité (cm/s) PV Poids volumique (kg/m³) A Absorption (lin/m. m) U Compression uniaxiale (MPa) ROD Indice de qualité du roc (%) AC Analyse chimique P <sub>L</sub> Pression limite, essai pressiométrique (kPa) C <sub>u</sub> Module pressiométrique (MPa) C <sub>r</sub> Module de réaction du roc (MPa) SP <sub>50</sub> Potentiel de ségrégation (mm/h. °C) Niveau d'eau N Pénétration standard (Nb coups/300mm) N <sub>2</sub> Pénétration dyn. (Nb coups/300mm) σ <sub>p</sub> Pression de préconsolidation (kPa) TAS Taux d'agressivité des sols Résistance au cisaillement C <sub>u</sub> Intact (kPa) C <sub>us</sub> Remanié (kPa)			
<b>STRATIGRAPHIE</b>		<b>ÉCHANTILLONS</b>		<b>ESSAIS</b>	
PROFONDEUR - m	DESCRIPTION DES SOLS ET DU ROC	SYMBOLES	TYPE ET MIMÉRO	ÉTAT	CAUSE
ÉLEVATION - m	NIVEAU D'EAU (m) / DATE	RECHÈQUE	RECHÈQUE	RECHÈQUE	RECHÈQUE
PROF. - m	RECHÈQUE	RECHÈQUE	RECHÈQUE	RECHÈQUE	RECHÈQUE
21,66	0,00	Berge			
20,82	0,84	Eau du jour le 23 novembre 2016, selon la station 000091 d'Expertise hydrique et barrages du Gouvernement du Québec.			
15,11	6,55	Sol naturel (fill) : gravier sableux et siliceux, traces d'argile, gris, de compacté lâche.	CF-1	N	8
14,50	7,16	Sable siliceux et graveleux, traces	CF-2	N	22
Remarques:					
Type de forage: Tarière et tubage NW/NQ					
Équipement de forage: Maxi scoot					
Préparé par: M. Follag, tech.		Vérifié par: D. Hilaire, Ing.		2016-12-08 Page: 1 de 3	

		Client : <b>St-Pierre</b> <small>(Dévotion) (Revue) (Annuaires)</small> N° CONTRAT : P-001-1905-02		<b>RAPPORT DE FORAGE</b> Dossier n° : P-0011905-0-02-002 Sondage n° : TF-01-16 Date : 2016-11-23									
Projet : Construction d'un remblai autour du N/M Kathryn Spirit				Coordonnées (m) : Nord 5019631,0 (Y) MIM Nad 83, Fus. 8 Est 273698,0 (X) Géodésique Élévation 21,66 (Z) Prof. du roc : 12,04 m Prof. de fin : 20,42 m									
Endroit : Beauharnois, Québec													
STRATIGRAPHIE			ÉCHANTILLONS			ESSAIS							
PROFONDÉUR - m	PROFONDÉUR - m	DESCRIPTION DES SOLS ET DU ROC	SYMBOLS	TYPE ET NUMÉRO	SOLUS-CH	ÉTAT	CAUBRE	RÉGÉNÉRATION %	Mo coupe/150mm	W' du ROC	Coarsens organo.	RÉSULTATS	ÉTALONNAGE EN N° ET LÉGENDE (%)
	ÉLÉVATION - m PROF. - m												20 40 60 80 100 120 20 40 60 80 100 120 140 160 180 200
25	7,62	Argile, gris, de compacité apparente moyenne. Présence de fragments de roc et de cailloux.		CR-3			NQ	31					
30				CR-4			NQ	31					
35	10,31	Grievier sableux, traces de silt, gris, de compacité apparente moyenne.		CR-5			NQ	58					
36	11,35	Présence de fragments de roc et de cailloux.		CR-6			B	100	50/100	R			
37	9,62			CR-7			NQ	100		21			
38	12,64	Roc : grès blanc, présence de calcaire disséminé et de lamines de shale noir, de très mauvaise à mauvaise qualité.		CR-8			NQ	94		71			
40				CR-9			NQ	29		0			
45				CR-10			NQ	19		0			
50				CR-11			NQ	63		0			
55				CR-12			NQ	92		30			
60				CR-13			NQ	100		0			
Remarques :													
Type de forage : I arrière et tubage NW/NQ      Équipement de forage : Maxi scoot													
Préparé par : M. Follag, tech.				Vérifié par : D. Thibault, Ing.				2016-12-08		Page : 2 de 3			



Cient :

**St-Pierre**

[Développement] [Rehabilitation] [Acquisition]

N° CONTRAT : FP202-1-00000

# RAPPORT DE FORAGE

Dossier n°: P-0011905-0-02-002

Sondage n°: TF-01-16

Date: 2016-11-23

Projet: Construction d'un remblai autour du N/M Kathryn Spirit

Endroit: Beauharnois, Québec

Coordonnées (m): Nord 5019631,0 (Y)

MIM Nad 83, Fus. 8 Est 273696,0 (X)

Géodésique Élévation 21,66 (Z)

Prof. du roc: 12,04 m Prof. de fin: 20,42 m

PROFONDEUR: -m		STRATIGRAPHIE			ÉCHANTILLONS						ESSAIS						
PROFONDEUR: -m	ÉLEVATION: -m	PROF. -m	DESCRIPTION DES SOLS ET DU ROC	SYMBOLS	NIVEAU D'EAU (m) / DATE		TYPE ET NUMÉRO	SOLUS-CH	ÉTAT	CAUBRE	RÉCUPÉRATION %	Nb coups/150mm	"W" ou RQD	Essais organo.		RÉSULTATS	ESSAIS
														Odour	Visual		
19			Roc : grès blanc, présence de caliche disséminée et de lamines de shale noir, de très mauvaise à mauvaise qualité.				CR-14			NQ	89		23				
20							CR-15			NQ	78		0				
20,42	1,24	20,42	Fin du forage à une profondeur de 20,42m.				CR-16			NQ	100		90				
21																	
22																	
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Remarques:

Type de forage: T arrière et tubage NW/NQ

Équipement de forage: Maxi scout

Préparé par: M. Follag, tech.

Vérifié par: D. Thibault, Ing.

2016-12-08

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Client : St-Pierre Démolition – Revitalisation – Acquisition N° CONTRAT :	Customer: Saint-Pierre Demolition – Revitalization – Acquisition CONTRACT #:
RAPPORT DE FORAGE Dossier n° : Sondage n° : Date :	BOREHOLE LOG File #: Survey #: Date:
Projet : Construction d'un remblai autour du N/M Kathryn Spirit	Project: Construction of an embankment around the M/V Kathryn Spirit
Endroit : Beauharnois, Québec	Location: Beauharnois, Quebec
Coordonnées (m) : Nord MTM Nad 83, Fus. 8 Est Géodésique Élévation Prof. du roc : Prof. de fin :	Coordinates (m): North MTM Nad 83, Zone 8 East Geodetic Elevation Bedrock depth: End depth:
État des échantillons Intact Remanié Perdu Carotte	Sample condition Intact Remoulded Lost Core
Examens organoleptiques sur les sols : Aspect visuel : Inexistant (I) Disséminé (D) Imbibé (IM) Odeur : Inexistante (I) Légère (L) Moyenne (M) Persistante (P)	Organoleptic soil examinations: Visual aspect: Non-existent (N) Disseminated (D) Soaked (S) Odour: Non-existent (N) Light (L) Medium (M) Persistent (P)
Type d'échantillon CF – Carottier fendu TM – Tube à paroi mince PS – Tube à piston fixe CR - Tube carottier TA – À la tarière MA – À la main TU – Tube transparent PW – Carottier Englobe SG – Sol gelé	Sample Type SS – Split spoon TM – Thin wall tube PS – Piston tube RC - Rock core TA – Auger HA – Bulk sample TU – Transparent tube PW – Englobe core FG – Frozen ground
Abréviations L – Limites de consistance W <sub>L</sub> – Limite de liquidité (%) W <sub>P</sub> – Limite de plasticité (%) I <sub>P</sub> – Indice de plasticité (%) I <sub>L</sub> – Indice de liquidité W – Teneur en eau (%)	Abbreviations L – Consistency limits W <sub>L</sub> – Liquid limit (%) W <sub>P</sub> – Plastic limit (%) I <sub>P</sub> – Plasticity index (%) I <sub>L</sub> – Liquidity index W – Water content (%)

AG – Analyse granulométrique S – Sédimentométrie R – Refus à l'enfoncement VBS – Valeur au Bleu du sol PDT – Poids des tiges M.O. – Matière organique (%) K – Perméabilité (cm/s) PV – Poids volumique (kN/m <sup>3</sup> ) A – Absorption (l/min. m) U – Compression uniaxiale (MPa) RQD – Indice de qualité du roc (%) AC – Analyse chimique P <sub>L</sub> – Pression limite, essai pressiométrique (kPa) E <sub>M</sub> – Module pressiométrique (MPa) E <sub>r</sub> – Module de réaction du roc (MPa) SP <sub>O</sub> – Potentiel de ségrégation (mm <sup>2</sup> /H °C) Niveau d'eau N – Pénétration standard (nb coups/300mm) N <sub>c</sub> – Pénétration dyn. (nb coups/300mm) $\sigma'_p$ – Pression de préconsolidation (kPa) TAS – Taux d'agressivité des sols	SA – Sieve analysis S – Sedimentation analysis R – Auger refusal VBS – Methylene blue value WR – Weight of rods O.M. – Organic matter (%) K – Permeability (cm/s) UW – Unit weight (kN/m <sup>3</sup> ) A – Absorption (l/min. m) U – Uniaxial compression (MPa) RQD – Rock quality designation (%) CA – Chemical analysis P <sub>L</sub> – Limit pressure, pressuremeter test (kPa) E <sub>M</sub> – Pressuremeter modulus (MPa) E <sub>r</sub> – Modulus of subgrade reaction (MPa) SP <sub>O</sub> – Segregation potential (mm <sup>2</sup> /H °C) Water level N – Standard penetration (blows/300 mm) N <sub>c</sub> – Dynamic penetration (blows/300 mm) $\sigma'_p$ – Preconsolidation pressure (kPa) SCI – Soil corrosivity index
Résistance au cisaillement C <sub>U</sub> – Intact (kPa) C <sub>UR</sub> – Remanié (kPa) Chantier Laboratoire	Shear strength C <sub>U</sub> – Intact (kPa) C <sub>UR</sub> – Remoulded (kPa) Site Laboratory
Échelle verticale	Vertical scale
STRATIGRAPHIE	STRATIGRAPHY
ÉCHANTILLONS	SAMPLES
ESSAIS	TRIALS
PROFONDEUR – pi PROFONDEUR – m	DEPTH – ft DEPTH – m
ÉLÉVATION – m PROF. – m	ELEVATION – m DEPTH – m
DESCRIPTION DES SOLS ET DU ROC	SOIL AND BEDROCK DESCRIPTION
SYMBOLES	SYMBOLS
NIVEAU D'EAU (m) / DATE	WATER LEVEL (m) / DATE
TYPE ET NUMÉRO	TYPE AND NUMBER
SOUS-ÉCH.	SUBSAMPLE
ÉTAT	CONDITION
CALIBRE	SIZE
RÉCUPÉRATION %	RECOVERY %
Nb coups/150mm	Blows/150 mm
« N » ou RQD	"N" or RQD
Examens organo.	Organo. exams
Odeur	Odour
Visuel	Visual
RÉSULTATS	RESULTS
TENEUR EN EAU ET LIMITES (%) W <sub>p</sub> W WL	WATER CONTENT AND LIMITS (%) W <sub>p</sub> W WL
RÉSISTANCE AU CISAILLEMENT (kPa) OU	UNDRAINED SHEAR STRENGTH (kPa) OR

PÉNÉTRATION DYNAMIQUE	DYNAMIC PENETRATION
Barge	Barge
Eau du jour le 23 novembre 2016, selon la station 000091 d'Expertise hydrique et barrages du Gouvernement du Québec.	Water level on November 23, 2016, according to the Government of Quebec's Expertise hydrique et barrages Station 000091.
Sol naturel (till) : gravier sableux et silteux, traces d'argile, gris, de compacité lâche	Natural soil (till): sandy and silty gravel, trace clay, grey, loosely compacted
Sable silteux et graveleux, traces d'argile, gris, de compacité apparente moyenne. Présence de fragments de roc et de cailloux. Cailloux et/ou blocs.	Silty and gravelly sand, trace clay, grey, apparent average compactness. Presence of fragments of bedrock and pebbles. Pebbles and/or boulders.
Gravier sableux, traces de silt, gris, de compacité apparente moyenne. Présence de fragments de rock et de cailloux	Sandy gravel, trace silt, grey, apparent average compactness. Presence of fragments of bedrock and pebbles
Roc : grès blanc, présence de calcite disséminée et de lamines de shale noir, de très mauvaise à mauvaise qualité.	Bedrock: white sandstone, presence of disseminated calcite and black shale laminae, very poor to poor quality.
Roc : grès blanc, présence de calcite disséminée et de lamines de shale noir, de très mauvaise à mauvaise qualité.	Bedrock: white sandstone, presence of disseminated calcite and black shale laminae, very poor to poor quality.
Fin du forage à une profondeur de 20,42m.	End of borehole at a depth of 20.42 m.
Remarque : Type de forage : Tarière et tubage NW/NQ Équipement de forage : Maxi scoot	Note: Borehole type: NW/NQ auger and tube Boring equipment: Maxi scoot
Préparé par : M. Fellag, tech.	Prepared by: M. Fellag, Tech.
Vérifié par : D. Thibault, ing.	Verified by: D. Thibault, Eng.



## Pressurized water test in the rock (Lugeon-type)

<b>Customer:</b> CANADA		<b>File:</b> P-0011905-0-02-002-01		<b>Borehole:</b> TF-02-16										
<b>Project:</b> M/V Kathryn Spirit				<b>Dip:</b> 90										
<b>Plug(s):</b> Single	<b>Length (cm) :</b> 122		<b>Flowmeter:</b> yes		<b>Azimuth:</b> 0									
<b>Diameter (cm):</b> 4.3	<b>Borehole size:</b> NQ		<b>Plug pressure (kPa):</b> 250											
<b>Range of gauge readings (kPa):</b> 0-700			<b>Water level (He) (m):</b> 0.84											
<b>Gauge height above ground (Ht) m:</b> 0.00			<b>Bedrock depth (inclined, m):</b> 7.77											
<b>Interval (inclined, m):</b> Top:	13.41	<b>Bottom:</b>	20.42	<b>Length (m):</b> 7.01										
<b>Maximum pressure at the centre of the interval [P<sub>M</sub>] (kPa):</b> 310			<b>Pressure Ht + He (kPa):</b> 8											
<b>Stage I - Net injection pressure [Pr] (kPa) = 0.33 P<sub>M</sub> + P(Ht+He):</b> 112														
Time (min)	0	1	2	3	4	5	6	7	8	9	10	11	Flow (l/min)	Absorption (l/min-m)
Total (l)	51.0	62.0	73.4	85.7	95.0	107.6	119.1	130.8	142.4	153.6	165.0		11.5	1.6
Flow (l/min)		11.0	11.4	12.3	9.3	12.6	11.5	11.7	11.6	11.2	11.4			
Score														
<b>Stage II -Net injection pressure [Pr] (kPa) = 0.66 P<sub>M</sub>.P(Ht+He):</b> 208														
Time (min)	0	1	2	3	4	5	6	7	8	9	10	11	Flow (L/min)	Absorption (l/min-m)
Total (l)	24.0	41.2	58.1	75.4	92.4	109.5	126.5						17.1	2.4
Flow (L/min)		17.2	16.9	17.3	17.0	17.1	17.0							
Score														
<b>Stage III -Net injection pressure [Pr] (kPa) = P<sub>M</sub>.P(Ht+He) :</b> 307														
Time (min)	0	1	2	3	4	5	6	7	8	9	10	11	Flow (L/min)	Absorption (l/min-m)
Total (l)	87.0	108.5	130.0	151.5	172.5	194.0	215.0	236.5					21.4	3.0
Flow (L/min)		21.5	21.5	21.5	21.0	21.5	21.0	21.5						
Score		Pressure= 60 kPa after 2 min												
<b>Stage IV -Net injection pressure [Pr] (kPa) = 0.66 P<sub>M</sub>.P(Ht+He) :</b> 208														
Time (min)	0	1	2	3	4	5	6	7	8	9	10	11	Flow (L/min)	Absorption (l/min-m)
Total (l)	11.0	28.9	45.6	63.4	80.5	97.9	115.6						17.4	2.5
Flow (L/min)		17.9	16.7	17.8	17.1	17.4	17.7							
Score														
<b>Stage V - Net injection pressure [Pr] (kPa) = 0.33 P<sub>M</sub>.P(Ht+He):</b> 112														
Time (min)	0	1	2	3	4	5	6	7	8	9	10	11	Flow (L/min)	Absorption (l/min-m)
Total (l)	46.0	58.9	69.0	81.2	93.4	105.6	117.8	129.9					12.2	1.7
Flow (L/min)		12.9	10.1	12.2	12.2	12.2	12.2	12.1						
Score														
Notes: Residual: 307: 0 in 1 second														
Started at 1:00 p.m. and ended at 2:30 p.m.														
Performed by: Louis Jacques and Mohamed Fellag								Verified by: David Thibault, Eng.						
Date: 18/11/2016								Date: 20/12/2016						

Photo 1 – Basement rock at borehole site TF-01-16









Cient :

**St-Pierre**

(Dévotion) (Devotion) (Acquisition)

N° CONTRAT : PR025-16022

## RAPPORT DE FORAGE

Dossier n°: P-0011905-0-02-002

Sondage n°: TF-02-16

Date: 2016-11-17

Projet: Construction d'un remblai autour du N/M Kathryn Spirit

Endroit: Beauharnois, Québec

Coordonnées (m): Nord 5019714,2 (Y)

MIM Nad 83, Fus. B Est 273808,9 (X)

Géodésique Élévation 21,66 (Z)

Prof. du roc: 13,59 m Prof. de fin: 19,99 m

PROFONDEUR - pi		PROFONDEUR - m		STRATIGRAPHIE		SYMBOLES		NIVEAU D'EAU (m) / DATE		ÉCHANTILLONS						ESSAIS											
ÉLEVATION - m		PROF. - m		DESCRIPTION DES SOLS ET DU ROC				TYPE ET NUMÉRO		SOUS-ÉCH.		ÉTAT		CALEBRE		RÉCUPÉRATION %		Nb coups/150mm		"W" ou ROD		Coarsness organo.		RÉSULTATS		TENSURE DE LAUS ET LIMITE (psi)	
																										Wp W WL	
																										20 40 60 80 100 120	
																										20 40 60 80 100 120	
19				Roc - grès blanc, présence de caliche disséminée et de lamines de shale noir, de qualité moyenne à bonne.				CR-14				NQ		89						51				U= 203,0 MPa PV= 25,3 kN/m²			
20	1,67	19,99		Fin du forage à une profondeur de 19,99m.																							
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100																											

Remarques:

Type de forage: Tarière et tubage NW/NQ

Équipement de forage: Maxi scoot

Préparé par: L. Jacques, Ing. Jr

Vérifié par: D. Thibault, Ing.

2016-12-08

Page: 3 de 3



Client : St-Pierre Démolition – Revitalisation – Acquisition N° CONTRAT :	Customer: Saint-Pierre Demolition – Revitalization – Acquisition CONTRACT #:
RAPPORT DE FORAGE Dossier n° : Sondage n° : Date :	BOREHOLE LOG File #: Survey #: Date:
Projet : Construction d'un remblai autour du N/M Kathryn Spirit	Project: Construction of an embankment around the M/V Kathryn Spirit
Endroit : Beauharnois, Québec	Location: Beauharnois, Quebec
Coordonnées (m) : Nord MTM Nad 83, Fus. 8 Est Géodésique Élévation Prof. du roc : Prof. de fin :	Coordinates (m): North MTM Nad 83, Zone 8 East Geodetic Elevation Bedrock depth: End depth:
État des échantillons Intact Remanié Perdu Carotte	Sample Condition Intact Remoulded Lost Core
Examens organoleptiques sur les sols : Aspect visuel : Inexistant (I) Disséminé (D) Imbibé (IM) Odeur : Inexistante (I) Légère (L) Moyenne (M) Persistante (P)	Organoleptic soil examinations: Visual aspect: Non-existent (N) Disseminated (D) Soaked (S) Odour: Non-existent (N) Light (L) Medium (M) Persistent (P)
Type d'échantillon CF – Carottier fendu TM – Tube à paroi mince PS – Tube à piston fixe CR - Tube carottier TA – À la tarière MA – À la main TU – Tube transparent PW – Carottier Englobe SG – Sol gelé	Sample Type SS – Split spoon TM – Thin wall tube PS – Piston tube RC - Rock core TA – Auger HA – Bulk sample TU – Transparent tube PW – Englobe core FG – Frozen ground
Abréviations L – Limites de consistance W <sub>L</sub> – Limite de liquidité (%) W <sub>P</sub> – Limite de plasticité (%) I <sub>P</sub> – Indice de plasticité (%) I <sub>L</sub> – Indice de liquidité W – Teneur en eau (%) AG – Analyse granulométrique	Abbreviations L – Consistency limits W <sub>L</sub> – Liquid limit (%) W <sub>P</sub> – Plastic limit (%) I <sub>P</sub> – Plasticity index (%) I <sub>L</sub> – Liquidity index W – Water content (%) SA – Sieve analysis

S – Sédimentométrie R – Refus à l'enfoncement VBS – Valeur au Bleu du sol PDT – Poids des tiges M.O. – Matière organique (%) K – Perméabilité (cm/s) PV – Poids volumique (kN/m <sup>3</sup> ) A – Absorption (l/min. m) U – Compression uniaxiale (MPa) RQD – Indice de qualité du roc (%) AC – Analyse chimique P <sub>L</sub> – Pression limite, essai pressiométrique (kPa) E <sub>M</sub> – Module pressiométrique (MPa) E <sub>r</sub> – Module de réaction du roc (MPa) SP <sub>O</sub> – Potentiel de ségrégation (mm <sup>2</sup> /H °C) Niveau d'eau N – Pénétration standard (Nb coups/300mm) N <sub>c</sub> – Pénétration dyn. (Nb coups/300mm) σ' <sub>P</sub> – Pression de préconsolidation (kPa) TAS – Taux d'agressivité des sols	S – Sedimentation analysis R – Auger refusal VBS – Methylene blue value WR – Weight of rods O.M. – Organic matter (%) K – Permeability (cm/s) UW – Unit weight (kN/m <sup>3</sup> ) A – Absorption (l/min. m) U – Uniaxial compression (MPa) RQD – Rock quality designation (%) CA – Chemical analysis P <sub>L</sub> – Limit pressure, pressuremeter test (kPa) E <sub>M</sub> – Pressuremeter modulus (MPa) E <sub>r</sub> – Modulus of subgrade reaction (MPa) SP <sub>O</sub> – Segregation potential (mm <sup>2</sup> /H °C) Water level N – Standard penetration (blows/300 mm) N <sub>c</sub> – Dynamic penetration (blows/300 mm) σ' <sub>P</sub> – Preconsolidation pressure (kPa) SCI – Soil corrosivity index
Résistance au cisaillement C <sub>U</sub> – Intact (kPa) C <sub>UR</sub> – Remanié (kPa) Chantier Laboratoire	Shear strength C <sub>U</sub> – Intact (kPa) C <sub>UR</sub> – Remoulded (kPa) Site Laboratory
Échelle verticale	Vertical scale
STRATIGRAPHIE	STRATIGRAPHY
ÉCHANTILLONS	SAMPLES
ESSAIS	TRIALS
PROFONDEUR – pi PROFONDEUR – m	DEPTH – ft DEPTH – m
ÉLÉVATION – m PROF. – m	ELEVATION – m DEPTH – m
DESCRIPTION DES SOLS ET DU ROC	SOIL AND BEDROCK DESCRIPTION
SYMBLES	SYMBOLS
NIVEAU D'EAU (m) / DATE	WATER LEVEL (m) / DATE
TYPE ET NUMÉRO	TYPE AND NUMBER
SOUS-ÉCH.	SUBSAMPLE
ÉTAT	CONDITION
CALIBRE	SIZE
RÉCUPÉRATION %	RECOVERY %
Nb coups/150mm	Blows/150 mm
« N » ou RQD	"N" or RQD
Examens organo.	Organo. exams
Odeur	Odour
Visuel	Visual
RÉSULTATS	RESULTS
TENEUR EN EAU ET LIMITES (%) W <sub>p</sub> W W <sub>L</sub>	WATER CONTENT AND LIMITS (%) W <sub>p</sub> W W <sub>L</sub>
RÉSISTANCE AU CISAILLEMENT (kPa) OU PÉNÉTRATION DYNAMIQUE	UNDRAINED SHEAR STRENGTH (kPa) OR DYNAMIC PENETRATION



Barge	Barge
Eau du jour le 17 novembre 2016, selon la station 000091 d'Expertise hydrique et barrages du Gouvernement du Québec.	Water level on November-17-16, according to the Government of Quebec's Expertise hydrique et barrages Station 000091.
Sédiments : argile silteuse, traces de sable, de consistance apparente très molle. Présence de matières organiques.	Sediment: silty clay, trace sand, apparent very soft consistency. Organic materials present.
Sol naturel (till) : sable graveleux et silteux, traces d'argile, gris, de compacité apparente moyenne. Présence de cailloux et de fragments de roc.	Natural soil (till): sandy and silty gravel, trace clay, grey, apparent average compactness. Pebbles and bedrock fragments present.
Gravier sableux, traces de silt et d'argile, gris, de compacité apparente dense. Présence de cailloux et de fragments de roc.	Sandy gravel, trace silt and clay, grey, apparent dense compactness. Pebbles and bedrock fragments present.
Roc : grès blanc, présence de calcite disséminée et de lamines de shale noir, de qualité mauvaise à bonne.	Bedrock: white sandstone, presence of disseminated calcite and black shale laminae, poor to good quality.
Roc : grès blanc, présence de calcite disséminée et de lamines de shale noir, de qualité mauvaise à bonne.	Bedrock: white sandstone, presence of disseminated calcite and black shale laminae, poor to good quality.
Fin du forage à une profondeur de 19,99m.	End of borehole at a depth of 19.99 m.
Remarque : Type de forage : Tarière et tubage NW/NQ Équipement de forage : Maxi scoot	Note: Borehole type: NW/NQ auger and tube Boring equipment: Maxi scoot
Préparé par : L. Jacques, ing. jr	Prepared by: L. Jacques, Jr. Eng.
Vérifié par : D. Thibault, ing.	Verified by: D. Thibault, Eng.

## Pressurized water test in the rock (Lugeon-type)

<b>Customer:</b> CANADA		<b>File:</b> P-0011905-0-02-002-01		<b>Borehole:</b> TF-02-16										
<b>Project:</b> M/V Kathryn Spirit				<b>Dip:</b> 90										
<b>Plug(s):</b> Single	<b>Length (cm) :</b> 122		<b>Flowmeter:</b> yes		<b>Azimuth:</b> 0									
<b>Diameter (cm):</b> 4.3	<b>Borehole size:</b> NQ		<b>Plug pressure (kPa):</b> 300											
<b>Range of gauge readings (kPa):</b> 0-2000			<b>Water level (He) (m):</b> 0.75											
<b>Gauge height above ground (Ht) m:</b> 0.00			<b>Bedrock depth (inclined, m):</b> 13.50											
<b>Interval (inclined, m):</b> Top:	15.3	<b>Bottom:</b>	19.99	<b>Length (m):</b>	4.60									
<b>Maximum pressure at the centre of the interval [P<sub>M</sub>] (kPa):</b> 255			<b>Pressure Ht + He (kPa) :</b> 7											
<b>Stage I - Net injection pressure [Pr] (kPa) = 0.33 P<sub>M</sub> + P(Ht+He):</b> 92														
Time (min)	0	1	2	3	4	5	6	7	8	9	10	11	Flow (L/min)	Absorption (l/min-m)
Total (l)	12.0	23.0	33.8	44.5	55.2	65.8	76.5	87.0	97.7				10.7	2.3
Flow (L/min)		11.0	10.8	10.7	10.7	10.6	10.7	10.5	10.7					
Score														
<b>Stage II -Net injection pressure [Pr] (kPa) = 0.66 P<sub>M</sub>.P(Ht+He) :</b> 185														
Time (min)	0	1	2	3	4	5	6	7	8	9	10	11	Flow (L/min)	Absorption (l/min-m)
Total (l)	13.0	29.5	45.0	61.0	76.6	92.5	108.5	124.5	140.5				15.9	3.5
Flow (L/min)		16.5	15.5	16.0	15.6	15.9	16.0	16.0	16.0					
Score														
<b>Stage III -Net injection pressure [Pr] (kPa) = P<sub>M</sub>.P(Ht+He) :</b> 277														
Time (min)	0	1	2	3	4	5	6	7	8	9	10	11	Flow (L/min)	Absorption (l/min-m)
Total (l)	83.0	103.5	124.0	144.0	164.5	184.5	204.5	224.5					20.2	4.4
Flow (L/min)		20.5	20.5	20.0	20.5	20.0	20.0	20.0						
Score		Pressure= 60 kPa after 2 min												
<b>Stage IV -Net injection pressure [Pr] (kPa) = 0.66 P<sub>M</sub>.P(Ht+He) :</b> 185														
Time (min)	0	1	2	3	4	5	6	7	8	9	10	11	Flow (L/min)	Absorption (l/min-m)
Total (l)	48.0	63.8	79.6	95.5	111.5	127.3	143.0	158.8	174.2				15.8	3.4
Flow (L/min)		15.8	15.8	15.9	16.0	15.8	15.7	15.8	15.4					
Score														
<b>Stage V - Net injection pressure [Pr] (kPa) = 0.33 P<sub>M</sub>.P(Ht+He) :</b> 92														
Time (min)	0	1	2	3	4	5	6	7	8	9	10	11	Flow (L/min)	Absorption (l/min-m)
Total (l)	91.0	101.4	111.7	122.0	132.4	142.8	152.8	163.0	173.4				10.3	2.2
Flow (L/min)		10.4	10.3	10.3	10.4	10.4	10.0	10.2	10.4					
Score														
Notes: Residual: 277: 0 in 2 second														
Started at 12:30 p.m. and ended at 1:45 p.m.														
Performed by: Carlos Pelaez and Louis Jacques								Verified by: David Thibault, Eng.						
Date: 18/11/2016								Date: 20/12/2016						

Photo 2 : Basement rock at borehole site TF-02-16





Client : **St-Pierre**  
 (Dévoilement) (Revalorisation) (Acquisition)  
 N° CONTRAT : PPR20-140222

# RAPPORT DE FORAGE

Dossier n° : P-0011905-0-02-002  
 Sondage n° : TF-03-16  
 Date : 2016-12-01

Projet : Construction d'un remblai autour du N/M Kathryn Spirit

Endroit : Beauharnois, Québec

Coordonnées (m) : Nord 5019548,4 (Y)  
 MIM Nad 83, Fus. B Est 273783,4 (X)  
 Géodésique Élévation 25,03 (Z)  
 Prof. du roc : 1,80 m Prof. de fin : 4,53 m

## État des échantillons

☒ Intact ☒ Ramené ☒ Perdu ☐ Carotte

## Examens organoleptiques sur les sols :

Aspect visuel : Inactif(I); Disséminé(D); Imbibé(M)  
 Couleur : Inactif(I); Légère(L); Moyenne(M); Persistante(P)

## Type d'échantillon

CF Carotier fendu  
 TM Tube à paroi mince  
 PS Tube à paroi fine  
 CR Tube carotier  
 TA À la tarière  
 MA À la main  
 TU Tube transparent  
 PW Carotier Englobe  
 SG Sol gelé

## Abbréviations

L Limite de consistance  
 W<sub>L</sub> Limite de liquidité (%)  
 W<sub>p</sub> Limite de plasticité (%)  
 I<sub>p</sub> Indice de plasticité (%)  
 I<sub>L</sub> Indice de liquidité  
 W Teneur en eau (%)  
 AG Analyse granulométrique  
 S Sédimentologie  
 R Refus à l'enfoncement  
 VDS Valeur au bleu du sol  
 PDT Poids des sables  
 M.O. Matière organique (%)  
 K Perméabilité (cm/s)  
 PV Poids volumique (kg/m³)  
 A Absorption (l/m² m)  
 U Compression uniaxiale (MPa)  
 ROD Indice de qualité du roc (%)  
 AC Analyse chimique  
 P<sub>1</sub> Pression limite, essai pressiométrique (kPa)  
 C<sub>u</sub> Module pressiométrique (MPa)  
 C<sub>1</sub> Module de réaction du roc (MPa)  
 SP<sub>0</sub> Potentiel de ségrégation (mm/H °C)

Niveau d'eau  
 N Pénétration standard (Nb coups/300mm)  
 N<sub>c</sub> Pénétration dyn (Nb coups/300mm)  
 σ<sub>p</sub> Pression de préconsolidation (kPa)  
 TAS Taux d'agressivité des sols  
 Résistance au cisaillement  
 C<sub>u</sub> Intact (kPa)  
 C<sub>18</sub> Ramené (kPa)

PROFONDEUR - m		STRATIGRAPHIE		SYMBOLES	NIVEAU D'EAU (m) / DATE	ÉCHANTILLONS						ESSAIS			
ÉLEVATION - m PROF. - m		DESCRIPTION DES SOLS ET DU ROC	TYPE ET NUMÉRO			SOUS-ÉCH.	ÉTAT	CALEBRE	RÉGÉNÉRATION %	Nb coups/150mm	"N" ou ROD	Examens organo.		RÉSULTATS	TENDANCE AU LONG DU FORAGE (%) Rq W WL 20 40 60 80 100 120 PROJET PRIS AU CONSTATANT (N) OU PENDANT LE FORAGE 20 40 60 80 100 120 140 160 180 200
	25,03	0,00	Remblai : sable et gravier, traces de silt, brun, saturé à partir de 0,81m, de compacité dense à moyenne. Présence de matières résiduelles : brique.			CF-1	A	X	N	66	6-12 13-13	34	I	I	
						CF-2	B	X	B	25	14-2 15-12	27	I	I	
	23,81	1,22	Sable, un peu de silt, traces de gravier, brun, de compacité très dense.			CF-3	B	X	B	80	11-22 24-50 /11cm	51	I	I	
	23,23	1,80	Roc : grès blanc à gris, présence de caliche disséminée et de lamines de shale noir, de qualité moyenne à bonne.			CR-4			NQ	97		62			
						CR-5			NQ	100		65			
	20,50	4,53	Fin du forage à une profondeur de 4,53m.												

Remarques :

Type de forage : Tarière et tubage NW/NQ

Équipement de forage : Mobil drill

Préparé par : M. Roussy, tech. sr

Vérifié par : D. Hlbault, Ing.

2016-12-21

Page : 1 de 1

Client : St-Pierre Démolition – Revitalisation – Acquisition N° CONTRAT :	Customer: Saint-Pierre Demolition – Revitalization – Acquisition CONTRACT #:
RAPPORT DE FORAGE Dossier n° : Sondage n° : Date :	BOREHOLE LOG File #: Survey #: Date:
Projet : Construction d'un remblai autour du N/M Kathryn Spirit	Project: Construction of an embankment around the M/V Kathryn Spirit
Endroit : Beauharnois, Québec	Location: Beauharnois, Quebec
Coordonnées (m) : Nord MTM Nad 83, Fus. 8 Est Géodésique Élévation Prof. du roc : Prof. de fin :	Coordinates (m): North MTM Nad 83, Zone 8 East Geodetic Elevation Bedrock depth: End depth:
État des échantillons Intact Remanié Perdu Carotte	Sample Condition Intact Remoulded Lost Core
Examens organoleptiques sur les sols : Aspect visuel : Inexistant (I) Disséminé (D) Imbibé (IM) Odeur : Inexistante (I) Légère (L) Moyenne (M) Persistante (P)	Organoleptic soil examinations: Visual aspect: Non-existent (N) Disseminated (D) Soaked (S) Odour: Non-existent (N) Light (L) Medium (M) Persistent (P)
Type d'échantillon CF – Carottier fendu TM – Tube à paroi mince PS – Tube à piston fixe CR - Tube carottier TA – À la tarière MA – À la main TU – Tube transparent PW – Carottier Englobe SG – Sol gelé	Sample Type SS – Split spoon TM – Thin wall tube PS – Piston tube RC – Rock core TA – Auger HA – Bulk sample TU – Transparent tube PW – Englobe core FG – Frozen ground
Abréviations L – Limites de consistance W <sub>L</sub> – Limite de liquidité (%) W <sub>P</sub> – Limite de plasticité (%) I <sub>P</sub> – Indice de plasticité (%) I <sub>L</sub> – Indice de liquidité W – Teneur en eau (%)	Abbreviations L – Consistency limits W <sub>L</sub> – Liquid limit (%) W <sub>P</sub> – Plastic limit (%) I <sub>P</sub> – Plasticity index (%) I <sub>L</sub> – Liquidity index W – Water content (%)

AG – Analyse granulométrique S – Sédimentométrie R – Refus à l'enfoncement VBS – Valeur au Bleu du sol PDT – Poids des tiges M.O. – Matière organique (%) K – Perméabilité (cm/s) PV – Poids volumique (kN/m <sup>3</sup> ) A – Absorption (l/min. m) U – Compression uniaxiale (MPa) RQD – Indice de qualité du roc (%) AC – Analyse chimique P <sub>L</sub> – Pression limite, essai pressiométrique (kPa) E <sub>M</sub> – Module pressiométrique (MPa) E <sub>r</sub> – Module de réaction du roc (MPa) SP <sub>O</sub> – Potentiel de ségrégation (mm <sup>2</sup> /H °C) Niveau d'eau N – Pénétration standard (Nb coups/300mm) N <sub>c</sub> – Pénétration dyn. (Nb coups/300mm) $\sigma'_p$ – Pression de préconsolidation (kPa) TAS – Taux d'agressivité des sols	SA – Sieve analysis S – Sedimentation analysis R – Auger refusal VBS – Methylene blue value WR – Weight of rods O.M. – Organic matter (%) K – Permeability (cm/s) UW – Unit weight (kN/m <sup>3</sup> ) A – Absorption (l/min. m) U – Uniaxial compression (MPa) RQD – Rock quality designation (%) CA – Chemical analysis P <sub>L</sub> – Limit pressure, pressuremeter test (kPa) E <sub>M</sub> – Pressuremeter modulus (MPa) E <sub>r</sub> – Modulus of subgrade reaction (MPa) SP <sub>O</sub> – Segregation potential (mm <sup>2</sup> /H °C) Water level N – Standard penetration (blows/300 mm) N <sub>c</sub> – Dynamic penetration (blows/300 mm) $\sigma'_p$ – Preconsolidation pressure (kPa) SCI – Soil corrosivity index
Résistance au cisaillement C <sub>U</sub> – Intact (kPa) C <sub>UR</sub> – Remanié (kPa) Chantier Laboratoire	Shear strength C <sub>U</sub> – Intact (kPa) C <sub>UR</sub> – Remoulded (kPa) Site Laboratory
Échelle verticale	Vertical scale
STRATIGRAPHIE	STRATIGRAPHY
ÉCHANTILLONS	SAMPLES
ESSAIS	TRIALS
PROFONDEUR – pi PROFONDEUR – m	DEPTH – ft DEPTH – m
ÉLÉVATION – m PROF. – m	ELEVATION – m DEPTH – m
DESCRIPTION DES SOLS ET DU ROC	SOIL AND BEDROCK DESCRIPTION
SYMBLES	SYMBOLS
NIVEAU D'EAU (m) / DATE	WATER LEVEL (m) / DATE
TYPE ET NUMÉRO	TYPE AND NUMBER
SOUS-ÉCH.	SUBSAMPLE
ÉTAT	CONDITION
CALIBRE	SIZE
RÉCUPÉRATION %	RECOVERY %
Nb coups/150mm	Blows/150 mm
« N » ou RQD	"N" or RQD
Examens organo.	Organo. exams
Odeur	Odour
Visuel	Visual
RÉSULTATS	RESULTS
TENEUR EN EAU ET LIMITES (%) W <sub>p</sub> W WL	WATER CONTENT AND LIMITS (%) W <sub>p</sub> W WL
RÉSISTANCE AU CISAILLEMENT (kPa) OU	UNDRAINED SHEAR STRENGTH (kPa) OR

PÉNÉTRATION DYNAMIQUE	DYNAMIC PENETRATION
Remblai sable et gravier, traces de silt, brun, saturé à partir de 0,61m, de compacité dense à moyenne. Présence de matières résiduelles : brique.	Backfill sand and gravel, trace silt, brown, saturated started at 0.61 m, dense to average compactness. Residual materials present: brick.
Sable, un peu de silt, traces de gravier, brun, de compacité très dense.	Sand, some silt, trace gravel, brown, very dense compactness.
Roc : grès blanc à gris, présence de calcite disséminée et de lamines de shale noir, de qualité moyenne à bonne.	Bedrock: white to grey sandstone, presence of disseminated calcite and black shale laminae, average to good quality.
Fin du forage à une profondeur de 4,53m.	End of borehole at a depth of 4.53 m.
Remarque : Type de forage : Tarière et tubage NW/NQ Équipement de forage : Maxi scoot	Note: Borehole type: NW/NQ auger and tube Boring equipment: Maxi scoot
Préparé par : M. Roussy, tech. sr	Prepared by: M. Roussy, Sr. Tech.
Vérifié par : D. Thibault, ing.	Verified by: D. Thibault, Eng.



Photo 3 : Basement rock at borehole site TF-03-16







Client : St-Pierre Démolition – Revitalisation – Acquisition N° CONTRAT :	Customer: Saint-Pierre Demolition – Revitalization – Acquisition CONTRACT #:
RAPPORT DE FORAGE Dossier n° : Sondage n° : Date :	BOREHOLE LOG File #: Survey #: Date:
Projet : Construction d'un remblai autour du N/M Kathryn Spirit	Project: Construction of an embankment around the M/V Kathryn Spirit
Endroit : Beauharnois, Québec	Location: Beauharnois, Quebec
Coordonnées (m) : Nord MTM Nad 83, Fus. 8 Est Géodésique Élévation Prof. du roc : Prof. de fin :	Coordinates (m): North MTM Nad 83, Zone 8 East Geodetic Elevation Bedrock depth: End depth:
État des échantillons Intact Remanié Perdu Carotte	Sample Condition Intact Remoulded Lost Core
Examens organoleptiques sur les sols : Aspect visuel : Inexistant (I) Disséminé (D) Imbibé (IM) Odeur : Inexistante (I) Légère (L) Moyenne (M) Persistante (P)	Organoleptic soil examinations: Visual aspect: Non-existent (N) Disseminated (D) Soaked (S) Odour: Non-existent (N) Light (L) Medium (M) Persistent (P)
Type d'échantillon CF – Carottier fendu TM – Tube à paroi mince PS – Tube à piston fixe CR - Tube carottier TA – À la tarière MA – À la main TU – Tube transparent PW – Carottier Englobe SG – Sol gelé	Sample Type SS – Split spoon TM – Thin wall tube PS – Piston tube RC – Rock core TA – Auger HA – Bulk sample TU – Transparent tube PW – Englobe core FG – Frozen ground
Abréviations L – Limites de consistance W <sub>L</sub> – Limite de liquidité (%) W <sub>P</sub> – Limite de plasticité (%) I <sub>P</sub> – Indice de plasticité (%) I <sub>L</sub> – Indice de liquidité W – Teneur en eau (%) AG – Analyse granulométrique	Abbreviations L – Consistency limits W <sub>L</sub> – Liquid limit (%) W <sub>P</sub> – Plastic limit (%) I <sub>P</sub> – Plasticity index (%) I <sub>L</sub> – Liquidity index W – Water content (%) SA – Sieve analysis

S – Sédimentométrie R – Refus à l'enfoncement VBS – Valeur au Bleu du sol PDT – Poids des tiges M.O. – Matière organique (%) K – Perméabilité (cm/s) PV – Poids volumique (kN/m <sup>3</sup> ) A – Absorption (l/min. m) U – Compression uniaxiale (MPa) RQD – Indice de qualité du roc (%) AC – Analyse chimique P <sub>L</sub> – Pression limite, essai pressiométrique (kPa) E <sub>M</sub> – Module pressiométrique (MPa) E <sub>r</sub> – Module de réaction du roc (MPa) SP <sub>O</sub> – Potentiel de ségrégation (mm <sup>2</sup> /H °C) Niveau d'eau N – Pénétration standard (Nb coups/300mm) N <sub>c</sub> – Pénétration dyn. (Nb coups/300mm) σ' <sub>P</sub> – Pression de préconsolidation (kPa) TAS – Taux d'agressivité des sols	S – Sedimentation analysis R – Auger refusal VBS – Methylene blue value WR – Weight of rods O.M. – Organic matter (%) K – Permeability (cm/s) UW – Unit weight (kN/m <sup>3</sup> ) A – Absorption (l/min. m) U – Uniaxial compression (MPa) RQD – Rock quality designation (%) CA – Chemical analysis P <sub>L</sub> – Limit pressure, pressuremeter test (kPa) E <sub>M</sub> – Pressuremeter modulus (MPa) E <sub>r</sub> – Modulus of subgrade reaction (MPa) SP <sub>O</sub> – Segregation potential (mm <sup>2</sup> /H °C) Water level N – Standard penetration (blows/300 mm) N <sub>c</sub> – Dynamic penetration (blows/300 mm) σ' <sub>P</sub> – Preconsolidation pressure (kPa) SCI – Soil corrosivity index
Résistance au cisaillement C <sub>U</sub> – Intact (kPa) C <sub>UR</sub> – Remanié (kPa) Chantier Laboratoire	Shear strength C <sub>U</sub> – Intact (kPa) C <sub>UR</sub> – Remoulded (kPa) Site Laboratory
Échelle verticale	Vertical scale
STRATIGRAPHIE	STRATIGRAPHY
ÉCHANTILLONS	SAMPLES
ESSAIS	TRIALS
PROFONDEUR – pi PROFONDEUR – m	DEPTH – ft DEPTH – m
ÉLÉVATION – m PROF. – m	ELEVATION – m DEPTH – m
DESCRIPTION DES SOLS ET DU ROC	SOIL AND BEDROCK DESCRIPTION
SYMOLES	SYMBOLS
NIVEAU D'EAU (m) / DATE	WATER LEVEL (m) / DATE
TYPE ET NUMÉRO	TYPE AND NUMBER
SOUS-ÉCH.	SUBSAMPLE
ÉTAT	CONDITION
CALIBRE	SIZE
RÉCUPÉRATION %	RECOVERY %
Nb coups/150mm	Blows/150 mm
« N » ou RQD	"N" or RQD
Examens organo.	Organo. exams
Odeur	Odour
Visuel	Visual
RÉSULTATS	RESULTS
TENEUR EN EAU ET LIMITES (%) W <sub>p</sub> W W <sub>L</sub>	WATER CONTENT AND LIMITS (%) W <sub>p</sub> W W <sub>L</sub>
RÉSISTANCE AU CISAILLEMENT (kPa) OU PÉNÉTRATION DYNAMIQUE	UNDRAINED SHEAR STRENGTH (kPa) OR DYNAMIC PENETRATION

Terre végétale	Topsoil
Remblai : sable, un peu de silt, traces de gravier, brun, de compacité moyenne. Présence de matières organiques. Présence de cailloux. Présence de matières résiduelles : béton de ciment. Présence de fragments de roc. Gravier et sable, un peu de silt, traces d'argile, brun, humide, de compacité lâche.	Backfill: sand, some silt, trace gravel, brown, average compactness. Organic materials present. Pebbles present. Residual materials present: cement concrete. Bedrock fragments present. Gravel and sand, some silt, trace clay, brown, wet, loosely compacted.
Cailloux et/ou blocs.	Pebbles and/or boulders.
Roc : grès blanc, présence de calcite disséminée et de lamines de shale noir, de qualité très mauvaise. Roc fracturé entre 4,18 et 5,06m.	Bedrock: white sandstone, presence of disseminated calcite and black shale laminae, very poor quality. Bedrock fractured between 4.18 and 5.06 m.
Devenant de qualité excellente.	Turning into excellent quality.
Devenant de qualité mauvaise.	Turning into poor quality.
Devenant de qualité moyenne à bonne.	Turning into average to good quality.
Roc : grès blanc, présence de calcite disséminée et de lamines de shale noir, de qualité moyenne à bonne.	Bedrock: white sandstone, presence of disseminated calcite and black shale laminae, average to good quality.
Fin du forage à une profondeur de 9,10m	End of borehole at a depth of 9.10 m.
Remarque : L'analyse granulométrique indiquée au CF-3 a été réalisée sur un composite des échantillons CF-3 et CF-4A. Type de forage : Tarière et tubage NW/NQ Équipement de forage : Maxi scoot	Note: The sieve analysis indicated at CF-3 was performed on a composite of CF-3 and CF-4A samples. Borehole type: NW/NQ auger and tube Boring equipment: Maxi scoot
Préparé par : L. Jacques, ing. jr	Prepared by: L. Jacques, Jr. Eng.
Vérifié par : D. Thibault, ing.	Verified by: D. Thibault, Eng.



Photo 4: Basement rock at borehole site TF-04-16







Client : St-Pierre Démolition – Revitalisation – Acquisition N° CONTRAT :	Customer: Saint-Pierre Demolition – Revitalization – Acquisition CONTRACT #:
RAPPORT DE FORAGE Dossier n° : Sondage n° : Date :	BOREHOLE LOG File #: Survey #: Date:
Projet : Construction d'un remblai autour du N/M Kathryn Spirit	Project: Construction of an embankment around the M/V Kathryn Spirit
Endroit : Beauharnois, Québec	Location: Beauharnois, Quebec
Coordonnées (m) : Nord MTM Nad 83, Fus. 8 Est Géodésique Élévation Prof. du roc : Prof. de fin :	Coordinates (m): North MTM Nad 83, Zone 8 East Geodetic Elevation Bedrock depth: End depth:
État des échantillons Intact Remanié Perdu Carotte	Sample Condition Intact Remoulded Lost Core
Examens organoleptiques sur les sols : Aspect visuel : Inexistant (I) Disséminé (D) Imbibé (IM) Odeur : Inexistante (I) Légère (L) Moyenne (M) Persistante (P)	Organoleptic soil examinations: Visual aspect: Non-existent (N) Disseminated (D) Soaked (S) Odour: Non-existent (N) Light (L) Medium (M) Persistent (P)
Type d'échantillon CF – Carottier fendu TM – Tube à paroi mince PS – Tube à piston fixe CR - Tube carottier TA – À la tarière MA – À la main TU – Tube transparent PW – Carottier Englobe SG – Sol gelé	Sample Type SS – Split spoon TM – Thin wall tube PS – Piston tube RC – Rock core TA – Auger HA – Bulk sample TU – Transparent tube PW – Englobe core FG – Frozen ground
Abréviations L – Limites de consistance W <sub>L</sub> – Limite de liquidité (%) W <sub>P</sub> – Limite de plasticité (%) I <sub>P</sub> – Indice de plasticité (%) I <sub>L</sub> – Indice de liquidité W – Teneur en eau (%) AG – Analyse granulométrique	Abbreviations L – Consistency limits W <sub>L</sub> – Liquid limit (%) W <sub>P</sub> – Plastic limit (%) I <sub>P</sub> – Plasticity index (%) I <sub>L</sub> – Liquidity index W – Water content (%) SA – Sieve analysis

S – Sédimentométrie R – Refus à l'enfoncement VBS – Valeur au Bleu du sol PDT – Poids des tiges M.O. – Matière organique (%) K – Perméabilité (cm/s) PV – Poids volumique (kN/m <sup>3</sup> ) A – Absorption (l/min. m) U – Compression uniaxiale (MPa) RQD – Indice de qualité du roc (%) AC – Analyse chimique P <sub>L</sub> – Pression limite, essai pressiométrique (kPa) E <sub>M</sub> – Module pressiométrique (MPa) E <sub>r</sub> – Module de réaction du roc (MPa) SP <sub>O</sub> – Potentiel de ségrégation (mm <sup>2</sup> /H °C) Niveau d'eau N – Pénétration standard (Nb coups/300mm) N <sub>c</sub> – Pénétration dyn. (Nb coups/300mm) σ' <sub>P</sub> – Pression de préconsolidation (kPa) TAS – Taux d'agressivité des sols	S – Sedimentation analysis R – Auger refusal VBS – Methylene blue value WR – Weight of rods O.M. – Organic matter (%) K – Permeability (cm/s) UW – Unit weight (kN/m <sup>3</sup> ) A – Absorption (l/min. m) U – Uniaxial compression (MPa) RQD – Rock quality designation (%) CA – Chemical analysis P <sub>L</sub> – Limit pressure, pressuremeter test (kPa) E <sub>M</sub> – Pressuremeter modulus (MPa) E <sub>r</sub> – Modulus of subgrade reaction (MPa) SP <sub>O</sub> – Segregation potential (mm <sup>2</sup> /H °C) Water level N – Standard penetration (blows/300 mm) N <sub>c</sub> – Dynamic penetration (blows/300 mm) σ' <sub>P</sub> – Preconsolidation pressure (kPa) SCI – Soil corrosivity index
Résistance au cisaillement C <sub>U</sub> – Intact (kPa) C <sub>UR</sub> – Remanié (kPa) Chantier Laboratoire	Shear strength C <sub>U</sub> – Intact (kPa) C <sub>UR</sub> – Remoulded (kPa) Site Laboratory
Échelle verticale	Vertical scale
STRATIGRAPHIE	STRATIGRAPHY
ÉCHANTILLONS	SAMPLES
ESSAIS	TRIALS
PROFONDEUR – pi PROFONDEUR – m	DEPTH – ft DEPTH – m
ÉLÉVATION – m PROF. – m	ELEVATION – m DEPTH – m
DESCRIPTION DES SOLS ET DU ROC	SOIL AND BEDROCK DESCRIPTION
SYMBLES	SYMBOLS
NIVEAU D'EAU (m) / DATE	WATER LEVEL (m) / DATE
TYPE ET NUMÉRO	TYPE AND NUMBER
SOUS-ÉCH.	SUBSAMPLE
ÉTAT	CONDITION
CALIBRE	SIZE
RÉCUPÉRATION %	RECOVERY %
Nb coups/150mm	Blows/150 mm
« N » ou RQD	"N" or RQD
Examens organo.	Organo. exams
Odeur	Odour
Visuel	Visual
RÉSULTATS	RESULTS
TENEUR EN EAU ET LIMITES (%) W <sub>p</sub> W W <sub>L</sub>	WATER CONTENT AND LIMITS (%) W <sub>p</sub> W W <sub>L</sub>
RÉSISTANCE AU CISAILLEMENT (kPa) OU PÉNÉTRATION DYNAMIQUE	UNDRAINED SHEAR STRENGTH (kPa) OR DYNAMIC PENETRATION

<p>Remblai : silt sableux, un peu de gravier, brun foncé, de compacité dense. Présence de matières organiques. Présence de matières résiduelles <math>\pm 25\%</math> (verre et scories). Argile silteuse, un peu de sable et de gravier, grise, de consistance apparente raide. Présence de matières organiques. Présence de matières résiduelles : fragments de roc.</p> <p>Devenant avec traces de gravier, verdâtre, humide et de consistance apparente molle.</p> <p>Sable silteux, brun.</p>	<p>Backfill: sandy silt, some gravel, dark brown, densely compacted. Organic materials present. Residual materials present <math>\pm 25\%</math> (glass and slag). Silty clay, some sand and gravel, grey, apparent rough consistency. Organic materials present. Residual materials present: bedrock fragments.</p> <p>Turning into trace gravel, greenish, wet and apparent soft consistency.</p> <p>Silty sand, brown.</p>
<p>Roc : grès blanc, présence de calcite disséminée et de lamines de shale noir, de qualité mauvaise à moyenne.</p>	<p>Bedrock: white sandstone, presence of disseminated calcite and black shale laminae, poor to average quality.</p>
<p>Fin du forage à une profondeur de 5,27m.</p>	<p>End of borehole at a depth of 5.27 m.</p>
<p>Remarque :</p> <p>Type de forage : Tarière et tubage NW/NQ</p> <p>Équipement de forage : Maxi scoot</p>	<p>Note:</p> <p>Borehole type: NW/NQ auger and tube</p> <p>Boring equipment: Maxi scoot</p>
<p>Préparé par : L. Bouchard, tech. sr</p>	<p>Prepared by: L. Bouchard, Sr. Tech.</p>
<p>Vérifié par : D. Thibault, ing.</p>	<p>Verified by: D. Thibault, Eng.</p>

Photo 5: Basement rock at borehole site TF-05-16





Client : St-Pierre Démolition – Revitalisation – Acquisition N° CONTRAT :	Customer: Saint-Pierre Demolition – Revitalization – Acquisition CONTRACT #:
RAPPORT DE FORAGE Dossier n° : Sondage n° : Date :	BOREHOLE LOG File #: Survey #: Date:
Projet : Construction d'un remblai autour du N/M Kathryn Spirit	Project: Construction of an embankment around the M/V Kathryn Spirit
Endroit : Beauharnois, Québec	Location: Beauharnois, Quebec
Coordonnées (m) : Nord MTM Nad 83, Fus. 8 Est Géodésique Élévation Prof. du roc : Prof. de fin :	Coordinates (m): North MTM Nad 83, Zone 8 East Geodetic Elevation Bedrock depth: End depth:
État des échantillons Intact Remanié Perdu Carotte	Sample Condition Intact Remoulded Lost Core
Examens organoleptiques sur les sols : Aspect visuel : Inexistant (I) Disséminé (D) Imbibé (IM) Odeur : Inexistante (I) Légère (L) Moyenne (M) Persistante (P)	Organoleptic soil examinations: Visual aspect: Non-existent (N) Disseminated (D) Soaked (S) Odour: Non-existent (N) Light (L) Medium (M) Persistent (P)
Type d'échantillon CF – Carottier fendu TM – Tube à paroi mince PS – Tube à piston fixe CR - Tube carottier TA – À la tarière MA – À la main TU – Tube transparent PW – Carottier Englobe SG – Sol gelé	Sample Type SS – Split spoon TM – Thin wall tube PS – Piston tube RC – Rock core TA – Auger HA – Bulk sample TU – Transparent tube PW – Englobe core FG – Frozen ground
Abréviations L – Limites de consistance W <sub>L</sub> – Limite de liquidité (%) W <sub>P</sub> – Limite de plasticité (%) I <sub>P</sub> – Indice de plasticité (%) I <sub>L</sub> – Indice de liquidité W – Teneur en eau (%) AG – Analyse granulométrique	Abbreviations L – Consistency limits W <sub>L</sub> – Liquid limit (%) W <sub>P</sub> – Plastic limit (%) I <sub>P</sub> – Plasticity index (%) I <sub>L</sub> – Liquidity index W – Water content (%) SA – Sieve analysis

S – Sédimentométrie R – Refus à l'enfoncement VBS – Valeur au Bleu du sol PDT – Poids des tiges M.O. – Matière organique (%) K – Perméabilité (cm/s) PV – Poids volumique (kN/m <sup>3</sup> ) A – Absorption (l/min. m) U – Compression uniaxiale (MPa) RQD – Indice de qualité du roc (%) AC – Analyse chimique P <sub>L</sub> – Pression limite, essai pressiométrique (kPa) E <sub>M</sub> – Module pressiométrique (MPa) E <sub>r</sub> – Module de réaction du roc (MPa) SP <sub>O</sub> – Potentiel de ségrégation (mm <sup>2</sup> /H °C) Niveau d'eau N – Pénétration standard (Nb coups/300mm) N <sub>c</sub> – Pénétration dyn. (Nb coups/300mm) σ' <sub>P</sub> – Pression de préconsolidation (kPa) TAS – Taux d'agressivité des sols	S – Sedimentation analysis R – Auger refusal VBS – Methylene blue value WR – Weight of rods O.M. – Organic matter (%) K – Permeability (cm/s) UW – Unit weight (kN/m <sup>3</sup> ) A – Absorption (l/min. m) U – Uniaxial compression (MPa) RQD – Rock quality designation (%) CA – Chemical analysis P <sub>L</sub> – Limit pressure, pressuremeter test (kPa) E <sub>M</sub> – Pressuremeter modulus (MPa) E <sub>r</sub> – Modulus of subgrade reaction (MPa) SP <sub>O</sub> – Segregation potential (mm <sup>2</sup> /H °C) Water level N – Standard penetration (blows/300 mm) N <sub>c</sub> – Dynamic penetration (blows/300 mm) σ' <sub>P</sub> – Preconsolidation pressure (kPa) SCI – Soil corrosivity index
Résistance au cisaillement C <sub>U</sub> – Intact (kPa) C <sub>UR</sub> – Remanié (kPa) Chantier Laboratoire	Shear strength C <sub>U</sub> – Intact (kPa) C <sub>UR</sub> – Remoulded (kPa) Site Laboratory
Échelle verticale	Vertical scale
STRATIGRAPHIE	STRATIGRAPHY
ÉCHANTILLONS	SAMPLES
ESSAIS	TRIALS
PROFONDEUR – pi PROFONDEUR – m	DEPTH – ft DEPTH – m
ÉLÉVATION – m PROF. – m	ELEVATION – m DEPTH – m
DESCRIPTION DES SOLS ET DU ROC	SOIL AND BEDROCK DESCRIPTION
SYMOLES	SYMBOLS
NIVEAU D'EAU (m) / DATE	WATER LEVEL (m) / DATE
TYPE ET NUMÉRO	TYPE AND NUMBER
SOUS-ÉCH.	SUBSAMPLE
ÉTAT	CONDITION
CALIBRE	SIZE
RÉCUPÉRATION %	RECOVERY %
Nb coups/150mm	Blows/150 mm
« N » ou RQD	"N" or RQD
Examens organo.	Organo. exams
Odeur	Odour
Visuel	Visual
RÉSULTATS	RESULTS
TENEUR EN EAU ET LIMITES (%) W <sub>p</sub> W W <sub>L</sub>	WATER CONTENT AND LIMITS (%) W <sub>p</sub> W W <sub>L</sub>
RÉSISTANCE AU CISAILLEMENT (kPa) OU PÉNÉTRATION DYNAMIQUE	UNDRAINED SHEAR STRENGTH (kPa) OR DYNAMIC PENETRATION



Remblai : gravier et sable silteux, noir. Présence de matières résiduelles : scories ( $\pm 40\%$ ).	Backfill: gravel and silty sand, black. Residual materials present: slag ( $\pm 40\%$ ).
Matières résiduelles : scories (100%). Fragments de roc désagrégés. Argile silteuse, traces de sable, brune, sèche, de consistance apparente raide.	Residual materials: slag (100%). Disaggregated bedrock fragments. Silty clay, trace sand, brown, dry, apparent rough consistency.
Matières résiduelles : scories (100%), brun foncé, saturées. Sable silteux, brun foncé, de compacité moyenne. Présence de matières organiques et de coquillages. Présence de matières résiduelles ( $\pm 30\%$ ). Gravier, traces de sable. Présence de matières résiduelles (verre) et de cailloux entre 2,90 et 3,00m.	Residual materials: slag (100%), dark brown, saturated. Silty sand, dark brown, average compactness. Organic materials and seashells present. Residual materials present ( $\pm 30\%$ ). Gravel, trace sand. Residual materials (glass) and pebbles present between 2.90 and 3.00 m.
Roc : grès blanc, présence de calcite disséminée et de lamines de shale noir, de qualité excellente à bonne.	Bedrock: white sandstone, presence of disseminated calcite and black shale laminae, excellent to good quality.
Fin du forage à une profondeur de 6,86m.	End of borehole at a depth of 6.86m.
Remarque : Type de forage : Tarière et tubage NW/NQ Équipement de forage : CME 55 sur chenilles	Note: Borehole type: NW/NQ auger and tube Boring equipment: CME 55 crawler
Préparé par : E. Simard, tech.	Prepared by: E. Simard, Tech.
Vérifié par : D. Thibault, ing.	Verified by: D. Thibault, Eng.

Photo 6: Basement rock at borehole site TF-06-16





ANALYSE GRANULOMÉTRIQUE	SIEVE ANALYSIS
Projet : Construction d'un remblai autour du N/M Kathryn Spirit	Project: Construction of an embankment around the M/V Kathryn Spirit
Figure n° :	Figure #:
Endroit : Beauharnois, Québec	Location: Beauharnois, Quebec
Dossier n° :	File #:
Pourcentage passant (%)	Percent Passing (%)
Diamètre (mm)	Diameter (mm)
ARGILE	CLAY
SILT	SILT
SABLE	SAND
GRAVIER	GRAVEL
CAILLOUX	PEBBLES
BLOCS	BLOCKS
FIN	END
MOYEN	MEDIUM
GROS	LARGE
FIN	END
GROS	LARGE
Col. symboles	Col. symbols
Sondage n°	Survey #:
Échantillon n°	Sample #:
Profondeur (m)	Depth (m)
Description	Description
Class. « unifiée » (ASTM D-2487)	Class. "unified" (ASTM D-2487)
Sable graveleux et silteux, traces d'argile.	Gravelly and silty sand, trace clay.
Gravier sableux, traces de silt.	Sandy gravel, trace silt.
Gravier sableux, un peu de silt.	Sandy gravel, some silt.
Gravier et sable, un peu de silt, traces d'argile.	Gravel and sand, some silt, trace clay.

## Appendix 2 Photographic Record



Photo 1  
Sediment core – Sampling station CAR-03



Photo 2  
Sediment core – Sampling station CAR-04





Photo 3  
Sediment core – Sampling station CAR-05



Photo 4  
Sediment core – Sampling station CAR-06





Photo 5  
Sediment core – Sampling station CAR-07



Photo 6  
Sediment core – Sampling station CAR-08



Photo 7  
Sediment core – Sampling station CAR-09



Photo 8  
Sediment core – Sampling station CAR-10





Photo 9  
Sediment grab – Sampling station SED-01



Photo 10  
Sediment grab – Sampling station SED-02



Photo 11  
Sediment grab – Sampling station SED-03.



Photo 12  
Sediment grab – Sampling station SED-04



Photo 13  
Sediment grab – Sampling station SED-05



Photo 14  
Sediment grab – Sampling station SED-06





Photo 15  
Sediment grab – Sampling station SED-07



Photo 16  
Sediment grab – Sampling station SED-08



Photo 17  
Sediment grab – Sampling station SED-09



Photo 18  
Sediment grab – Sampling station SED-10





Photo 19  
Sediment grab – Sampling station SED-11



Photo 20  
Sediment grab – Sampling station SED-12



Photo 21  
Sediment grab – Sampling station SED-13



Photo 22  
Sediment grab – Sampling station SED-14





Photo 23  
Sediment grab – Sampling station SED-15



Photo 24  
Sediment grab – Sampling station SED-16



Photo 25  
Sediment grab – Sampling station SED-17



Photo 26  
Sediment grab – Sampling station SED-18





Photo 27  
Sediment grab – Sampling station SED-19



Photo 28  
Sediment grab – Sampling station SED-20



Photo 29  
Sediment grab – Sampling station SED-21



Photo 30  
Sediment grab – Sampling station SED-22



Photo 31  
Sediment grab – Sampling station SED-23



Photo 32  
Sediment grab – Sampling station SED-24





Photo 33  
Grab sampling by boat

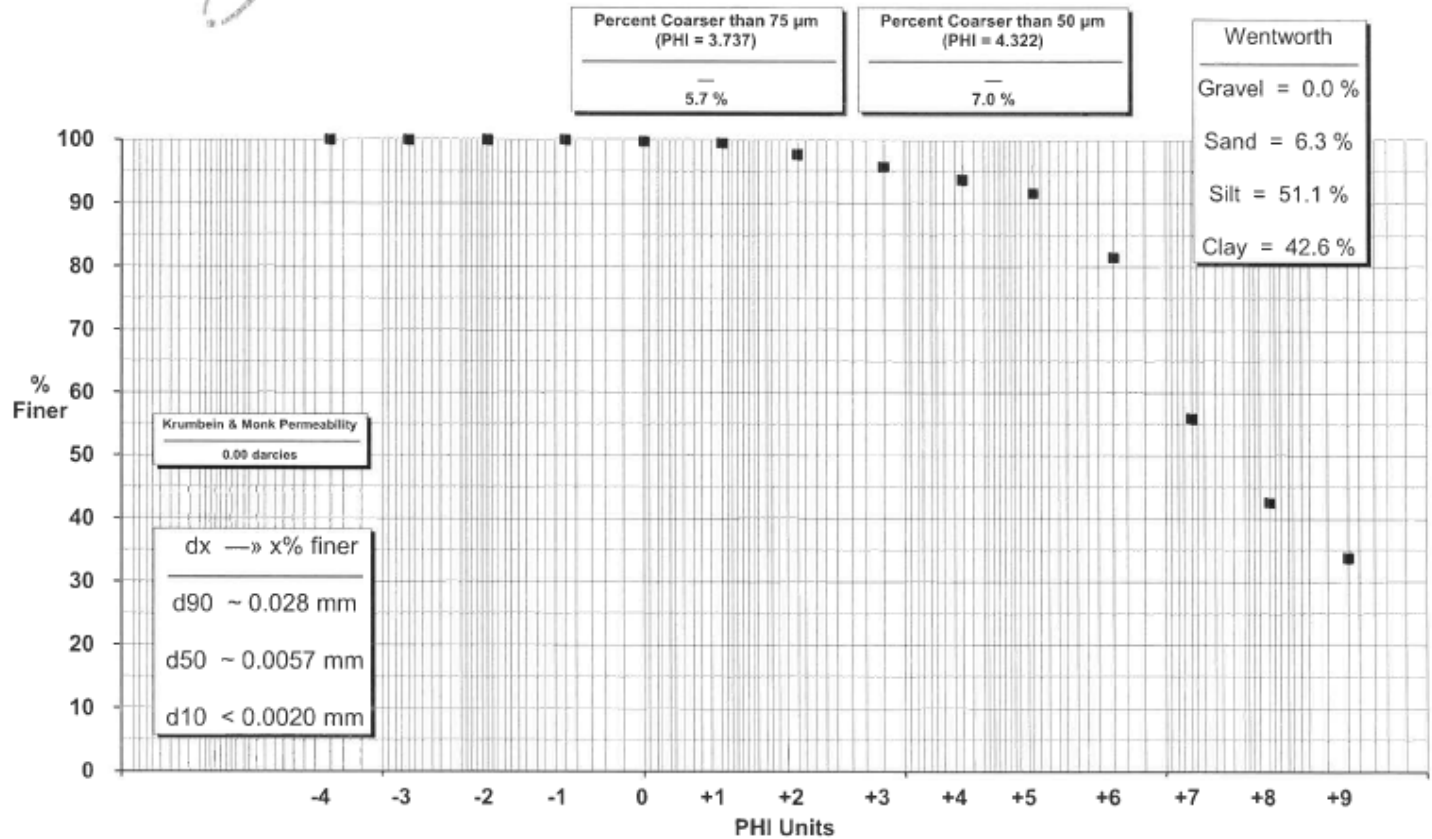
## Appendix 3 Chemical Analysis Certificates

## **Sediments and surface water**



Maxxam ID: DMK486-01

**DI2146-05R\SED-19**

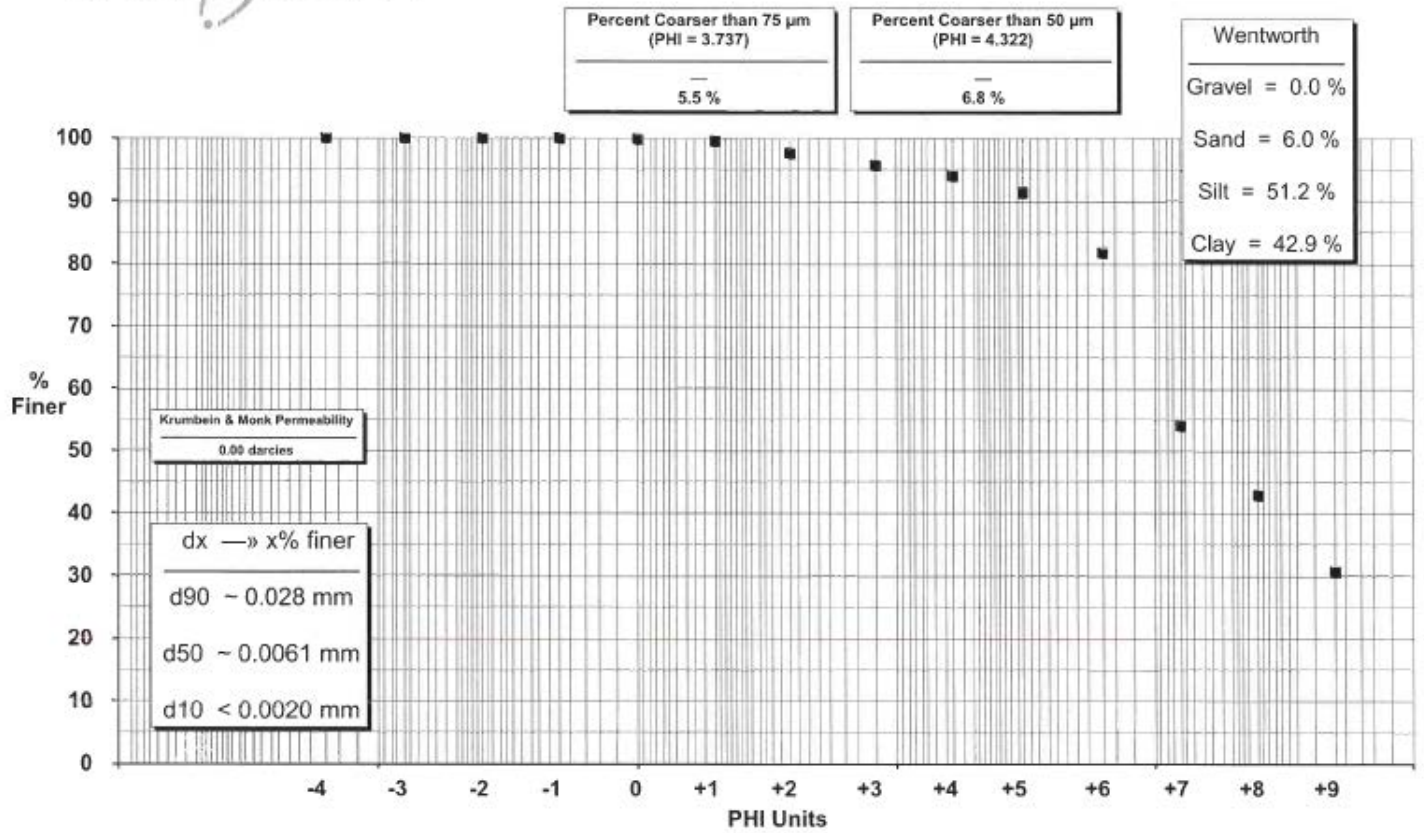


  
Approved



Maxxam ID: DMK486-

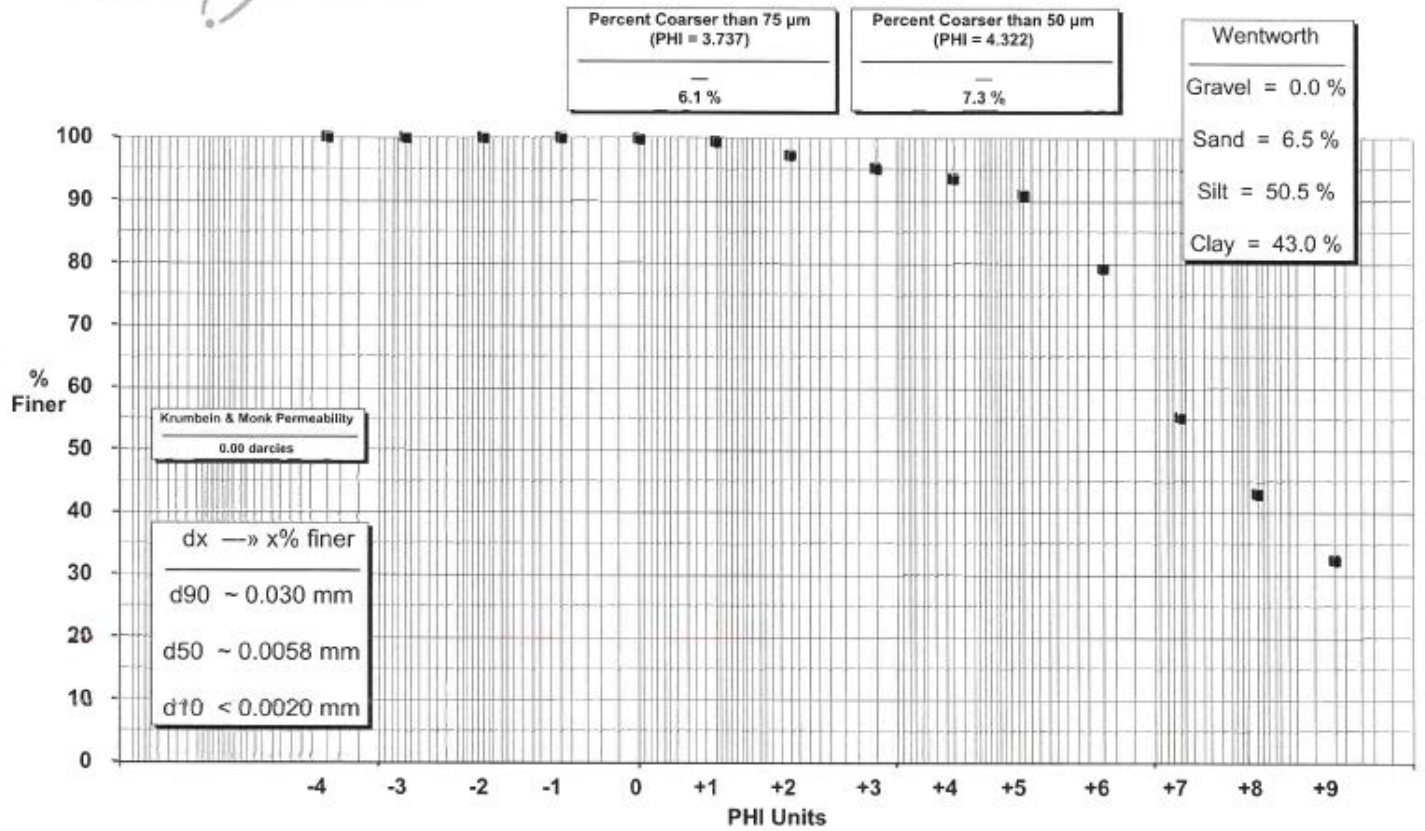
DI2146-05R\SED-19:D1



*Maxxam*  
Approved



Maxxam ID: DMK487-01  
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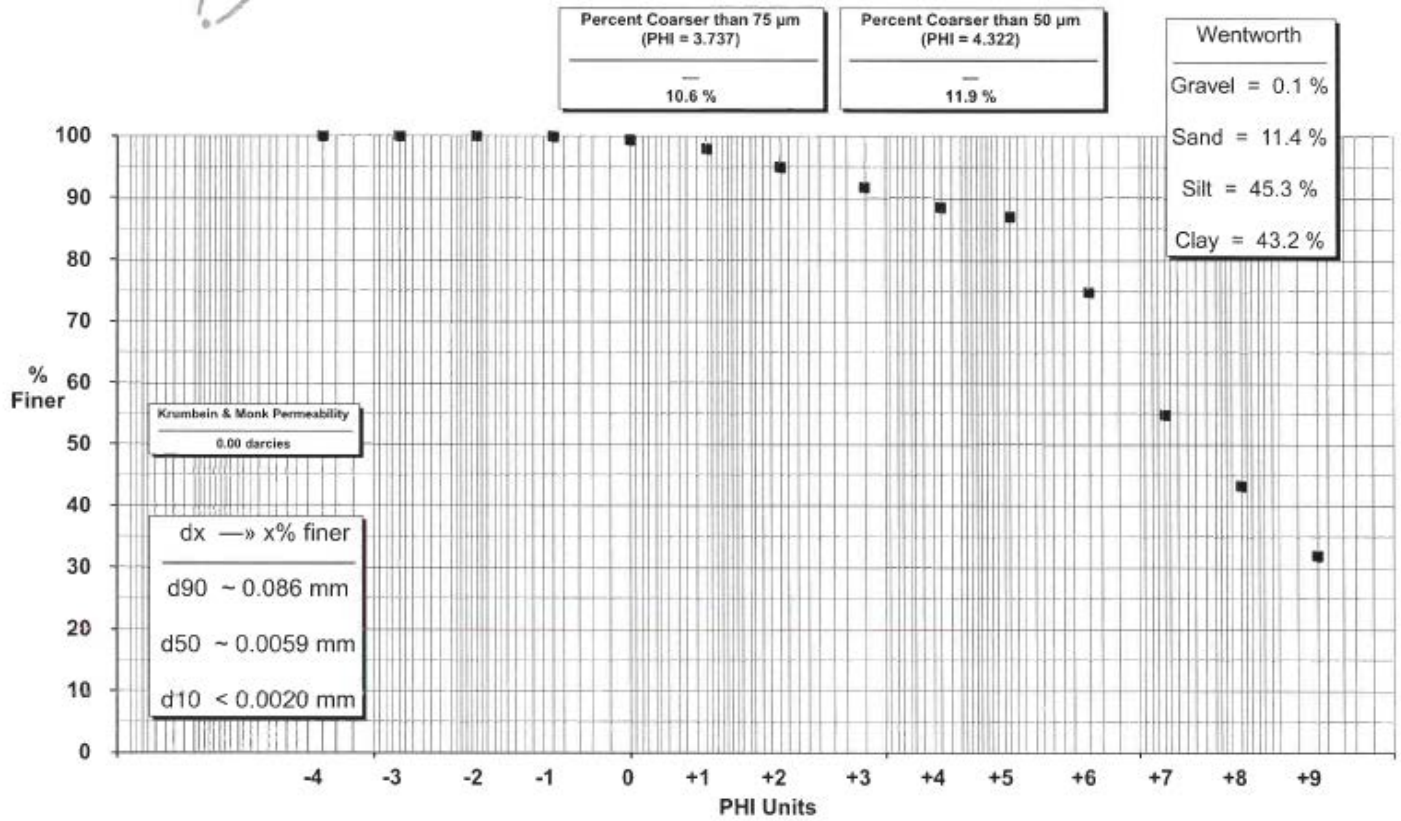


*[Signature]*  
Approved



Maxxam ID: DMK488-01

DI2148-05R\SED-22

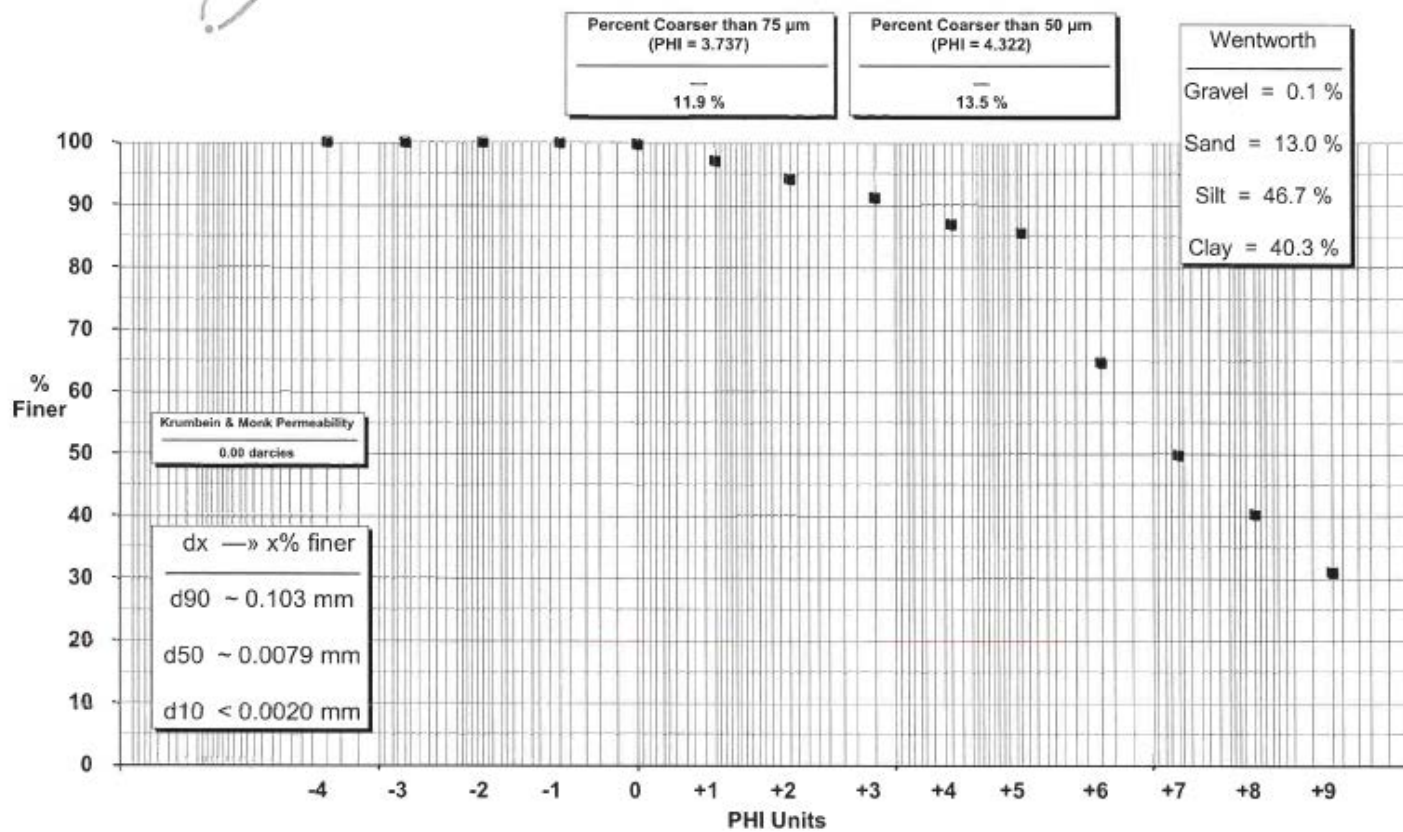


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Approved





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**DI2149-05R\SED-23-1**

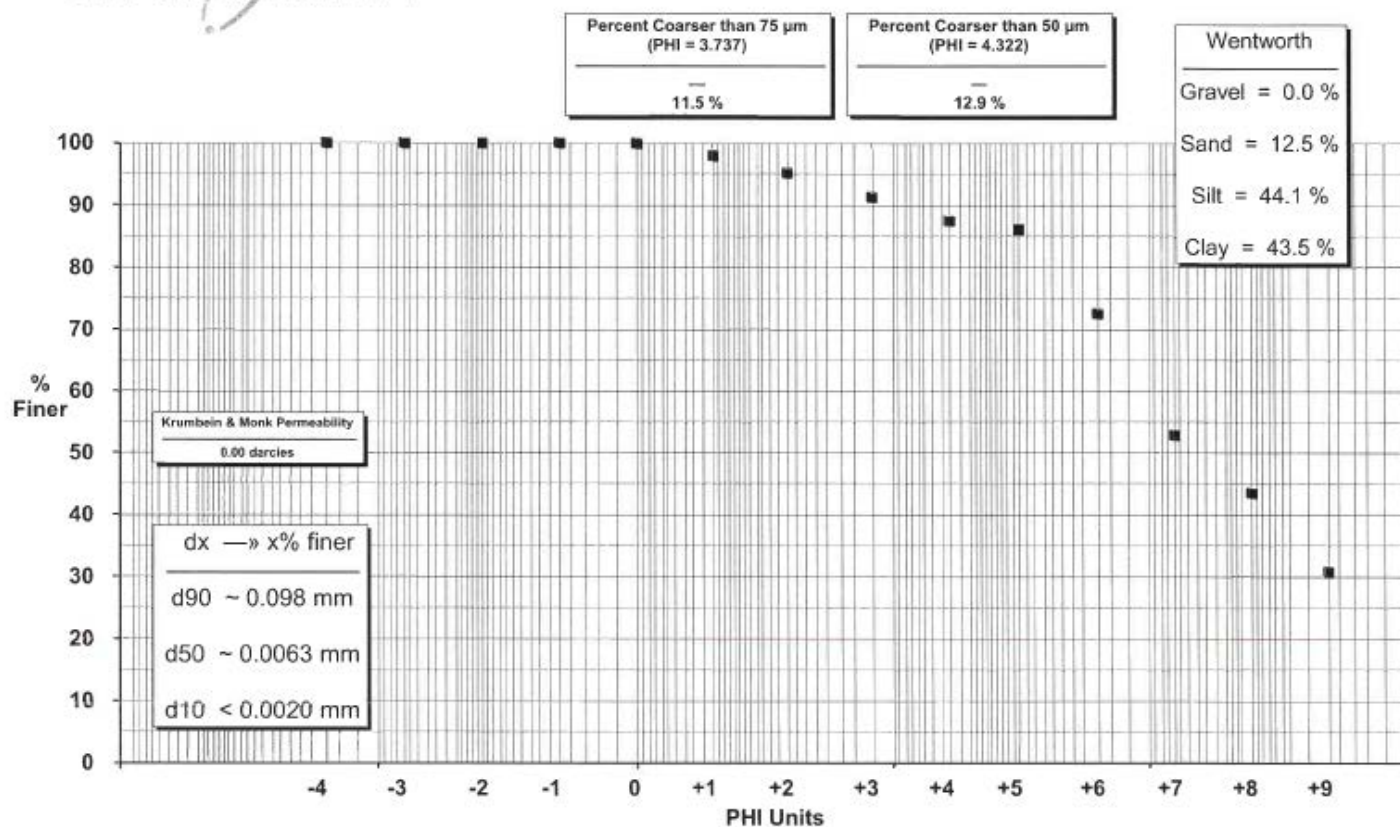


*Maxxam*  
Approved



Maxxam ID: DMK490-01

DI2150-05R\SED-23-2

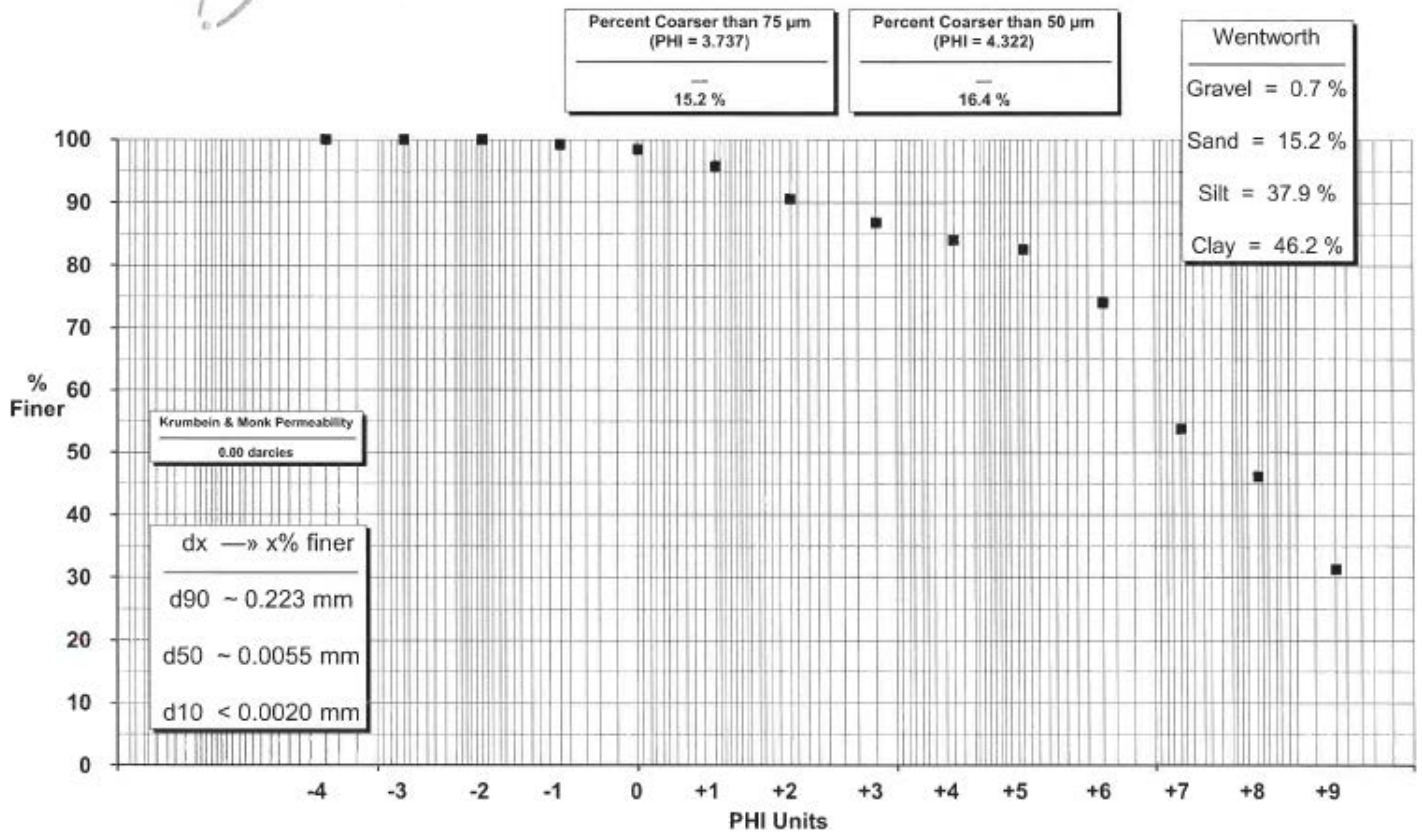


*[Signature]*  
Approved



Maxxam ID: DMK491-01

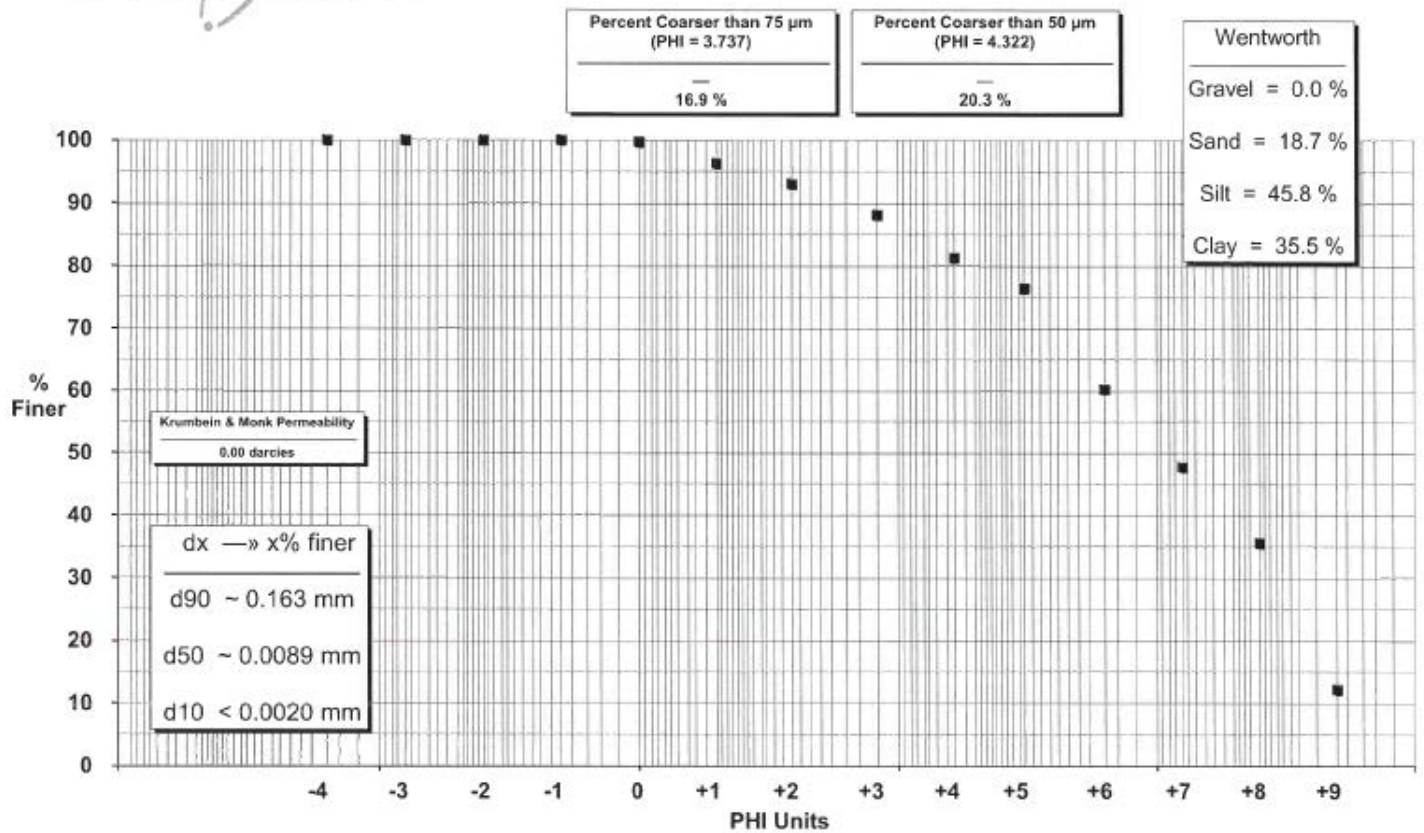
DI2151-05R\SED-24



  
Approved



Maxxam ID: DMK492-01  
DI2154-05R\SED-07-7



*M. J. G.*  
Approved

Your P.O. #: 23514  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your waybill #: N/A

Attention: Maud Demarty  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2016/11/30  
Report #: R2224489  
Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B681024  
Received: 2016/11/16, 17:50

Matrix: SOIL  
Samples received: 7

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Volatile organic compounds*	7	2016/11/17	2016/11/17	STL SOP-00145	MA400-COV 2.0 R4 m
Petroleum hydrocarbons (C10-C50)*	6	2016/11/17	2016/11/18	STL SOP-00172	MA.400-HYD. 1.1 R3 m
Petroleum hydrocarbons (C10-C50)*	1	2016/11/18	2016/11/18	STL SOP-00172	MA.400-HYD. 1.1 R3 m
Chlorobenzenes*	1	2016/11/22	2016/11/22	STL SOP-00154	MA400-Clbz 1.0 R4 m
Chlorobenzenes*	6	2016/11/23	2016/11/23	STL SOP-00154	MA400-Clbz 1.0 R4 m
Total extractable metals*	7	2016/11/18	2016/11/18	STL SOP-00006	MA200-Mét 1.2 R5 m
Polycyclic aromatic hydrocarbons*	7	2016/11/17	2016/11/18	STL SOP-00120	MA400-HAP 1.1 R4 m
Total PCBs*	7	2016/11/17	2016/11/18	STL SOP-00133	MA400-BPC 1.0 R5 m
Dioxins & Furans per CGSM HR*	7	2016/11/18	2016/11/22	STL SOP-00171 / STL SOP-00179	MA400 D.F. 1.1 R1 m
Acid compounds (Phenols)*	7	2016/11/17	2016/11/18	STL SOP-00135	MA400-Phe 1.0 R3 m
Sulphur*	7	N/A	2016/11/18	STL SOP-00028	MA310-CS 1.0 R3 m
Total organic carbon by titration (1)*	7	2016/11/21	2016/11/21	QUE SOP-00153	MA. 405 – C 1.1 r2 m

### **Notes:**

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.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.



Your P.O. #: 23514  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your receipt #: N/A

Attention: Maud Demarty  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2016/11/30  
Report #: R2224489  
Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B681024  
Received: 2016/11/16, 17:50

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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

Note: RPDs calculated using raw data (% of relative variation). The rounding of final results may result in the apparent difference.

(1) This analysis was performed by Maxxam - Québec

\* Maxxam is accredited for this analysis under the MDDELCC program.

Encryption key

Please direct all questions regarding this Certificate of Analysis to your Project Manager  
Rodrigo Caffarengo,  
E-mail: RCaffarengo@maxxam.ca  
Telephone: 514-448-9001 Ext: 6336

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

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### PAH BY GCMS (SOIL)

Maxxam Job					DH8960			DH8961			DH8962			
Sampling date					2016/11/16			2016/11/16			2016/11/16			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	CAR-3-1	CR	RDL	CAR-3-2	CR	RDL	CAR-4-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	74			55			70			
<b>PAHs</b>														
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694569
Naphthalene	mg/kg	0.1	5	50	0.01	<A	0.01	0.03	<A	0.01	0.02	<A	0.01	1694569
Acenaphthylene	mg/kg	0.1	10	100	0.025	<A	0.003	0.050	<A	0.003	0.055	<A	0.003	1694569
Acenaphthene	mg/kg	0.1	10	100	0.009	<A	0.003	0.019	<A	0.003	0.016	<A	0.003	1694569
Fluorene	mg/kg	0.1	10	100	0.02	<A	0.01	0.04	<A	0.01	0.03	<A	0.01	1694569
Phenanthrene	mg/kg	0.1	5	50	0.13	A-B	0.01	0.15	A-B	0.01	0.22	A-B	0.01	1694569
Anthracene	mg/kg	0.1	10	100	0.07	<A	0.01	0.14	A-B	0.01	0.17	A-B	0.01	1694569
Fluoranthene	mg/kg	0.1	10	100	0.43	A-B	0.01	1.0	A-B	0.01	0.93	A-B	0.01	1694569
Pyrene	mg/kg	0.1	10	100	0.37	A-B	0.01	1.1	A-B	0.01	0.84	A-B	0.01	1694569
Benzo(a)anthracene	mg/kg	0.1	1	10	0.41	A-B	0.01	1.3	B-C	0.01	1.5	B-C	0.01	1694569
Chrysene	mg/kg	0.1	1	10	0.66	A-B	0.01	2.3	B-C	0.01	2.8	B-C	0.1	1694569
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	1.7		0.01	4.7		0.01	6.3		0.1	1694569
Benzo(e)pyrene	mg/kg	-	-	-	0.77		0.01	2.2		0.01	3.0		0.01	1694569
Benzo(a)pyrene	mg/kg	0.1	1	10	0.65	A-B	0.01	2.4	B-C	0.01	3.0	B-C	0.01	1694569
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	0.72	A-B	0.01	2.4	B-C	0.01	3.1	B-C	0.01	1694569
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.14	A-B	0.003	0.49	A-B	0.003	0.59	A-B	0.003	1694569
Benzo(ghi)perylene	mg/kg	0.1	1	10	0.77	A-B	0.01	2.7	B-C	0.01	3.2	B-C	0.1	1694569
2-Methylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.01	0.03	<A	0.01	0.02	<A	0.01	1694569
1-Methylnaphthalene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694569
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.04	<A	0.01	<0.3 (1)		0.3	0.14	A-B	0.01	1694569
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.01		0.01	0.01	<A	0.01	0.02	<A	0.01	1694569
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694569
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.04	<A	0.01	0.23	A-B	0.01	0.21	A-B	0.01	1694569
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694569
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.01	<A	0.01	0.09	<A	0.01	0.07	<A	0.01	1694569
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.03	<A	0.01	0.03	<A	0.01	0.03	<A	0.01	1694569
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694569
<b>Surrogate Recovery (%)</b>														
D10-Anthracene	%	-	-	-	68			73			74			1694569
D12-Benzo(a)pyrene	%	-	-	-	71			79			83			1694569
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														
(1) Due to matrix interference, the detection limit was increased.														

Maxxam Job #: B681024  
 Report Date: 2016/11/30

Englobe Corp.  
 Your project #: 11905  
 Site address: BEAUHARNOIS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### PAH BY GCMS (SOIL)

Maxxam Job					DH8960			DH8961			DH8962			
Sampling date					2016/11/16			2016/11/16			2016/11/16			
Waybill #					N/A			N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-3-1</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-3-2</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-4-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D14-Terphenyl	%	-	-	-	74			75			78			1694569
D8-Acenaphthylene	%	-	-	-	65			69			67			1694569
D8-Naphtalene	%	-	-	-	58			57			53			1694569
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

# PAH BY GCMS (SOIL)

Maxxam Job					DH8963			DH8964			DH8965			
Sampling date					2016/11/16			2016/11/16			2016/11/16			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	CAR-5-1	CR	RDL	CAR-5-2	CR	RDL	CAR-6-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	72			53			72			
<b>PAHs</b>														
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694569
Naphthalene	mg/kg	0.1	5	50	0.03	<A	0.01	0.04	<A	0.01	0.01	<A	0.01	1694569
Acenaphthylene	mg/kg	0.1	10	100	0.050	<A	0.003	0.063	<A	0.003	0.027	<A	0.003	1694569
Acenaphthene	mg/kg	0.1	10	100	0.015	<A	0.003	0.035	<A	0.003	0.012	<A	0.003	1694569
Fluorene	mg/kg	0.1	10	100	0.03	<A	0.01	0.05	<A	0.01	0.02	<A	0.01	1694569
Phenanthrene	mg/kg	0.1	5	50	0.25	A-B	0.01	0.16	A-B	0.01	0.14	A-B	0.01	1694569
Anthracene	mg/kg	0.1	10	100	0.19	A-B	0.01	0.19	A-B	0.01	0.09	<A	0.01	1694569
Fluoranthene	mg/kg	0.1	10	100	1.2	A-B	0.01	1.8	A-B	0.01	0.63	A-B	0.01	1694569
Pyrene	mg/kg	0.1	10	100	1.1	A-B	0.01	1.7	A-B	0.01	0.53	A-B	0.01	1694569
Benzo(a)anthracene	mg/kg	0.1	1	10	1.8	B-C	0.01	2.0	B-C	0.01	0.65	A-B	0.01	1694569
Chrysene	mg/kg	0.1	1	10	3.9	B-C	0.1	3.1	B-C	0.1	1.1	B-C	0.01	1694569
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	7.9		0.1	5.7		0.1	2.6		0.01	1694569
Benzo(e)pyrene	mg/kg	-	-	-	3.9		0.1	2.3		0.01	1.2		0.01	1694569
Benzo(a)pyrene	mg/kg	0.1	1	10	3.7	B-C	0.1	3.3	B-C	0.1	1.1	B-C	0.01	1694569
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	3.0	B-C	0.01	3.1	B-C	0.1	1.1	B-C	0.01	1694569
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.59	A-B	0.003	0.60	A-B	0.003	0.22	A-B	0.003	1694569
Benzo(ghi)perylene	mg/kg	0.1	1	10	3.7	B-C	0.1	3.6	B-C	0.1	1.2	B-C	0.01	1694569
2-Methylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.01	0.03	<A	0.01	0.01	<A	0.01	1694569
1-Methylnaphthalene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694569
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.13	A-B	0.01	0.35	A-B	0.01	0.06	<A	0.01	1694569
3-Methylcholanthrene	mg/kg	0.1	1	10	0.01	<A	0.01	0.01	<A	0.01	<0.01		0.01	1694569
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694569
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.17	A-B	0.01	0.29	A-B	0.01	0.07	<A	0.01	1694569
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		0.01	0.20	A-B	0.01	<0.01		0.01	1694569
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.06	<A	0.01	0.12	A-B	0.01	0.02	<A	0.01	1694569
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.03	<A	0.01	0.03	<A	0.01	0.02	<A	0.01	1694569
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01		0.01	0.01	<A	0.01	<0.01		0.01	1694569
<b>Surrogate Recovery (%)</b>														
D10-Anthracene	%	-	-	-	76			76			77			1694569
D12-Benzo(a)pyrene	%	-	-	-	81			89			82			1694569
D14-Terphenyl	%	-	-	-	79			76			81			1694569
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681024  
 Report Date: 2016/11/30

Englobe Corp.  
 Your project #: 11905  
 Site address: BEAUHARNOIS  
 Your P.O. #: 23514  
 Sampler's initials: PV

**PAH BY GCMS (SOIL)**

Maxxam Job					DH8963			DH8964			DH8965			
Sampling date					2016/11/16			2016/11/16			2016/11/16			
Waybill #					N/A			N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-5-1</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-5-2</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-6-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D8-Acenaphthylene	%	-	-	-	71			67			75			1694569
D8-Naphtalene	%	-	-	-	63			56			68			1694569
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														



Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

# PAH BY GCMS (SOIL)

Maxxam Job					DH8966		DH8966			
Sampling date					2016/11/16		2016/11/16			
Waybill #					N/A		N/A			
	Units	A	B	C	CAR-6-2	CR	CAR-6-2 Lab. Dup.	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	62		62			
<b>PAHs</b>										
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		<0.1		0.1	1694569
Naphthalene	mg/kg	0.1	5	50	0.04	<A	0.04	<A	0.01	1694569
Acenaphthylene	mg/kg	0.1	10	100	0.14	A-B	0.11	A-B	0.003	1694569
Acenaphthene	mg/kg	0.1	10	100	0.070	<A	0.068	<A	0.003	1694569
Fluorene	mg/kg	0.1	10	100	0.13	A-B	0.13	A-B	0.01	1694569
Phenanthrene	mg/kg	0.1	5	50	0.27	A-B	0.27	A-B	0.01	1694569
Anthracene	mg/kg	0.1	10	100	0.37	A-B	0.35	A-B	0.01	1694569
Fluoranthene	mg/kg	0.1	10	100	4.5	A-B	4.1	A-B	0.1	1694569
Pyrene	mg/kg	0.1	10	100	4.3	A-B	3.9	A-B	0.1	1694569
Benzo(a)anthracene	mg/kg	0.1	1	10	4.3	B-C	4.1	B-C	0.1	1694569
Chrysene	mg/kg	0.1	1	10	6.7	B-C	6.3	B-C	0.1	1694569
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	9.9		9.7		0.1	1694569
Benzo(e)pyrene	mg/kg	-	-	-	5.1		4.8		0.1	1694569
Benzo(a)pyrene	mg/kg	0.1	1	10	5.6	B-C	5.3	B-C	0.1	1694569
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	4.7	B-C	4.7	B-C	0.1	1694569
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.92	A-B	0.91	A-B	0.003	1694569
Benzo(ghi)perylene	mg/kg	0.1	1	10	5.6	B-C	5.3	B-C	0.1	1694569
2-Methylnaphtalene	mg/kg	0.1	1	10	0.03	<A	0.04	<A	0.01	1694569
1-Methylnaphtalene	mg/kg	0.1	1	10	0.01	<A	0.01	<A	0.01	1694569
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.64	A-B	0.61	A-B	0.01	1694569
3-Methylcholanthrene	mg/kg	0.1	1	10	0.02	<A	0.02	<A	0.01	1694569
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	1694569
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.51	A-B	0.48	A-B	0.01	1694569
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	0.29	A-B	0.27	A-B	0.01	1694569
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.17	A-B	0.14	A-B	0.01	1694569
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.05	<A	0.04	<A	0.01	1694569
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.02	<A	0.01	1694569
<b>Surrogate Recovery (%)</b>										
D10-Anthracene	%	-	-	-	77		75			1694569
D12-Benzo(a)pyrene	%	-	-	-	89		81			1694569
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										
Laboratory duplicate										

Maxxam Job #: B681024  
 Report Date: 2016/11/30

Englobe Corp.  
 Your project #: 11905  
 Site address: BEAUHARNOIS  
 Your P.O. #: 23514  
 Sampler's initials: PV

**PAH BY GCMS (SOIL)**

Maxxam Job					DH8966		DH8966			
Sampling date					2016/11/16		2016/11/16			
Waybill #					N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-6-2</b>	<b>CR</b>	<b>CAR-6-2 Lab. Dup.</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D14-Terphenyl	%	-	-	-	76		73			1694569
D8-Acenaphthylene	%	-	-	-	60		60			1694569
D8-Naphtalene	%	-	-	-	32 (1)		30 (1)			1694569
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate (1) Recovery or relative variation (RPD) for this composite is beyond control limits, but the overall quality control meets the criteria of acceptability for this analysis										

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### PHENOLS BY GCMS (SOIL)

Maxxam Job					DH8960		DH8961		DH8962		DH8963			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	CAR-3-1	CR	CAR-3-2	CR	CAR-4-1	CR	CAR-5-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	74		55		70		72			
<b>PHENOLS</b>														
o-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694500
m-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694500
p-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694500
4-Nitrophenol	mg/kg	0.5	1	10	<0.2 (1)		<0.2 (1)		<0.2 (1)		<0.2 (1)		0.2	1694500
Phenol	mg/kg	0.2	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694500
<b>Surrogate Recovery (%)</b>														
D6-Phenol	%	-	-	-	76		84		72		77			1694500
Tribromophenol-2,4,6	%	-	-	-	108		116		106		110			1694500
Trifluoro-m-cresol	%	-	-	-	78		87		74		79			1694500
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														
(1) Due to matrix interference, the detection limit was increased.														

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

# PHENOLS BY GCMS (SOIL)

Maxxam Job					DH8964			DH8965			DH8966			
Sampling date					2016/11/16			2016/11/16			2016/11/16			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	CAR-5-2	CR	RDL	CAR-6-1	CR	RDL	CAR-6-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	53			72			62			
<b>PHENOLS</b>														
o-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
m-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
p-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
4-Nitrophenol	mg/kg	0.5	1	10	<0.2 (1)		0.2	<0.1		0.1	<0.2 (1)		0.2	1694500
Phenol	mg/kg	0.2	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694500
<b>Surrogate Recovery (%)</b>														
D6-Phenol	%	-	-	-	64			77			82			1694500
Tribromophenol-2,4,6	%	-	-	-	112			107			113			1694500
Trifluoro-m-cresol	%	-	-	-	65			81			85			1694500
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														
(1) Due to matrix interference, the detection limit was increased.														

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### PHENOLS BY GCMS (SOIL)

Maxxam Job					DH8966			
Sampling date					2016/11/16			
Waybill #					N/A			
	Units	A	B	C	CAR-6-2 Lab. Dup.	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	62			
<b>PHENOLS</b>								
o-Cresol	mg/kg	0.1	1	10	<0.1		0.1	1694500
m-Cresol	mg/kg	0.1	1	10	<0.1		0.1	1694500
p-Cresol	mg/kg	0.1	1	10	<0.1		0.1	1694500
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		0.1	1694500
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		0.1	1694500
4-Nitrophenol	mg/kg	0.5	1	10	<0.3 (1)		0.3	1694500
Phenol	mg/kg	0.2	1	10	<0.1		0.1	1694500
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	1694500
<b>Surrogate Recovery (%)</b>								
D6-Phenol	%	-	-	-	85			1694500
Tribromophenol-2,4,6	%	-	-	-	119			1694500
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Laboratory duplicate								
(1) Due to matrix interference, the detection limit was increased.								



Maxxam Job #: B681024  
 Report Date: 2016/11/30

Englobe Corp.  
 Your project #: 11905  
 Site address: BEAUHARNOIS  
 Your P.O. #: 23514  
 Sampler's initials: PV

# PHENOLS BY GCMS (SOIL)

Maxxam Job					DH8966			
Sampling date					2016/11/16			
Waybill #					N/A			
	Units	A	B	C	CAR-6-2 Lab. Dup.	CR	RDL	QC batch
Trifluoro-m-cresol	%	-	-	-	90			1694500
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate								

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### CHLOROBENZENES (SOL)

Maxxam Job					DH8960			DH8961		DH8962		DH8963			
Sampling date					2016/11/16			2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A			N/A		N/A		N/A			
	Units	A	B	C	CAR-3-1	CR	QC batch	CAR-3-2	CR	CAR-4-1	CR	CAR-5-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	74			55		70		72			
<b>CHLOROBENZENES</b>															
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		1696106	0.02	<A	0.01	<A	<0.01		0.01	1696940
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		1696106	<0.01		0.01	<A	<0.01		0.01	1696940
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		1696106	<0.01		<0.01		<0.01		0.01	1696940
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		1696106	0.01	<A	0.01	<A	<0.01		0.01	1696940
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		1696106	<0.01		<0.01		<0.01		0.01	1696940
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		1696106	<0.01		<0.01		<0.01		0.01	1696940
Hexachlorobenzene	mg/kg	0.1	2	10	<0.01		1696106	0.01	<A	0.01	<A	<0.01		0.01	1696940
<b>Surrogate Recovery (%)</b>															
C13-1,2,4-Trichlorobenzene	%	-	-	-	88		1696106	94		95		94			1696940
C13-Hexachlorobenzene	%	-	-	-	101		1696106	102		101		100			1696940
RDL = Reportable Detection Limit															
QC Batch = Quality Control Batch															

Maxxam Job					DH8964			DH8965		DH8966					
Sampling date					2016/11/16			2016/11/16		2016/11/16					
Waybill #					N/A			N/A		N/A					
	Units	A	B	C	CAR-5-2	CR	RDL	CAR-6-1	CR	RDL	CAR-6-2	CR	RDL	QC batch	
% HUMIDITY	%	-	-	-	53			72			62				
<b>CHLOROBENZENES</b>															
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	0.03	<A	0.01	<0.01		0.01	0.02	<A	0.01	1696940	
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	0.01	<A	0.01	<0.01		0.01	0.02	<A	0.01	1696940	
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1696940	
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	0.02	<A	0.01	<0.01		0.01	0.02	<A	0.01	1696940	
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1696940	
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		0.01	<0.02 (1)		0.02	<0.01		0.01	1696940	
Hexachlorobenzene	mg/kg	0.1	2	10	0.03	<A	0.01	<0.01		0.01	0.03	<A	0.01	1696940	
<b>Surrogate Recovery (%)</b>															
C13-1,2,4-Trichlorobenzene	%	-	-	-	92			92			84			1696940	
C13-Hexachlorobenzene	%	-	-	-	99			96			97			1696940	
RDL = Reportable Detection Limit															
QC Batch = Quality Control Batch															
(1) Due to matrix interference, the detection limit was increased.															

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### HYDROCARBONS BY GCFID (SOIL)

Maxxam Job					DH8960		DH8961		DH8962			
Sampling date					2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A			
	Units	A	B	C	CAR-3-1	CR	CAR-3-2	CR	CAR-4-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	74		55		70			
<b>PETROLEUM HYDROCARBONS</b>												
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	290	<A	460	A-B	350	A-B	100	1694561
<b>Surrogate Recovery (%)</b>												
1-Chlorooctadecane	%	-	-	-	88		87		67			1694561
RDL = Reportable Detection Limit												
QC Batch = Quality Control Batch												

Maxxam Job					DH8963			DH8964		DH8965			
Sampling date					2016/11/16			2016/11/16		2016/11/16			
Waybill #					N/A			N/A		N/A			
	Units	A	B	C	CAR-5-1	CR	QC batch	CAR-5-2	CR	CAR-6-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	72			53		72			
PETROLEUM HYDROCARBONS													
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	210	<A	1694856	620	A-B	360	A-B	100	1694561
Surrogate Recovery (%)													
1-Chlorooctadecane	%	-	-	-	87		1694856	90		100			1694561
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													

Maxxam Job					DH8966		DH8966					
Sampling date					2016/11/16		2016/11/16					
Waybill #					N/A		N/A					
	Units	A	B	C	CAR-6-2	CR	Lab. Dup.	CR	RDL	QC batch		
% HUMIDITY	%	-	-	-	62		62					
<b>PETROLEUM HYDROCARBONS</b>												
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	1000	B-C	1100	B-C	100	1694561		
<b>Surrogate Recovery (%)</b>												
1-Chlorooctadecane	%	-	-	-	85		88			1694561		
RDL = Reportable Detection Limit												
QC Batch = Quality Control Batch Laboratory Duplicate												

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

# COV BY GC/MS (SOIL)

Maxxam Job					DH8960			DH8961		DH8961			
Sampling date					2016/11/16			2016/11/16		2016/11/16			
Waybill #					N/A			N/A		N/A			
	Units	A	B	C	CAR-3-1	CR	RDL	CAR-3-2	CR	CAR-3-2 Lab. Dup.	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	74			55		55			
<b>COMPOUNDS</b>													
Benzene	mg/kg	0.2	0.5	5	<0.3		0.3	<0.2		<0.2		0.2	1694044
Chlorobenzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		<0.4		0.4	1694044
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		<0.4		0.4	1694044
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		<0.4		0.4	1694044
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		<0.4		0.4	1694044
Ethylbenzene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
Styrene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
Toluene	mg/kg	0.2	3	30	<0.6		0.6	<0.4		<0.4		0.4	1694044
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
Chloroform	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	0.06		0.06	<0.04		<0.04		0.04	1694044
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
Dichloromethane	mg/kg	-	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
Tetrachloroethene	mg/kg	0.3	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
Carbon Tetrachloride	mg/kg	0.1	5	50	<0.3		0.3	<0.2		<0.2		0.2	1694044
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
Trichloroethene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		0.4	1694044
<b>Surrogate Recovery (%)</b>													
4-Bromofluorobenzene	%	-	-	-	100			100		100			1694044
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													
Laboratory duplicate													

Maxxam Job #: B681024  
 Report Date: 2016/11/30

Englobe Corp.  
 Your project #: 11905  
 Site address: BEAUHARNOIS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### COV BY GC/MS (SOIL)

Maxxam Job					DH8960			DH8961		DH8961			
Sampling date					2016/11/16			2016/11/16		2016/11/16			
Waybill #					N/A			N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-3-1</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-3-2</b>	<b>CR</b>	<b>CAR-3-2 Lab. Dup.</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D10-Ethylbenzene	%	-	-	-	91			95		91			1694044
D4-1,2-Dichloroethane	%	-	-	-	92			94		93			1694044
D8-Toluene	%	-	-	-	105			104		104			1694044
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate													



Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### COV BY GC/MS (SOIL)

Maxxam Job					DH8962		DH8963			DH8964			
Sampling date					2016/11/16		2016/11/16			2016/11/16			
Waybill #					N/A		N/A			N/A			
	Units	A	B	C	CAR-4-1	CR	CAR-5-1	CR	RDL	CAR-5-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	70		72			53			
<b>COMPOUNDS</b>													
Benzene	mg/kg	0.2	0.5	5	<0.3		<0.3		0.3	<0.2		0.2	1694044
Chlorobenzene	mg/kg	0.2	1	10	<0.6		<0.6		0.6	<0.4		0.4	1694044
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.6		<0.6		0.6	<0.4		0.4	1694044
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.6		<0.6		0.6	<0.4		0.4	1694044
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.6		<0.6		0.6	<0.4		0.4	1694044
Ethylbenzene	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
Styrene	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
Toluene	mg/kg	0.2	3	30	<0.6		<0.6		0.6	<0.4		0.4	1694044
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
Chloroform	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	0.06		0.06		0.06	<0.04		0.04	1694044
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
Dichloromethane	mg/kg	-	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
Tetrachloroethene	mg/kg	0.3	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
Carbon Tetrachloride	mg/kg	0.1	5	50	<0.3		<0.3		0.3	<0.2		0.2	1694044
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
Trichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1694044
<b>Surrogate Recovery (%)</b>													
4-Bromofluorobenzene	%	-	-	-	99		99			100			1694044
D10-Ethylbenzene	%	-	-	-	98		94			93			1694044
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													

Maxxam Job #: B681024  
 Report Date: 2016/11/30

Englobe Corp.  
 Your project #: 11905  
 Site address: BEAUHARNOIS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### COV BY GC/MS (SOIL)

Maxxam Job					DH8962		DH8963			DH8964			
Sampling date					2016/11/16		2016/11/16			2016/11/16			
Waybill #					N/A		N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-4-1</b>	<b>CR</b>	<b>CAR-5-1</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-5-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D4-1,2-Dichloroethane	%	-	-	-	90		93			91			1694044
D8-Toluene	%	-	-	-	105		104			105			1694044
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### COV BY GC/MS (SOIL)

Maxxam Job					DH8965			DH8966			
Sampling date					2016/11/16			2016/11/16			
Waybill #					N/A			N/A			
	Units	A	B	C	CAR-6-1	CR	RDL	CAR-6-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	72			62			
<b>COMPOUNDS</b>											
Benzene	mg/kg	0.2	0.5	5	<0.3		0.3	<0.2		0.2	1694044
Chlorobenzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		0.4	1694044
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		0.4	1694044
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		0.4	1694044
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		0.4	1694044
Ethylbenzene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
Styrene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
Toluene	mg/kg	0.2	3	30	<0.6		0.6	<0.4		0.4	1694044
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.6		0.6	<0.4		0.4	1694044
Chloroform	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	0.06		0.06	<0.04		0.04	1694044
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
Dichloromethane	mg/kg	-	5	50	<0.6		0.6	<0.4		0.4	1694044
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
Tetrachloroethene	mg/kg	0.3	5	50	<0.6		0.6	<0.4		0.4	1694044
Carbon Tetrachloride	mg/kg	0.1	5	50	<0.3		0.3	<0.2		0.2	1694044
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
Trichloroethene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	1694044
<b>Surrogate Recovery (%)</b>											
4-Bromofluorobenzene	%	-	-	-	99			99			1694044
D10-Ethylbenzene	%	-	-	-	91			95			1694044
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job #: B681024  
 Report Date: 2016/11/30

Englobe Corp.  
 Your project #: 11905  
 Site address: BEAUHARNOIS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### COV BY GC/MS (SOIL)

Maxxam Job					DH8965			DH8966			
Sampling date					2016/11/16			2016/11/16			
Waybill #					N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-6-1</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-6-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D4-1,2-Dichloroethane	%	-	-	-	91			92			1694044
D8-Toluene	%	-	-	-	105			104			1694044
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### TOTAL EXTRACTABLE METALS (SOIL)

Maxxam Job					DH8960		DH8961		DH8961		DH8962			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	CAR-3-1	CR	CAR-3-2	CR	CAR-3-2 Lab. Dup.	CR	CAR-4-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	74		55		55		70			
<b>METALS</b>														
Silver (Ag)	mg/kg	2	20	40	<2		<2		<2		<2		2	1694617
Arsenic (As)	mg/kg	6	30	50	12	A-B	14	A-B	13	A-B	17	A-B	2	1694617
Barium (Ba)	mg/kg	340	500	2000	300	<A	740	B-C	720	B-C	670	B-C	5	1694617
Cadmium (Cd)	mg/kg	1.5	5	20	5.4	B-C	5.1	B-C	4.8	A-B	13	B-C	0.1	1694617
Chromium (Cr)	mg/kg	100	250	800	61	<A	56	<A	54	<A	65	<A	2	1694617
Copper (Cu)	mg/kg	50	100	500	52	A-B	54	A-B	51	A-B	63	A-B	1	1694617
Cobalt (Co)	mg/kg	25	50	300	22	<A	17	<A	17	<A	23	<A	2	1694617
Tin (Sn)	mg/kg	5	50	300	8	A-B	32	A-B	30	A-B	15	A-B	5	1694617
Manganese (Mn)	mg/kg	1000	1000	2200	3000	>C	2900	>C	2700	>C	4800	>C	2	1694617
Molybdenum (Mo)	mg/kg	2	10	40	<2		<2		<2		<2		2	1694617
Nickel (Ni)	mg/kg	50	100	500	51	A-B	44	<A	42	<A	52	A-B	1	1694617
Mercury (Hg)	mg/kg	0.2	2	10	2.4	B-C	9.4	B-C	9.1	B-C	5.4	B-C	0.05	1694617
Lead (Pb)	mg/kg	50	500	1000	62	A-B	110	A-B	110	A-B	110	A-B	5	1694617
Selenium (Se)	mg/kg	1	3	10	1	A	1	A	<1		1	A	1	1694617
Zinc (Zn)	mg/kg	140	500	1500	400	A-B	400	A-B	380	A-B	700	B-C	5	1694617
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate														

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### TOTAL EXTRACTABLE METALS (SOIL)

Maxxam Job					DH8963		DH8964		DH8965		DH8966			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-5-1</b>	<b>CR</b>	<b>CAR-5-2</b>	<b>CR</b>	<b>CAR-6-1</b>	<b>CR</b>	<b>CAR-6-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	72		53		72		62			
<b>METALS</b>														
Silver (Ag)	mg/kg	2	20	40	<2		<2		<2		<2		2	1694617
Arsenic (As)	mg/kg	6	30	50	20	A-B	13	A-B	9	A-B	26	A-B	2	1694617
Barium (Ba)	mg/kg	340	500	2000	410	A-B	1100	B-C	380	A-B	1700	B-C	5	1694617
Cadmium (Cd)	mg/kg	1.5	5	20	18	B-C	2.9	A-B	4.3	A-B	13	B-C	0.1	1694617
Chromium (Cr)	mg/kg	100	250	800	65	<A	55	<A	67	<A	69	<A	2	1694617
Copper (Cu)	mg/kg	50	100	500	60	A-B	54	A-B	54	A-B	74	A-B	1	1694617
Cobalt (Co)	mg/kg	25	50	300	26	A-B	14	<A	20	<A	21	<A	2	1694617
Tin (Sn)	mg/kg	5	50	300	11	A-B	43	A-B	7	A-B	59	B-C	5	1694617
Manganese (Mn)	mg/kg	1000	1000	2200	6800	>C	1500	B-C	2400	>C	4900	>C	2	1694617
Molybdenum (Mo)	mg/kg	2	10	40	<2		<2		<2		<2		2	1694617
Nickel (Ni)	mg/kg	50	100	500	52	A-B	40	<A	49	<A	53	A-B	1	1694617
Mercury (Hg)	mg/kg	0.2	2	10	3.5	B-C	11	>C	2.7	B-C	15	>C	0.05	1694617
Lead (Pb)	mg/kg	50	500	1000	110	A-B	120	A-B	52	A-B	200	A-B	5	1694617
Selenium (Se)	mg/kg	1	3	10	2	A-B	<1		1	A	2	A-B	1	1694617
Zinc (Zn)	mg/kg	140	500	1500	820	B-C	320	A-B	370	A-B	770	B-C	5	1694617
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														



Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### CONVENTIONAL PARAMETERS (SOIL)

Maxxam Job					DH8960		DH8961		DH8962		DH8963			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-3-1</b>	<b>CR</b>	<b>CAR-3-2</b>	<b>CR</b>	<b>CAR-4-1</b>	<b>CR</b>	<b>CAR-5-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	74		55		70		72			
<b>CONVENTIONAL</b>														
Total organic carbon (titration)	% g/g	-	-	-	5.2		1.8		4.6		4.4		0.05	1695525
Sulphur (S)	% g/g	0.04	0.2	0.2	0.62	>C	0.38	>C	0.48	>C	0.46	>C	0.01	1694715
RDL = Reportable Detection Limit QC Batch = Quality Control Batch														

Maxxam Job					DH8964		DH8964		DH8965		DH8966			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-5-2</b>	<b>CR</b>	<b>CAR-5-2 Lab. Dup.</b>	<b>CR</b>	<b>CAR-6-1</b>	<b>CR</b>	<b>CAR-6-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	53		53		72		62			
<b>CONVENTIONAL</b>														
Total organic carbon (titration)	% g/g	-	-	-	2.6		2.6		4.3		3.5		0.05	1695525
Sulphur (S)	% g/g	0.04	0.2	0.2	0.26	>C	0.26	>C	0.29	>C	0.39	>C	0.01	1694715
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory Duplicate														

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### PCB CONGENERS (SOIL)

Maxxam Job					DH8960		DH8961		DH8962		DH8963			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	CAR-3-1	CR	CAR-3-2	CR	CAR-4-1	CR	CAR-5-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	74		55		70		72			
<b>PCBs</b>														
CL3-IUPAC-17+18	mg/kg	-	-	-	<0.01		<0.01		0.01		<0.01		0.01	1694046
CL3-IUPAC-28+31	mg/kg	-	-	-	0.01		0.02		0.04		0.01		0.01	1694046
CL3-IUPAC-33	mg/kg	-	-	-	<0.01		<0.01		0.01		<0.01		0.01	1694046
CL4-IUPAC-52	mg/kg	-	-	-	0.02		0.03		0.09		0.02		0.01	1694046
CL4-IUPAC-49	mg/kg	-	-	-	0.01		0.02		0.08		0.02		0.01	1694046
CL4-IUPAC-44	mg/kg	-	-	-	0.01		0.02		0.04		0.01		0.01	1694046
CL4-IUPAC-74	mg/kg	-	-	-	<0.01		0.02		0.03		<0.01		0.01	1694046
CL4-IUPAC-70	mg/kg	-	-	-	0.02		0.03		0.06		0.02		0.01	1694046
CL5-IUPAC-95	mg/kg	-	-	-	0.01		0.03		0.06		0.02		0.01	1694046
CL5-IUPAC-101	mg/kg	-	-	-	0.03		0.05		0.10		0.04		0.01	1694046
CL5-IUPAC-99	mg/kg	-	-	-	0.02		0.03		0.06		0.03		0.01	1694046
CL5-IUPAC-87	mg/kg	-	-	-	0.01		0.01		0.02		0.01		0.01	1694046
CL5-IUPAC-110	mg/kg	-	-	-	0.03		0.05		0.11		0.05		0.01	1694046
CL5-IUPAC-82	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-151	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-149	mg/kg	-	-	-	0.01		0.02		0.04		0.02		0.01	1694046
CL5-IUPAC-118	mg/kg	-	-	-	0.03		0.05		0.09		0.04		0.01	1694046
CL6-IUPAC-153	mg/kg	-	-	-	0.01		0.03		0.04		0.02		0.01	1694046
CL6-IUPAC-132	mg/kg	-	-	-	<0.01		0.01		0.02		0.01		0.01	1694046
CL5-IUPAC-105	mg/kg	-	-	-	0.01		0.01		0.02		0.01		0.01	1694046
CL6-IUPAC-138+158	mg/kg	-	-	-	0.03		0.04		0.06		0.04		0.01	1694046
CL7-IUPAC-187	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL7-IUPAC-183	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-128	mg/kg	-	-	-	<0.01		<0.01		0.02		0.01		0.01	1694046
CL7-IUPAC-177	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-156	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL7-IUPAC-180	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL7-IUPAC-170	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### PCB CONGENERS (SOIL)

Maxxam Job					DH8960		DH8961		DH8962		DH8963			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	CAR-3-1	CR	CAR-3-2	CR	CAR-4-1	CR	CAR-5-1	CR	RDL	QC batch
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total trichlorobiphenyls	mg/kg	-	-	-	0.01		0.02		0.15		0.01		0.01	1694046
Total tetrachlorobiphenyls	mg/kg	-	-	-	0.09		0.23		0.47		0.11		0.01	1694046
Total pentachlorobiphenyls	mg/kg	-	-	-	0.14		0.24		0.53		0.22		0.01	1694046
Total hexachlorobiphenyls	mg/kg	-	-	-	0.05		0.09		0.18		0.11		0.01	1694046
Total heptachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total PCBs	mg/kg	0.2	1	10	0.29	A-B	0.58	A-B	1.3	B-C	0.44	A-B	0.01	1694046
<b>Surrogate Recovery (%)</b>														
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	93		99		94		89			1694046
2',3,5-Trichlorobiphenyl	%	-	-	-	89		93		88		103			1694046
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	84		96		91		99			1694046
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### PCB CONGENERS (SOIL)

Maxxam Job					DH8964		DH8965		DH8966		DH8966			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-5-2</b>	<b>CR</b>	<b>CAR-6-1</b>	<b>CR</b>	<b>CAR-6-2</b>	<b>CR</b>	<b>CAR-6-2 Lab. Dup.</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	53		72		62		62			
<b>PCBs</b>														
CL3-IUPAC-17+18	mg/kg	-	-	-	0.03		<0.01		0.08		0.12 (1)		0.01	1694046
CL3-IUPAC-28+31	mg/kg	-	-	-	0.05		0.01		0.13		0.19		0.01	1694046
CL3-IUPAC-33	mg/kg	-	-	-	<0.01		<0.01		0.02		0.03		0.01	1694046
CL4-IUPAC-52	mg/kg	-	-	-	0.12		0.02		0.22		0.37 (1)		0.01	1694046
CL4-IUPAC-49	mg/kg	-	-	-	0.09		0.01		0.18		0.31 (1)		0.01	1694046
CL4-IUPAC-44	mg/kg	-	-	-	0.05		<0.01		0.08		0.11		0.01	1694046
CL4-IUPAC-74	mg/kg	-	-	-	0.02		<0.01		0.04		0.05		0.01	1694046
CL4-IUPAC-70	mg/kg	-	-	-	0.04		0.01		0.08		0.10		0.01	1694046
CL5-IUPAC-95	mg/kg	-	-	-	0.06		0.02		0.08		0.12		0.01	1694046
CL5-IUPAC-101	mg/kg	-	-	-	0.10		0.03		0.11		0.15		0.01	1694046
CL5-IUPAC-99	mg/kg	-	-	-	0.05		0.02		0.05		0.06		0.01	1694046
CL5-IUPAC-87	mg/kg	-	-	-	0.02		0.01		0.03		0.03		0.01	1694046
CL5-IUPAC-110	mg/kg	-	-	-	0.11		0.03		0.12		0.18 (1)		0.01	1694046
CL5-IUPAC-82	mg/kg	-	-	-	<0.01		<0.01		0.01		0.01		0.01	1694046
CL6-IUPAC-151	mg/kg	-	-	-	<0.01		<0.01		0.01		0.02		0.01	1694046
CL6-IUPAC-149	mg/kg	-	-	-	0.04		0.01		0.04		0.07 (1)		0.01	1694046
CL5-IUPAC-118	mg/kg	-	-	-	0.07		0.03		0.07		0.08		0.01	1694046
CL6-IUPAC-153	mg/kg	-	-	-	0.04		0.02		0.03		0.04		0.01	1694046
CL6-IUPAC-132	mg/kg	-	-	-	0.02		<0.01		0.02		0.03		0.01	1694046
CL5-IUPAC-105	mg/kg	-	-	-	0.02		0.01		0.02		0.02		0.01	1694046
CL6-IUPAC-138+158	mg/kg	-	-	-	0.06		0.03		0.06		0.08		0.01	1694046
CL7-IUPAC-187	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01		0.01	1694046
CL7-IUPAC-183	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-128	mg/kg	-	-	-	0.01		<0.01		0.01		0.02		0.01	1694046
CL7-IUPAC-177	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-156	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL7-IUPAC-180	mg/kg	-	-	-	<0.01		<0.01		0.01		0.02		0.01	1694046
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														
Laboratory duplicate														
(1) The results of the duplicate exceed the criteria of acceptability for the RPD. This is likely due to the heterogeneity of the sample.														

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### PCB CONGENERS (SOIL)

Maxxam Job					DH8964		DH8965		DH8966		DH8966			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	CAR-5-2	CR	CAR-6-1	CR	CAR-6-2	CR	CAR-6-2 Lab. Dup.	CR	RDL	QC batch
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL7-IUPAC-170	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01		0.01	1694046
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total trichlorobiphenyls	mg/kg	-	-	-	0.17		0.01		0.53		0.90 (1)		0.01	1694046
Total tetrachlorobiphenyls	mg/kg	-	-	-	0.33		0.08		0.87		1.5 (1)		0.01	1694046
Total pentachlorobiphenyls	mg/kg	-	-	-	0.46		0.15		0.56		0.78 (1)		0.01	1694046
Total hexachlorobiphenyls	mg/kg	-	-	-	0.18		0.06		0.19		0.30 (1)		0.01	1694046
Total heptachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		0.01		0.04		0.01	1694046
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total PCBs	mg/kg	0.2	1	10	1.1	B-C	0.30	A-B	2.2	B-C	3.5 (1)	B-C	0.01	1694046
<b>Surrogate Recovery (%)</b>														
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	82		79		91		94			1694046
2',3,5-Trichlorobiphenyl	%	-	-	-	99		93		93		97			1694046
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	92		83		89		97			1694046
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														
Laboratory duplicate														
(1) The results of the duplicate exceed the criteria of acceptability for the RPD. This is likely due to the heterogeneity of the sample.														

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8960						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-3-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	74						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	1.3		0.19	1.0	1.3		1694619
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	1.8		0.21	0.50	0.90		1694619
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	1.9		0.36	0.10	0.19		1694619
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	7.1		0.34	0.10	0.71		1694619
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	4.9		0.28	0.10	0.49		1694619
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	120		1.3	0.010	1.2		1694619
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	950		1.5	0.0010	0.95	1	1694619
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	16		0.19			11	1694619
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	22		0.21			10	1694619
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	73		0.32			8	1694619
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	260		1.3			2	1694619
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	1300		N/A			32	1694619
2,3,7,8-Tetra CDF **	pg/g	-	-	-	36		0.12	0.10	3.6		1694619
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	26		0.11	0.050	1.3		1694619
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	14		0.11	0.50	7.0		1694619
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	50		0.30	0.10	5.0		1694619
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	14		0.27	0.10	1.4		1694619
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	4.5		0.34	0.10	0.45		1694619
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	1.5		0.35	0.10	0.15		1694619
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	58		1.0	0.010	0.58		1694619
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	16		1.3	0.010	0.16		1694619
Octachlorodibenzofuran	pg/g	-	-	-	130		0.92	0.0010	0.13	1	1694619
Total tetrachlorodibenzofurans	pg/g	-	-	-	180		0.12			18	1694619
Total pentachlorodibenzofurans	pg/g	-	-	-	140		0.11			18	1694619
Total hexachlorodibenzofurans	pg/g	-	-	-	140		0.31			12	1694619
EDL = Estimated Detection Limit											
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency											
The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.											
NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic											
Equivalency Factors (I-TEF)											
QC Batch = Quality Control Batch											
* CDD = Chloro Dibenzo-p-Dioxin											
N/A = Not Applicable											
** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											



Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8960						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-3-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	140		1.2			4	1694619
Total chlorodibenzofurans	pg/g	-	-	-	730		N/A			53	1694619
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					26		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	101						1694619
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	108						1694619
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	96						1694619
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	100						1694619
C13-1,2,3,7,8-P5CDD *	%	-	-	-	102						1694619
C13-1,2,3,7,8-PCDF **	%	-	-	-	108						1694619
C13-2,3,7,8-TCDD *	%	-	-	-	81						1694619
C13-2,3,7,8-TCDF **	%	-	-	-	91						1694619
C13-OCTA-CDD *	%	-	-	-	85						1694619
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Maxxam Job #: B681024  
Report Date: 2016/11/30

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Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8961						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-3-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	55						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	2.8		0.20	1.0	2.8		1694619
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	4.8		0.39	0.50	2.4		1694619
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	3.4		0.59	0.10	0.34		1694619
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	20		0.55	0.10	2.0		1694619
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	9.6		0.45	0.10	0.96		1694619
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	270		1.4	0.010	2.7		1694619
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	2200		1.5	0.0010	2.2	1	1694619
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	29		0.20			15	1694619
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	50		0.39			11	1694619
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	180		0.52			8	1694619
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	540		1.4			2	1694619
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	3000		N/A			37	1694619
2,3,7,8-Tetra CDF **	pg/g	-	-	-	110		0.43	0.10	11		1694619
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	130		0.27	0.050	6.5		1694619
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	61		0.26	0.50	31		1694619
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	210		0.64	0.10	21		1694619
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	52		0.58	0.10	5.2		1694619
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	11		0.73	0.10	1.1		1694619
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	7.9		0.75	0.10	0.79		1694619
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	120		1.6	0.010	1.2		1694619
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	61		2.0	0.010	0.61		1694619
Octachlorodibenzofuran	pg/g	-	-	-	260		0.90	0.0010	0.26	1	1694619
Total tetrachlorodibenzofurans	pg/g	-	-	-	480		0.43			16	1694619
Total pentachlorodibenzofurans	pg/g	-	-	-	540		0.27			17	1694619
Total hexachlorodibenzofurans	pg/g	-	-	-	520		0.67			11	1694619

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
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Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8961						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-3-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	370		1.7			4	1694619
Total chlorodibenzofurans	pg/g	-	-	-	2200		N/A			49	1694619
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					92		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	121						1694619
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	114						1694619
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	101						1694619
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	106						1694619
C13-1,2,3,7,8-P5CDD *	%	-	-	-	100						1694619
C13-1,2,3,7,8-PCDF **	%	-	-	-	106						1694619
C13-2,3,7,8-TCDD *	%	-	-	-	82						1694619
C13-2,3,7,8-TCDF **	%	-	-	-	92						1694619
C13-OCTA-CDD *	%	-	-	-	117						1694619
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

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### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8962						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-4-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	70						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	4.0		0.19	1.0	4.0		1694619
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	4.8		0.37	0.50	2.4		1694619
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	4.1		0.43	0.10	0.41		1694619
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	20		0.41	0.10	2.0		1694619
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	11		0.33	0.10	1.1		1694619
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	330		2.8	0.010	3.3		1694619
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	2600		1.8	0.0010	2.6	1	1694619
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	38		0.19			16	1694619
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	60		0.37			12	1694619
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	190		0.38			8	1694619
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	650		2.8			2	1694619
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	3500		N/A			39	1694619
2,3,7,8-Tetra CDF **	pg/g	-	-	-	130		0.23	0.10	13		1694619
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	120		0.33	0.050	6.0		1694619
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	58		0.32	0.50	29		1694619
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	250		0.81	0.10	25		1694619
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	65		0.74	0.10	6.5		1694619
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	13		0.92	0.10	1.3		1694619
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	6.5		0.95	0.10	0.65		1694619
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	190		1.9	0.010	1.9		1694619
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	90		2.4	0.010	0.90		1694619
Octachlorodibenzofuran	pg/g	-	-	-	390		1.2	0.0010	0.39	1	1694619
Total tetrachlorodibenzofurans	pg/g	-	-	-	600		0.23			21	1694619
Total pentachlorodibenzofurans	pg/g	-	-	-	550		0.33			15	1694619
Total hexachlorodibenzofurans	pg/g	-	-	-	590		0.85			11	1694619
EDL = Estimated Detection Limit											
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency											
The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.											
NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic											
Equivalency Factors (I-TEF)											
QC Batch = Quality Control Batch											
* CDD = Chloro Dibenzo-p-Dioxin											
N/A = Not Applicable											
** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Maxxam Job #: B681024  
Report Date: 2016/11/30

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Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8962						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-4-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	510		2.1			4	1694619
Total chlorodibenzofurans	pg/g	-	-	-	2600		N/A			52	1694619
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					100		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	117						1694619
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	108						1694619
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	105						1694619
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	105						1694619
C13-1,2,3,7,8-P5CDD *	%	-	-	-	99						1694619
C13-1,2,3,7,8-PCDF **	%	-	-	-	104						1694619
C13-2,3,7,8-TCDD *	%	-	-	-	82						1694619
C13-2,3,7,8-TCDF **	%	-	-	-	94						1694619
C13-OCTA-CDD *	%	-	-	-	120						1694619
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

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### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8963						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-5-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	72						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	1.9		0.14	1.0	1.9		1694619
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	2.4		0.31	0.50	1.2		1694619
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	2.5		0.46	0.10	0.25		1694619
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	13		0.43	0.10	1.3		1694619
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	7.2		0.35	0.10	0.72		1694619
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	520		1.7	0.010	5.2		1694619
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	4400		1.6	0.0010	4.4	1	1694619
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	20		0.14			13	1694619
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	32		0.31			12	1694619
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	120		0.41			8	1694619
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	1100		1.7			2	1694619
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	5700		N/A			36	1694619
2,3,7,8-Tetra CDF **	pg/g	-	-	-	51		0.21	0.10	5.1		1694619
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	39		0.16	0.050	2.0		1694619
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	22		0.16	0.50	11		1694619
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	74		0.38	0.10	7.4		1694619
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	21		0.35	0.10	2.1		1694619
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	7.4		0.44	0.10	0.74		1694619
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	2.2		0.45	0.10	0.22		1694619
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	92		1.3	0.010	0.92		1694619
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	22		1.6	0.010	0.22		1694619
Octachlorodibenzofuran	pg/g	-	-	-	170		1.5	0.0010	0.17	1	1694619
Total tetrachlorodibenzofurans	pg/g	-	-	-	260		0.21			22	1694619
Total pentachlorodibenzofurans	pg/g	-	-	-	210		0.16			19	1694619
Total hexachlorodibenzofurans	pg/g	-	-	-	210		0.40			14	1694619

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

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Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8963						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-5-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	230		1.4			4	1694619
Total chlorodibenzofurans	pg/g	-	-	-	1100		N/A			60	1694619
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					45		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	125						1694619
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	121						1694619
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	103						1694619
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	107						1694619
C13-1,2,3,7,8-P5CDD *	%	-	-	-	109						1694619
C13-1,2,3,7,8-PCDF **	%	-	-	-	114						1694619
C13-2,3,7,8-TCDD *	%	-	-	-	86						1694619
C13-2,3,7,8-TCDF **	%	-	-	-	92						1694619
C13-OCTA-CDD *	%	-	-	-	128						1694619
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											



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Site address: BEAUHARNOIS  
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Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8964						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-5-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	53						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	4.2		0.17	1.0	4.2		1694619
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	7.0		0.28	0.50	3.5		1694619
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	4.0		0.53	0.10	0.40		1694619
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	29		0.50	0.10	2.9		1694619
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	14		0.40	0.10	1.4		1694619
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	400		3.7	0.010	4.0		1694619
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	3500		1.2	0.0010	3.5	1	1694619
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	43		0.17			16	1694619
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	84		0.28			12	1694619
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	300		0.47			9	1694619
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	830		3.7			2	1694619
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	4800		N/A			40	1694619
2,3,7,8-Tetra CDF **	pg/g	-	-	-	170		0.34	0.10	17		1694619
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	220		0.25	0.050	11		1694619
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	97		0.25	0.50	49		1694619
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	400		0.72	0.10	40		1694619
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	100		0.65	0.10	10		1694619
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	18		0.82	0.10	1.8		1694619
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	13		0.84	0.10	1.3		1694619
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	220		1.7	0.010	2.2		1694619
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	150		2.1	0.010	1.5		1694619
Octachlorodibenzofuran	pg/g	-	-	-	520		0.93	0.0010	0.52	1	1694619
Total tetrachlorodibenzofurans	pg/g	-	-	-	630		0.34			15	1694619
Total pentachlorodibenzofurans	pg/g	-	-	-	820		0.25			17	1694619
Total hexachlorodibenzofurans	pg/g	-	-	-	930		0.75			12	1694619

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8964						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-5-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	730		1.9			4	1694619
Total chlorodibenzofurans	pg/g	-	-	-	3600		N/A			49	1694619
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					150		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	81						1694619
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	79						1694619
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	72						1694619
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	77						1694619
C13-1,2,3,7,8-P5CDD *	%	-	-	-	84						1694619
C13-1,2,3,7,8-PCDF **	%	-	-	-	90						1694619
C13-2,3,7,8-TCDD *	%	-	-	-	64						1694619
C13-2,3,7,8-TCDF **	%	-	-	-	76						1694619
C13-OCTA-CDD *	%	-	-	-	75						1694619
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Maxxam Job #: B681024  
Report Date: 2016/11/30

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Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8965						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-6-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	72						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	1.4		0.27	1.0	1.4		1694619
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	1.7		0.20	0.50	0.85		1694619
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	2.1		0.44	0.10	0.21		1694619
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	7.8		0.42	0.10	0.78		1694619
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	5.1		0.34	0.10	0.51		1694619
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	150		1.5	0.010	1.5		1694619
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	1300		0.93	0.0010	1.3	1	1694619
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	15		0.27			11	1694619
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	27		0.20			12	1694619
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	85		0.39			8	1694619
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	310		1.5			2	1694619
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	1700		N/A			34	1694619
2,3,7,8-Tetra CDF **	pg/g	-	-	-	37		0.20	0.10	3.7		1694619
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	32		0.30	0.050	1.6		1694619
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	17		0.30	0.50	8.5		1694619
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	65		0.40	0.10	6.5		1694619
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	16		0.36	0.10	1.6		1694619
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	4.8		0.45	0.10	0.48		1694619
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	2.1		0.46	0.10	0.21		1694619
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	<56		56	0.010	0		1694619
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	22		1.8	0.010	0.22		1694619
Octachlorodibenzofuran	pg/g	-	-	-	130		0.75	0.0010	0.13	1	1694619
Total tetrachlorodibenzofurans	pg/g	-	-	-	170		0.20			22	1694619
Total pentachlorodibenzofurans	pg/g	-	-	-	150		0.30			16	1694619
Total hexachlorodibenzofurans	pg/g	-	-	-	170		0.41			13	1694619
EDL = Estimated Detection Limit											
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency											
The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.											
NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic											
Equivalency Factors (I-TEF)											
QC Batch = Quality Control Batch											
* CDD = Chloro Dibenzo-p-Dioxin											
N/A = Not Applicable											
** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
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Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8965						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-6-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	100		1.5			3	1694619
Total chlorodibenzofurans	pg/g	-	-	-	720		N/A			55	1694619
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					29		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	94						1694619
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	84						1694619
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	86						1694619
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	87						1694619
C13-1,2,3,7,8-P5CDD *	%	-	-	-	98						1694619
C13-1,2,3,7,8-PCDF **	%	-	-	-	108						1694619
C13-2,3,7,8-TCDD *	%	-	-	-	79						1694619
C13-2,3,7,8-TCDF **	%	-	-	-	91						1694619
C13-OCTA-CDD *	%	-	-	-	77						1694619
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

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### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8966						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-6-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	62						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	4.8		0.22	1.0	4.8		1694619
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	7.8		0.34	0.50	3.9		1694619
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	5.1		0.93	0.10	0.51		1694619
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	29		0.87	0.10	2.9		1694619
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	16		0.71	0.10	1.6		1694619
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	430		3.8	0.010	4.3		1694619
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	4000		2.2	0.0010	4.0	1	1694619
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	51		0.22			16	1694619
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	96		0.34			13	1694619
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	320		0.82			8	1694619
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	910		3.8			2	1694619
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	5400		N/A			40	1694619
2,3,7,8-Tetra CDF **	pg/g	-	-	-	160		0.46	0.10	16		1694619
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	200		0.25	0.050	10		1694619
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	95		0.25	0.50	48		1694619
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	330		0.82	0.10	33		1694619
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	81		0.74	0.10	8.1		1694619
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	14		0.93	0.10	1.4		1694619
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	9.4		0.95	0.10	0.94		1694619
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	190		2.4	0.010	1.9		1694619
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	110		3.1	0.010	1.1		1694619
Octachlorodibenzofuran	pg/g	-	-	-	450		0.94	0.0010	0.45	1	1694619
Total tetrachlorodibenzofurans	pg/g	-	-	-	720		0.46			16	1694619
Total pentachlorodibenzofurans	pg/g	-	-	-	830		0.25			18	1694619
Total hexachlorodibenzofurans	pg/g	-	-	-	810		0.85			12	1694619

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

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Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DH8966						
Sampling date					2016/11/16						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-6-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	600		2.7			4	1694619
Total chlorodibenzofurans	pg/g	-	-	-	3400		N/A			51	1694619
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					140		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	106						1694619
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	98						1694619
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	89						1694619
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	97						1694619
C13-1,2,3,7,8-P5CDD *	%	-	-	-	102						1694619
C13-1,2,3,7,8-PCDF **	%	-	-	-	111						1694619
C13-2,3,7,8-TCDD *	%	-	-	-	79						1694619
C13-2,3,7,8-TCDF **	%	-	-	-	95						1694619
C13-OCTA-CDD *	%	-	-	-	107						1694619
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

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## GENERAL COMMENTS

All results are calculated using a dry base, except when not applicable.

Condition of samples upon arrival: GOOD

A,B,C,CR: Soil criteria taken from Appendix 2 of the "Intervention Guide-Soil Protection and Rehabilitation of Contaminated Sites. MDDELCC, 2016." entitled "Generic Soil Evaluation Criteria". For analyses of metals (and metalloids) in the soil, Criteria A designated the "Substantive Content - St. Lawrence Lowlands".

Criteria A and B for groundwater are taken from Appendix 7, "Groundwater Quality Evaluation Criteria" of the aforementioned Intervention Guide.  
A=Drinking water; B=Seepage into surface water

These references are reported for information purposes only and must not be interpreted in any other context.

- = This compound is not part of the Regulations.

## DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Please note that the above results have not been corrected for quality control sample recovery (spiked blank) or for method blank values. Please note that the above results have been corrected for surrogate recovery percentage.

**These results refer only to the samples submitted for analysis.**



Englobe Corp.  
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### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
1694044	ST1	Spiked blank	<b>4-Bromofluorobenzene</b>	2016/11/17		101	%
			D10-Ethylbenzene	2016/11/17		104	%
			D4-1,2-Dichloroethane	2016/11/17		87	%
			D8-Toluene	2016/11/17		105	%
			Benzene	2016/11/17		100	%
			Chlorobenzene	2016/11/17		102	%
			Dichloro-1,2 benzene	2016/11/17		101	%
			Dichloro-1,3 benzene	2016/11/17		100	%
			Dichloro-1,4 benzene	2016/11/17		104	%
			Ethylbenzene	2016/11/17		92	%
			Styrene	2016/11/17		105	%
			Toluene	2016/11/17		98	%
			Xylenes (o,m,p)	2016/11/17		98	%
			Chloroform	2016/11/17		91	%
			Vinylchloride (Chloroethene)	2016/11/17		72	%
			1,1-Dichloroethane	2016/11/17		100	%
			1,2-Dichloroethane	2016/11/17		84	%
			1,1-Dichloroethene	2016/11/17		97	%
			1,2-Dichloroethene (cis)	2016/11/17		94	%
			1,2-Dichloroethene (trans)	2016/11/17		97	%
			1,2-Dichloroethene (cis and trans)	2016/11/17		95	%
			Dichloromethane	2016/11/17		114	%
			1,2-Dichloropropane	2016/11/17		98	%
			1,3-Dichloropropene (cis)	2016/11/17		101	%
			1,3-Dichloropropene (trans)	2016/11/17		100	%
			1,3-Dichloropropene (cis and trans)	2016/11/17		100	%
			1,1,2,2-Tetrachloroethane	2016/11/17		90	%
			Tetrachloroethene	2016/11/17		109	%
			Carbon tetrachloride	2016/11/17		89	%
			1,1,1-Trichloroethane	2016/11/17		88	%
			1,1,2-Trichloroethane	2016/11/17		92	%
			Trichloroethene	2016/11/17		104	%
1694044	ST1	Method blank	<b>4-Bromofluorobenzene</b>	2016/11/17		99	%
			D10-Ethylbenzene	2016/11/17		105	%
			D4-1,2-Dichloroethane	2016/11/17		87	%
			D8-Toluene	2016/11/17		106	%
			Benzene	2016/11/17	<0.1		mg/kg
			Chlorobenzene	2016/11/17	<0.2		mg/kg
			Dichloro-1,2 benzene	2016/11/17	<0.2		mg/kg
			Dichloro-1,3 benzene	2016/11/17	<0.2		mg/kg
			Dichloro-1,4 benzene	2016/11/17	<0.2		mg/kg
			Ethylbenzene	2016/11/17	<0.2		mg/kg
			Styrene	2016/11/17	<0.2		mg/kg
			Toluene	2016/11/17	<0.2		mg/kg
			Xylenes (o,m,p)	2016/11/17	<0.2		mg/kg
			Chloroform	2016/11/17	<0.2		mg/kg
			Vinylchloride (Chloroethene)	2016/11/17	<0.02		mg/kg
			1,1-Dichloroethane	2016/11/17	<0.2		mg/kg
			1,2-Dichloroethane	2016/11/17	<0.2		mg/kg
			1,1-Dichloroethene	2016/11/17	<0.2		mg/kg

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QA/QC Batch	Inits	QC Type	Group	Date Analyzed	Value	Recovery	Units
			1,2-Dichloroethene (cis)	2016/11/17	<0.2		mg/kg
			1,2-Dichloroethene (trans)	2016/11/17	<0.2		mg/kg
			1,2-Dichloroethene (cis and trans)	2016/11/17	<0.2		mg/kg
			Dichloromethane	2016/11/17	<0.2		mg/kg
			1,2-Dichloropropane	2016/11/17	<0.2		mg/kg
			1,3-Dichloropropene (cis)	2016/11/17	<0.2		mg/kg
			1,3-Dichloropropene (trans)	2016/11/17	<0.2		mg/kg
			1,3-Dichloropropene (cis and trans)	2016/11/17	<0.2		mg/kg
			1,1,2,2-Tetrachloroethane	2016/11/17	<0.2		mg/kg
			Tetrachloroethene	2016/11/17	<0.2		mg/kg
			Carbon tetrachloride	2016/11/17	<0.1		mg/kg
			1,1,1-Trichloroethane	2016/11/17	<0.2		mg/kg
			1,1,2-Trichloroethane	2016/11/17	<0.2		mg/kg
			Trichloroethene	2016/11/17	<0.2		mg/kg
1694046	CB5	Spiked blank	2,3,3',4,6-Pentachlorobiphenyl	2016/11/18		81	%
			2',3,5-Trichlorobiphenyl	2016/11/18		75	%
			22'33'44'566'-Nonachlorobiphenyl	2016/11/18		86	%
			Total PCBs	2016/11/18		105	%
1694046	CB5	Method blank	2,3,3',4,6-Pentachlorobiphenyl	2016/11/18		90	%
			2',3,5-Trichlorobiphenyl	2016/11/18		78	%
			22'33'44'566'-Nonachlorobiphenyl	2016/11/18		93	%
			CL3-IUPAC-17+18	2016/11/18	<0.01		mg/kg
			CL3-IUPAC-28+31	2016/11/18	<0.01		mg/kg
			CL3-IUPAC-33	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-52	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-49	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-44	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-74	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-70	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-95	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-101	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-99	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-87	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-110	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-82	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-151	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-149	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-118	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-153	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-132	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-105	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-138+158	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-187	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-183	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-128	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-177	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-171	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-156	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-180	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-191	2016/11/18	<0.01		mg/kg

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1694500	MA1	Spiked blank	CL6-IUPAC-169	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-170	2016/11/18	<0.01		mg/kg
			CL8-IUPAC-199	2016/11/18	<0.01		mg/kg
			CL9-IUPAC-208	2016/11/18	<0.01		mg/kg
			CL8-IUPAC-195	2016/11/18	<0.01		mg/kg
			CL8-IUPAC-194	2016/11/18	<0.01		mg/kg
			CL8-IUPAC-205	2016/11/18	<0.01		mg/kg
			CL9-IUPAC-206	2016/11/18	<0.01		mg/kg
			CL10-IUPAC-209	2016/11/18	<0.01		mg/kg
			Total trichlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total tetrachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total pentachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total hexachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total heptachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total octachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total nonachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total decachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total PCBs	2016/11/18	<0.01		mg/kg
			D6-Phenol	2016/11/18		106	%
			Tribromophenol-2,4,6	2016/11/18		119	%
			Trifluoro-m-cresol	2016/11/18		110	%
			o-Cresol	2016/11/18		97	%
			m-Cresol	2016/11/18		100	%
			p-Cresol	2016/11/18		106	%
			2,4-Dimethylphenol	2016/11/18		98	%
			2-Nitrophenol	2016/11/18		94	%
			4-Nitrophenol	2016/11/18		112	%
			Phenol	2016/11/18		97	%
			2-Chlorophenol	2016/11/18		102	%
			3-Chlorophenol	2016/11/18		101	%
			4-Chlorophenol	2016/11/18		102	%
			2,3-Dichlorophenol	2016/11/18		109	%
			2,4 + 2,5-Dichlorophenol	2016/11/18		105	%
			2,6-Dichlorophenol	2016/11/18		108	%
			3,4-Dichlorophenol	2016/11/18		102	%
			3,5-Dichlorophenol	2016/11/18		102	%
			Pentachlorophenol	2016/11/18		101	%
			2,3,4,5-Tetrachlorophenol	2016/11/18		98	%
			2,3,4,6-Tetrachlorophenol	2016/11/18		122	%
			2,3,5,6-Tetrachlorophenol	2016/11/18		120	%
			2,3,4-Trichlorophenol	2016/11/18		103	%
			2,3,5-Trichlorophenol	2016/11/18		101	%
			2,3,6-Trichlorophenol	2016/11/18		128	%
			2,4,5-Trichlorophenol	2016/11/18		112	%
			2,4,6-Trichlorophenol	2016/11/18		113	%
			3,4,5-Trichlorophenol	2016/11/18		107	%
1694500	MA1	Method blank	D6-Phenol	2016/11/18		100	%
			Tribromophenol-2,4,6	2016/11/18		107	%
			Trifluoro-m-cresol	2016/11/18		103	%
			o-Cresol	2016/11/18	<0.1		mg/kg

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			m-Cresol	2016/11/18	<0.1		mg/kg
			p-Cresol	2016/11/18	<0.1		mg/kg
			2,4-Dimethylphenol	2016/11/18	<0.1		mg/kg
			2-Nitrophenol	2016/11/18	<0.1		mg/kg
			4-Nitrophenol	2016/11/18	<0.1		mg/kg
			Phenol	2016/11/18	<0.1		mg/kg
			2-Chlorophenol	2016/11/18	<0.1		mg/kg
			3-Chlorophenol	2016/11/18	<0.1		mg/kg
			4-Chlorophenol	2016/11/18	<0.1		mg/kg
			2,3-Dichlorophenol	2016/11/18	<0.1		mg/kg
			2,4 + 2,5-Dichlorophenol	2016/11/18	<0.1		mg/kg
			2,6-Dichlorophenol	2016/11/18	<0.1		mg/kg
			3,4-Dichlorophenol	2016/11/18	<0.1		mg/kg
			3,5-Dichlorophenol	2016/11/18	<0.1		mg/kg
			Pentachlorophenol	2016/11/18	<0.1		mg/kg
			2,3,4,5-Tetrachlorophenol	2016/11/18	<0.1		mg/kg
			2,3,4,6-Tetrachlorophenol	2016/11/18	<0.1		mg/kg
			2,3,5,6-Tetrachlorophenol	2016/11/18	<0.1		mg/kg
			2,3,4-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,3,5-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,3,6-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,4,5-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,4,6-Trichlorophenol	2016/11/18	<0.1		mg/kg
			3,4,5-Trichlorophenol	2016/11/18	<0.1		mg/kg
1694561	BSM	Spiked blank	1-Chlorooctadecane	2016/11/17		90	%
			Petroleum hydrocarbons (C10-C50)	2016/11/17		85	%
1694561	BSM	Method blank	1-Chlorooctadecane	2016/11/17		92	%
			Petroleum hydrocarbons (C10-C50)	2016/11/17	<100		mg/kg
1694569	AH3	Spiked blank	2-Chloronaphthalene	2016/11/18		79	%
			D10-Anthracene	2016/11/18		78	%
			D12-Benzo(a)pyrene	2016/11/18		86	%
			D14-Terphenyl	2016/11/18		83	%
			D8-Acenaphthylene	2016/11/18		75	%
			D8-Naphtalene	2016/11/18		75	%
			Naphthalene	2016/11/18		80	%
			Acenaphthylene	2016/11/18		81	%
			Acenaphthene	2016/11/18		80	%
			Fluorene	2016/11/18		81	%
			Phenanthrene	2016/11/18		83	%
			Anthracene	2016/11/18		86	%
			Fluoranthene	2016/11/18		88	%
			Pyrene	2016/11/18		91	%
			Benzo(a)anthracene	2016/11/18		99	%
			Chrysene	2016/11/18		101	%
			Benzo(b+j+k)fluoranthene	2016/11/18		98	%
			Benzo(e)pyrene	2016/11/18		96	%
			Benzo(a)pyrene	2016/11/18		93	%
			Ideno(1,2,3-cd)pyrene	2016/11/18		95	%
			Dibenzo(a,h)anthracene	2016/11/18		96	%
			Benzo(ghi)perylene	2016/11/18		96	%

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1694569	AH3	Method blank	2-Methylnaphtalene	2016/11/18		82	%
			1-Methylnaphtalene	2016/11/18		74	%
			Benzo(c)phenanthrene	2016/11/18		96	%
			3-Methylcholanthrene	2016/11/18		94	%
			7,12-Dimethylbenzanthracene	2016/11/18		88	%
			Dibenzo(a,i)pyrene	2016/11/18		100	%
			Dibenzo(a,l)pyrene	2016/11/18		100	%
			Dibenzo(a,h)pyrene	2016/11/18		88	%
			1.3-Dimethylnaphthalene	2016/11/18		83	%
			2.3.5-Trimethylnaphthalene	2016/11/18		75	%
			2-Chloronaphthalene	2016/11/18	<0.1		mg/kg
			D10-Anthracene	2016/11/18		68	%
			D12-Benzo(a)pyrene	2016/11/18		73	%
			D14-Terphenyl	2016/11/18		72	%
			D8-Acenaphthylene	2016/11/18		68	%
			D8-Naphtalene	2016/11/18		69	%
			Naphthalene	2016/11/18	<0.01		mg/kg
			Acenaphthylene	2016/11/18	<0.003		mg/kg
			Acenaphthene	2016/11/18	<0.003		mg/kg
			Fluorene	2016/11/18	<0.01		mg/kg
			Phenanthrene	2016/11/18	<0.01		mg/kg
			Anthracene	2016/11/18	<0.01		mg/kg
			Fluoranthene	2016/11/18	<0.01		mg/kg
			Pyrene	2016/11/18	<0.01		mg/kg
			Benzo(a)anthracene	2016/11/18	<0.01		mg/kg
			Chrysene	2016/11/18	<0.01		mg/kg
			Benzo(b+j+k)fluoranthene	2016/11/18	<0.01		mg/kg
			Benzo(e)pyrene	2016/11/18	<0.01		mg/kg
			Benzo(a)pyrene	2016/11/18	<0.01		mg/kg
			Ideno(1,2,3-cd)pyrene	2016/11/18	<0.01		mg/kg
			Dibenzo(a,h)anthracene	2016/11/18	<0.003		mg/kg
			Benzo(ghi)perylene	2016/11/18	<0.01		mg/kg
			2-Methylnaphtalene	2016/11/18	<0.01		mg/kg
			1-Methylnaphtalene	2016/11/18	<0.01		mg/kg
			Benzo(c)phenanthrene	2016/11/18	<0.01		mg/kg
			3-Methylcholanthrene	2016/11/18	<0.01		mg/kg
			7,12-Dimethylbenzanthracene	2016/11/18	<0.01		mg/kg
			Dibenzo(a,i)pyrene	2016/11/18	<0.01		mg/kg
			Dibenzo(a,l)pyrene	2016/11/18	<0.01		mg/kg
			Dibenzo(a,h)pyrene	2016/11/18	<0.01		mg/kg
			1.3-Dimethylnaphthalene	2016/11/18	<0.01		mg/kg
			2.3.5-Trimethylnaphthalene	2016/11/18	<0.01		mg/kg
1694617	KV1	RCN	Arsenic (As)	2016/11/18		108	%
			Cadmium (Cd)	2016/11/18		108	%
			Chromium (Cr)	2016/11/18		93	%
			Copper (Cu)	2016/11/18		92	%
			Cobalt (Co)	2016/11/18		97	%
			Manganese (Mn)	2016/11/18		90	%
			Molybdenum (Mo)	2016/11/18		84	%
			Nickel (Ni)	2016/11/18		109	%

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1694617	KV1	Spiked blank	Mercury (Hg)	2016/11/18		110	%
			Lead (Pb)	2016/11/18		108	%
			Zinc (Zn)	2016/11/18		92	%
			Silver (Ag)	2016/11/18		102	%
			Arsenic (As)	2016/11/18		99	%
			Barium (Ba)	2016/11/18		102	%
			Cadmium (Cd)	2016/11/18		101	%
			Chromium (Cr)	2016/11/18		100	%
			Copper (Cu)	2016/11/18		101	%
			Cobalt (Co)	2016/11/18		107	%
			Tin (Sn)	2016/11/18		111	%
			Manganese (Mn)	2016/11/18		103	%
			Molybdenum (Mo)	2016/11/18		104	%
			Nickel (Ni)	2016/11/18		103	%
			Mercury (Hg)	2016/11/18		104	%
			Lead (Pb)	2016/11/18		107	%
1694617	KV1	Method blank	Selenium (Se)	2016/11/18		92	%
			Zinc (Zn)	2016/11/18		100	%
			Silver (Ag)	2016/11/18	<2		mg/kg
			Arsenic (As)	2016/11/18	<2		mg/kg
			Barium (Ba)	2016/11/18	<5		mg/kg
			Cadmium (Cd)	2016/11/18	<0.1		mg/kg
			Chromium (Cr)	2016/11/18	<2		mg/kg
			Copper (Cu)	2016/11/18	<1		mg/kg
			Cobalt (Co)	2016/11/18	<2		mg/kg
			Tin (Sn)	2016/11/18	<5		mg/kg
			Manganese (Mn)	2016/11/18	<2		mg/kg
			Molybdenum (Mo)	2016/11/18	<2		mg/kg
			Nickel (Ni)	2016/11/18	<1		mg/kg
			Mercury (Hg)	2016/11/18	<0.05		mg/kg
			Lead (Pb)	2016/11/18	<5		mg/kg
			Selenium (Se)	2016/11/18	<1		mg/kg
1694619	AS2	Spiked blank	Zinc (Zn)	2016/11/18	<5		mg/kg
			C13-1,2,3,4,6,7,8-H7CDD	2016/11/22		128	%
			C13-1,2,3,4,6,7,8-H7CDF	2016/11/22		137 (1)	%
			C13-1,2,3,6,7,8-H6CDD	2016/11/22		101	%
			C13-1,2,3,6,7,8-H6CDF	2016/11/22		113	%
			C13-1,2,3,7,8-P5CDD	2016/11/22		102	%
			C13-1,2,3,7,8-PCDF	2016/11/22		110	%
			C13-2,3,7,8-TCDD	2016/11/22		87	%
			C13-2,3,7,8-TCDF	2016/11/22		99	%
			C13-OCTA-CDD	2016/11/22		108	%
			2,3,7,8-Tetra CDD	2016/11/22		109	%
			1,2,3,7,8-Penta CDD	2016/11/22		104	%
			1,2,3,4,7,8-Hexa CDD	2016/11/22		123	%
			1,2,3,6,7,8-Hexa CDD	2016/11/22		125	%
			1,2,3,7,8,9-Hexa CDD	2016/11/22		108	%
			1,2,3,4,6,7,8-Hepta CDD	2016/11/22		110	%
			Octachlorodibenzo-p-dioxin	2016/11/22		142 (1)	%
			2,3,7,8-Tetra CDF	2016/11/22		115	%

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1694619	AS2	Method blank	1,2,3,7,8-Penta CDF	2016/11/22		117 %
			2,3,4,7,8-Penta CDF	2016/11/22		110 %
			1,2,3,4,7,8-Hexa CDF	2016/11/22		113 %
			1,2,3,6,7,8-Hexa CDF	2016/11/22		112 %
			2,3,4,6,7,8-Hexa CDF	2016/11/22		136 %
			1,2,3,7,8,9-Hexa CDF	2016/11/22		116 %
			1,2,3,4,6,7,8-Hepta CDF	2016/11/22		114 %
			1,2,3,4,7,8,9-Hepta CDF	2016/11/22		100 %
			Octachlorodibenzofuran	2016/11/22		100 %
			C13-1,2,3,4,6,7,8-H7CDD	2016/11/22		123 %
			C13-1,2,3,4,6,7,8-H7CDF	2016/11/22		128 %
			C13-1,2,3,6,7,8-H6CDD	2016/11/22		97 %
			C13-1,2,3,6,7,8-H6CDF	2016/11/22		103 %
			C13-1,2,3,7,8-P5CDD	2016/11/22		93 %
			C13-1,2,3,7,8-PCDF	2016/11/22		93 %
			C13-2,3,7,8-TCDD	2016/11/22		77 %
			C13-2,3,7,8-TCDF	2016/11/22		87 %
			C13-OCTA-CDD	2016/11/22		115 %
			2,3,7,8-Tetra CDD	2016/11/22	<0.044, EDL=0.044	pg/g
			1,2,3,7,8-Penta CDD	2016/11/22	<0.036, EDL=0.036	pg/g
			1,2,3,4,7,8-Hexa CDD	2016/11/22	<0.030, EDL=0.030	pg/g
			1,2,3,6,7,8-Hexa CDD	2016/11/22	<0.028, EDL=0.028	pg/g
			1,2,3,7,8,9-Hexa CDD	2016/11/22	<0.023, EDL=0.023	pg/g
			1,2,3,4,6,7,8-Hepta CDD	2016/11/22	0.11, EDL=0.034	pg/g
			Octachlorodibenzo-p-dioxin	2016/11/22	0.47, EDL=0.069	pg/g
			Total tetrachlorodibenzo-p-dioxins	2016/11/22	<0.044, EDL=0.044	pg/g
			Total pentachlorodibenzo-p-dioxins	2016/11/22	<0.036, EDL=0.036	pg/g
			Total hexachlorodibenzo-p-dioxins	2016/11/22	<0.026, EDL=0.026	pg/g
			Total heptachlorodibenzo-p-dioxins	2016/11/22	0.22, EDL=0.034	pg/g
			Total chlorodibenzo-p-dioxins	2016/11/22	0.69	pg/g
			2,3,7,8-Tetra CDF	2016/11/22	<0.021, EDL=0.021	pg/g
			1,2,3,7,8-Penta CDF	2016/11/22	<0.026, EDL=0.026	pg/g
			2,3,4,7,8-Penta CDF	2016/11/22	<0.026, EDL=0.026	pg/g

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Inits	QC Type	Group	Date Analyzed	Value	Recovery	Units
			1,2,3,4,7,8,-Hexa CDF	2016/11/22	<0.019, EDL=0.019		pg/g
			1,2,3,6,7,8-Hexa CDF	2016/11/22	<0.018, EDL=0.018		pg/g
			2,3,4,6,7,8-Hexa CDF	2016/11/22	<0.022, EDL=0.022		pg/g
			1,2,3,7,8,9-Hexa CDF	2016/11/22	<0.023, EDL=0.023		pg/g
			1,2,3,4,6,7,8-Hepta CDF	2016/11/22	0.045, EDL=0.017		pg/g
			1,2,3,4,7,8,9-Hepta CDF	2016/11/22	<0.022, EDL=0.022		pg/g
			Octachlorodibenzofuran	2016/11/22	0.043, EDL=0.030		pg/g
			Total tetrachlorodibenzofurans	2016/11/22	<0.021, EDL=0.021		pg/g
			Total pentachlorodibenzofurans	2016/11/22	<0.026, EDL=0.026		pg/g
			Total hexachlorodibenzofurans	2016/11/22	<0.020, EDL=0.020		pg/g
			Total heptachlorodibenzofurans	2016/11/22	0.045, EDL=0.019		pg/g
			Total chlorodibenzofurans	2016/11/22	0.088		pg/g
1694715	JL1	RCN	Sulphur (S)	2016/11/18		100	%
1694715	JL1	Method blank	Sulphur (S)	2016/11/18	<0.01		% g/g
1694856	CT2	Spiked blank	1-Chlorooctadecane	2016/11/18		84	%
			Petroleum hydrocarbons (C10-C50)	2016/11/18		90	%
1694856	CT2	Method blank	1-Chlorooctadecane	2016/11/18		89	%
			Petroleum hydrocarbons (C10-C50)	2016/11/18	<100		mg/kg
1695525	CMC	RCN	Total organic carbon (titration)	2016/11/21		111	%
1696106	CB5	Spiked blank	C13-1,2,4-Trichlorobenzene	2016/11/22		83	%
			C13-Hexachlorobenzene	2016/11/22		102	%
			1,3,5-Trichlorobenzene	2016/11/22		106	%
			1,2,4-Trichlorobenzene	2016/11/22		98	%
			1,2,3-Trichlorobenzene	2016/11/22		103	%
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/22		103	%
			1,2,3,4-Tetrachlorobenzene	2016/11/22		102	%
			Pentachlorobenzene	2016/11/22		84	%
			Hexachlorobenzene	2016/11/22		90	%
1696106	CB5	Method blank	C13-1,2,4-Trichlorobenzene	2016/11/22		84	%
			C13-Hexachlorobenzene	2016/11/22		103	%
			1,3,5-Trichlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,4-Trichlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,3-Trichlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,3,4-Tetrachlorobenzene	2016/11/22	<0.01		mg/kg
			Pentachlorobenzene	2016/11/22	<0.01		mg/kg
			Hexachlorobenzene	2016/11/22	<0.01		mg/kg



Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Inits	QC Type	Group	Date Analyzed	Value	RecoveryUnits
1696940	CB5	Spiked blank	C13-1,2,4-Trichlorobenzene	2016/11/23		82 %
			C13-Hexachlorobenzene	2016/11/23		92 %
			1,3,5-Trichlorobenzene	2016/11/23		108 %
			1,2,4-Trichlorobenzene	2016/11/23		100 %
			1,2,3-Trichlorobenzene	2016/11/23		104 %
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/23		104 %
			1,2,3,4-Tetrachlorobenzene	2016/11/23		106 %
			Pentachlorobenzene	2016/11/23		95 %
			Hexachlorobenzene	2016/11/23		102 %
1696940	CB5	Method blank	C13-1,2,4-Trichlorobenzene	2016/11/23		93 %
			C13-Hexachlorobenzene	2016/11/23		95 %
			1,3,5-Trichlorobenzene	2016/11/23	<0.01	mg/kg
			1,2,4-Trichlorobenzene	2016/11/23	<0.01	mg/kg
			1,2,3-Trichlorobenzene	2016/11/23	<0.01	mg/kg
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/23	<0.01	mg/kg
			1,2,3,4-Tetrachlorobenzene	2016/11/23	<0.01	mg/kg
			Pentachlorobenzene	2016/11/23	<0.01	mg/kg
			Hexachlorobenzene	2016/11/23	<0.01	mg/kg

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

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

Method blank: An aliquot portion of pure matrix that is submitted to the same analytical process as the samples, from pre-treatment to assaying. Used to identify laboratory contamination.

Surrogate: Compound of similar composition to the compounds analyzed and added to the pre-analysis sample. Used to evaluate the quality of the extraction.

EDL = Estimated Detection Limit

Rec = Recovery

(1) Recovery or relative variation (RPD) for this composite is beyond control limits, but the overall quality control meets the criteria of acceptability for this analysis

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

#### **VALIDATION SIGNATURE PAGE**

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

Caroline Bougie, B.Sc. Chemist

David Provencher, B.Sc., Chemist, Quebec

Karyn Vaucher

Maria Dragna Apopei, B.Sc., Chemist

Marie-Claude Poupart, B.Sc., Chemist

Madina Hamrouni, B.Sc., Chemist

Michel Poulin, B.Sc., Chemist

Maxxam Job #: B681024  
Report Date: 2016/11/30

Englobe Corp.  
Your project #: 11905  
Site address: BEAUHARNOIS  
Your P.O. #: 23514  
Sampler's initials: PV

#### **VALIDATION SIGNATURE PAGE (CONTINUED)**

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

Noureddine Chafiaai, B.Sc., Chemist

Phuc Khanh Tuong, B.Sc., Chemist

Sylvain Chevigny, B.Sc., Chemist

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

**Maxxam analytique inc.**  
889, Montée de Liesse  
Saint-Laurent (Québec) H4T 1P5

Téléphone : 514-448-9001  
Télécopieur : 514-448-9199

# Chaîne de responsabilité

Page 1 de 1

Client : Englobe Corp.		Téléphone : 514-849-7281 Télécopieur : 514-849-6770		Analyse pour échantillon intégré																								
Adresse : 1453, Saint-Thimothée Montréal (Québec) H2L 3N7		N° projet : 11905																										
Échantillonneur : P. Verhaar		Chargé(e) de projet : M. Demarty																										
N°	Identification de l'échantillon	N° labo Maxxam	Matrice							Échantillonnage		Date	HYDROCARBURES PÉTROLIERS (C10-C50)	HYDROCARBURES AROMATIQUES POLYCYCLIQUES	BPC TOTAUX	MÉTALX extractibles totaux*	MERCURE PAR ICP-MS	CARBONE ORGANIQUE TOTAL	CHLOROBENZÈNES	SOUFRE	Composés acides (phénols)	COMPOSÉS ORGANIQUES VOLATILS HMA-HHT (pot 60mL, sans air)	Granulométrie	DIOXINES & FURANES PAR CGSM HR	Mono-, Di et Tributylétains	Détermination potentiel acidogène (TDPAS)		
			Eau potable	Eau usée	Eau sout.	Eau de surf.	Sols	Sédiments	Autres*	# de contenants	A filtré (ou/non)																	
1	CAR-3-1							x			16-11-16	x	x	x	x	x	x	x	x	x	x	x						
2	CAR-3-2							x				x	x	x	x	x	x	x	x	x	x							
3	CAR-4-1							x				x	x	x	x	x	x	x	x	x	x							
4	CAR-5-1							x				x	x	x	x	x	x	x	x	x	x							
5	CAR-5-2							x				x	x	x	x	x	x	x	x	x	x							
6	CAR-6-1							x			16-11-16	x	x	x	x	x	x	x	x	x	x							
7	CAR-6-2							x				x	x	x	x	x	x	x	x	x	x							
8								x																				
9								x																				
10								x																				
11								x																				
12								x																				

**DÉLAIS :**  
C10-50 : 24 h  
COV : 24h  
Métaux : 24h  
Autres : 48 h

\*Autres =


N° d'offre de service Maxxam :  
Site : *Beauharnois*  
KS  
N° de bon de commande Englobe :  
23 514  
Autres :

Limites de détection requises / types de contaminants

Instructions spéciales :

**\* Métaux: Politique + Se - Délais minimal requis**

B681024\_COC



Livré par :  
Livré par messagerie :  
Livré par : *B. BORGES*

Date :  
Date :  
Date : 2016-11-16

Heure :  
Heure :  
Heure : 17h30

Reçu par :  
Reçu par :  
Reçu par Maxxam :

Maxxam analytique inc. 889, Montée de Liesse Saint-Laurent (Québec) H4T 1P5 Téléphone : Télécopieur :	Maxxam Analytics Inc. 889 Montée de Liesse Saint-Laurent, Quebec H4T 1P5 Telephone: Fax:
Chaîne de responsabilité	Chain of Accountability
Analyse pour échantillon intégré	Analysis for integrated sample
Client : Englobe Corp.	Customer: Englobe Corp.
Téléphone : Télécopieur :	Telephone: Fax:
Adresse : 1453, Saint-Thimothée Montréal (Québec) H2L 3N7	Address: 1453 Saint-Thimothée Montreal, Quebec H2L 3N7
N° de projet :	Project #:
Échantillonneur :	Sampler:
Chargé(e) de projet :	Project Manager:
N°	#
Identification de l'échantillon	Sample Identification
N° labo Maxxam	Maxxam Lab #
Matrice	Matrix
Échantillonnage	Sampling
Eau potable	Drinking water
Eau usée	Waste water

Eau sout.	Groundwater
Eau de surf.	Surface water
Sols	Soils
Sédiments	Sediments
Autres	Other
# de contenants	# of containers
À livrer (oui/non)	To be delivered (yes/no)
Date	Date
HYDROCARBURES PÉTROLIERS (C10-C50)	PETROLEUM HYDROCARBONS (C10-C50)
HYDROCARBURES AROMATIQUES POLYCYCLIQUES	POLYCYCLIC AROMATIC HYDROCARBONS
BPC TOTAUX	TOTAL PCBs
MÉTAUX extractibles totaux	Total extractable METALS
MERCURE PAR ICP-MS	MERCURY BY ICP-MS
CARBONE ORGANIQUE TOTAL	TOTAL ORGANIC CARBON
CHLOROBENZENES	CHLOROBENZENES
SOUFRE	SULPHUR
Composés acides (phénols)	Acid compounds (Phenols)
COMPOSÉS ORGANIQUES VOLATILS HMA-HHT (pot 60mL, sans air)	VOLATILE ORGANIC COMPOUNDS HMA-HHT (pot 60 mL, no air)
Granulométrie	Granulometry
DIOXINES ET FURANNES PAR CGSM HR	DIOXINS AND FURANS BY CGSM HR
Mono-, Di et Tributylène	Mono-, Di- and Tributylene
Détermination potentiel acidogène (TDPAS)	Acid base accounting (ABA)
DÉLAI : C10-C50 : 24 h COV : 24h Métaux : 24h Autres : 48 h	DEADLINE: C10-C50: 24 h COV: 24 h Metals: 24 h Other: 48 h
N° d'offre de service Maxxam :	Maxxam service offer #:
Site : KS	Location: KS
N° de bon de commande Englobe :	Englobe P.O #:
Autres	Other
Limites de détection requises / types de contamina	Required detection limits / types of contaminants
Instructions spéciales : *Métaux : Politique + Se – Délais minimal requis	Special Instructions: *Metals: Policy + Se – Minimal deadlines required
*Autres =	*Other =
Livré par :	Delivered by:
Livré par messagerie :	Delivered by courier:
Date :	Date:
Heure :	Time:

Your P.O. #: 23514  
 Your project #: 11905  
 Site address: KS  
 Your waybill #: N/A

Attention: Maud Demarty  
 Englobe Corp.  
 Division of Englobe Corp.  
 1453 St-Timothée  
 Montreal, Quebec H2L 3N7  
 Canada

Report Date: 2016/12/06  
 Report #: R2226682  
 Version: 1 – Final

## CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B681025  
 Received: 2016/11/16, 17:50

Matrix: SOIL  
 Samples received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Volatile organic compounds*	7	2016/11/17	2016/11/18	STL SOP-00145	MA400–COV 2.0 R4 m
Available anions*	1	2016/11/18	2016/11/18	STL SOP-00014	MA300-Ions 1.3 R3 m
Petroleum hydrocarbons (C10-C50)*	4	2016/11/17	2016/11/18	STL SOP-00172	MA.400–HYD. 1.1 R3 m
Petroleum hydrocarbons (C10-C50)*	3	2016/11/18	2016/11/18	STL SOP-00172	MA.400–HYD. 1.1 R3 m
Chlorobenzenes*	2	2016/11/21	2016/11/21	STL SOP-00154	MA400-Clbz 1.0 R4 m
Chlorobenzenes*	4	2016/11/21	2016/11/22	STL SOP-00154	MA400-Clbz 1.0 R4 m
Chlorobenzenes*	1	2016/11/22	2016/11/22	STL SOP-00154	MA400-Clbz 1.0 R4 m
Total extractable metals*	7	2016/11/18	2016/11/18	STL SOP-00006	MA200–Mét 1.2 R5 m
Polycyclic aromatic hydrocarbons*	7	2016/11/17	2016/11/18	STL SOP-00120	MA400-HAP 1.1 R4 m
Total PCBs*	7	2016/11/17	2016/11/18	STL SOP-00133	MA400-BPC 1.0 R5 m
Acid compounds (Phenols)*	7	2016/11/17	2016/11/18	STL SOP-00135	MA400–Phe 1.0 R3 m
Granulometry and sediment analysis (1)	3	N/A	N/A		
Sulphur*	7	N/A	2016/11/18	STL SOP-00028	MA310-CS 1.0 R3 m
Acid base accounting (ABA)***	1	2016/11/21	2016/11/22	STL SOP-00067	MA110-ACISOL 1.0 R4m
Total organic carbon by titration (2)*	7	2016/11/21	2016/11/21	QUE SOP-00153	MA. 405 – C 1.1 r2 m

### Notes:

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.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Your P.O. #: 23514  
Your project #: 11905  
Site address: KS  
Your waybill #: N/A

Attention: Maud Demarty  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, Quebec H2L 3N7  
Canada

Report Date: 2016/12/06  
Report #: R2226682  
Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B681025  
Received: 2016/11/16, 17:50

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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory. Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

Note: RPDs calculated using raw data (% of relative variation). The rounding of final results may result in the apparent difference.

(1) This analysis was performed by Maxxam Analytics - Bedford

(2) This analysis was performed by Maxxam - Québec

\* Maxxam is accredited for this analysis under the MDDELCC program.

\*\*\* This analysis is not part of the MDDELCC accreditation program.

Encryption key

Please direct all questions regarding this Certificate of Analysis to your Project Manager  
Rodrigo Caffarengo,  
E-mail: [RCaffarengo@maxxam.ca](mailto:RCaffarengo@maxxam.ca)  
Telephone: 514-448-9001 Ext: 6336

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

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

# PAH BY GCMS (SOIL)

Maxxam Job					DH8968			DH8969			DH8970			
Sampling date					2016/11/16			2016/11/16			2016/11/16			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	SED-04-1	CR	RDL	SED-05-1	CR	RDL	SED-05-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	66			77			77			
<b>PAHs</b>														
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694569
Naphthalene	mg/kg	0.1	5	50	0.04	<A	0.01	0.02	<A	0.01	0.01	<A	0.01	1694569
Acenaphthylene	mg/kg	0.1	10	100	0.031	<A	0.003	0.016	<A	0.003	0.013	<A	0.003	1694569
Acenaphthene	mg/kg	0.1	10	100	0.019	<A	0.003	0.011	<A	0.003	0.011	<A	0.003	1694569
Fluorene	mg/kg	0.1	10	100	0.03	<A	0.01	0.02	<A	0.01	0.02	<A	0.01	1694569
Phenanthrene	mg/kg	0.1	5	50	0.18	A-B	0.01	0.18	A-B	0.01	0.18	A-B	0.01	1694569
Anthracene	mg/kg	0.1	10	100	0.10	A	0.01	0.06	<A	0.01	0.07	<A	0.01	1694569
Fluoranthene	mg/kg	0.1	10	100	0.47	A-B	0.01	0.40	A-B	0.01	0.39	A-B	0.01	1694569
Pyrene	mg/kg	0.1	10	100	0.42	A-B	0.01	0.31	A-B	0.01	0.30	A-B	0.01	1694569
Benzo(a)anthracene	mg/kg	0.1	1	10	0.47	A-B	0.01	0.23	A-B	0.01	0.21	A-B	0.01	1694569
Chrysene	mg/kg	0.1	1	10	0.64	A-B	0.01	0.79	A-B	0.01	0.28	A-B	0.01	1694569
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	2.1		0.01	0.78		0.01	0.66		0.01	1694569
Benzo(e)pyrene	mg/kg	-	-	-	0.96		0.01	0.32		0.01	0.28		0.01	1694569
Benzo(a)pyrene	mg/kg	0.1	1	10	0.88	A-B	0.01	0.27	A-B	0.01	0.24	A-B	0.01	1694569
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	1.1	B-C	0.01	0.32	A-B	0.01	0.27	A-B	0.01	1694569
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.20	A-B	0.003	0.065	<A	0.003	0.051	<A	0.003	1694569
Benzo(ghi)perylene	mg/kg	0.1	1	10	1.2	B-C	0.01	0.33	A-B	0.01	0.27	A-B	0.01	1694569
2-Methylnaphtalene	mg/kg	0.1	1	10	0.05	<A	0.01	0.02	<A	0.01	0.01	<A	0.01	1694569
1-Methylnaphtalene	mg/kg	0.1	1	10	0.03	<A	0.01	<0.01		0.01	<0.01		0.01	1694569
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.06	<A	0.01	<0.04 (1)		0.04	0.03	<A	0.01	1694569
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694569
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694569
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.07	<A	0.01	0.02	<A	0.01	0.02	<A	0.01	1694569
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694569
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.02	<A	0.01	<0.01		0.01	<0.01		0.01	1694569
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.04	<A	0.01	0.04	<A	0.01	0.03	<A	0.01	1694569
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694569
<b>Surrogate Recovery (%)</b>														
D10-Anthracene	%	-	-	-	79			87			80			1694569
D12-Benzo(a)pyrene	%	-	-	-	77			79			75			1694569
D14-Terphenyl	%	-	-	-	84			82			75			1694569
D8-Acenaphthylene	%	-	-	-	69			71			66			1694569
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														
(1) Due to matrix interference, the detection limit was increased.														



Maxxam Job #: B681025  
 Report Date: 2016/12/06

Englobe Corp.  
 Your project #: 11905  
 Site Address: KS  
 Your P.O. #: 23514  
 Sampler's initials: PV

# PAH BY GCMS (SOIL)

Maxxam Job					DH8968			DH8969			DH8970			
Sampling date					2016/11/16			2016/11/16			2016/11/16			
Waybill #					N/A			N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-04-1</b>	<b>CR</b>	<b>RDL</b>	<b>SED-05-1</b>	<b>CR</b>	<b>RDL</b>	<b>SED-05-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D8-Naphtalene	%	-	-	-	65			65			61			1694569
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

# PAH BY GCMS (SOIL)

Maxxam Job					DH8971		DH8972			DH8973			
Sampling date					2016/11/16		2016/11/16			2016/11/16			
Waybill #					N/A		N/A			N/A			
	Units	A	B	C	SED-06-1	CR	SED-07-1	CR	RDL	SED-08-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	76		73			71			
<b>PAHs</b>													
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		<0.1		0.1	<0.1		0.1	1694569
Naphthalene	mg/kg	0.1	5	50	0.01	<A	0.02	<A	0.01	0.03	<A	0.01	1694569
Acenaphthylene	mg/kg	0.1	10	100	0.016	<A	0.029	<A	0.003	0.044	<A	0.003	1694569
Acenaphthene	mg/kg	0.1	10	100	0.032	<A	0.010	<A	0.003	0.015	<A	0.003	1694569
Fluorene	mg/kg	0.1	10	100	0.04	<A	0.02	<A	0.01	0.03	<A	0.01	1694569
Phenanthrene	mg/kg	0.1	5	50	0.35	A-B	0.16	A-B	0.01	0.26	A-B	0.01	1694569
Anthracene	mg/kg	0.1	10	100	0.12	A-B	0.10	A	0.01	0.18	A-B	0.01	1694569
Fluoranthene	mg/kg	0.1	10	100	0.59	A-B	0.55	A-B	0.01	0.96	A-B	0.01	1694569
Pyrene	mg/kg	0.1	10	100	0.46	A-B	0.47	A-B	0.01	0.83	A-B	0.01	1694569
Benzo(a)anthracene	mg/kg	0.1	1	10	0.32	A-B	0.57	A-B	0.01	1.3	B-C	0.01	1694569
Chrysene	mg/kg	0.1	1	10	0.38	A-B	0.89	A-B	0.01	2.6	B-C	0.01	1694569
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	0.90		2.9		0.01	7.0		0.1	1694569
Benzo(e)pyrene	mg/kg	-	-	-	0.38		1.4		0.01	2.9		0.01	1694569
Benzo(a)pyrene	mg/kg	0.1	1	10	0.34	A-B	1.1	B-C	0.01	2.7	B-C	0.01	1694569
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	0.37	A-B	1.3	B-C	0.01	2.9	B-C	0.01	1694569
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.077	<A	0.26	A-B	0.003	0.57	A-B	0.003	1694569
Benzo(ghi)perylene	mg/kg	0.1	1	10	0.38	A-B	1.5	B-C	0.01	3.2	B-C	0.01	1694569
2-Methylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.02	<A	0.01	0.02	<A	0.01	1694569
1-Methylnaphthalene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		0.01	1694569
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.05	<A	0.06	<A	0.01	0.11	A-B	0.01	1694569
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		0.01	1694569
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		0.01	1694569
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.02	<A	0.08	<A	0.01	0.15	A-B	0.01	1694569
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		0.01	1694569
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	<0.01		0.02	<A	0.01	0.05	<A	0.01	1694569
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.03	<A	0.03	<A	0.01	0.02	<A	0.01	1694569
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		0.01	1694569
<b>Surrogate Recovery (%)</b>													
D10-Anthracene	%	-	-	-	84		79			82			1694569
D12-Benzo(a)pyrene	%	-	-	-	75		79			80			1694569
D14-Terphenyl	%	-	-	-	78		78			79			1694569
D8-Acenaphthylene	%	-	-	-	70		68			68			1694569
D8-Naphtalene	%	-	-	-	66		66			66			1694569
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PAH BY GCMS (SOIL)

Maxxam Job					DH8974			
Sampling date					2016/11/16			
Waybill #					N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-08-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	70			
<b>PAHs</b>								
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		0.1	1694569
Naphthalene	mg/kg	0.1	5	50	0.02	<A	0.01	1694569
Acenaphthylene	mg/kg	0.1	10	100	0.039	<A	0.003	1694569
Acenaphthene	mg/kg	0.1	10	100	0.014	<A	0.003	1694569
Fluorene	mg/kg	0.1	10	100	0.03	<A	0.01	1694569
Phenanthrene	mg/kg	0.1	5	50	0.28	A-B	0.01	1694569
Anthracene	mg/kg	0.1	10	100	0.19	A-B	0.01	1694569
Fluoranthene	mg/kg	0.1	10	100	0.94	A-B	0.01	1694569
Pyrene	mg/kg	0.1	10	100	0.80	A-B	0.01	1694569
Benzo(a)anthracene	mg/kg	0.1	1	10	1.3	B-C	0.01	1694569
Chrysene	mg/kg	0.1	1	10	2.6	B-C	0.01	1694569
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	7.3		0.1	1694569
Benzo(e)pyrene	mg/kg	-	-	-	2.9		0.01	1694569
Benzo(a)pyrene	mg/kg	0.1	1	10	2.7	B-C	0.01	1694569
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	2.9	B-C	0.01	1694569
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.56	A-B	0.003	1694569
Benzo(ghi)perylene	mg/kg	0.1	1	10	3.9	B-C	0.1	1694569
2-Methylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.01	1694569
1-Methylnaphthalene	mg/kg	0.1	1	10	<0.01		0.01	1694569
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.11	A-B	0.01	1694569
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.01		0.01	1694569
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		0.01	1694569
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.15	A-B	0.01	1694569
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		0.01	1694569
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.04	<A	0.01	1694569
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.01	1694569
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01		0.01	1694569
<b>Surrogate Recovery (%)</b>								
D10-Anthracene	%	-	-	-	79			1694569
D12-Benzo(a)pyrene	%	-	-	-	78			1694569
D14-Terphenyl	%	-	-	-	77			1694569
D8-Acenaphthylene	%	-	-	-	66			1694569
D8-Naphtalene	%	-	-	-	63			1694569
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

# PHENOLS BY GCMS (SOIL)

Maxxam Job					DH8968			DH8969			DH8970			DH8971			
Sampling date					2016/11/16			2016/11/16			2016/11/16			2016/11/16			
Waybill #					N/A			N/A			N/A			N/A			
	Units	A	B	C	SED-04-1	CR	RDL	SED-05-1	CR	RDL	SED-05-2	CR	SED-06-1	CR	RDL	QC batch	
% HUMIDITY	%	-	-	-	66			77			77		76				
PHENOLS																	
o-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
m-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
p-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
4-Nitrophenol	mg/kg	0.5	1	10	<0.1		0.1	<0.2 (1)		0.2	<0.1		<0.1		0.1	1694500	
Phenol	mg/kg	0.2	1	10	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1694500	
Surrogate Recovery (%)																	
D6-Phenol	%	-	-	-	79			85			90		73			1694500	
Tribromophenol-2,4,6	%	-	-	-	104			107			111		98			1694500	
Trifluoro-m-cresol	%	-	-	-	82			89			92		73			1694500	
RDL = Reportable Detection Limit																	
QC Batch = Quality Control Batch																	
(1) Due to matrix interference, the detection limit was increased.																	

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

# PHENOLS BY GCMS (SOIL)

Maxxam Job					DH8972		DH8973		DH8974			
Sampling date					2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A			
	Units	A	B	C	SED-07-1	CR	SED-08-1	CR	SED-08-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		71		70			
<b>PHENOLS</b>												
o-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		0.1	1694500
m-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		0.1	1694500
p-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		0.1	1694500
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		0.1	1694500
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		0.1	1694500
4-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		0.1	1694500
Phenol	mg/kg	0.2	1	10	<0.1		<0.1		<0.1		0.1	1694500
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	1694500
<b>Surrogate Recovery (%)</b>												
D6-Phenol	%	-	-	-	80		76		80			1694500
Tribromophenol-2,4,6	%	-	-	-	111		105		104			1694500
Trifluoro-m-cresol	%	-	-	-	81		78		83			1694500
RDL = Reportable Detection Limit												
QC Batch = Quality Control Batch												

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### CHLOROENZENES (SOL)

Maxxam Job					DH8968			DH8969			DH8970			
Sampling date					2016/11/16			2016/11/16			2016/11/16			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	SED-04-1	CR	QC batch	SED-05-1	CR	QC batch	SED-05-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	66			77			77			
<b>CHLOROENZENES</b>														
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	0.02	<A	1695512	<0.01		1696106	<0.01		0.01	1695512
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		1696106	<0.01		0.01	1695512
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		1696106	<0.01		0.01	1695512
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		1696106	<0.01		0.01	1695512
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		1696106	<0.01		0.01	1695512
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		1696106	<0.01		0.01	1695512
Hexachlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		1696106	<0.01		0.01	1695512
<b>Surrogate Recovery (%)</b>														
C13-1,2,4-Trichlorobenzene	%	-	-	-	78		1695512	86		1696106	81			1695512
C13-Hexachlorobenzene	%	-	-	-	92		1695512	106		1696106	95			1695512
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job					DH8971			DH8972			DH8973			DH8974
Sampling date					2016/11/16			2016/11/16			2016/11/16			2016/11/16
Waybill #					N/A			N/A			N/A			N/A
	Units	A	B	C	SED-06-1	CR	SED-07-1	CR	SED-08-1	CR	SED-08-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	76		73		71		70			
<b>CHLOROENZENES</b>														
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		0.01	<A	<0.01		<0.01		0.01	1695512
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		0.01	<A	<0.01		<0.01		0.01	1695512
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695512
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695512
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695512
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695512
Hexachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695512
<b>Surrogate Recovery (%)</b>														
C13-1,2,4-Trichlorobenzene	%	-	-	-	85		81		78		82			1695512
C13-Hexachlorobenzene	%	-	-	-	97		92		91		93			1695512
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### HYDROCARBONS BY GCFID (SOIL)

Maxxam Job					DH8968			DH8969			DH8970			
Sampling date					2016/11/16			2016/11/16			2016/11/16			
Waybill #					N/A			N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-04-1</b>	<b>CR</b>	<b>QC batch</b>	<b>SED-05-1</b>	<b>CR</b>	<b>QC batch</b>	<b>SED-05-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	66			77			77			
<b>PETROLEUM HYDROCARBONS</b>														
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	220	<A	1694561	320	A-B	1694856	160	<A	100	1694561
<b>Surrogate Recovery (%)</b>														
1-Chlorooctadecane	%	-	-	-	88		1694561	86		1694856	69			1694561
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job					DH8971			DH8972			DH8973			
Sampling date					2016/11/16			2016/11/16			2016/11/16			
Waybill #					N/A			N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-06-1</b>	<b>CR</b>	<b>QC batch</b>	<b>SED-07-1</b>	<b>CR</b>	<b>QC batch</b>	<b>SED-08-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	76			73			71			
<b>PETROLEUM HYDROCARBONS</b>														
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	290	<A	1694856	360	A-B	1694561	570	A-B	100	1694856
<b>Surrogate Recovery (%)</b>														
1-Chlorooctadecane	%	-	-	-	83		1694856	105		1694561	86			1694856
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job					DH8974									
Sampling date					2016/11/16									
Waybill #					N/A									
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-08-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>						
% HUMIDITY	%	-	-	-	70									
<b>PETROLEUM HYDROCARBONS</b>														
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	450		A-B	100		1694561				
<b>Surrogate Recovery (%)</b>														
1-Chlorooctadecane	%	-	-	-	107					1694561				
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### COV BY GC/MS (SOIL)

Maxxam Job					DH8968			DH8969			DH8970			
Sampling date					2016/11/16			2016/11/16			2016/11/16			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	SED-04-1	CR	RDL	SED-05-1	CR	RDL	SED-05-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	66			77			77			
<b>COMPOUNDS</b>														
Benzene	mg/kg	0.2	0.5	5	<0.2		0.2	<0.3		0.3	<0.5		0.5	1694044
Chlorobenzene	mg/kg	0.2	1	10	<0.4		0.4	<0.6		0.6	<1		1	1694044
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.4		0.4	<0.6		0.6	<1		1	1694044
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.4		0.4	<0.6		0.6	<1		1	1694044
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.4		0.4	<0.6		0.6	<1		1	1694044
Ethylbenzene	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
Styrene	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
Toluene	mg/kg	0.2	3	30	<0.4		0.4	<0.6		0.6	<1		1	1694044
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
Chloroform	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	<0.04		0.04	0.06		0.06	<0.1		0.1	1694044
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
Dichloromethane	mg/kg	-	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
Tetrachloroethene	mg/kg	0.3	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
Carbon tetrachloride	mg/kg	0.1	5	50	<0.2		0.2	<0.3		0.3	<0.5		0.5	1694044
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
Trichloroethene	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<1		1	1694044
<b>Surrogate Recovery (%)</b>														
4-Bromofluorobenzene	%	-	-	-	99			99			99			1694044
D10-Ethylbenzene	%	-	-	-	93			90			91			1694044
D4-1,2-Dichloroethane	%	-	-	-	90			91			92			1694044
D8-Toluene	%	-	-	-	105			104			104			1694044
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														



Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### COV BY GC/MS (SOIL)

Maxxam Job					DH8971		DH8972		DH8973		DH8974			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-06-1	CR	SED-07-1	CR	SED-08-1	CR	SED-08-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	76		73		71		70			
<b>COMPOUNDS</b>														
Benzene	mg/kg	0.2	0.5	5	<0.3		<0.3		<0.3		<0.3		0.3	1694044
Chlorobenzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Ethylbenzene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Styrene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Toluene	mg/kg	0.2	3	30	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Chloroform	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	<0.06		<0.06		<0.06		<0.06		0.06	1694044
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Dichloromethane	mg/kg	-	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Tetrachloroethene	mg/kg	0.3	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Carbon tetrachloride	mg/kg	0.1	5	50	<0.3		<0.3		<0.3		<0.3		0.3	1694044
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
Trichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694044
<b>Surrogate Recovery (%)</b>														
4-Bromofluorobenzene	%	-	-	-	99		99		98		98			1694044
D10-Ethylbenzene	%	-	-	-	93		93		93		89			1694044
D4-1,2-Dichloroethane	%	-	-	-	95		94		92		94			1694044
D8-Toluene	%	-	-	-	104		104		105		105			1694044
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### TOTAL EXTRACTABLE METALS (SOIL)

Maxxam Job					DH8968		DH8969		DH8970		DH8971			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-04-1</b>	<b>CR</b>	<b>SED-05-1</b>	<b>CR</b>	<b>SED-05-2</b>	<b>CR</b>	<b>SED-06-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	66		77		77		76			
<b>METALS</b>														
Silver (Ag)	mg/kg	2	20	40	<2		<2		<2		<2		2	1694617
Arsenic (As)	mg/kg	6	30	50	10	A-B	8	A-B	8	A-B	7	A-B	2	1694617
Barium (Ba)	mg/kg	340	500	2000	360	A-B	260	<A	250	<A	220	<A	5	1694617
Cadmium (Cd)	mg/kg	1.5	5	20	4.2	A-B	1.6	A-B	1.4	<A	1.7	A-B	0.1	1694617
Chromium (Cr)	mg/kg	100	250	800	46	<A	54	<A	53	<A	46	<A	2	1694617
Copper (Cu)	mg/kg	50	100	500	42	<A	42	<A	41	<A	36	<A	1	1694617
Cobalt (Co)	mg/kg	25	50	300	16	<A	17	<A	16	<A	14	<A	2	1694617
Tin (Sn)	mg/kg	5	50	300	11	A-B	<5		<5		<5		5	1694617
Manganese (Mn)	mg/kg	1000	1000	2200	2000	B-C	2000	B-C	1800	B-C	1600	B-C	2	1694617
Molybdenum (Mo)	mg/kg	2	10	40	<2		<2		<2		<2		2	1694617
Nickel (Ni)	mg/kg	50	100	500	36	<A	42	<A	40	<A	36	<A	1	1694617
Mercury (Hg)	mg/kg	0.2	2	10	4.0	B-C	1.3	A-B	1.3	A-B	1.3	A-B	0.05	1694617
Lead (Pb)	mg/kg	50	500	1000	59	A-B	32	<A	30	<A	31	<A	5	1694617
Selenium (Se)	mg/kg	1	3	10	<1		1	A	1	A	1	A	1	1694617
Zinc (Zn)	mg/kg	140	500	1500	300	A-B	210	A-B	200	A-B	190	A-B	5	1694617
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### TOTAL EXTRACTABLE METALS (SOIL)

Maxxam Job					DH8972		DH8973		DH8974			
Sampling date					2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-07-1</b>	<b>CR</b>	<b>SED-08-1</b>	<b>CR</b>	<b>SED-08-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	73		71		70			
<b>METALS</b>												
Silver (Ag)	mg/kg	2	20	40	<2		<2		<2		2	1694617
Arsenic (As)	mg/kg	6	30	50	16	A-B	21	A-B	19	A-B	2	1694617
Barium (Ba)	mg/kg	340	500	2000	420	A-B	340	A	320	<A	5	1694617
Cadmium (Cd)	mg/kg	1.5	5	20	6.8	B-C	16	B-C	15	B-C	0.1	1694617
Chromium (Cr)	mg/kg	100	250	800	63	<A	68	<A	65	<A	2	1694617
Copper (Cu)	mg/kg	50	100	500	55	A-B	62	A-B	59	A-B	1	1694617
Cobalt (Co)	mg/kg	25	50	300	22	<A	27	A-B	26	A-B	2	1694617
Tin (Sn)	mg/kg	5	50	300	10	A-B	12	A-B	11	A-B	5	1694617
Manganese (Mn)	mg/kg	1000	1000	2200	2700	>C	5900	>C	5500	>C	2	1694617
Molybdenum (Mo)	mg/kg	2	10	40	2	A	2	A	2	A	2	1694617
Nickel (Ni)	mg/kg	50	100	500	51	A-B	56	A-B	54	A-B	1	1694617
Mercury (Hg)	mg/kg	0.2	2	10	4.1	B-C	3.3	B-C	3.2	B-C	0.05	1694617
Lead (Pb)	mg/kg	50	500	1000	77	A-B	120	A-B	120	A-B	5	1694617
Selenium (Se)	mg/kg	1	3	10	1	A	1	A	2	A-B	1	1694617
Zinc (Zn)	mg/kg	140	500	1500	450	A-B	790	B-C	760	B-C	5	1694617
RDL = Reportable Detection Limit												
QC Batch = Quality Control Batch												

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### CONVENTIONAL PARAMETERS (SOIL)

Maxxam Job					DH8968		DH8969		DH8970		DH8971			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-04-1</b>	<b>CR</b>	<b>SED-05-1</b>	<b>CR</b>	<b>SED-05-2</b>	<b>CR</b>	<b>SED-06-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	66		77		77		76			
<b>CONVENTIONAL</b>														
Total organic carbon (titration)	% g/g	-	-	-	3.1		4.6		5.0		5.1		0.05	1695525
Sulphur (S)	% g/g	0.04	0.2	0.2	0.36	>C	0.47	>C	0.47	>C	0.51	>C	0.01	1694715
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job					DH8972		DH8973		DH8974					
Sampling date					2016/11/16		2016/11/16		2016/11/16					
Waybill #					N/A		N/A		N/A					
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-07-1</b>	<b>CR</b>	<b>SED-08-1</b>	<b>CR</b>	<b>SED-08-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>		
% HUMIDITY	%	-	-	-	73		71		70					
<b>CONVENTIONAL</b>														
Total organic carbon (titration)	% g/g	-	-	-	4.8		4.7		4.6		0.05	1695525		
S stat (cmole H+/kg)	n/a	-	-	-			36				1	1695874		
Sulphur (S)	% g/g	0.04	0.2	0.2	0.71	>C	0.60	>C	0.59	>C	0.01	1694715		
pH static (pH stat)	n/a	-	-	-			6.5				N/A	1695874		
Sulphate (SO <sub>4</sub> )	mg/kg	-	-	-			27				5	1694727		
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PCB CONGENERS (SOIL)

Maxxam Job					DH8968		DH8969		DH8970		DH8971			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-04-1	CR	SED-05-1	CR	SED-05-2	CR	SED-06-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	66		77		77		76			
<b>PCBs</b>														
CL3-IUPAC-17+18	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL3-IUPAC-28+31	mg/kg	-	-	-	0.02		<0.01		<0.01		<0.01		0.01	1694046
CL3-IUPAC-33	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL4-IUPAC-52	mg/kg	-	-	-	0.03		<0.01		<0.01		<0.01		0.01	1694046
CL4-IUPAC-49	mg/kg	-	-	-	0.02		<0.01		<0.01		<0.01		0.01	1694046
CL4-IUPAC-44	mg/kg	-	-	-	0.02		<0.01		<0.01		<0.01		0.01	1694046
CL4-IUPAC-74	mg/kg	-	-	-	0.01		<0.01		<0.01		<0.01		0.01	1694046
CL4-IUPAC-70	mg/kg	-	-	-	0.03		0.01		0.01		<0.01		0.01	1694046
CL5-IUPAC-95	mg/kg	-	-	-	0.02		<0.01		0.01		<0.01		0.01	1694046
CL5-IUPAC-101	mg/kg	-	-	-	0.04		0.01		0.05		0.02		0.01	1694046
CL5-IUPAC-99	mg/kg	-	-	-	0.03		<0.01		0.04		0.01		0.01	1694046
CL5-IUPAC-87	mg/kg	-	-	-	0.01		<0.01		0.02		<0.01		0.01	1694046
CL5-IUPAC-110	mg/kg	-	-	-	0.04		0.02		0.05		0.02		0.01	1694046
CL5-IUPAC-82	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-151	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-149	mg/kg	-	-	-	0.02		<0.01		0.03		<0.01		0.01	1694046
CL6-IUPAC-118	mg/kg	-	-	-	0.05		0.02		0.10		0.03		0.01	1694046
CL6-IUPAC-153	mg/kg	-	-	-	0.02		<0.01		0.06		0.01		0.01	1694046
CL6-IUPAC-132	mg/kg	-	-	-	0.01		<0.01		0.02		<0.01		0.01	1694046
CL5-IUPAC-105	mg/kg	-	-	-	0.02		<0.01		0.04		0.02		0.01	1694046
CL6-IUPAC-138+158	mg/kg	-	-	-	0.03		0.02		0.11		0.02		0.01	1694046
CL7-IUPAC-187	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL7-IUPAC-183	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-128	mg/kg	-	-	-	<0.01		<0.01		0.03		<0.01		0.01	1694046
CL7-IUPAC-177	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-156	mg/kg	-	-	-	<0.01		<0.01		0.02		<0.01		0.01	1694046
CL7-IUPAC-180	mg/kg	-	-	-	<0.01		<0.01		0.01		<0.01		0.01	1694046
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL7-IUPAC-170	mg/kg	-	-	-	<0.01		<0.01		0.01		<0.01		0.01	1694046
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PCB CONGENERS (SOIL)

Maxxam Job					DH8968		DH8969		DH8970		DH8971			
Sampling date					2016/11/16		2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-04-1</b>	<b>CR</b>	<b>SED-05-1</b>	<b>CR</b>	<b>SED-05-2</b>	<b>CR</b>	<b>SED-06-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total trichlorobiphenyls	mg/kg	-	-	-	0.02		<0.01		<0.01		<0.01		0.01	1694046
Total tetrachlorobiphenyls	mg/kg	-	-	-	0.16		0.01		0.04		0.01		0.01	1694046
Total pentachlorobiphenyls	mg/kg	-	-	-	0.23		0.05		0.34		0.10		0.01	1694046
Total hexachlorobiphenyls	mg/kg	-	-	-	0.08		0.02		0.27		0.04		0.01	1694046
Total heptachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		0.02		<0.01		0.01	1694046
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694046
Total PCBs	mg/kg	0.2	1	10	0.48	A-B	0.08	<A	0.67	A-B	0.15	<A	0.01	1694046
<b>Surrogate Recovery (%)</b>														
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	94		107		82		79			1694046
2',3,5-Trichlorobiphenyl	%	-	-	-	90		97		94		88			1694046
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	91		102		90		83			1694046
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

# PCB CONGENERS (SOIL)

Maxxam Job				DH8972		DH8973		DH8974			
Sampling date				2016/11/16		2016/11/16		2016/11/16			
Waybill #				N/A		N/A		N/A			
	Units	A	B	C	SED-07-1	CR	SED-08-1	CR	SED-08-2	CR	RDL QC batch
% HUMIDITY	%	-	-	-	73		71		70		
<b>PCBs</b>											
CL3-IUPAC-17+18	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
CL3-IUPAC-28+31	mg/kg	-	-	-	0.02		0.01		0.01		0.01 1694046
CL3-IUPAC-33	mg/kg	-	-	-	0.01		<0.01		<0.01		0.01 1694046
CL4-IUPAC-52	mg/kg	-	-	-	0.04		0.02		0.02		0.01 1694046
CL4-IUPAC-49	mg/kg	-	-	-	0.04		0.02		0.01		0.01 1694046
CL4-IUPAC-44	mg/kg	-	-	-	0.02		0.01		<0.01		0.01 1694046
CL4-IUPAC-74	mg/kg	-	-	-	0.02		<0.01		<0.01		0.01 1694046
CL4-IUPAC-70	mg/kg	-	-	-	0.05		0.02		0.02		0.01 1694046
CL5-IUPAC-95	mg/kg	-	-	-	0.06		0.03		0.02		0.01 1694046
CL5-IUPAC-101	mg/kg	-	-	-	0.13		0.06		0.05		0.01 1694046
CL5-IUPAC-99	mg/kg	-	-	-	0.08		0.03		0.03		0.01 1694046
CL5-IUPAC-87	mg/kg	-	-	-	0.03		0.02		0.02		0.01 1694046
CL5-IUPAC-110	mg/kg	-	-	-	0.12		0.06		0.05		0.01 1694046
CL5-IUPAC-82	mg/kg	-	-	-	0.01		<0.01		<0.01		0.01 1694046
CL6-IUPAC-151	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
CL6-IUPAC-149	mg/kg	-	-	-	0.04		0.02		0.02		0.01 1694046
CL5-IUPAC-118	mg/kg	-	-	-	0.12		0.05		0.05		0.01 1694046
CL6-IUPAC-153	mg/kg	-	-	-	0.06		0.03		0.03		0.01 1694046
CL6-IUPAC-132	mg/kg	-	-	-	0.03		0.02		0.01		0.01 1694046
CL5-IUPAC-105	mg/kg	-	-	-	0.03		0.02		0.02		0.01 1694046
CL6-IUPAC-138+158	mg/kg	-	-	-	0.09		0.05		0.05		0.01 1694046
CL7-IUPAC-187	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
CL7-IUPAC-183	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
CL6-IUPAC-128	mg/kg	-	-	-	0.03		0.01		0.01		0.01 1694046
CL7-IUPAC-177	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
CL6-IUPAC-156	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
CL7-IUPAC-180	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
CL7-IUPAC-170	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1694046
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job #: B681025  
 Report Date: 2016/12/06

Englobe Corp.  
 Your project #: 11905  
 Site Address: KS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### PCB CONGENERS (SOIL)

Maxxam Job					DH8972		DH8973		DH8974			
Sampling date					2016/11/16		2016/11/16		2016/11/16			
Waybill #					N/A		N/A		N/A			
	Units	A	B	C	SED-07-1	CR	SED-08-1	CR	SED-08-2	CR	RDL	QC batch
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694046
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694046
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694046
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694046
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694046
Total trichlorobiphenyls	mg/kg	-	-	-	0.04		0.01		0.01		0.01	1694046
Total tetrachlorobiphenyls	mg/kg	-	-	-	0.31		0.12		0.10		0.01	1694046
Total pentachlorobiphenyls	mg/kg	-	-	-	0.65		0.27		0.25		0.01	1694046
Total hexachlorobiphenyls	mg/kg	-	-	-	0.27		0.14		0.12		0.01	1694046
Total heptachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694046
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694046
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694046
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694046
Total PCBs	mg/kg	0.2	1	10	1.3	B-C	0.54	A-B	0.48	A-B	0.01	1694046
Surrogate Recovery (%)												
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	82		82		83			1694046
2',3,5-Trichlorobiphenyl	%	-	-	-	98		98		97			1694046
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	85		90		90			1694046
RDL = Reportable Detection Limit												
QC Batch = Quality Control Batch												



Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

## GENERAL COMMENTS

All results are calculated using a dry base, except when not applicable.

Condition of samples upon arrival: GOOD

A,B,C,CR: Soil criteria taken from Appendix 2 of the "Intervention Guide-Soil Protection and Rehabilitation of Contaminated Sites. MDDELCC, 2016." entitled "Generic Soil Evaluation Criteria". For analyses of metals (and metalloids) in the soil, Criteria A designated the "Substantive Content - St. Lawrence Lowlands".

Criteria A and B for groundwater are taken from Appendix 7, "Groundwater Quality Evaluation Criteria" of the aforementioned Intervention Guide. A=Drinking water; B=Seepage into surface water

These references are reported for information purposes only and must not be interpreted in any other context.

- = This compound is not part of the Regulations.

## CONVENTIONAL PARAMETERS (SOIL)

Please note that the results have not been corrected for quality control sample recovery or for method blank values. ABA\_S: According to reference method MA.110-ACISOL1.0:

If the pH stat value obtained is higher than or equal to 5.5, the sample is considered non-acid producing. If the value is below 5.5, the sample is considered acid-producing and the kinetic step must be carried out.

**The results refer only to the samples submitted for analysis.**

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### QUALITY ASSURANCE REPORT

QA/QC							
Batch	Inits	QC Type	Group	Date Analyzed	Value	Rec	Units
1694044	ST1	Spiked blank	4-Bromofluorobenzene	2016/11/17		101	%
			D10-Ethylbenzene	2016/11/17		104	%
			D4-1,2-Dichloroethane	2016/11/17		87	%
			D8-Toluene	2016/11/17		105	%
			Benzene	2016/11/17		100	%
			Chlorobenzene	2016/11/17		102	%
			Dichloro-1,2 benzene	2016/11/17		101	%
			Dichloro-1,3 benzene	2016/11/17		100	%
			Dichloro-1,4 benzene	2016/11/17		104	%
			Ethylbenzene	2016/11/17		92	%
			Styrene	2016/11/17		105	%
			Toluene	2016/11/17		98	%
			Xylenes (o,m,p)	2016/11/17		98	%
			Chloroform	2016/11/17		91	%
			Vinylchloride (Chloroethene)	2016/11/17		72	%
			1,1-Dichloroethane	2016/11/17		100	%
			1,2-Dichloroethane	2016/11/17		84	%
			1,1-Dichloroethene	2016/11/17		97	%
			1,2-Dichloroethene (cis)	2016/11/17		94	%
			1,2-Dichloroethene (trans)	2016/11/17		97	%
			1,2-Dichloroethene (cis and trans)	2016/11/17		95	%
			Dichloromethane	2016/11/17		114	%
			1,2-Dichloropropane	2016/11/17		98	%
			1,3-Dichloropropene (cis)	2016/11/17		101	%
			1,3-Dichloropropene (trans)	2016/11/17		100	%
			1,3-Dichloropropene (cis and trans)	2016/11/17		100	%
			1,1,2,2-Tetrachloroethane	2016/11/17		90	%
			Tetrachloroethene	2016/11/17		109	%
			Carbon tetrachloride	2016/11/17		89	%
			1,1,1-Trichloroethane	2016/11/17		88	%
			1,1,2-Trichloroethane	2016/11/17		92	%
			Trichloroethene	2016/11/17		104	%
1694044	ST1	Method blank	4-Bromofluorobenzene	2016/11/17		99	%
			D10-Ethylbenzene	2016/11/17		105	%
			D4-1,2-Dichloroethane	2016/11/17		87	%
			D8-Toluene	2016/11/17		106	%
			Benzene	2016/11/17	<0.1	mg/kg	
			Chlorobenzene	2016/11/17	<0.2	mg/kg	
			Dichloro-1,2 benzene	2016/11/17	<0.2	mg/kg	
			Dichloro-1,3 benzene	2016/11/17	<0.2	mg/kg	
			Dichloro-1,4 benzene	2016/11/17	<0.2	mg/kg	
			Ethylbenzene	2016/11/17	<0.2	mg/kg	
			Styrene	2016/11/17	<0.2	mg/kg	
			Toluene	2016/11/17	<0.2	mg/kg	
			Xylenes (o,m,p)	2016/11/17	<0.2	mg/kg	
			Chloroform	2016/11/17	<0.2	mg/kg	
			Vinylchloride (Chloroethene)	2016/11/17	<0.02	mg/kg	
			1,1-Dichloroethane	2016/11/17	<0.2	mg/kg	
			1,2-Dichloroethane	2016/11/17	<0.2	mg/kg	
			1,1-Dichloroethene	2016/11/17	<0.2	mg/kg	

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### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC								
Batch	Inits	QC Type	Group	Date Analyzed	Value	Rec	Units	
			1,2-Dichloroethene (cis)	2016/11/17	<0.2	mg/kg		
			1,2-Dichloroethene (trans)	2016/11/17	<0.2	mg/kg		
			1,2-Dichloroethene (cis and trans)	2016/11/17	<0.2	mg/kg		
			Dichloromethane	2016/11/17	<0.2	mg/kg		
			1,2-Dichloropropane	2016/11/17	<0.2	mg/kg		
			1,3-Dichloropropene (cis)	2016/11/17	<0.2	mg/kg		
			1,3-Dichloropropene (trans)	2016/11/17	<0.2	mg/kg		
			1,3-Dichloropropene (cis and trans)	2016/11/17	<0.2	mg/kg		
			1,1,2,2-Tetrachloroethane	2016/11/17	<0.2	mg/kg		
			Tetrachloroethene	2016/11/17	<0.2	mg/kg		
			Carbon tetrachloride	2016/11/17	<0.1	mg/kg		
			1,1,1-Trichloroethane	2016/11/17	<0.2	mg/kg		
			1,1,2-Trichloroethane	2016/11/17	<0.2	mg/kg		
			Trichloroethene	2016/11/17	<0.2	mg/kg		
1694046	CB5	Spiked blank	2,3,3',4,6-Pentachlorobiphenyl	2016/11/18		81	%	
			2',3,5-Trichlorobiphenyl	2016/11/18		75	%	
			22'33'44'566'-Nonachlorobiphenyl	2016/11/18		86	%	
			Total PCBs	2016/11/18		105	%	
1694046	CB5	Method blank	2,3,3',4,6-Pentachlorobiphenyl	2016/11/18		90	%	
			2',3,5-Trichlorobiphenyl	2016/11/18		78	%	
			22'33'44'566'-Nonachlorobiphenyl	2016/11/18		93	%	
			CL3-IUPAC-17+18	2016/11/18	<0.01	mg/kg		
			CL3-IUPAC-28+31	2016/11/18	<0.01	mg/kg		
			CL3-IUPAC-33	2016/11/18	<0.01	mg/kg		
			CL4-IUPAC-52	2016/11/18	<0.01	mg/kg		
			CL4-IUPAC-49	2016/11/18	<0.01	mg/kg		
			CL4-IUPAC-44	2016/11/18	<0.01	mg/kg		
			CL4-IUPAC-74	2016/11/18	<0.01	mg/kg		
			CL4-IUPAC-70	2016/11/18	<0.01	mg/kg		
			CL5-IUPAC-95	2016/11/18	<0.01	mg/kg		
			CL5-IUPAC-101	2016/11/18	<0.01	mg/kg		
			CL5-IUPAC-99	2016/11/18	<0.01	mg/kg		
			CL5-IUPAC-87	2016/11/18	<0.01	mg/kg		
			CL5-IUPAC-110	2016/11/18	<0.01	mg/kg		
			CL5-IUPAC-82	2016/11/18	<0.01	mg/kg		
			CL6-IUPAC-151	2016/11/18	<0.01	mg/kg		
			CL6-IUPAC-149	2016/11/18	<0.01	mg/kg		
			CL5-IUPAC-118	2016/11/18	<0.01	mg/kg		
			CL6-IUPAC-153	2016/11/18	<0.01	mg/kg		
			CL6-IUPAC-132	2016/11/18	<0.01	mg/kg		
			CL5-IUPAC-105	2016/11/18	<0.01	mg/kg		
			CL6-IUPAC-138+158	2016/11/18	<0.01	mg/kg		
			CL7-IUPAC-187	2016/11/18	<0.01	mg/kg		
			CL7-IUPAC-183	2016/11/18	<0.01	mg/kg		
			CL6-IUPAC-128	2016/11/18	<0.01	mg/kg		
			CL7-IUPAC-177	2016/11/18	<0.01	mg/kg		
			CL7-IUPAC-171	2016/11/18	<0.01	mg/kg		
			CL6-IUPAC-156	2016/11/18	<0.01	mg/kg		
			CL7-IUPAC-180	2016/11/18	<0.01	mg/kg		
			CL7-IUPAC-191	2016/11/18	<0.01	mg/kg		

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QA/QC								
Batch	Inits	QC Type	Group	Date Analyzed	Value	Rec	Units	
			CL6-IUPAC-169	2016/11/18	<0.01	mg/kg		
			CL7-IUPAC-170	2016/11/18	<0.01	mg/kg		
			CL8-IUPAC-199	2016/11/18	<0.01	mg/kg		
			CL9-IUPAC-208	2016/11/18	<0.01	mg/kg		
			CL8-IUPAC-195	2016/11/18	<0.01	mg/kg		
			CL8-IUPAC-194	2016/11/18	<0.01	mg/kg		
			CL8-IUPAC-205	2016/11/18	<0.01	mg/kg		
			CL9-IUPAC-206	2016/11/18	<0.01	mg/kg		
			CL10-IUPAC-209	2016/11/18	<0.01	mg/kg		
			Total trichlorobiphenyls	2016/11/18	<0.01	mg/kg		
			Total tetrachlorobiphenyls	2016/11/18	<0.01	mg/kg		
			Total pentachlorobiphenyls	2016/11/18	<0.01	mg/kg		
			Total hexachlorobiphenyls	2016/11/18	<0.01	mg/kg		
			Total heptachlorobiphenyls	2016/11/18	<0.01	mg/kg		
			Total octachlorobiphenyls	2016/11/18	<0.01	mg/kg		
			Total nonachlorobiphenyls	2016/11/18	<0.01	mg/kg		
			Total decachlorobiphenyls	2016/11/18	<0.01	mg/kg		
			Total PCBs	2016/11/18	<0.01	mg/kg		
1694500	MA1	Spiked blank	D6-Phenol	2016/11/18		106	%	
			Tribromophenol-2,4,6	2016/11/18		119	%	
			Trifluoro-m-cresol	2016/11/18		110	%	
			o-Cresol	2016/11/18		97	%	
			m-Cresol	2016/11/18		100	%	
			p-Cresol	2016/11/18		106	%	
			2,4-Dimethylphenol	2016/11/18		98	%	
			2-Nitrophenol	2016/11/18		94	%	
			4-Nitrophenol	2016/11/18		112	%	
			Phenol	2016/11/18		97	%	
			2-Chlorophenol	2016/11/18		102	%	
			3-Chlorophenol	2016/11/18		101	%	
			4-Chlorophenol	2016/11/18		102	%	
			2,3-Dichlorophenol	2016/11/18		109	%	
			2,4 + 2,5-Dichlorophenol	2016/11/18		105	%	
			2,6-Dichlorophenol	2016/11/18		108	%	
			3,4-Dichlorophenol	2016/11/18		102	%	
			3,5-Dichlorophenol	2016/11/18		102	%	
			Pentachlorophenol	2016/11/18		101	%	
			2,3,4,5-Tetrachlorophenol	2016/11/18		98	%	
			2,3,4,6-Tetrachlorophenol	2016/11/18		122	%	
			2,3,5,6-Tetrachlorophenol	2016/11/18		120	%	
			2,3,4-Trichlorophenol	2016/11/18		103	%	
			2,3,5-Trichlorophenol	2016/11/18		101	%	
			2,3,6-Trichlorophenol	2016/11/18		128	%	
			2,4,5-Trichlorophenol	2016/11/18		112	%	
			2,4,6-Trichlorophenol	2016/11/18		113	%	
			3,4,5-Trichlorophenol	2016/11/18		107	%	
1694500	MA1	Method blank	D6-Phenol	2016/11/18		100	%	
			Tribromophenol-2,4,6	2016/11/18		107	%	
			Trifluoro-m-cresol	2016/11/18		103	%	
			o-Cresol	2016/11/18	<0.1	mg/kg		

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Batch	Inits	QC Type	Group	Date Analyzed	Value	Rec	Units	
			m-Cresol	2016/11/18	<0.1	mg/kg		
			p-Cresol	2016/11/18	<0.1	mg/kg		
			2,4-Dimethylphenol	2016/11/18	<0.1	mg/kg		
			2-Nitrophenol	2016/11/18	<0.1	mg/kg		
			4-Nitrophenol	2016/11/18	<0.1	mg/kg		
			Phenol	2016/11/18	<0.1	mg/kg		
			2-Chlorophenol	2016/11/18	<0.1	mg/kg		
			3-Chlorophenol	2016/11/18	<0.1	mg/kg		
			4-Chlorophenol	2016/11/18	<0.1	mg/kg		
			2,3-Dichlorophenol	2016/11/18	<0.1	mg/kg		
			2,4 + 2,5-Dichlorophenol	2016/11/18	<0.1	mg/kg		
			2,6-Dichlorophenol	2016/11/18	<0.1	mg/kg		
			3,4-Dichlorophenol	2016/11/18	<0.1	mg/kg		
			3,5-Dichlorophenol	2016/11/18	<0.1	mg/kg		
			Pentachlorophenol	2016/11/18	<0.1	mg/kg		
			2,3,4,5-Tetrachlorophenol	2016/11/18	<0.1	mg/kg		
			2,3,4,6-Tetrachlorophenol	2016/11/18	<0.1	mg/kg		
			2,3,5,6-Tetrachlorophenol	2016/11/18	<0.1	mg/kg		
			2,3,4-Trichlorophenol	2016/11/18	<0.1	mg/kg		
			2,3,5-Trichlorophenol	2016/11/18	<0.1	mg/kg		
			2,3,6-Trichlorophenol	2016/11/18	<0.1	mg/kg		
			2,4,5-Trichlorophenol	2016/11/18	<0.1	mg/kg		
			2,4,6-Trichlorophenol	2016/11/18	<0.1	mg/kg		
			3,4,5-Trichlorophenol	2016/11/18	<0.1	mg/kg		
1694561	BSM	Spiked blank	1-Chlorooctadecane	2016/11/17		90	%	
			Petroleum hydrocarbons (C10-C50)	2016/11/17		85	%	
1694561	BSM	Method blank	1-Chlorooctadecane	2016/11/17		92	%	
			Petroleum hydrocarbons (C10-C50)	2016/11/17	<100	mg/kg		
1694569	AH3	Spiked blank	2-Chloronaphthalene	2016/11/18		79	%	
			D10-Anthracene	2016/11/18		78	%	
			D12-Benzo(a)pyrene	2016/11/18		86	%	
			D14-Terphenyl	2016/11/18		83	%	
			D8-Acenaphthylene	2016/11/18		75	%	
			D8-Naphtalene	2016/11/18		75	%	
			Naphthalene	2016/11/18		80	%	
			Acenaphthylene	2016/11/18		81	%	
			Acenaphthene	2016/11/18		80	%	
			Fluorene	2016/11/18		81	%	
			Phenanthrene	2016/11/18		83	%	
			Anthracene	2016/11/18		86	%	
			Fluoranthene	2016/11/18		88	%	
			Pyrene	2016/11/18		91	%	
			Benzo(a)anthracene	2016/11/18		99	%	
			Chrysene	2016/11/18		101	%	
			Benzo(b+j+k)fluoranthene	2016/11/18		98	%	
			Benzo(e)pyrene	2016/11/18		96	%	
			Benzo(a)pyrene	2016/11/18		93	%	
			Ideno(1,2,3-cd)pyrene	2016/11/18		95	%	
			Dibenzo(a,h)anthracene	2016/11/18		96	%	
			Benzo(ghi)perylene	2016/11/18		96	%	

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Batch	Init	QC Type	Group	Date Analyzed	Value	Rec	Units	
1694569	AH3	Method blank	2-Methylnaphtalene	2016/11/18		82	%	
			1-Methylnaphtalene	2016/11/18		74	%	
			Benzo(c)phenanthrene	2016/11/18		96	%	
			3-Methylcholanthrene	2016/11/18		94	%	
			7,12-Dimethylbenzanthracene	2016/11/18		88	%	
			Dibenzo(a,i)pyrene	2016/11/18		100	%	
			Dibenzo(a,l)pyrene	2016/11/18		100	%	
			Dibenzo(a,h)pyrene	2016/11/18		88	%	
			1,3-Dimethylnaphthalene	2016/11/18		83	%	
			2,3,5-Trimethylnaphthalene	2016/11/18		75	%	
			2-Chloronaphthalene	2016/11/18	<0.1	mg/kg		
			D10-Anthracene	2016/11/18		68	%	
			D12-Benzo(a)pyrene	2016/11/18		73	%	
			D14-Terphenyl	2016/11/18		72	%	
			D8-Acenaphthylene	2016/11/18		68	%	
			D8-Naphtalene	2016/11/18		69	%	
			Naphthalene	2016/11/18	<0.01	mg/kg		
			Acenaphthylene	2016/11/18	<0.003	mg/kg		
			Acenaphthene	2016/11/18	<0.003	mg/kg		
			Fluorene	2016/11/18	<0.01	mg/kg		
			Phenanthrene	2016/11/18	<0.01	mg/kg		
			Anthracene	2016/11/18	<0.01	mg/kg		
			Fluoranthene	2016/11/18	<0.01	mg/kg		
			Pyrene	2016/11/18	<0.01	mg/kg		
			Benzo(a)anthracene	2016/11/18	<0.01	mg/kg		
			Chrysene	2016/11/18	<0.01	mg/kg		
			Benzo(b+j+k)fluoranthene	2016/11/18	<0.01	mg/kg		
			Benzo(e)pyrene	2016/11/18	<0.01	mg/kg		
			Benzo(a)pyrene	2016/11/18	<0.01	mg/kg		
			Ideno(1,2,3-cd)pyrene	2016/11/18	<0.01	mg/kg		
			Dibenzo(a,h)anthracene	2016/11/18	<0.003	mg/kg		
			Benzo(ghi)perylene	2016/11/18	<0.01	mg/kg		
			2-Methylnaphtalene	2016/11/18	<0.01	mg/kg		
			1-Methylnaphtalene	2016/11/18	<0.01	mg/kg		
			Benzo(c)phenanthrene	2016/11/18	<0.01	mg/kg		
			3-Methylcholanthrene	2016/11/18	<0.01	mg/kg		
			7,12-Dimethylbenzanthracene	2016/11/18	<0.01	mg/kg		
			Dibenzo(a,i)pyrene	2016/11/18	<0.01	mg/kg		
			Dibenzo(a,l)pyrene	2016/11/18	<0.01	mg/kg		
			Dibenzo(a,h)pyrene	2016/11/18	<0.01	mg/kg		
			1,3-Dimethylnaphthalene	2016/11/18	<0.01	mg/kg		
			2,3,5-Trimethylnaphthalene	2016/11/18	<0.01	mg/kg		
1694617	KV1	RCN	Arsenic (As)	2016/11/18		108	%	
			Cadmium (Cd)	2016/11/18		108	%	
			Chromium (Cr)	2016/11/18		93	%	
			Copper (Cu)	2016/11/18		92	%	
			Cobalt (Co)	2016/11/18		97	%	
			Manganese (Mn)	2016/11/18		90	%	
			Molybdenum (Mo)	2016/11/18		84	%	
			Nickel (Ni)	2016/11/18		109	%	

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Batch	Init	QC Type	Group	Date Analyzed	Value	Rec	Units	
1694617	KV1	Spiked blank	Mercury (Hg)	2016/11/18		110	%	
			Lead (Pb)	2016/11/18		108	%	
			Zinc (Zn)	2016/11/18		92	%	
			Silver (Ag)	2016/11/18		102	%	
			Arsenic (As)	2016/11/18		99	%	
			Barium (Ba)	2016/11/18		102	%	
			Cadmium (Cd)	2016/11/18		101	%	
			Chromium (Cr)	2016/11/18		100	%	
			Copper (Cu)	2016/11/18		101	%	
			Cobalt (Co)	2016/11/18		107	%	
			Tin (Sn)	2016/11/18		111	%	
			Manganese (Mn)	2016/11/18		103	%	
			Molybdenum (Mo)	2016/11/18		104	%	
			Nickel (Ni)	2016/11/18		103	%	
			Mercury (Hg)	2016/11/18		104	%	
			Lead (Pb)	2016/11/18		107	%	
			Selenium (Se)	2016/11/18		92	%	
1694617	KV1	Method blank	Zinc (Zn)	2016/11/18		100	%	
			Silver (Ag)	2016/11/18	<2	mg/kg		
			Arsenic (As)	2016/11/18	<2	mg/kg		
			Barium (Ba)	2016/11/18	<5	mg/kg		
			Cadmium (Cd)	2016/11/18	<0.1	mg/kg		
			Chromium (Cr)	2016/11/18	<2	mg/kg		
			Copper (Cu)	2016/11/18	<1	mg/kg		
			Cobalt (Co)	2016/11/18	<2	mg/kg		
			Tin (Sn)	2016/11/18	<5	mg/kg		
			Manganese (Mn)	2016/11/18	<2	mg/kg		
			Molybdenum (Mo)	2016/11/18	<2	mg/kg		
			Nickel (Ni)	2016/11/18	<1	mg/kg		
			Mercury (Hg)	2016/11/18	<0.05	mg/kg		
			Lead (Pb)	2016/11/18	<5	mg/kg		
			Selenium (Se)	2016/11/18	<1	mg/kg		
			Zinc (Zn)	2016/11/18	<5	mg/kg		
1694715	JL1	RCN	Sulphur (S)	2016/11/18		100	%	
1694715	JL1	Method blank	Sulphur (S)	2016/11/18	<0.01	% g/g		
1694727	JL1	Spiked blank	Sulphate (SO <sub>4</sub> )	2016/11/18		99	%	
1694727	JL1	Method blank	Sulphate (SO <sub>4</sub> )	2016/11/18	<5	mg/kg		
1694856	CT2	Spiked blank	1-Chlorooctadecane	2016/11/18		84	%	
1694856	CT2	Method blank	Petroleum hydrocarbons (C10-C50)	2016/11/18		90	%	
			1-Chlorooctadecane	2016/11/18		89	%	
			Petroleum hydrocarbons (C10-C50)	2016/11/18	<100	mg/kg		
1695512	CB5	Spiked blank	C13-1,2,4-Trichlorobenzene	2016/11/21		80	%	
			C13-Hexachlorobenzene	2016/11/21		95	%	
			1,3,5-Trichlorobenzene	2016/11/21		120	%	
			1,2,4-Trichlorobenzene	2016/11/21		110	%	
			1,2,3-Trichlorobenzene	2016/11/21		113	%	
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/21		114	%	
			1,2,3,4-Tetrachlorobenzene	2016/11/21		105	%	
			Pentachlorobenzene	2016/11/21		94	%	
			Hexachlorobenzene	2016/11/21		101	%	

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Batch	Inits	QC Type	Group	Date Analyzed	Value	Rec	Units
1695512	CB5	Spiked blank DUP	C13-1,2,4-Trichlorobenzene	2016/11/21		79	%
			C13-Hexachlorobenzene	2016/11/21		95	%
			1,3,5-Trichlorobenzene	2016/11/21		129	%
			1,2,4-Trichlorobenzene	2016/11/21		119	%
			1,2,3-Trichlorobenzene	2016/11/21		122	%
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/21		119	%
			1,2,3,4-Tetrachlorobenzene	2016/11/21		111	%
			Pentachlorobenzene	2016/11/21		100	%
			Hexachlorobenzene	2016/11/21		108	%
1695512	CB5	Method blank	C13-1,2,4-Trichlorobenzene	2016/11/21		80	%
			C13-Hexachlorobenzene	2016/11/21		94	%
			1,3,5-Trichlorobenzene	2016/11/21	<0.01	mg/kg	
			1,2,4-Trichlorobenzene	2016/11/21	<0.01	mg/kg	
			1,2,3-Trichlorobenzene	2016/11/21	<0.01	mg/kg	
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/21	<0.01	mg/kg	
			1,2,3,4-Tetrachlorobenzene	2016/11/21	<0.01	mg/kg	
			Pentachlorobenzene	2016/11/21	<0.01	mg/kg	
			Hexachlorobenzene	2016/11/21	<0.01	mg/kg	
1695525	CPM	RCN	Total organic carbon (titration)	2016/11/21		111	%
1696106	CB5	Spiked blank	C13-1,2,4-Trichlorobenzene	2016/11/22		83	%
			C13-Hexachlorobenzene	2016/11/22		102	%
			1,3,5-Trichlorobenzene	2016/11/22		106	%
			1,2,4-Trichlorobenzene	2016/11/22		98	%
			1,2,3-Trichlorobenzene	2016/11/22		103	%
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/22		103	%
			1,2,3,4-Tetrachlorobenzene	2016/11/22		102	%
			Pentachlorobenzene	2016/11/22		84	%
			Hexachlorobenzene	2016/11/22		90	%
1696106	CB5	Method blank	C13-1,2,4-Trichlorobenzene	2016/11/22		84	%
			C13-Hexachlorobenzene	2016/11/22		103	%
			1,3,5-Trichlorobenzene	2016/11/22	<0.01	mg/kg	
			1,2,4-Trichlorobenzene	2016/11/22	<0.01	mg/kg	
			1,2,3-Trichlorobenzene	2016/11/22	<0.01	mg/kg	
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/22	<0.01	mg/kg	
			1,2,3,4-Tetrachlorobenzene	2016/11/22	<0.01	mg/kg	
			Pentachlorobenzene	2016/11/22	<0.01	mg/kg	
			Hexachlorobenzene	2016/11/22	<0.01	mg/kg	

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

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

Method blank: An aliquot portion of pure matrix that is submitted to the same analytical process as the samples, from pre-treatment to assaying. Blanks are used to evaluate potential laboratory contamination.

Surrogate: Compound of similar composition to the compounds analyzed and added to the pre-analysis sample. Used to evaluate the quality of the extraction.

Rec = Recovery



Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### **VALIDATION SIGNATURE PAGE**

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

David Provencher, B.Sc., Chemist, Quebec

Faouzi Sarsi, B.Sc. Chemist

Karyn Vaucher

Maria Dragna Apopei, B.Sc., Chemist

Marie-Claude Poupart, B.Sc., Chemist

Madina Hamrouni, B.Sc., Chemist

Michel Poulin, B.Sc., Chemist

Maxxam Job #: B681025  
Report Date: 2016/12/06

Englobe Corp.  
Your project #: 11905  
Site Address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### **VALIDATION SIGNATURE PAGE**

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

Noureddine Chafiaai, B.Sc., Chemist

Olga Zlatov Polevoi

Phuc Khanh Tuong, B.Sc., Chemist

Ramona Dascal

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.

157

Sols	Soils
Sédiments	Sediments
Autres	Other
# de contenants	# of containers
À livrer (oui/non)	To be delivered (yes/no)
Date	Date
HYDROCARBURES PÉTROLIERS (C10-C50)	PETROLEUM HYDROCARBONS (C10-C50)
HYDROCARBURES AROMATIQUES POLYCYCLIQUES	POLYCYCLIC AROMATIC HYDROCARBONS
BPC TOTAUX	TOTAL PCBs
MÉTAUX extractibles totaux	Total extractable METALS
MERCURE PAR ICP-MS	MERCURY BY ICP-MS
CARBONE ORGANIQUE TOTAL	TOTAL ORGANIC CARBON
CHLOROBENZENES	CHLOROBENZENES
SOUFRE	SULPHUR
Composés acides (phénols)	Acid compounds (Phenols)
COMPOSÉS ORGANIQUES VOLATILS HMA-HHT (pot 60mL, sans air)	VOLATILE ORGANIC COMPOUNDS HMA-HHT (pot 60 mL, no air)
Granulométrie	Granulometry
DIOXINES ET FURANNES PAR CGSM HR	DIOXINS AND FURANS BY CGSM HR
Mono-, Di et Tributylène	Mono-, Di- and Tributylene
Détermination potentiel acidogène (TDPAS)	Acid base accounting (ABA)
DÉLAI : C10-C50 : 24 h COV : 24h Métaux : 24h Autres : 48 h	DEADLINE: C10-C50: 24 h COV: 24 h Metals: 24 h Other: 48 h
N° d'offre de service Maxxam :	Maxxam service offer #:
Site : KS	Location: KS
N° de bon de commande Englobe :	Englobe P.O #:
Autres	Other
Limites de détection requises / types de contamina	Required detection limits / types of contaminants
Instructions spéciales :	Special Instructions:
*Métaux : Politique + Se – Délais minimal requis	*Metals: Policy + Se – MInimal deadlines required
*Autres =	*Other =
Livré par :	Delivered by:
Livré par messagerie :	Delivered by courier:
Date :	Date:
Heure :	Time:

Your Project #: B681025  
Your C.O.C. #: N/A

Attention: Rodrigo Caffarengo  
Maxxam Analytics  
889 Montée de Liesse  
Ville St-Laurent, QC  
H4T 1P5

Report Date: 2016/11/29  
Report #: R4267166  
Version: 1 - Final

#### CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P1665  
Received: 2016/11/18, 10:36

Sample Matrix: Soil  
# Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Particle size in solids (Custom) (1)	3	N/A	2016/11/25	ATL SOP 00012	MSAMS 1978 m

#### 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.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) Note: Graphical representation of larger fractions (PHI-4, PHI -3 and PHI -2) not applicable unless these optional parameters are specifically requested.

#### Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Katie Campbell, Project Manager  
Email: [kcampbell@maxxam.ca](mailto:kcampbell@maxxam.ca)  
Phone #: 902-420-0203 Ext: 298

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

Total Cover Pages : 1

Maxxam Job # : B6P1665  
Report Date : 2016/11/29

Maxxam Analytics  
Client Project # : B681025

### RESULTS OF ANALYSES OF SOIL

Maxxam ID		DMB480	DMB481	DMB482		
Sampling Date		2016/11/16	2016/11/16	2016/11/16		
COC Number		N/A	N/A	N/A		
	UNITS	DH8968-05R\SED-04-01	DH8971-05R\SED-06-01	DH8973-05R\SED-08-01	RDL	QC Batch
< -1 Phi (2 mm)	%	100	100	100	0.10	4766100
< 0 Phi (1 mm)	%	98	98	99	0.10	4766100
< +1 Phi (0.5 mm)	%	94	96	98	0.10	4766100
< +2 Phi (0.25 mm)	%	87	94	98	0.10	4766100
< +3 Phi (0.12 mm)	%	80	91	96	0.10	4766100
< +4 Phi (0.062 mm)	%	74	88	95	0.10	4766100
< +5 Phi (0.031 mm)	%	70	85	90	0.10	4766100
< +6 Phi (0.016 mm)	%	62	76	78	0.10	4766100
< +7 Phi (0.0078 mm)	%	45	56	58	0.10	4766100
< +8 Phi (0.0039 mm)	%	41	55	51	0.10	4766100
< +9 Phi (0.0020 mm)	%	27	31	33	0.10	4766100
Gravel	%	<0.10	<0.10	<0.10	0.10	4766100
Coarse Sand	%	16	7.0	3.0	0.10	4766100
Fine Sand	%	10	5.0	2.1	0.10	4766100
Silt	%	34	33	44	0.10	4766100
Clay	%	41	55	51	0.10	4766100
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

Maxxam Job # : B6P1665  
Report Date : 2016/11/29

Maxxam Analytics  
Client Project # : B681025

#### GENERAL COMMENTS

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

Package 1	1.3°C
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**Results relate only to the items tested.**

Maxxam Job # : B6P1665  
 Report Date : 2016/11/29

Maxxam Analytics  
 Client Project # : B681025

### QUALITY ASSURANCE REPORT

QA/QC					Date Analyzed				
Batch	Init	QC Type	Parameter			Value	Recovery	UNITS	QC Limits
4766100	JKI	RPD	Gravel Coarse Sand Fine Sand Silt	2016/11/28		NC		%	35
			Clay	2016/11/28		2.9		%	35
				2016/11/28		13		%	35
				2016/11/28		0.049		%	35
				2016/11/28		0.68		%	35
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.									
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).									



Maxxam Job # : B6P1665  
Report Date : 2016/11/29

Maxxam Analytics  
Client Project # : B681025

### **VALIDATION SIGNATURE PAGE**

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

Mike MacGillivray, Scientific Specialist (Inorganics)

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# SAMPLE RECEIPT FORM / CHEMICAL ANALYSIS FORM

FILE #: PR163430

CLIENT: Maxxam Analytics  
889 Montée de Liesse  
Saint-Laurent, QC  
H4T 1P5

Phone: 514-448-9001  
Email: RCaffarengo@maxxam.ca

RECEIVED BY: P. Rai  
CONDITION: okay, 0°C  
DATE/TIME: November 18, 2016 (9:00 a.m.)

# of Containers	Sample Type	Sample (Client Codes)	Lab Codes	Test Requested
		JOB B681025		
1	Sediment	DH8973-03R\SED-08-1	PR163430	TBT

STORAGE: Stored at <-10°C.

ANALYTES: HRGC/HRMS analysis for tributyltin (TBT).

SPECIAL INSTRUCTIONS: None.

## METHODOLOGY

Reference Method: TBT: in house, SOP LAB04

Data summarized in Data Report Attached

Report sent to: Rodrigo Caffarengo

Date: December 5, 2016

Comments: Results relate only to items tested.

David Hope PChem, CEO

Tel 604-532-8711 | Fax 604-532-8712 | info@pacificrimlabs.com | pacificrimlabs.com  
Pacific Rim Laboratories Inc. - # 103, 19575 - 55A Ave. Surrey, BC V3S 8P8 Canada  
Form Name: DOC02 15-Jan-07 DGH

# DATA REPORT

Client: Maxxam Analytics  
Contact: Rodrigo Caffarengo

Date Extracted: 21-Nov-16  
Date Analysed: 02-Dec-16

	Client ID:	DH8973-03R\SED-08-1					BLANK
	PRL ID:	PR163430					TB160917B
Compound	DL µg/g	µg/g					µg/g
Tributyltin Chloride	0.001	0.014					ND
Dibutyltin dichloride	0.001	0.005					ND
Monobutyltin trichloride	0.001	ND					ND
Compound	DL µg/g	µg/g					µg/g
TBT <sup>+</sup>	0.001	0.012					ND
DBT <sup>++</sup>	0.001	0.004					ND
MBT <sup>+++</sup>	0.001	ND					ND
Surrogate Recoveries (%)							
Tributyltin - d27		81					47

ND - none detected

**Acronyms used in reporting organotins:**

TBT = Tributyltin

DBT = Dibutyltin

MBT = Monobutyltin

TBTCI = Tributyltin chloride

DBTCI = Dibutyltin dichloride

MBTCI = Monobutyltin trichloride

This method analyzes organotin derivatives in water, sediment and biota. The method cannot determine which organotin salt is present in the sample, therefore all data is quantified in terms of organotin chlorides and expressed as cation equivalents (TBT<sup>+</sup>, DBT<sup>++</sup>, MBT<sup>+++</sup>).

In sea water and under normal conditions, TBT exists as three species (hydroxide, chloride, and carbonate), which remain in equilibrium. At pH values less than 7.0, the predominate forms are Bu<sub>3</sub>SnOH<sub>2</sub><sup>+</sup> and Bu<sub>3</sub>SnCl, at pH 8, they are Bu<sub>3</sub>SnCl, Bu<sub>3</sub>SnOH, and Bu<sub>3</sub>SnCO<sub>3</sub><sup>-</sup>, and at pH values above 10, Bu<sub>3</sub>SnOH and Bu<sub>3</sub>SnCO<sub>3</sub><sup>-</sup> predominate.

Source: <http://www.inchem.org/documents/ehc/ehc/ehc116.htm#SectionNumber:1.1>

TBT data has been reported in many conventions over the years. To convert to other units, use the multipliers below.

To convert	To:	Multiply by:
Tributyltin chloride	As Sn	0.3647
Tributyltin chloride	As TBTO	0.9760
Tributyltin chloride	As TBT <sup>+</sup>	0.8911
Dibutyltin dichloride	As Sn	0.3907
Dibutyltin dichloride	As TBTO	0.9110
Dibutyltin dichloride	As DBT <sup>++</sup>	0.7666
Dibutyltin dichloride	As TBT <sup>+</sup>	0.9546
Monobutyltin trichloride	As Sn	0.4207
Monobutyltin trichloride	As TBTO	0.8461
Monobutyltin trichloride	As MBT <sup>+++</sup>	0.6231
Monobutyltin trichloride	As TBT <sup>+</sup>	1.0279
As Sn	As TBTO	2.8097

**Acceptable recoveries for Tributyltin surrogate standards**

Sediment/biota TBT d27 20-150%

Water TBT d27 10-130%

Your P.O. #: 23514  
 Your project #: 11905  
 Site address: KS  
 Your waybill #: N/A

Attention: Maud Demarty  
 Englobe Corp.  
 Division of Englobe Corp.  
 1453 St-Timothée  
 Montreal, QC  
 Canada H2L 3N7

Report Date: 2016/11/29  
 Report #: R2224215  
 Version: 1 – Final

## CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B681373  
 Received: 2016/11/17, 5:00 PM

Matrix: SEDIMENT  
 Samples received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Volatile organic compounds*	2	2016/11/17	2016/11/17 STL SOP-00145		MA400–COV 2.0 R4 m
Volatile organic compounds*	8	2016/11/17	2016/11/18 STL SOP-00145		MA400–COV 2.0 R4 m
Petroleum hydrocarbons (C10-C50)*	10	2016/11/18	2016/11/18 STL SOP-00172		MA.400–HYD. 1.1 R3 m
Chlorobenzenes*	10	2016/11/21	2016/11/22 STL SOP-00154		MA400–Clbz 1.0 R4 m
Total extractable metals*	10	2016/11/18	2016/11/18 STL SOP-00006		MA200–Mét 1.2 R5 m
Polycyclic aromatic hydrocarbons*	9	2016/11/18	2016/11/18 STL SOP-00120		MA400–HAP 1.1 R4 m
Polycyclic aromatic hydrocarbons*	1	2016/11/18	2016/11/19 STL SOP-00120		MA400–HAP 1.1 R4 m
Total PCBs*	9	2016/11/18	2016/11/18 STL SOP-00133		MA400–BPC 1.0 R5 m
Total PCBs*	1	2016/11/18	2016/11/19 STL SOP-00133		MA400–BPC 1.0 R5 m
Dioxins & Furans per CGSM HR*	2	2016/11/21	2016/11/23 STL SOP-00171 / STL SOP-00179		MA400 D.F. 1.1 R1 m
Dioxins & Furans per CGSM HR*	6	2016/11/21	2016/11/24 STL SOP-00171 / STL SOP-00179		MA400 D.F. 1.1 R1 m
Acid compounds (Phenols)*	10	2016/11/18	2016/11/18 STL SOP-00135		MA400–Phe 1.0 R3 m
Sulphur*	10	N/A	2016/11/22 STL SOP-00028		MA310–CS 1.0 R3 m
Total organic carbon by titration (1)*	10	2016/11/19	2016/11/21 QUE SOP-00153		MA. 405 – C 1.1 r2 m

### **Notes:**

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.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Your P.O. #: 23514  
Your project #: 11905  
Site address: KS  
Your waybill #: N/A

Attention: Maud Demarty  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2016/11/29  
Report #: R2224215  
Version: 1 – Final

## CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B681373  
Received: 2016/11/17, 5:00 PM

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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

Note: RPDs calculated using raw data (% of relative variation). The rounding of final results may result in the apparent difference.

(1) This analysis was performed by Maxxam - Québec

\* Maxxam is accredited for this analysis under the MDDELCC program.

Encryption key

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

Rodrigo Caffarengo,

E-mail: [RCaffarengo@maxxam.ca](mailto:RCaffarengo@maxxam.ca)

Telephone: 514-448-9001 Ext: 6336

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

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PAH BY GCMS (SEDIMENT)

Maxxam Job					DI0406				DI0427				DI0428				
Sampling date					2016/11/17				2016/11/17				2016/11/17				
Waybill #					N/A				N/A				N/A				
	Units	A	B	C	CAR-7-1		CR	RDL	CAR-7-2		CR	RDL	CAR-7-3		CR	RDL	QC batch
% HUMIDITY	%	-	-	-	68				63				55				
PAHs																	
2-Chloronaphthalene	mg/kg	-	-	-	<0.1			0.1	<0.1			0.1	<0.1			0.1	1694664
Naphthalene	mg/kg	0.1	5	50	0.05		<A	0.01	0.06		<A	0.01	0.06		<A	0.01	1694664
Acenaphthylene	mg/kg	0.1	10	100	0.12		A-B	0.003	0.13		A-B	0.003	0.11		A-B	0.003	1694664
Acenaphthene	mg/kg	0.1	10	100	0.067		<A	0.003	0.083		<A	0.003	0.11		A-B	0.003	1694664
Fluorene	mg/kg	0.1	10	100	0.10		A	0.01	0.11		A-B	0.01	0.14		A-B	0.01	1694664
Phenanthrene	mg/kg	0.1	5	50	0.26		A-B	0.01	0.28		A-B	0.01	0.40		A-B	0.01	1694664
Anthracene	mg/kg	0.1	10	100	0.25		A-B	0.01	0.32		A-B	0.01	0.38		A-B	0.01	1694664
Fluoranthene	mg/kg	0.1	10	100	3.2		A-B	0.1	3.9		A-B	0.1	3.4		A-B	0.1	1694664
Pyrene	mg/kg	0.1	10	100	3.2		A-B	0.1	3.6		A-B	0.1	3.3		A-B	0.1	1694664
Benzo(a)anthracene	mg/kg	0.1	1	10	2.9		B-C	0.01	4.0		B-C	0.1	2.7		B-C	0.1	1694664
Chrysene	mg/kg	0.1	1	10	4.2		B-C	0.1	6.2		B-C	0.1	3.9		B-C	0.1	1694664
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	7.0			0.1	11			0.1	6.7			0.1	1694664
Benzo(e)pyrene	mg/kg	-	-	-	3.5			0.1	4.9			0.1	3.1			0.1	1694664
Benzo(a)pyrene	mg/kg	0.1	1	10	3.9		B-C	0.1	5.7		B-C	0.1	3.5		B-C	0.1	1694664
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	3.6		B-C	0.1	4.8		B-C	0.1	3.2		B-C	0.1	1694664
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.71		A-B	0.003	0.93		A-B	0.003	0.61		A-B	0.003	1694664
Benzo(ghi)perylene	mg/kg	0.1	1	10	4.2		B-C	0.1	5.4		B-C	0.1	3.8		B-C	0.1	1694664
2-Methylnaphtalene	mg/kg	0.1	1	10	0.04		<A	0.01	0.04		<A	0.01	0.04		<A	0.01	1694664
1-Methylnaphtalene	mg/kg	0.1	1	10	0.01		<A	0.01	0.01		<A	0.01	0.02		<A	0.01	1694664
Benzo(c)phenanthrene	mg/kg	0.1	1	10	<0.5 (1)			0.5	<0.7 (1)			0.7	<0.5 (1)			0.5	1694664
3-Methylcholanthrene	mg/kg	0.1	1	10	0.02		<A	0.01	0.02		<A	0.01	0.01		<A	0.01	1694664
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01			0.01	<0.01			0.01	<0.01			0.01	1694664
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	<0.5 (1)			0.5	<0.5 (1)			0.5	<0.4 (1)			0.4	1694664
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01			0.01	<0.01			0.01	<0.01			0.01	1694664
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.12		A-B	0.01	0.16		A-B	0.01	0.11		A-B	0.01	1694664
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.04		<A	0.01	0.04		<A	0.01	0.05		<A	0.01	1694664
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01			0.01	<0.01			0.01	0.03		<A	0.01	1694664
Surrogate Recovery (%)																	
D10-Anthracene	%	-	-	-	81				89				82				1694664
D12-Benzo(a)pyrene	%	-	-	-	89				98				90				1694664
D14-Terphenyl	%	-	-	-	87				87				85				1694664
D8-Acenaphthylene	%	-	-	-	68				74				73				1694664
RDL = Reportable Detection Limit																	
QC Batch = Quality Control Batch																	
(1) Due to matrix interference, the detection limit was increased.																	

Maxxam Job #: B681373  
 Report Date: 2016/11/29

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### PAH BY GCMS (SEDIMENT)

Maxxam Job					DI0406			DI0427			DI0428			
Sampling date					2016/11/17			2016/11/17			2016/11/17			
Waybill #					N/A			N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-7-1</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-7-2</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-7-3</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D8-Naphtalene	%	-	-	-	56			63			62			1694664
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														



Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PAH BY GCMS (SEDIMENT)

Maxxam Job					DI0429			DI0430			DI0431			
Sampling date					2016/11/17			2016/11/17			2016/11/17			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	CAR-8-1	CR	RDL	CAR-8-2	CR	RDL	CAR-9-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	67			56			70			
<b>PAHs</b>														
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694664
Naphthalene	mg/kg	0.1	5	50	0.07	<A	0.01	0.09	<A	0.01	0.04	<A	0.01	1694664
Acenaphthylene	mg/kg	0.1	10	100	0.15	A-B	0.003	0.12	A-B	0.003	0.088	<A	0.003	1694664
Acenaphthene	mg/kg	0.1	10	100	0.15	A-B	0.003	0.17	A-B	0.003	0.056	<A	0.003	1694664
Fluorene	mg/kg	0.1	10	100	0.32	A-B	0.01	0.32	A-B	0.01	0.15	A-B	0.01	1694664
Phenanthrene	mg/kg	0.1	5	50	0.75	A-B	0.01	0.97	A-B	0.01	0.96	A-B	0.01	1694664
Anthracene	mg/kg	0.1	10	100	0.57	A-B	0.01	0.80	A-B	0.01	0.64	A-B	0.01	1694664
Fluoranthene	mg/kg	0.1	10	100	5.3	A-B	0.1	7.3	A-B	0.1	4.9	A-B	0.1	1694664
Pyrene	mg/kg	0.1	10	100	5.0	A-B	0.1	6.3	A-B	0.1	4.0	A-B	0.1	1694664
Benzo(a)anthracene	mg/kg	0.1	1	10	3.9	B-C	0.1	5.7	B-C	0.1	5.0	B-C	0.1	1694664
Chrysene	mg/kg	0.1	1	10	5.9	B-C	0.1	6.9	B-C	0.1	9.4	B-C	0.1	1694664
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	9.3		0.1	11		0.1	14		0.1	1694664
Benzo(e)pyrene	mg/kg	-	-	-	4.5		0.1	5.0		0.1	6.9		0.1	1694664
Benzo(a)pyrene	mg/kg	0.1	1	10	4.7	B-C	0.1	6.2	B-C	0.1	6.8	B-C	0.1	1694664
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	4.2	B-C	0.1	5.5	B-C	0.1	4.9	B-C	0.1	1694664
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.78	A-B	0.003	0.93	A-B	0.003	1.0	B	0.003	1694664
Benzo(ghi)perylene	mg/kg	0.1	1	10	4.9	B-C	0.1	6.4	B-C	0.1	5.4	B-C	0.1	1694664
2-Methylnaphthalene	mg/kg	0.1	1	10	0.05	<A	0.01	0.06	<A	0.01	0.03	<A	0.01	1694664
1-Methylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.01	0.02	<A	0.01	0.01	<A	0.01	1694664
Benzo(c)phenanthrene	mg/kg	0.1	1	10	<0.6 (1)		0.6	<2 (1)		2	<0.5 (1)		0.5	1694664
3-Methylcholanthrene	mg/kg	0.1	1	10	0.02	<A	0.01	0.02	<A	0.01	0.01	<A	0.01	1694664
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694664
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	<0.5 (1)		0.5	<0.6 (1)		0.6	0.30	A-B	0.01	1694664
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694664
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.13	A-B	0.01	0.20	A-B	0.01	0.10	A	0.01	1694664
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.16	A-B	0.01	0.16	A-B	0.01	0.05	<A	0.01	1694664
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	0.14	A-B	0.01	0.09	<A	0.01	0.02	<A	0.01	1694664
<b>Surrogate Recovery (%)</b>														
D10-Anthracene	%	-	-	-	83			77			85			1694664
D12-Benzo(a)pyrene	%	-	-	-	93			86			97			1694664
D14-Terphenyl	%	-	-	-	83			77			93			1694664
D8-Acenaphthylene	%	-	-	-	72			73			71			1694664
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														
(1) Due to matrix interference, the detection limit was increased.														

Maxxam Job #: B681373  
 Report Date: 2016/11/29

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### PAH BY GCMS (SEDIMENT)

Maxxam Job					DI0429			DI0430			DI0431			
Sampling date					2016/11/17			2016/11/17			2016/11/17			
Waybill #					N/A			N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-8-1</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-8-2</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-9-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D8-Naphtalene	%	-	-	-	62			62			61			1694664
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PAH BY GCMS (SEDIMENT)

Maxxam Job					DI0432			DI0433			DI0434			
Sampling date					2016/11/17			2016/11/17			2016/11/17			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	CAR-9-2	CR	RDL	CAR-10-1	CR	RDL	CAR-10-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	60			71			66			
<b>PAHs</b>														
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694664
Naphthalene	mg/kg	0.1	5	50	0.07	<A	0.01	0.03	<A	0.01	0.06	<A	0.01	1694664
Acenaphthylene	mg/kg	0.1	10	100	0.12	A-B	0.003	0.065	<A	0.003	0.13	A-B	0.003	1694664
Acenaphthene	mg/kg	0.1	10	100	0.22	A-B	0.003	0.036	<A	0.003	0.082	<A	0.003	1694664
Fluorene	mg/kg	0.1	10	100	0.43	A-B	0.01	0.08	<A	0.01	0.21	A-B	0.01	1694664
Phenanthrene	mg/kg	0.1	5	50	1.6	A-B	0.01	0.41	A-B	0.01	2.3	A-B	0.01	1694664
Anthracene	mg/kg	0.1	10	100	1.2	A-B	0.01	0.28	A-B	0.01	1.1	A-B	0.01	1694664
Fluoranthene	mg/kg	0.1	10	100	10	B	0.1	1.5	A-B	0.01	6.6	A-B	0.1	1694664
Pyrene	mg/kg	0.1	10	100	9.3	A-B	0.1	1.3	A-B	0.01	5.5	A-B	0.1	1694664
Benzo(a)anthracene	mg/kg	0.1	1	10	7.0	B-C	0.1	1.2	B-C	0.01	5.9	B-C	0.1	1694664
Chrysene	mg/kg	0.1	1	10	8.5	B-C	0.1	1.9	B-C	0.01	12	>C	0.1	1694664
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	11		0.1	3.4		0.01	17		0.1	1694664
Benzo(e)pyrene	mg/kg	-	-	-	5.2		0.1	1.5		0.01	8.2		0.1	1694664
Benzo(a)pyrene	mg/kg	0.1	1	10	6.0	B-C	0.1	1.4	B-C	0.01	8.0	B-C	0.1	1694664
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	5.1	B-C	0.1	1.3	B-C	0.01	5.8	B-C	0.1	1694664
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.99	A-B	0.003	0.27	A-B	0.003	1.1	B-C	0.003	1694664
Benzo(ghi)perylene	mg/kg	0.1	1	10	6.0	B-C	0.1	1.4	B-C	0.01	6.3	B-C	0.1	1694664
2-Methylnaphthalene	mg/kg	0.1	1	10	0.06	<A	0.01	0.02	<A	0.01	0.03	<A	0.01	1694664
1-Methylnaphthalene	mg/kg	0.1	1	10	0.03	<A	0.01	0.01	<A	0.01	0.02	<A	0.01	1694664
Benzo(c)phenanthrene	mg/kg	0.1	1	10	<2 (1)		2	0.12	A-B	0.01	0.47	A-B	0.01	1694664
3-Methylcholanthrene	mg/kg	0.1	1	10	0.02	<A	0.01	<0.01		0.01	0.01	<A	0.01	1694664
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694664
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.56	A-B	0.01	0.09	<A	0.01	0.32	A-B	0.01	1694664
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694664
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.18	A-B	0.01	0.03	<A	0.01	0.10	A	0.01	1694664
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.20	A-B	0.01	0.04	<A	0.01	0.05	<A	0.01	1694664
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	0.14	A-B	0.01	<0.01		0.01	0.02	<A	0.01	1694664
<b>Surrogate Recovery (%)</b>														
D10-Anthracene	%	-	-	-	76			84			86			1694664
D12-Benzo(a)pyrene	%	-	-	-	84			89			92			1694664
D14-Terphenyl	%	-	-	-	74			95			91			1694664
D8-Acenaphthylene	%	-	-	-	68			77			69			1694664
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														
(1) Due to matrix interference, the detection limit was increased.														

Maxxam Job #: B681373  
 Report Date: 2016/11/29

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### PAH BY GCMS (SEDIMENT)

Maxxam Job					DI0432			DI0433			DI0434			
Sampling date					2016/11/17			2016/11/17			2016/11/17			
Waybill #					N/A			N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-9-2</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-10-1</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-10-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D8-Naphtalene	%	-	-	-	50			71			63			1694664
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PAH BY GCMS (SEDIMENT)

Maxxam Job					DI0435			
Sampling date					2016/11/17			
Waybill #					N/A			
	Units	A	B	C	CAR-10-3	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	53			
<b>PAHs</b>								
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		0.1	1694664
Naphthalene	mg/kg	0.1	5	50	0.07	<A	0.01	1694664
Acenaphthylene	mg/kg	0.1	10	100	0.10	A	0.003	1694664
Acenaphthene	mg/kg	0.1	10	100	0.23	A-B	0.003	1694664
Fluorene	mg/kg	0.1	10	100	0.55	A-B	0.01	1694664
Phenanthrene	mg/kg	0.1	5	50	2.0	A-B	0.01	1694664
Anthracene	mg/kg	0.1	10	100	1.2	A-B	0.01	1694664
Fluoranthene	mg/kg	0.1	10	100	7.2	A-B	0.1	1694664
Pyrene	mg/kg	0.1	10	100	6.9	A-B	0.1	1694664
Benzo(a)anthracene	mg/kg	0.1	1	10	4.2	B-C	0.1	1694664
Chrysene	mg/kg	0.1	1	10	5.3	B-C	0.1	1694664
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	7.7		0.1	1694664
Benzo(e)pyrene	mg/kg	-	-	-	3.4		0.1	1694664
Benzo(a)pyrene	mg/kg	0.1	1	10	3.9	B-C	0.1	1694664
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	3.4	B-C	0.1	1694664
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.82	A-B	0.003	1694664
Benzo(ghi)perylene	mg/kg	0.1	1	10	3.9	B-C	0.1	1694664
2-Methylnaphthalene	mg/kg	0.1	1	10	0.05	<A	0.01	1694664
1-Methylnaphthalene	mg/kg	0.1	1	10	0.03	<A	0.01	1694664
Benzo(c)phenanthrene	mg/kg	0.1	1	10	<1 (1)		1	1694664
3-Methylcholanthrene	mg/kg	0.1	1	10	0.02	<A	0.01	1694664
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		0.01	1694664
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.43	A-B	0.01	1694664
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		0.01	1694664
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.14	A-B	0.01	1694664
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.18	A-B	0.01	1694664
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	0.10	A	0.01	1694664
<b>Surrogate Recovery (%)</b>								
D10-Anthracene	%	-	-	-	80			1694664
D12-Benzo(a)pyrene	%	-	-	-	90			1694664
D14-Terphenyl	%	-	-	-	80			1694664
D8-Acenaphthylene	%	-	-	-	68			1694664
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
(1) Due to matrix interference, the detection limit was increased.								

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

**PAH BY GCMS (SEDIMENT)**

Maxxam Job					DI0435			
Sampling date					2016/11/17			
Waybill #					N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-10-3</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D8-Naphtalene	%	-	-	-	51			1694664
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PHENOLS BY GCMS (SEDIMENT)

Maxxam Job					DI0406		DI0427		DI0428		DI0429				
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17				
Waybill #					N/A		N/A		N/A		N/A				
	Units	A	B	C	CAR-7-1	CR	CAR-7-2	CR	CAR-7-3	CR	RDL	CAR-8-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	68		63		55			67			
<b>PHENOLS</b>															
o-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
m-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
p-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
4-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		0.1	<0.2 (1)		0.2	1694835
Phenol	mg/kg	0.2	1	10	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694835
<b>Surrogate Recovery (%)</b>															
D6-Phenol	%	-	-	-	74		78		74			76			1694835
Tribromophenol-2,4,6	%	-	-	-	106		109		106			107			1694835
Trifluoro-m-cresol	%	-	-	-	76		81		76			79			1694835
RDL = Reportable Detection Limit															
QC Batch = Quality Control Batch															
(1) Due to matrix interference, the detection limit was increased.															

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PHENOLS BY GCMS (SEDIMENT)

Maxxam Job					DI0430			DI0431			DI0432			
Sampling date					2016/11/17			2016/11/17			2016/11/17			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	CAR-8-2	CR	RDL	CAR-9-1	CR	RDL	CAR-9-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	56			70			60			
<b>PHENOLS</b>														
o-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
m-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
p-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
4-Nitrophenol	mg/kg	0.5	1	10	<0.2 (1)		0.2	<0.1		0.1	<0.2 (1)		0.2	1694835
Phenol	mg/kg	0.2	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694835
<b>Surrogate Recovery (%)</b>														
D6-Phenol	%	-	-	-	78			80			73			1694835
Tribromophenol-2,4,6	%	-	-	-	109			103			107			1694835
Trifluoro-m-cresol	%	-	-	-	81			82			75			1694835
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														
(1) Due to matrix interference, the detection limit was increased.														



Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PHENOLS BY GCMS (SEDIMENT)

Maxxam Job					DI0433		DI0434		DI0434		DI0435			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	CAR-10-1	CR	CAR-10-2	CR	CAR-10-2 Lab. Dup.	CR	CAR-10-3	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	71		66		66		53			
<b>PHENOLS</b>														
o-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
m-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
p-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
4-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
Phenol	mg/kg	0.2	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
<b>Surrogate Recovery (%)</b>														
D6-Phenol	%	-	-	-	78		73		74		71			1694835
Tribromophenol-2,4,6	%	-	-	-	103		106		105		99			1694835
Trifluoro-m-cresol	%	-	-	-	81		75		76		72			1694835
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate														

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### CHLOROBENZENES (SEDIMENT)

Maxxam Job					DI0406		DI0427		DI0428		DI0429			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	CAR-7-1	CR	CAR-7-2	CR	CAR-7-3	CR	CAR-8-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	68		63		55		67			
<b>CHLOROBENZENES</b>														
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	0.02	<A	0.02	<A	0.03	<A	<0.01		0.01	1695567
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	0.04	<A	0.06	<A	0.02	<A	0.06	<A	0.01	1695567
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		0.01	<A	0.01	<A	<0.01		0.01	1695567
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
Hexachlorobenzene	mg/kg	0.1	2	10	0.01	<A	0.02	<A	0.02	<A	0.01	<A	0.01	1695567
<b>Surrogate Recovery (%)</b>														
C13-1,2,4-Trichlorobenzene	%	-	-	-	88		87		80		88			1695567
C13-Hexachlorobenzene	%	-	-	-	101		106		97		104			1695567
RDL = Reportable Detection Limit QC Batch = Quality Control Batch														

Maxxam Job					DI0430		DI0431		DI0432		DI0433			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	CAR-8-2	CR	CAR-9-1	CR	CAR-9-2	CR	CAR-10-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	56		70		60		71			
<b>CHLOROBENZENES</b>														
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	0.03	<A	<0.01		0.02	<A	<0.01		0.01	1695567
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		0.01	<A	0.06	<A	0.03	<A	0.01	1695567
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		0.01	<A	<0.01		0.01	1695567
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	0.01	<A	<0.01		0.01	<A	<0.01		0.01	1695567
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
Hexachlorobenzene	mg/kg	0.1	2	10	0.02	<A	<0.01		<0.01		<0.01		0.01	1695567
<b>Surrogate Recovery (%)</b>														
C13-1,2,4-Trichlorobenzene	%	-	-	-	86		87		87		95			1695567
C13-Hexachlorobenzene	%	-	-	-	101		103		102		111			1695567
RDL = Reportable Detection Limit QC Batch = Quality Control Batch														

Maxxam Job #: B681373  
 Report Date: 2016/11/29

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### CHLOROBENZENES (SEDIMENT)

Maxxam Job					DI0434		DI0434		DI0435			
Sampling date					2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A			
	Units	A	B	C	CAR-10-2	CR	CAR-10-2 Lab. Dup.	CR	CAR-10-3	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	66		66		53			
<b>CHLOROBENZENES</b>												
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		0.02	<A	0.01	1695567
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	0.16	A-B	0.13	A-B	0.10	A	0.01	1695567
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	0.04	<A	0.03	<A	0.02	<A	0.01	1695567
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		0.01	<A	0.01	1695567
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		0.01	1695567
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		0.01	1695567
Hexachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		0.01	1695567
<b>Surrogate Recovery (%)</b>												
C13-1,2,4-Trichlorobenzene	%	-	-	-	87		86		80			1695567
C13-Hexachlorobenzene	%	-	-	-	100		101		94			1695567
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate												

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### HYDROCARBONS BY GCFID (SEDIMENT)

Maxxam Job					DI0406		DI0427		DI0428		DI0429			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-7-1</b>	<b>CR</b>	<b>CAR-7-2</b>	<b>CR</b>	<b>CAR-7-3</b>	<b>CR</b>	<b>CAR-8-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	68		63		55		67			
<b>PETROLEUM HYDROCARBONS</b>														
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	660	A-B	980	B-C	520	A-B	800	B-C	100	1694635
<b>Surrogate Recovery (%)</b>														
1-Chlorooctadecane	%	-	-	-	69		100		89		66			1694635
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job					DI0430		DI0431		DI0432					
Sampling date					2016/11/17		2016/11/17		2016/11/17					
Waybill #					N/A		N/A		N/A					
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-8-2</b>	<b>CR</b>	<b>QC batch</b>	<b>CAR-9-1</b>	<b>CR</b>	<b>QC batch</b>	<b>CAR-9-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	56			70			60			
<b>PETROLEUM HYDROCARBONS</b>														
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	1200	B-C	1694635	500	A-B	1695023	1600	B-C	100	1694635
<b>Surrogate Recovery (%)</b>														
1-Chlorooctadecane	%	-	-	-	95		1694635	90		1695023	71			1694635
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job					DI0433		DI0434		DI0435					
Sampling date					2016/11/17		2016/11/17		2016/11/17					
Waybill #					N/A		N/A		N/A					
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-10-1</b>	<b>CR</b>	<b>QC batch</b>	<b>CAR-10-2</b>	<b>CR</b>	<b>CAR-10-3</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>	
% HUMIDITY	%	-	-	-	71			66		53				
<b>PETROLEUM HYDROCARBONS</b>														
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	340	A-B	1695023	690	A-B	920	B-C	100	1694635	
<b>Surrogate Recovery (%)</b>														
1-Chlorooctadecane	%	-	-	-	97		1695023	83		65			1694635	
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### COV BY GC/MS (SEDIMENT)

Maxxam Job					DI0406			DI0406		DI0427		DI0428			
Sampling date					2016/11/17			2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A			N/A		N/A		N/A			
	Units	A	B	C	CAR-7-1	CR	RDL	CAR-7-1 Lab. Dup.	CR	CAR-7-2	CR	CAR-7-3	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	68			68		63		55			
<b>COMPOUNDS</b>															
Benzene	mg/kg	0.2	0.5	5	<0.3		0.3	<0.2		<0.2		<0.2		0.2	1694579
Chlorobenzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Ethylbenzene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Styrene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Toluene	mg/kg	0.2	3	30	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Chloroform	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	0.06		0.06	<0.04		<0.04		<0.04		0.04	1694579
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Dichloromethane	mg/kg	-	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Tetrachloroethene	mg/kg	0.3	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Carbon tetrachloride	mg/kg	0.1	5	50	<0.3		0.3	<0.2		<0.2		<0.2		0.2	1694579
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
Trichloroethene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		<0.4		<0.4		0.4	1694579
<b>Surrogate Recovery (%)</b>															
4-Bromofluorobenzene	%	-	-	-	100			100		99		100			1694579
RDL = Reportable Detection Limit															
QC Batch = Quality Control Batch															
Laboratory duplicate															

Maxxam Job #: B681373  
 Report Date: 2016/11/29

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### COV BY GC/MS (SEDIMENT)

Maxxam Job					DI0406			DI0406		DI0427		DI0428			
Sampling date					2016/11/17			2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A			N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-7-1</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-7-1 Lab. Dup.</b>	<b>CR</b>	<b>CAR-7-2</b>	<b>CR</b>	<b>CAR-7-3</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D10-Ethylbenzene	%	-	-	-	99			95		98		104			1694579
D4-1,2-Dichloroethane	%	-	-	-	99			101		101		100			1694579
D8-Toluene	%	-	-	-	102			103		102		102			1694579

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Laboratory duplicate

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### COV BY GC/MS (SEDIMENT)

Maxxam Job					DI0429			DI0430			DI0431			
Sampling date					2016/11/17			2016/11/17			2016/11/17			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	CAR-8-1	CR	RDL	CAR-8-2	CR	RDL	CAR-9-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	67			56			70			
<b>COMPOUNDS</b>														
Benzene	mg/kg	0.2	0.5	5	<0.3		0.3	<0.2		0.2	<0.3		0.3	1694579
Chlorobenzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Ethylbenzene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Styrene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Toluene	mg/kg	0.2	3	30	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Chloroform	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	0.06		0.06	<0.04		0.04	0.06		0.06	1694579
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Dichloromethane	mg/kg	-	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Tetrachloroethene	mg/kg	0.3	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Carbon tetrachloride	mg/kg	0.1	5	50	<0.3		0.3	<0.2		0.2	<0.3		0.3	1694579
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
Trichloroethene	mg/kg	0.2	5	50	<0.6		0.6	<0.4		0.4	<0.6		0.6	1694579
<b>Surrogate Recovery (%)</b>														
4-Bromofluorobenzene	%	-	-	-	100			100			99			1694579
D10-Ethylbenzene	%	-	-	-	98			100			98			1694579
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681373  
 Report Date: 2016/11/29

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### COV BY GC/MS (SEDIMENT)

Maxxam Job					DI0429			DI0430			DI0431			
Sampling date					2016/11/17			2016/11/17			2016/11/17			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	CAR-8-1	CR	RDL	CAR-8-2	CR	RDL	CAR-9-1	CR	RDL	QC batch
D4-1,2-Dichloroethane	%	-	-	-	101			101			100			1694579
D8-Toluene	%	-	-	-	102			102			101			1694579
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														



Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### COV BY GC/MS (SEDIMENT)

Maxxam Job					DI0432			DI0433			DI0434			
Sampling date					2016/11/17			2016/11/17			2016/11/17			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	CAR-9-2	CR	RDL	CAR-10-1	CR	RDL	CAR-10-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	60			71			66			
<b>COMPOUNDS</b>														
Benzene	mg/kg	0.2	0.5	5	<0.2		0.2	<0.3		0.3	<0.2		0.2	1694579
Chlorobenzene	mg/kg	0.2	1	10	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Ethylbenzene	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Styrene	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Toluene	mg/kg	0.2	3	30	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Chloroform	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	<0.04		0.04	0.06		0.06	<0.04		0.04	1694579
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Dichloromethane	mg/kg	-	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Tetrachloroethene	mg/kg	0.3	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Carbon tetrachloride	mg/kg	0.1	5	50	<0.2		0.2	<0.3		0.3	<0.2		0.2	1694579
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
Trichloroethene	mg/kg	0.2	5	50	<0.4		0.4	<0.6		0.6	<0.4		0.4	1694579
<b>Surrogate Recovery (%)</b>														
4-Bromofluorobenzene	%	-	-	-	101			99			99			1694579
D10-Ethylbenzene	%	-	-	-	95			99			104			1694579
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681373  
 Report Date: 2016/11/29

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### COV BY GC/MS (SEDIMENT)

Maxxam Job					DI0432			DI0433			DI0434			
Sampling date					2016/11/17			2016/11/17			2016/11/17			
Waybill #					N/A			N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-9-2</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-10-1</b>	<b>CR</b>	<b>RDL</b>	<b>CAR-10-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D4-1,2-Dichloroethane	%	-	-	-	102			101			101			1694579
D8-Toluene	%	-	-	-	102			102			101			1694579
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### COV BY GC/MS (SEDIMENT)

Maxxam Job					DI0435		DI0435			
Sampling date					2016/11/17		2016/11/17			
Waybill #					N/A		N/A			
	Units	A	B	C	CAR-10-3	CR	CAR-10-3 Lab. Dup.	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	53		53			
<b>COMPOUNDS</b>										
Benzene	mg/kg	0.2	0.5	5	<0.2		<0.2		0.2	1694579
Chlorobenzene	mg/kg	0.2	1	10	<0.4		<0.4		0.4	1694579
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.4		<0.4		0.4	1694579
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.4		<0.4		0.4	1694579
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.4		<0.4		0.4	1694579
Ethylbenzene	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
Styrene	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
Toluene	mg/kg	0.2	3	30	<0.4		<0.4		0.4	1694579
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.4		<0.4		0.4	1694579
Chloroform	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	<0.04		<0.04		0.04	1694579
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
Dichloromethane	mg/kg	-	5	50	<0.4		<0.4		0.4	1694579
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
Tetrachloroethene	mg/kg	0.3	5	50	<0.4		<0.4		0.4	1694579
Carbon tetrachloride	mg/kg	0.1	5	50	<0.2		<0.2		0.2	1694579
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
Trichloroethene	mg/kg	0.2	5	50	<0.4		<0.4		0.4	1694579
<b>Surrogate Recovery (%)</b>										
4-Bromofluorobenzene	%	-	-	-	99		99			1694579
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate										

Maxxam Job #: B681373  
 Report Date: 2016/11/29

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### COV BY GC/MS (SEDIMENT)

Maxxam Job					DI0435		DI0435			
Sampling date					2016/11/17		2016/11/17			
Waybill #					N/A		N/A			
	Units	A	B	C	CAR-10-3	CR	CAR-10-3 Lab. Dup.	CR	RDL	QC batch
D10-Ethylbenzene	%	-	-	-	101		97			1694579
D4-1,2-Dichloroethane	%	-	-	-	100		101			1694579
D8-Toluene	%	-	-	-	101		102			1694579
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate										

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### TOTAL EXTRACTABLE METALS (SEDIMENT)

Maxxam Job					DI0406		DI0427		DI0428		DI0429			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-7-1</b>	<b>CR</b>	<b>CAR-7-2</b>	<b>CR</b>	<b>CAR-7-3</b>	<b>CR</b>	<b>CAR-8-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	68		63		55		67			
<b>METALS</b>														
Silver (Ag)	mg/kg	2	20	40	<2		<2		<2		<2		2	1694947
Arsenic (As)	mg/kg	6	30	50	20	A-B	28	A-B	13	A-B	30	B	2	1694947
Barium (Ba)	mg/kg	340	500	2000	1900	B-C	1700	B-C	1200	B-C	1500	B-C	5	1694947
Cadmium (Cd)	mg/kg	1.5	5	20	7.1	B-C	12	B-C	3.7	A-B	9.5	B-C	0.1	1694947
Chromium (Cr)	mg/kg	100	250	800	67	<A	72	<A	53	<A	63	<A	2	1694947
Copper (Cu)	mg/kg	50	100	500	77	A-B	82	A-B	52	A-B	71	A-B	1	1694947
Cobalt (Co)	mg/kg	25	50	300	18	<A	21	<A	13	<A	20	<A	2	1694947
Tin (Sn)	mg/kg	5	50	300	50	B	54	B-C	34	A-B	37	A-B	5	1694947
Manganese (Mn)	mg/kg	1000	1000	2200	2900	>C	4900	>C	1500	B-C	5200	>C	2	1694947
Molybdenum (Mo)	mg/kg	2	10	40	<2		2	A	<2		<2		2	1694947
Nickel (Ni)	mg/kg	50	100	500	51	A-B	56	A-B	38	<A	52	A-B	1	1694947
Mercury (Hg)	mg/kg	0.2	2	10	17	>C	15	>C	12	>C	16	>C	0.05	1694947
Lead (Pb)	mg/kg	50	500	1000	160	A-B	180	A-B	100	A-B	150	A-B	5	1694947
Selenium (Se)	mg/kg	1	3	10	1	A	1	A	<1		1	A	1	1694947
Zinc (Zn)	mg/kg	140	500	1500	530	B-C	730	B-C	320	A-B	610	B-C	5	1694947
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### TOTAL EXTRACTABLE METALS (SEDIMENT)

Maxxam Job					DI0430		DI0431		DI0432		DI0433			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	CAR-8-2	CR	CAR-9-1	CR	CAR-9-2	CR	CAR-10-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	56		70		60		71			
<b>METALS</b>														
Silver (Ag)	mg/kg	2	20	40	<2		<2		<2		<2		2	1694947
Arsenic (As)	mg/kg	6	30	50	9	A-B	30	B	15	A-B	13	A-B	2	1694947
Barium (Ba)	mg/kg	340	500	2000	1600	B-C	450	A-B	1400	B-C	450	A-B	5	1694947
Cadmium (Cd)	mg/kg	1.5	5	20	1.2	<A	19	B-C	3.0	A-B	4.9	A-B	0.1	1694947
Chromium (Cr)	mg/kg	100	250	800	63	<A	56	<A	56	<A	61	<A	2	1694947
Copper (Cu)	mg/kg	50	100	500	70	A-B	59	A-B	61	A-B	57	A-B	1	1694947
Cobalt (Co)	mg/kg	25	50	300	14	<A	28	A-B	14	<A	23	<A	2	1694947
Tin (Sn)	mg/kg	5	50	300	67	B-C	13	A-B	59	B-C	8	A-B	5	1694947
Manganese (Mn)	mg/kg	1000	1000	2200	630	<A	13000	>C	1900	B-C	5200	>C	2	1694947
Molybdenum (Mo)	mg/kg	2	10	40	<2		<2		<2		<2		2	1694947
Nickel (Ni)	mg/kg	50	100	500	44	<A	51	A-B	42	<A	51	A-B	1	1694947
Mercury (Hg)	mg/kg	0.2	2	10	18	>C	4.1	B-C	14	>C	3.2	B-C	0.05	1694947
Lead (Pb)	mg/kg	50	500	1000	150	A-B	140	A-B	150	A-B	70	A-B	5	1694947
Selenium (Se)	mg/kg	1	3	10	1	A	2	A-B	1	A	1	A	1	1694947
Zinc (Zn)	mg/kg	140	500	1500	310	A-B	960	B-C	390	A-B	400	A-B	5	1694947
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681373  
 Report Date: 2016/11/29

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### TOTAL EXTRACTABLE METALS (SEDIMENT)

Maxxam Job					DI0434		DI0435			
Sampling date					2016/11/17		2016/11/17			
Waybill #					N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-10-2</b>	<b>CR</b>	<b>CAR-10-3</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	66		53			
<b>METALS</b>										
Silver (Ag)	mg/kg	2	20	40	<2		<2		2	1694947
Arsenic (As)	mg/kg	6	30	50	46	B-C	12	A-B	2	1694947
Barium (Ba)	mg/kg	340	500	2000	640	B-C	1100	B-C	5	1694947
Cadmium (Cd)	mg/kg	1.5	5	20	29	>C	1.2	<A	0.1	1694947
Chromium (Cr)	mg/kg	100	250	800	57	<A	47	<A	2	1694947
Copper (Cu)	mg/kg	50	100	500	74	A-B	56	A-B	1	1694947
Cobalt (Co)	mg/kg	25	50	300	42	A-B	12	<A	2	1694947
Tin (Sn)	mg/kg	5	50	300	15	A-B	56	B-C	5	1694947
Manganese (Mn)	mg/kg	1000	1000	2200	23000	>C	1100	B-C	2	1694947
Molybdenum (Mo)	mg/kg	2	10	40	3	A-B	<2		2	1694947
Nickel (Ni)	mg/kg	50	100	500	60	A-B	35	<A	1	1694947
Mercury (Hg)	mg/kg	0.2	2	10	6.5	B-C	13	>C	0.05	1694947
Lead (Pb)	mg/kg	50	500	1000	180	A-B	130	A-B	5	1694947
Selenium (Se)	mg/kg	1	3	10	2	A-B	<1		1	1694947
Zinc (Zn)	mg/kg	140	500	1500	1500	C	260	A-B	5	1694947
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### CONVENTIONAL PARAMETERS (SEDIMENT)

Maxxam Job					DI0406		DI0427		DI0428		DI0429			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-7-1</b>	<b>CR</b>	<b>CAR-7-2</b>	<b>CR</b>	<b>CAR-7-3</b>	<b>CR</b>	<b>CAR-8-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	68		63		55		67			
<b>CONVENTIONAL</b>														
Total organic carbon (titration)	% g/g	-	-	-	3.0		3.9		3.0		4.2		0.05	1695427
Sulphur (S)	% g/g	0.04	0.2	0.2	0.38	>C	0.43	>C	0.21	>C	0.32	>C	0.01	1696165
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job					DI0430		DI0431		DI0432		DI0433			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-8-2</b>	<b>CR</b>	<b>CAR-9-1</b>	<b>CR</b>	<b>CAR-9-2</b>	<b>CR</b>	<b>CAR-10-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	56		70		60		71			
<b>CONVENTIONAL</b>														
Total organic carbon (titration)	% g/g	-	-	-	2.7		5.0		3.1		4.5		0.05	1695427
Sulphur (S)	% g/g	0.04	0.2	0.2	0.23	>C	0.39	>C	0.19	A-B	0.32	>C	0.01	1696165
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job					DI0434		DI0435							
Sampling date					2016/11/17		2016/11/17							
Waybill #					N/A		N/A							
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-10-2</b>	<b>CR</b>	<b>CAR-10-3</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>				
% HUMIDITY	%	-	-	-	66		53							
<b>CONVENTIONAL</b>														
Total organic carbon (titration)	% g/g	-	-	-	4.3		2.5		0.05	1695427				
Sulphur (S)	% g/g	0.04	0.2	0.2	0.43	>C	0.20	C	0.01	1696165				
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														



Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PCB CONGENERS (SEDIMENT)

Maxxam Job					DI0406		DI0427		DI0428		DI0429			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	CAR-7-1	CR	CAR-7-2	CR	CAR-7-3	CR	CAR-8-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	68		63		55		67			
<b>PCBs</b>														
CL3-IUPAC-17+18	mg/kg	-	-	-	0.23		0.53		0.14		0.89		0.01	1694636
CL3-IUPAC-28+31	mg/kg	-	-	-	0.15		0.26		0.09		0.27		0.01	1694636
CL3-IUPAC-33	mg/kg	-	-	-	0.02		0.03		0.01		0.02		0.01	1694636
CL4-IUPAC-52	mg/kg	-	-	-	0.46		0.86		0.29		0.80		0.01	1694636
CL4-IUPAC-49	mg/kg	-	-	-	0.37		0.70		0.21		0.61		0.01	1694636
CL4-IUPAC-44	mg/kg	-	-	-	0.08		0.12		0.05		0.09		0.01	1694636
CL4-IUPAC-74	mg/kg	-	-	-	0.03		0.03		0.02		0.03		0.01	1694636
CL4-IUPAC-70	mg/kg	-	-	-	0.06		0.06		0.04		0.05		0.01	1694636
CL5-IUPAC-95	mg/kg	-	-	-	0.13		0.24		0.07		0.23		0.01	1694636
CL5-IUPAC-101	mg/kg	-	-	-	0.14		0.23		0.08		0.20		0.01	1694636
CL5-IUPAC-99	mg/kg	-	-	-	0.06		0.08		0.04		0.06		0.01	1694636
CL5-IUPAC-87	mg/kg	-	-	-	0.03		0.05		0.02		0.04		0.01	1694636
CL5-IUPAC-110	mg/kg	-	-	-	0.17		0.28		0.10		0.19		0.01	1694636
CL5-IUPAC-82	mg/kg	-	-	-	0.01		0.01		<0.01		0.01		0.01	1694636
CL6-IUPAC-151	mg/kg	-	-	-	0.02		0.03		0.01		0.03		0.01	1694636
CL6-IUPAC-149	mg/kg	-	-	-	0.08		0.14		0.05		0.13		0.01	1694636
CL5-IUPAC-118	mg/kg	-	-	-	0.08		0.11		0.05		0.10		0.01	1694636
CL6-IUPAC-153	mg/kg	-	-	-	0.04		0.07		0.03		0.05		0.01	1694636
CL6-IUPAC-132	mg/kg	-	-	-	0.03		0.05		0.02		0.04		0.01	1694636
CL5-IUPAC-105	mg/kg	-	-	-	0.02		0.03		0.01		0.03		0.01	1694636
CL6-IUPAC-138+158	mg/kg	-	-	-	0.08		0.15		0.05		0.12		0.01	1694636
CL7-IUPAC-187	mg/kg	-	-	-	0.01		0.02		<0.01		0.02		0.01	1694636
CL7-IUPAC-183	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL6-IUPAC-128	mg/kg	-	-	-	0.02		0.04		0.01		0.03		0.01	1694636
CL7-IUPAC-177	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL6-IUPAC-156	mg/kg	-	-	-	<0.01		0.01		<0.01		<0.01		0.01	1694636
CL7-IUPAC-180	mg/kg	-	-	-	0.01		0.02		<0.01		0.02		0.01	1694636
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL7-IUPAC-170	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PCB CONGENERS (SEDIMENT)

Maxxam Job					DI0406		DI0427		DI0428		DI0429			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-7-1</b>	<b>CR</b>	<b>CAR-7-2</b>	<b>CR</b>	<b>CAR-7-3</b>	<b>CR</b>	<b>CAR-8-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
Total trichlorobiphenyls	mg/kg	-	-	-	1.1		2.0		0.58		3.0		0.01	1694636
Total tetrachlorobiphenyls	mg/kg	-	-	-	1.6		2.6		0.65		2.4		0.01	1694636
Total pentachlorobiphenyls	mg/kg	-	-	-	0.73		1.2		0.37		0.99		0.01	1694636
Total hexachlorobiphenyls	mg/kg	-	-	-	0.29		0.49		0.17		0.40		0.01	1694636
Total heptachlorobiphenyls	mg/kg	-	-	-	0.03		0.04		<0.01		0.04		0.01	1694636
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
Total PCBs	mg/kg	0.2	1	10	3.7	B-C	6.4	B-C	1.8	B-C	6.8	B-C	0.01	1694636
<b>Surrogate Recovery (%)</b>														
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	92		89		93		88			1694636
2',3,5-Trichlorobiphenyl	%	-	-	-	95		100		93		99			1694636
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	88		85		87		86			1694636
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PCB CONGENERS (SEDIMENT)

Maxxam Job				DI0430		DI0431		DI0432		DI0433			
Sampling date				2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #				N/A		N/A		N/A		N/A			
	Units	A	B	C	CAR-8-2	CR	CAR-9-1	CR	CAR-9-2	CR	CAR-10-1	CR	RDL QC batch
% HUMIDITY	%	-	-	-	56		70		60		71		
<b>PCBs</b>													
CL3-IUPAC-17+18	mg/kg	-	-	-	0.03		0.04		0.82		0.09		0.01 1694636
CL3-IUPAC-28+31	mg/kg	-	-	-	0.06		0.03		0.20		0.04		0.01 1694636
CL3-IUPAC-33	mg/kg	-	-	-	0.01		<0.01		0.02		<0.01		0.01 1694636
CL4-IUPAC-52	mg/kg	-	-	-	0.05		0.08		0.43		0.07		0.01 1694636
CL4-IUPAC-49	mg/kg	-	-	-	0.04		0.06		0.33		0.05		0.01 1694636
CL4-IUPAC-44	mg/kg	-	-	-	0.04		0.02		0.05		0.02		0.01 1694636
CL4-IUPAC-74	mg/kg	-	-	-	<0.01		0.01		0.02		0.02		0.01 1694636
CL4-IUPAC-70	mg/kg	-	-	-	0.05		0.03		<0.01		0.04		0.01 1694636
CL5-IUPAC-95	mg/kg	-	-	-	0.03		0.05		0.14		0.06		0.01 1694636
CL5-IUPAC-101	mg/kg	-	-	-	0.05		0.07		0.13		0.08		0.01 1694636
CL5-IUPAC-99	mg/kg	-	-	-	0.02		0.04		0.04		0.05		0.01 1694636
CL5-IUPAC-87	mg/kg	-	-	-	0.01		0.02		0.03		0.03		0.01 1694636
CL5-IUPAC-110	mg/kg	-	-	-	0.04		0.07		0.11		0.09		0.01 1694636
CL5-IUPAC-82	mg/kg	-	-	-	<0.01		0.01		0.01		0.01		0.01 1694636
CL6-IUPAC-151	mg/kg	-	-	-	<0.01		<0.01		0.03		<0.01		0.01 1694636
CL6-IUPAC-149	mg/kg	-	-	-	0.01		0.03		0.10		0.04		0.01 1694636
CL5-IUPAC-118	mg/kg	-	-	-	0.03		0.08		0.07		0.13		0.01 1694636
CL6-IUPAC-153	mg/kg	-	-	-	0.02		0.04		0.04		0.06		0.01 1694636
CL6-IUPAC-132	mg/kg	-	-	-	<0.01		0.02		0.03		0.02		0.01 1694636
CL5-IUPAC-105	mg/kg	-	-	-	<0.01		0.03		0.02		0.07		0.01 1694636
CL6-IUPAC-138+158	mg/kg	-	-	-	0.02		0.07		0.09		0.10		0.01 1694636
CL7-IUPAC-187	mg/kg	-	-	-	<0.01		<0.01		0.02		<0.01		0.01 1694636
CL7-IUPAC-183	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01 1694636
CL6-IUPAC-128	mg/kg	-	-	-	<0.01		0.02		0.02		0.03		0.01 1694636
CL7-IUPAC-177	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01 1694636
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01 1694636
CL6-IUPAC-156	mg/kg	-	-	-	<0.01		0.01		<0.01		0.02		0.01 1694636
CL7-IUPAC-180	mg/kg	-	-	-	<0.01		0.01		0.02		0.01		0.01 1694636
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01 1694636
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01 1694636
CL7-IUPAC-170	mg/kg	-	-	-	<0.01		0.01		0.01		0.02		0.01 1694636
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01 1694636
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01 1694636
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PCB CONGENERS (SEDIMENT)

Maxxam Job					DI0430		DI0431		DI0432		DI0433			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>CAR-8-2</b>	<b>CR</b>	<b>CAR-9-1</b>	<b>CR</b>	<b>CAR-9-2</b>	<b>CR</b>	<b>CAR-10-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
Total trichlorobiphenyls	mg/kg	-	-	-	0.10		0.13		2.3		0.50		0.01	1694636
Total tetrachlorobiphenyls	mg/kg	-	-	-	0.29		0.28		1.6		0.23		0.01	1694636
Total pentachlorobiphenyls	mg/kg	-	-	-	0.19		0.38		0.61		0.52		0.01	1694636
Total hexachlorobiphenyls	mg/kg	-	-	-	0.05		0.19		0.31		0.27		0.01	1694636
Total heptachlorobiphenyls	mg/kg	-	-	-	<0.01		0.03		0.05		0.03		0.01	1694636
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694636
Total PCBs	mg/kg	0.2	1	10	0.63	A-B	1.0	B	4.9	B-C	1.5	B-C	0.01	1694636
<b>Surrogate Recovery (%)</b>														
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	87		97		87		93			1694636
2',3,5-Trichlorobiphenyl	%	-	-	-	90		93		102		91			1694636
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	82		91		83		84			1694636
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### PCB CONGENERS (SEDIMENT)

Maxxam Job					DI0434			DI0435			
Sampling date					2016/11/17			2016/11/17			
Waybill #					N/A			N/A			
	Units	A	B	C	CAR-10-2	CR	RDL	CAR-10-3	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	66			53			
PCBs											
CL3-IUPAC-17+18	mg/kg	-	-	-	0.40		0.01	0.5		0.1	1694636
CL3-IUPAC-28+31	mg/kg	-	-	-	0.09		0.01	<0.1		0.1	1694636
CL3-IUPAC-33	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
CL4-IUPAC-52	mg/kg	-	-	-	0.25		0.01	0.3		0.1	1694636
CL4-IUPAC-49	mg/kg	-	-	-	0.18		0.01	0.1		0.1	1694636
CL4-IUPAC-44	mg/kg	-	-	-	0.03		0.01	<0.1		0.1	1694636
CL4-IUPAC-74	mg/kg	-	-	-	0.02		0.01	<0.1		0.1	1694636
CL4-IUPAC-70	mg/kg	-	-	-	0.03		0.01	<0.1		0.1	1694636
CL5-IUPAC-95	mg/kg	-	-	-	0.14		0.01	0.1		0.1	1694636
CL5-IUPAC-101	mg/kg	-	-	-	0.16		0.01	<0.1		0.1	1694636
CL5-IUPAC-99	mg/kg	-	-	-	0.10		0.01	<0.1		0.1	1694636
CL5-IUPAC-87	mg/kg	-	-	-	0.06		0.01	<0.1		0.1	1694636
CL5-IUPAC-110	mg/kg	-	-	-	0.15		0.01	<0.1		0.1	1694636
CL5-IUPAC-82	mg/kg	-	-	-	0.01		0.01	<0.1		0.1	1694636
CL6-IUPAC-151	mg/kg	-	-	-	0.03		0.01	<0.1		0.1	1694636
CL6-IUPAC-149	mg/kg	-	-	-	0.12		0.01	<0.1		0.1	1694636
CL5-IUPAC-118	mg/kg	-	-	-	0.21		0.01	<0.1		0.1	1694636
CL6-IUPAC-153	mg/kg	-	-	-	0.15		0.01	<0.1		0.1	1694636
CL6-IUPAC-132	mg/kg	-	-	-	0.06		0.01	<0.1		0.1	1694636
CL5-IUPAC-105	mg/kg	-	-	-	0.07		0.01	<0.1		0.1	1694636
CL6-IUPAC-138+158	mg/kg	-	-	-	0.27		0.01	0.1		0.1	1694636
CL7-IUPAC-187	mg/kg	-	-	-	0.03		0.01	<0.1		0.1	1694636
CL7-IUPAC-183	mg/kg	-	-	-	0.01		0.01	<0.1		0.1	1694636
CL6-IUPAC-128	mg/kg	-	-	-	0.07		0.01	<0.1		0.1	1694636
CL7-IUPAC-177	mg/kg	-	-	-	0.01		0.01	<0.1		0.1	1694636
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
CL6-IUPAC-156	mg/kg	-	-	-	0.04		0.01	<0.1		0.1	1694636
CL7-IUPAC-180	mg/kg	-	-	-	0.04		0.01	<0.1		0.1	1694636
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
CL7-IUPAC-170	mg/kg	-	-	-	0.04		0.01	<0.1		0.1	1694636
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job #: B681373  
 Report Date: 2016/11/29

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23514  
 Sampler's initials: PV

### PCB CONGENERS (SEDIMENT)

Maxxam Job					DI0434			DI0435			
Sampling date					2016/11/17			2016/11/17			
Waybill #					N/A			N/A			
	Units	A	B	C	CAR-10-2	CR	RDL	CAR-10-3	CR	RDL	QC batch
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
Total trichlorobiphenyls	mg/kg	-	-	-	2.2		0.01	3.2		0.1	1694636
Total tetrachlorobiphenyls	mg/kg	-	-	-	1.1		0.01	0.9		0.1	1694636
Total pentachlorobiphenyls	mg/kg	-	-	-	1.1		0.01	0.1		0.1	1694636
Total hexachlorobiphenyls	mg/kg	-	-	-	0.94		0.01	0.1		0.1	1694636
Total heptachlorobiphenyls	mg/kg	-	-	-	0.13		0.01	<0.1		0.1	1694636
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		0.01	<0.1		0.1	1694636
Total PCBs	mg/kg	0.2	1	10	5.5	B-C	0.01	4.3	B-C	0.1	1694636
<b>Surrogate Recovery (%)</b>											
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	91			100			1694636
2',3,5-Trichlorobiphenyl	%	-	-	-	122			125			1694636
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	83			96			1694636
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0406						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-7-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	68						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	4.3		0.17	1.0	4.3		1695457
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	6.4		0.58	0.50	3.2		1695457
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	3.4		0.60	0.10	0.34		1695457
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	27		0.57	0.10	2.7		1695457
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	12		0.46	0.10	1.2		1695457
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	410		4.2	0.010	4.1		1695457
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	3300		7.3	0.0010	3.3	1	1695457
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	36		0.17			13	1695457
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	71		0.58			12	1695457
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	260		0.54			8	1695457
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	810		4.2			2	1695457
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	4500		N/A			36	1695457
2,3,7,8-Tetra CDF **	pg/g	-	-	-	150		0.26	0.10	15		1695457
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	150		0.37	0.050	7.5		1695457
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	71		0.36	0.50	36		1695457
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	300		0.41	0.10	30		1695457
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	75		0.37	0.10	7.5		1695457
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	14		0.46	0.10	1.4		1695457
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	7.8		0.48	0.10	0.78		1695457
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	190		1.7	0.010	1.9		1695457
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	110		2.1	0.010	1.1		1695457
Octachlorodibenzofuran	pg/g	-	-	-	420		1.3	0.0010	0.42	1	1695457
Total tetrachlorodibenzofurans	pg/g	-	-	-	650		0.26			18	1695457
Total pentachlorodibenzofurans	pg/g	-	-	-	650		0.36			13	1695457
Total hexachlorodibenzofurans	pg/g	-	-	-	710		0.43			10	1695457

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
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Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0406						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-7-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	610		1.9			4	1695457
Total chlorodibenzofurans	pg/g	-	-	-	3000		N/A			46	1695457
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					120		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	118						1695457
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	121						1695457
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	100						1695457
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	110						1695457
C13-1,2,3,7,8-P5CDD *	%	-	-	-	104						1695457
C13-1,2,3,7,8-PCDF **	%	-	-	-	115						1695457
C13-2,3,7,8-TCDD *	%	-	-	-	82						1695457
C13-2,3,7,8-TCDF **	%	-	-	-	97						1695457
C13-OCTA-CDD *	%	-	-	-	116						1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											



Englobe Corp.  
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Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0427						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-7-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	63						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	7.8		0.56	1.0	7.8		1695457
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	14		1.9	0.50	7.0		1695457
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	5.9		0.96	0.10	0.59		1695457
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	52		0.90	0.10	5.2		1695457
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	23		0.73	0.10	2.3		1695457
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	710		8.4	0.010	7.1		1695457
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	8700		19	0.0010	8.7	1	1695457
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	73		0.56			16	1695457
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	130		1.9			10	1695457
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	470		0.85			7	1695457
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	1300		8.4			2	1695457
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	11000		N/A			36	1695457
2,3,7,8-Tetra CDF **	pg/g	-	-	-	180		0.49	0.10	18		1695457
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	210		0.84	0.050	11		1695457
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	100		0.82	0.50	50		1695457
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	450		1.6	0.10	45		1695457
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	110		1.5	0.10	11		1695457
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	20		1.9	0.10	2.0		1695457
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	10		1.9	0.10	1.0		1695457
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	280		2.0	0.010	2.8		1695457
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	130		2.6	0.010	1.3		1695457
Octachlorodibenzofuran	pg/g	-	-	-	690		1.9	0.0010	0.69	1	1695457
Total tetrachlorodibenzofurans	pg/g	-	-	-	860		0.49			16	1695457
Total pentachlorodibenzofurans	pg/g	-	-	-	920		0.83			13	1695457
Total hexachlorodibenzofurans	pg/g	-	-	-	1000		1.7			10	1695457

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0427						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-7-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	800		2.3			4	1695457
Total chlorodibenzofurans	pg/g	-	-	-	4300		N/A			44	1695457
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					180		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	114						1695457
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	131 (1)						1695457
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	100						1695457
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	114						1695457
C13-1,2,3,7,8-P5CDD *	%	-	-	-	104						1695457
C13-1,2,3,7,8-PCDF **	%	-	-	-	115						1695457
C13-2,3,7,8-TCDD *	%	-	-	-	84						1695457
C13-2,3,7,8-TCDF **	%	-	-	-	101						1695457
C13-OCTA-CDD *	%	-	-	-	107						1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers. (1) Recovery or relative variation (RPD) for this composite is beyond control limits, but the overall quality control meets the criteria of acceptability for this analysis											

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
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Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0429						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-8-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	67						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	4.8		0.31	1.0	4.8		1695678
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	7.1		0.81	0.50	3.6		1695678
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	3.8		1.1	0.10	0.38		1695678
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	32		0.97	0.10	3.2		1695678
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	17		0.92	0.10	1.7		1695678
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	380		7.7	0.010	3.8		1695678
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	3300		27	0.0010	3.3	1	1695678
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	34		0.31			12	1695678
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	77		0.81			10	1695678
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	320		0.98			6	1695678
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	740		7.7			2	1695678
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	4500		N/A			31	1695678
2,3,7,8-Tetra CDF **	pg/g	-	-	-	150		0.42	0.10	15		1695678
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	160		1.8	0.050	8.0		1695678
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	74		1.9	0.50	37		1695678
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	380		1.5	0.10	38		1695678
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	98		1.4	0.10	9.8		1695678
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	19		1.7	0.10	1.9		1695678
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	9.9		1.9	0.10	0.99		1695678
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	220		3.3	0.010	2.2		1695678
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	170		4.4	0.010	1.7		1695678
Octachlorodibenzofuran	pg/g	-	-	-	550		6.2	0.0010	0.55	1	1695678
Total tetrachlorodibenzofurans	pg/g	-	-	-	720		0.42			16	1695678
Total pentachlorodibenzofurans	pg/g	-	-	-	700		1.9			12	1695678
Total hexachlorodibenzofurans	pg/g	-	-	-	840		1.6			9	1695678
EDL = Estimated Detection Limit											
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency											
The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.											
NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic											
Equivalency Factors (I-TEF)											
QC Batch = Quality Control Batch											
* CDD = Chloro Dibenzo-p-Dioxin											
N/A = Not Applicable											
** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
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Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0429						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-8-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	710		3.8			4	1695678
Total chlorodibenzofurans	pg/g	-	-	-	3500		N/A			42	1695678
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					140		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	92						1695678
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	74						1695678
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	72						1695678
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	70						1695678
C13-1,2,3,7,8-P5CDD *	%	-	-	-	78						1695678
C13-1,2,3,7,8-PCDF **	%	-	-	-	75						1695678
C13-2,3,7,8-TCDD *	%	-	-	-	82						1695678
C13-2,3,7,8-TCDF **	%	-	-	-	70						1695678
C13-OCTA-CDD *	%	-	-	-	92						1695678
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
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Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0430						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-8-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	56						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	7.9		0.36	1.0	7.9		1695678
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	16		1.1	0.50	8.0		1695678
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	4.9		2.1	0.10	0.49		1695678
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	57		1.9	0.10	5.7		1695678
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	30		1.8	0.10	3.0		1695678
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	580		10	0.010	5.8		1695678
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	5500		31	0.0010	5.5	1	1695678
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	69		0.36			15	1695678
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	150		1.1			10	1695678
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	600		1.9			6	1695678
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	1200		10			2	1695678
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	7500		N/A			34	1695678
2,3,7,8-Tetra CDF **	pg/g	-	-	-	210		1.6	0.10	21		1695678
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	280		1.7	0.050	14		1695678
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	130		1.7	0.50	65		1695678
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	510		2.4	0.10	51		1695678
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	140		2.1	0.10	14		1695678
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	25		2.6	0.10	2.5		1695678
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	16		2.9	0.10	1.6		1695678
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	260		8.3	0.010	2.6		1695678
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	200		11	0.010	2.0		1695678
Octachlorodibenzofuran	pg/g	-	-	-	680		14	0.0010	0.68	1	1695678
Total tetrachlorodibenzofurans	pg/g	-	-	-	830		1.6			15	1695678
Total pentachlorodibenzofurans	pg/g	-	-	-	1100		1.7			11	1695678
Total hexachlorodibenzofurans	pg/g	-	-	-	1200		2.5			9	1695678

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
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Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0430						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-8-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	920		9.5			3	1695678
Total chlorodibenzofurans	pg/g	-	-	-	4700		N/A			39	1695678
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					210		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	91						1695678
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	80						1695678
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	76						1695678
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	71						1695678
C13-1,2,3,7,8-P5CDD *	%	-	-	-	73						1695678
C13-1,2,3,7,8-PCDF **	%	-	-	-	69						1695678
C13-2,3,7,8-TCDD *	%	-	-	-	81						1695678
C13-2,3,7,8-TCDF **	%	-	-	-	68						1695678
C13-OCTA-CDD *	%	-	-	-	94						1695678
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

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### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0431						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-9-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	70						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	2.1		0.22	1.0	2.1		1695678
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	2.7		0.28	0.50	1.4		1695678
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	2.4		0.76	0.10	0.24		1695678
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	10		0.69	0.10	1.0		1695678
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	6.5		0.66	0.10	0.65		1695678
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	140		2.9	0.010	1.4		1695678
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	1100		16	0.0010	1.1	1	1695678
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	19		0.22			11	1695678
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	33		0.28			11	1695678
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	100		0.70			6	1695678
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	290		2.9			2	1695678
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	1500		N/A			31	1695678
2,3,7,8-Tetra CDF **	pg/g	-	-	-	60		0.28	0.10	6.0		1695678
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	45		0.58	0.050	2.3		1695678
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	28		0.60	0.50	14		1695678
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	89		0.55	0.10	8.9		1695678
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	26		0.49	0.10	2.6		1695678
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	9.4		0.61	0.10	0.94		1695678
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	3.0		0.66	0.10	0.30		1695678
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	81		2.2	0.010	0.81		1695678
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	31		2.9	0.010	0.31		1695678
Octachlorodibenzofuran	pg/g	-	-	-	160		2.1	0.0010	0.16	1	1695678
Total tetrachlorodibenzofurans	pg/g	-	-	-	310		0.28			18	1695678
Total pentachlorodibenzofurans	pg/g	-	-	-	270		0.59			13	1695678
Total hexachlorodibenzofurans	pg/g	-	-	-	250		0.57			12	1695678

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

Maxxam Job #: B681373  
Report Date: 2016/11/29

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Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0431						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-9-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	200		2.5			4	1695678
Total chlorodibenzofurans	pg/g	-	-	-	1200		N/A			48	1695678
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					44		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	73						1695678
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	64						1695678
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	62						1695678
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	59						1695678
C13-1,2,3,7,8-P5CDD *	%	-	-	-	58						1695678
C13-1,2,3,7,8-PCDF **	%	-	-	-	54						1695678
C13-2,3,7,8-TCDD *	%	-	-	-	66						1695678
C13-2,3,7,8-TCDF **	%	-	-	-	55						1695678
C13-OCTA-CDD *	%	-	-	-	70						1695678
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											



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Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0432						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-9-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	60						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	5.6		0.26	1.0	5.6		1695678
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	9.6		0.69	0.50	4.8		1695678
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	4.6		1.0	0.10	0.46		1695678
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	36		0.95	0.10	3.6		1695678
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	20		0.90	0.10	2.0		1695678
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	430		7.0	0.010	4.3		1695678
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	4300		29	0.0010	4.3	1	1695678
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	46		0.26			12	1695678
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	110		0.69			10	1695678
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	430		0.96			7	1695678
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	900		7.0			2	1695678
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	5800		N/A			32	1695678
2,3,7,8-Tetra CDF **	pg/g	-	-	-	190		0.63	0.10	19		1695678
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	240		1.4	0.050	12		1695678
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	110		1.4	0.50	55		1695678
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	480		2.3	0.10	48		1695678
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	120		2.1	0.10	12		1695678
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	24		2.6	0.10	2.4		1695678
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	14		2.8	0.10	1.4		1695678
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	240		1.8	0.010	2.4		1695678
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	200		2.4	0.010	2.0		1695678
Octachlorodibenzofuran	pg/g	-	-	-	590		5.9	0.0010	0.59	1	1695678
Total tetrachlorodibenzofurans	pg/g	-	-	-	820		0.63			16	1695678
Total pentachlorodibenzofurans	pg/g	-	-	-	970		1.4			13	1695678
Total hexachlorodibenzofurans	pg/g	-	-	-	1100		2.4			10	1695678

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0432						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-9-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	800		2.1			4	1695678
Total chlorodibenzofurans	pg/g	-	-	-	4300		N/A			44	1695678
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					180		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	79						1695678
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	66						1695678
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	63						1695678
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	60						1695678
C13-1,2,3,7,8-P5CDD *	%	-	-	-	71						1695678
C13-1,2,3,7,8-PCDF **	%	-	-	-	67						1695678
C13-2,3,7,8-TCDD *	%	-	-	-	77						1695678
C13-2,3,7,8-TCDF **	%	-	-	-	66						1695678
C13-OCTA-CDD *	%	-	-	-	82						1695678
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0433						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-10-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	71						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	1.0		0.15	1.0	1.0		1695678
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	2.4		0.29	0.50	1.2		1695678
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	3.6		0.78	0.10	0.36		1695678
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	13		0.71	0.10	1.3		1695678
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	8.8		0.67	0.10	0.88		1695678
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	260		4.1	0.010	2.6		1695678
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	2200		12	0.0010	2.2	1	1695678
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	11		0.15			6	1695678
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	23		0.29			9	1695678
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	120		0.72			7	1695678
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	530		4.1			2	1695678
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	2900		N/A			25	1695678
2,3,7,8-Tetra CDF **	pg/g	-	-	-	42		0.24	0.10	4.2		1695678
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	46		0.78	0.050	2.3		1695678
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	26		0.81	0.50	13		1695678
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	160		0.91	0.10	16		1695678
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	49		0.81	0.10	4.9		1695678
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	9.5		1.0	0.10	0.95		1695678
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	4.1		1.1	0.10	0.41		1695678
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	160		5.3	0.010	1.6		1695678
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	86		7.1	0.010	0.86		1695678
Octachlorodibenzofuran	pg/g	-	-	-	320		4.7	0.0010	0.32	1	1695678
Total tetrachlorodibenzofurans	pg/g	-	-	-	210		0.24			17	1695678
Total pentachlorodibenzofurans	pg/g	-	-	-	250		0.79			14	1695678
Total hexachlorodibenzofurans	pg/g	-	-	-	400		0.94			10	1695678

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0433						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-10-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	460		6.0			3	1695678
Total chlorodibenzofurans	pg/g	-	-	-	1600		N/A			45	1695678
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					54		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	73						1695678
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	55						1695678
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	59						1695678
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	54						1695678
C13-1,2,3,7,8-P5CDD *	%	-	-	-	61						1695678
C13-1,2,3,7,8-PCDF **	%	-	-	-	57						1695678
C13-2,3,7,8-TCDD *	%	-	-	-	72						1695678
C13-2,3,7,8-TCDF **	%	-	-	-	60						1695678
C13-OCTA-CDD *	%	-	-	-	71						1695678
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0434						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-10-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	66						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	1.9		0.20	1.0	1.9		1695678
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	3.0		0.23	0.50	1.5		1695678
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	3.3		0.60	0.10	0.33		1695678
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	12		0.55	0.10	1.2		1695678
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	8.8		0.52	0.10	0.88		1695678
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	210		3.0	0.010	2.1		1695678
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	1800		11	0.0010	1.8	1	1695678
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	20		0.20			12	1695678
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	40		0.23			11	1695678
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	120		0.55			7	1695678
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	410		3.0			2	1695678
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	2400		N/A			33	1695678
2,3,7,8-Tetra CDF **	pg/g	-	-	-	87		0.33	0.10	8.7		1695678
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	77		0.69	0.050	3.9		1695678
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	55		0.72	0.50	28		1695678
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	260		1.2	0.10	26		1695678
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	67		1.1	0.10	6.7		1695678
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	26		1.3	0.10	2.6		1695678
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	9.8		1.5	0.10	0.98		1695678
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	140		3.3	0.010	1.4		1695678
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	94		4.5	0.010	0.94		1695678
Octachlorodibenzofuran	pg/g	-	-	-	280		3.3	0.0010	0.28	1	1695678
Total tetrachlorodibenzofurans	pg/g	-	-	-	440		0.33			19	1695678
Total pentachlorodibenzofurans	pg/g	-	-	-	540		0.70			14	1695678
Total hexachlorodibenzofurans	pg/g	-	-	-	700		1.2			12	1695678

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)

Maxxam Job					DI0434						
Sampling date					2016/11/17						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	CAR-10-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	420		3.8			4	1695678
Total chlorodibenzofurans	pg/g	-	-	-	2400		N/A			50	1695678
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					89		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	68						1695678
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	54						1695678
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	59						1695678
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	52						1695678
C13-1,2,3,7,8-P5CDD *	%	-	-	-	55						1695678
C13-1,2,3,7,8-PCDF **	%	-	-	-	51						1695678
C13-2,3,7,8-TCDD *	%	-	-	-	69						1695678
C13-2,3,7,8-TCDF **	%	-	-	-	54						1695678
C13-OCTA-CDD *	%	-	-	-	62						1695678
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

## GENERAL COMMENTS

All results are calculated using a dry base, except when not applicable.

Condition of samples upon arrival: GOOD

A,B,C,CR: Soil criteria taken from Appendix 2 of the "Intervention Guide-Soil Protection and Rehabilitation of Contaminated Sites. MDDELCC, 2016." entitled "Generic Soil Evaluation Criteria". For analyses of metals (and metalloids) in the soil, Criteria A designated the "Substantive Content - St. Lawrence Lowlands".

Criteria A and B for groundwater are taken from Appendix 7, "Groundwater Quality Evaluation Criteria" of the aforementioned Intervention Guide.  
A=Drinking water; B=Seepage into surface water

These references are reported for information purposes only and must not be interpreted in any other context.

- = This compound is not part of the Regulations.

### PAH BY GCMS (SEDIMENT)

Please note that the results have not been corrected for quality control sample recovery (spiked blank and method blank) or for surrogates.

The indicated detection limits are multiplied by the dilution factors used for sample analysis.

### PHENOLS BY GCMS (SEDIMENT)

Please note that the results have not been corrected for quality control sample recovery (spiked blank and method blank) or for surrogates.

### CHLOROBENZENES (SEDIMENT)

Please note that the results have not been corrected for quality control sample recovery (spiked blank ) or for the blank. The sample results have been corrected for surrogate recovery percentage.

### HYDROCARBONS BY GCFID (SEDIMENT)

Please note that the results have not been corrected for quality control sample recovery (spiked blank and surrogates). Please note that the results have not been corrected for method blank.

### COV BY GC/MS (SEDIMENT)

Please note that the results have not been corrected for quality control sample recovery (spiked blank and method blank) or for surrogates.

Please note that the samples are analyzed by Purge and Trap GC/MS.

Due to an elevated humidity rate, the detection limits for samples DI0406, DI0406 D1, DI0427, DI0428, DI0429, DI0430, DI0431, DI0432, DI0433, DI0434, DI0435 and DI0435 D1 have been adjusted.

### TOTAL EXTRACTABLE METALS (SEDIMENT)

Please note that the results have not been corrected for quality control sample recovery or for method blank values.

### CONVENTIONAL PARAMETERS (SEDIMENT)

Please note that the results have not been corrected for quality control sample recovery or for method blank values.

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

## **GENERAL COMMENTS**

### **PCB CONGENERS (SEDIMENT)**

Please note that the results have not been corrected for quality control sample recovery (spiked blank ) or for the blank. The sample results have been corrected for surrogate recovery percentage.

The raw, unrounded results are used to calculate total "PCBs". This total result is then rounded to two significant digits.

Please note that the results of samples that required dilution were not corrected for surrogate recovery percentage.

The indicated detection limits are multiplied by the dilution factors used for sample analysis.

### **DIOXINS AND FURANS BY HIGH RESOLUTION (SEDIMENT)**

Please note that the above results have not been corrected for quality control samples recovery (spiked blank) or for method blank values. Please note that the above results have been corrected for surrogate recovery percentage.

**The results refer only to the samples submitted for analysis.**



Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1694579	ST1	Spiked blank	4-Bromofluorobenzene	2016/11/17		97	%
			D10-Ethylbenzene	2016/11/17		112	%
			D4-1,2-Dichloroethane	2016/11/17		89	%
			D8-Toluene	2016/11/17		105	%
			Benzene	2016/11/17		97	%
			Chlorobenzene	2016/11/17		96	%
			Dichloro-1,2 benzene	2016/11/17		97	%
			Dichloro-1,3 benzene	2016/11/17		104	%
			Dichloro-1,4 benzene	2016/11/17		99	%
			Ethylbenzene	2016/11/17		102	%
			Styrene	2016/11/17		103	%
			Toluene	2016/11/17		90	%
			Xylenes (o,m,p)	2016/11/17		105	%
			Chloroform	2016/11/17		96	%
			Vinylchloride (Chloroethene)	2016/11/17		85	%
			1,1-Dichloroethane	2016/11/17		104	%
			1,2-Dichloroethane	2016/11/17		90	%
			1,1-Dichloroethene	2016/11/17		101	%
			1,2-Dichloroethene (cis)	2016/11/17		102	%
			1,2-Dichloroethene (trans)	2016/11/17		100	%
			1,2-Dichloroethene (cis and trans)	2016/11/17		101	%
			Dichloromethane	2016/11/17		104	%
			1,2-Dichloropropane	2016/11/17		93	%
			1,3-Dichloropropene (cis)	2016/11/17		100	%
			1,3-Dichloropropene (trans)	2016/11/17		97	%
			1,3-Dichloropropene (cis and trans)	2016/11/17		99	%
			1,1,2,2-Tetrachloroethane	2016/11/17		83	%
			Tetrachloroethene	2016/11/17		105	%
			Carbon tetrachloride	2016/11/17		100	%
			1,1,1-Trichloroethane	2016/11/17		100	%
			1,1,2-Trichloroethane	2016/11/17		82	%
			Trichloroethene	2016/11/17		91	%
1694579	ST1	Method blank	4-Bromofluorobenzene	2016/11/17		98	%
			D10-Ethylbenzene	2016/11/17		103	%
			D4-1,2-Dichloroethane	2016/11/17		99	%
			D8-Toluene	2016/11/17		102	%
			Benzene	2016/11/17	<0.1		mg/kg
			Chlorobenzene	2016/11/17	<0.2		mg/kg
			Dichloro-1,2 benzene	2016/11/17	<0.2		mg/kg
			Dichloro-1,3 benzene	2016/11/17	<0.2		mg/kg
			Dichloro-1,4 benzene	2016/11/17	<0.2		mg/kg
			Ethylbenzene	2016/11/17	<0.2		mg/kg
			Styrene	2016/11/17	<0.2		mg/kg
			Toluene	2016/11/17	<0.2		mg/kg
			Xylenes (o,m,p)	2016/11/17	<0.2		mg/kg
			Chloroform	2016/11/17	<0.2		mg/kg
			Vinylchloride (Chloroethene)	2016/11/17	<0.02		mg/kg
			1,1-Dichloroethane	2016/11/17	<0.2		mg/kg
			1,2-Dichloroethane	2016/11/17	<0.2		mg/kg
			1,1-Dichloroethene	2016/11/17	<0.2		mg/kg

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
			1,2-Dichloroethene (cis)	2016/11/17	<0.2	mg/kg	
			1,2-Dichloroethene (trans)	2016/11/17	<0.2	mg/kg	
			1,2-Dichloroethene (cis and trans)	2016/11/17	<0.2	mg/kg	
			Dichloromethane	2016/11/17	<0.2	mg/kg	
			1,2-Dichloropropane	2016/11/17	<0.2	mg/kg	
			1,3-Dichloropropene (cis)	2016/11/17	<0.2	mg/kg	
			1,3-Dichloropropene (trans)	2016/11/17	<0.2	mg/kg	
			1,3-Dichloropropene (cis and trans)	2016/11/17	<0.2	mg/kg	
			1,1,2,2-Tetrachloroethane	2016/11/17	<0.2	mg/kg	
			Tetrachloroethene	2016/11/17	<0.2	mg/kg	
			Carbon tetrachloride	2016/11/17	<0.1	mg/kg	
			1,1,1-Trichloroethane	2016/11/17	<0.2	mg/kg	
			1,1,2-Trichloroethane	2016/11/17	<0.2	mg/kg	
			Trichloroethene	2016/11/17	<0.2	mg/kg	
1694635	AS2	Spiked blank	1-Chlorooctadecane	2016/11/18		80	%
			Petroleum hydrocarbons (C10-C50)	2016/11/18		87	%
1694635	AS2	Method blank	1-Chlorooctadecane	2016/11/18		93	%
			Petroleum hydrocarbons (C10-C50)	2016/11/18	<100		mg/kg
1694636	CB5	Spiked blank	2,3,3',4,6-Pentachlorobiphenyl	2016/11/18		89	%
			2',3,5-Trichlorobiphenyl	2016/11/18		81	%
			22'33'44'566'-Nonachlorobiphenyl	2016/11/18		89	%
			CL3-IUPAC-17+18	2016/11/18		100	%
			CL3-IUPAC-28+31	2016/11/18		101	%
			CL3-IUPAC-33	2016/11/18		100	%
			CL4-IUPAC-52	2016/11/18		101	%
			CL4-IUPAC-49	2016/11/18		127	%
			CL4-IUPAC-44	2016/11/18		102	%
			CL4-IUPAC-74	2016/11/18		106	%
			CL4-IUPAC-70	2016/11/18		101	%
			CL5-IUPAC-95	2016/11/18		97	%
			CL5-IUPAC-101	2016/11/18		97	%
			CL5-IUPAC-99	2016/11/18		99	%
			CL5-IUPAC-87	2016/11/18		94	%
			CL5-IUPAC-110	2016/11/18		91	%
			CL5-IUPAC-82	2016/11/18		77	%
			CL6-IUPAC-151	2016/11/18		99	%
			CL6-IUPAC-149	2016/11/18		87	%
			CL5-IUPAC-118	2016/11/18		98	%
			CL6-IUPAC-153	2016/11/18		97	%
			CL6-IUPAC-132	2016/11/18		95	%
			CL5-IUPAC-105	2016/11/18		92	%
			CL6-IUPAC-138+158	2016/11/18		107	%
			CL7-IUPAC-187	2016/11/18		98	%
			CL7-IUPAC-183	2016/11/18		102	%
			CL6-IUPAC-128	2016/11/18		94	%
			CL7-IUPAC-177	2016/11/18		69	%
			CL7-IUPAC-171	2016/11/18		89	%
			CL6-IUPAC-156	2016/11/18		95	%
			CL7-IUPAC-180	2016/11/18		109	%
			CL7-IUPAC-191	2016/11/18		90	%

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1694636	CB5	Method blank	CL6-IUPAC-169	2016/11/18		105	%
			CL7-IUPAC-170	2016/11/18		95	%
			CL8-IUPAC-199	2016/11/18		92	%
			CL9-IUPAC-208	2016/11/18		98	%
			CL8-IUPAC-195	2016/11/18		94	%
			CL8-IUPAC-194	2016/11/18		103	%
			CL8-IUPAC-205	2016/11/18		97	%
			CL9-IUPAC-206	2016/11/18		95	%
			CL10-IUPAC-209	2016/11/18		89	%
			Total PCBs	2016/11/18		97	%
			2,3,3',4,6-Pentachlorobiphenyl	2016/11/18		87	%
			2',3,5-Trichlorobiphenyl	2016/11/18		85	%
			22'33'44'566'-Nonachlorobiphenyl	2016/11/18		88	%
			CL3-IUPAC-17+18	2016/11/18	<0.01		mg/kg
			CL3-IUPAC-28+31	2016/11/18	<0.01		mg/kg
			CL3-IUPAC-33	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-52	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-49	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-44	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-74	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-70	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-95	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-101	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-99	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-87	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-110	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-82	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-151	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-149	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-118	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-153	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-132	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-105	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-138+158	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-187	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-183	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-128	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-177	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-171	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-156	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-180	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-191	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-169	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-170	2016/11/18	<0.01		mg/kg
			CL8-IUPAC-199	2016/11/18	<0.01		mg/kg
			CL9-IUPAC-208	2016/11/18	<0.01		mg/kg
			CL8-IUPAC-195	2016/11/18	<0.01		mg/kg
			CL8-IUPAC-194	2016/11/18	<0.01		mg/kg
			CL8-IUPAC-205	2016/11/18	<0.01		mg/kg
			CL9-IUPAC-206	2016/11/18	<0.01		mg/kg

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1694664	AH3	Spiked blank	CL10-IUPAC-209	2016/11/18	<0.01		mg/kg
			Total trichlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total tetrachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total pentachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total hexachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total heptachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total octachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total nonachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total decachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total PCBs	2016/11/18	<0.01		mg/kg
			2-Chloronaphthalene	2016/11/18		82	%
			D10-Anthracene	2016/11/18		81	%
			D12-Benzo(a)pyrene	2016/11/18		91	%
			D14-Terphenyl	2016/11/18		91	%
			D8-Acenaphthylene	2016/11/18		78	%
			D8-Naphtalene	2016/11/18		79	%
			Naphthalene	2016/11/18		82	%
			Acenaphthylene	2016/11/18		81	%
			Acenaphthene	2016/11/18		81	%
			Fluorene	2016/11/18		80	%
			Phenanthrene	2016/11/18		82	%
			Anthracene	2016/11/18		80	%
			Fluoranthene	2016/11/18		84	%
			Pyrene	2016/11/18		87	%
			Benzo(a)anthracene	2016/11/18		98	%
			Chrysene	2016/11/18		103	%
			Benzo(b+j+k)fluoranthene	2016/11/18		100	%
			Benzo(e)pyrene	2016/11/18		99	%
			Benzo(a)pyrene	2016/11/18		92	%
			Ideno(1,2,3-cd)pyrene	2016/11/18		100	%
			Dibenzo(a,h)anthracene	2016/11/18		98	%
			Benzo(ghi)perylene	2016/11/18		99	%
			2-Methylnaphtalene	2016/11/18		86	%
			1-Methylnaphtalene	2016/11/18		74	%
			Benzo(c)phenanthrene	2016/11/18		97	%
			3-Methylcholanthrene	2016/11/18		93	%
			7,12-Dimethylbenzantracene	2016/11/18		94	%
			Dibenzo(a,i)pyrene	2016/11/18		90	%
			Dibenzo(a,l)pyrene	2016/11/18		96	%
			Dibenzo(a,h)pyrene	2016/11/18		88	%
			1,3-Dimethylnaphthalene	2016/11/18		82	%
			2,3,5-Trimethylnaphthalene	2016/11/18		81	%
1694664	AH3	Method blank	2-Chloronaphthalene	2016/11/18	<0.1		mg/kg
			D10-Anthracene	2016/11/18		79	%
			D12-Benzo(a)pyrene	2016/11/18		85	%
			D14-Terphenyl	2016/11/18		86	%
			D8-Acenaphthylene	2016/11/18		76	%
			D8-Naphtalene	2016/11/18		78	%
			Naphthalene	2016/11/18	<0.01		mg/kg
			Acenaphthylene	2016/11/18	<0.003		mg/kg

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
			Acenaphthene	2016/11/18	<0.003		mg/kg
			Fluorene	2016/11/18	<0.01		mg/kg
			Phenanthrene	2016/11/18	<0.01		mg/kg
			Anthracene	2016/11/18	<0.01		mg/kg
			Fluoranthene	2016/11/18	<0.01		mg/kg
			Pyrene	2016/11/18	<0.01		mg/kg
			Benzo(a)anthracene	2016/11/18	<0.01		mg/kg
			Chrysene	2016/11/18	<0.01		mg/kg
			Benzo(b+j+k)fluoranthene	2016/11/18	<0.01		mg/kg
			Benzo(e)pyrene	2016/11/18	<0.01		mg/kg
			Benzo(a)pyrene	2016/11/18	<0.01		mg/kg
			Ideno(1,2,3-cd)pyrene	2016/11/18	<0.01		mg/kg
			Dibenzo(a,h)anthracene	2016/11/18	<0.003		mg/kg
			Benzo(ghi)perylene	2016/11/18	<0.01		mg/kg
			2-Methylnaphthalene	2016/11/18	<0.01		mg/kg
			1-Methylnaphthalene	2016/11/18	<0.01		mg/kg
			Benzo(c)phenanthrene	2016/11/18	<0.01		mg/kg
			3-Methylcholanthrene	2016/11/18	<0.01		mg/kg
			7,12-Dimethylbenzanthracene	2016/11/18	<0.01		mg/kg
			Dibenzo(a,i)pyrene	2016/11/18	<0.01		mg/kg
			Dibenzo(a,l)pyrene	2016/11/18	<0.01		mg/kg
			Dibenzo(a,h)pyrene	2016/11/18	<0.01		mg/kg
			1,3-Dimethylnaphthalene	2016/11/18	<0.01		mg/kg
			2,3,5-Trimethylnaphthalene	2016/11/18	<0.01		mg/kg
1694835	MA1	Spiked blank	D6-Phenol	2016/11/18		102	%
			Tribromophenol-2,4,6	2016/11/18		107	%
			Trifluoro-m-cresol	2016/11/18		105	%
			o-Cresol	2016/11/18		79	%
			m-Cresol	2016/11/18		91	%
			p-Cresol	2016/11/18		95	%
			2,4-Dimethylphenol	2016/11/18		77	%
			2-Nitrophenol	2016/11/18		83	%
			4-Nitrophenol	2016/11/18		94	%
			Phenol	2016/11/18		90	%
			2-Chlorophenol	2016/11/18		93	%
			3-Chlorophenol	2016/11/18		93	%
			4-Chlorophenol	2016/11/18		95	%
			2,3-Dichlorophenol	2016/11/18		98	%
			2,4 + 2,5-Dichlorophenol	2016/11/18		95	%
			2,6-Dichlorophenol	2016/11/18		88	%
			3,4-Dichlorophenol	2016/11/18		94	%
			3,5-Dichlorophenol	2016/11/18		97	%
			Pentachlorophenol	2016/11/18		91	%
			2,3,4,5-Tetrachlorophenol	2016/11/18		92	%
			2,3,4,6-Tetrachlorophenol	2016/11/18		99	%
			2,3,5,6-Tetrachlorophenol	2016/11/18		98	%
			2,3,4-Trichlorophenol	2016/11/18		95	%
			2,3,5-Trichlorophenol	2016/11/18		93	%
			2,3,6-Trichlorophenol	2016/11/18		98	%
			2,4,5-Trichlorophenol	2016/11/18		104	%

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1694835	MA1	Method blank	2,4,6-Trichlorophenol	2016/11/18		91	%
			3,4,5-Trichlorophenol	2016/11/18		102	%
			D6-Phenol	2016/11/18		95	%
			Tribromophenol-2,4,6	2016/11/18		95	%
			Trifluoro-m-cresol	2016/11/18		97	%
			o-Cresol	2016/11/18	<0.1		mg/kg
			m-Cresol	2016/11/18	<0.1		mg/kg
			p-Cresol	2016/11/18	<0.1		mg/kg
			2,4-Dimethylphenol	2016/11/18	<0.1		mg/kg
			2-Nitrophenol	2016/11/18	<0.1		mg/kg
			4-Nitrophenol	2016/11/18	<0.1		mg/kg
			Phenol	2016/11/18	<0.1		mg/kg
			2-Chlorophenol	2016/11/18	<0.1		mg/kg
			3-Chlorophenol	2016/11/18	<0.1		mg/kg
			4-Chlorophenol	2016/11/18	<0.1		mg/kg
			2,3-Dichlorophenol	2016/11/18	<0.1		mg/kg
			2,4 + 2,5-Dichlorophenol	2016/11/18	<0.1		mg/kg
			2,6-Dichlorophenol	2016/11/18	<0.1		mg/kg
			3,4-Dichlorophenol	2016/11/18	<0.1		mg/kg
			3,5-Dichlorophenol	2016/11/18	<0.1		mg/kg
			Pentachlorophenol	2016/11/18	<0.1		mg/kg
			2,3,4,5-Tetrachlorophenol	2016/11/18	<0.1		mg/kg
			2,3,4,6-Tetrachlorophenol	2016/11/18	<0.1		mg/kg
			2,3,5,6-Tetrachlorophenol	2016/11/18	<0.1		mg/kg
			2,3,4-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,3,5-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,3,6-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,4,5-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,4,6-Trichlorophenol	2016/11/18	<0.1		mg/kg
			3,4,5-Trichlorophenol	2016/11/18	<0.1		mg/kg
1694947	KV1	Spiked blank	Silver (Ag)	2016/11/18		98	%
			Arsenic (As)	2016/11/18		97	%
			Barium (Ba)	2016/11/18		99	%
			Cadmium (Cd)	2016/11/18		97	%
			Chromium (Cr)	2016/11/18		98	%
			Copper (Cu)	2016/11/18		97	%
			Cobalt (Co)	2016/11/18		104	%
			Tin (Sn)	2016/11/18		108	%
			Manganese (Mn)	2016/11/18		101	%
			Molybdenum (Mo)	2016/11/18		102	%
			Nickel (Ni)	2016/11/18		100	%
			Mercury (Hg)	2016/11/18		102	%
			Lead (Pb)	2016/11/18		106	%
			Selenium (Se)	2016/11/18		93	%
			Zinc (Zn)	2016/11/18		97	%
1694947	KV1	Method blank	Silver (Ag)	2016/11/18	<2		mg/kg
			Arsenic (As)	2016/11/18	<2		mg/kg
			Barium (Ba)	2016/11/18	<5		mg/kg
			Cadmium (Cd)	2016/11/18	<0.1		mg/kg
			Chromium (Cr)	2016/11/18	<2		mg/kg

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			Copper (Cu)	2016/11/18	<1		mg/kg
			Cobalt (Co)	2016/11/18	<2		mg/kg
			Tin (Sn)	2016/11/18	<5		mg/kg
			Manganese (Mn)	2016/11/18	<2		mg/kg
			Molybdenum (Mo)	2016/11/18	<2		mg/kg
			Nickel (Ni)	2016/11/18	<1		mg/kg
			Mercury (Hg)	2016/11/18	<0.05		mg/kg
			Lead (Pb)	2016/11/18	<5		mg/kg
			Selenium (Se)	2016/11/18	<1		mg/kg
			Zinc (Zn)	2016/11/18	<5		mg/kg
1695023	BSM	Spiked blank	1-Chlorooctadecane	2016/11/18		95	%
			Petroleum hydrocarbons (C10-C50)	2016/11/18		93	%
1695023	BSM	Method blank	1-Chlorooctadecane	2016/11/18		94	%
			Petroleum hydrocarbons (C10-C50)	2016/11/18	<100		mg/kg
1695427	CPM	RCN	Total organic carbon (titration)	2016/11/21		113	%
1695457	AS2	Spiked blank	C13-1,2,3,4,6,7,8-H7CDD	2016/11/23		114	%
			C13-1,2,3,4,6,7,8-H7CDF	2016/11/23		126	%
			C13-1,2,3,6,7,8-H6CDD	2016/11/23		87	%
			C13-1,2,3,6,7,8-H6CDF	2016/11/23		101	%
			C13-1,2,3,7,8-P5CDD	2016/11/23		96	%
			C13-1,2,3,7,8-PCDF	2016/11/23		114	%
			C13-2,3,7,8-TCDD	2016/11/23		72	%
			C13-2,3,7,8-TCDF	2016/11/23		91	%
			C13-OCTA-CDD	2016/11/23		95	%
			2,3,7,8-Tetra CDD	2016/11/23		109	%
			1,2,3,7,8-Penta CDD	2016/11/23		109	%
			1,2,3,4,7,8-Hexa CDD	2016/11/23		123	%
			1,2,3,6,7,8-Hexa CDD	2016/11/23		126	%
			1,2,3,7,8,9-Hexa CDD	2016/11/23		103	%
			1,2,3,4,6,7,8-Hepta CDD	2016/11/23		105	%
			Octachlorodibenzo-p-dioxin	2016/11/23		119	%
			2,3,7,8-Tetra CDF	2016/11/23		109	%
			1,2,3,7,8-Penta CDF	2016/11/23		112	%
			2,3,4,7,8-Penta CDF	2016/11/23		109	%
			1,2,3,4,7,8,-Hexa CDF	2016/11/23		113	%
			1,2,3,6,7,8-Hexa CDF	2016/11/23		107	%
			2,3,4,6,7,8-Hexa CDF	2016/11/23		129	%
			1,2,3,7,8,9-Hexa CDF	2016/11/23		115	%
			1,2,3,4,6,7,8-Hepta CDF	2016/11/23		109	%
			1,2,3,4,7,8,9-Hepta CDF	2016/11/23		100	%
			Octachlorodibenzofuran	2016/11/23		102	%
1695457	AS2	Method blank	C13-1,2,3,4,6,7,8-H7CDD	2016/11/22		113	%
			C13-1,2,3,4,6,7,8-H7CDF	2016/11/22		113	%
			C13-1,2,3,6,7,8-H6CDD	2016/11/22		90	%
			C13-1,2,3,6,7,8-H6CDF	2016/11/22		98	%
			C13-1,2,3,7,8-P5CDD	2016/11/22		99	%
			C13-1,2,3,7,8-PCDF	2016/11/22		106	%
			C13-2,3,7,8-TCDD	2016/11/22		81	%
			C13-2,3,7,8-TCDF	2016/11/22		92	%
			C13-OCTA-CDD	2016/11/22		98	%

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### QUALITY ASSURANCE REPORT (CONTINUED)

Batch QA/QC	Init	QC Type	Group	Date Analyzed	Value	Recovery Units
			2,3,7,8-Tetra CDD	2016/11/22	<0.031, EDL=0.031	pg/g
			1,2,3,7,8-Penta CDD	2016/11/22	<0.049, EDL=0.049	pg/g
			1,2,3,4,7,8-Hexa CDD	2016/11/22	<0.030, EDL=0.030	pg/g
			1,2,3,6,7,8-Hexa CDD	2016/11/22	<0.028, EDL=0.028	pg/g
			1,2,3,7,8,9-Hexa CDD	2016/11/22	<0.023, EDL=0.023	pg/g
			1,2,3,4,6,7,8-Hepta CDD	2016/11/22	0.17, EDL=0.039	pg/g
			Octachlorodibenzo-p-dioxin	2016/11/22	0.87, EDL=0.085	pg/g
			Total tetrachlorodibenzo-p-dioxins	2016/11/22	<0.031, EDL=0.031	pg/g
			Total pentachlorodibenzo-p-dioxins	2016/11/22	<0.049, EDL=0.049	pg/g
			Total hexachlorodibenzo-p-dioxins	2016/11/22	0.059, EDL=0.026	pg/g
			Total heptachlorodibenzo-p-dioxins	2016/11/22	0.31, EDL=0.039	pg/g
			Total chlorodibenzo-p-dioxins	2016/11/22	1.2	pg/g
			2,3,7,8-Tetra CDF	2016/11/22	<0.056, EDL=0.056	pg/g
			1,2,3,7,8-Penta CDF	2016/11/22	<0.045, EDL=0.045	pg/g
			2,3,4,7,8-Penta CDF	2016/11/22	<0.023, EDL=0.023	pg/g
			1,2,3,4,7,8,-Hexa CDF	2016/11/22	0.078, EDL=0.019	pg/g
			1,2,3,6,7,8-Hexa CDF	2016/11/22	<0.029, EDL=0.029	pg/g
			2,3,4,6,7,8-Hexa CDF	2016/11/22	<0.022, EDL=0.022	pg/g
			1,2,3,7,8,9-Hexa CDF	2016/11/22	<0.022, EDL=0.022	pg/g
			1,2,3,4,6,7,8-Hepta CDF	2016/11/22	<0.078, EDL=0.078	pg/g
			1,2,3,4,7,8,9-Hepta CDF	2016/11/22	<0.049, EDL=0.049	pg/g
			Octachlorodibenzofuran	2016/11/22	<0.14, EDL=0.14	pg/g
			Total tetrachlorodibenzofurans	2016/11/22	0.044, EDL=0.019	pg/g
			Total pentachlorodibenzofurans	2016/11/22	0.043, EDL=0.021	pg/g



Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
			Total hexachlorodibenzofurans	2016/11/22	0.11, EDL=0.020		pg/g
			Total heptachlorodibenzofurans	2016/11/22	0.16, EDL=0.032		pg/g
1695567	CB5	Spiked blank	Total chlorodibenzofurans	2016/11/22	0.36		pg/g
			C13-1,2,4-Trichlorobenzene	2016/11/22		84	%
			C13-Hexachlorobenzene	2016/11/22		91	%
			1,3,5-Trichlorobenzene	2016/11/22		116	%
			1,2,4-Trichlorobenzene	2016/11/22		107	%
			1,2,3-Trichlorobenzene	2016/11/22		110	%
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/22		109	%
			1,2,3,4-Tetrachlorobenzene	2016/11/22		105	%
			Pentachlorobenzene	2016/11/22		102	%
			Hexachlorobenzene	2016/11/22		107	%
1695567	CB5	Method blank	C13-1,2,4-Trichlorobenzene	2016/11/22		79	%
			C13-Hexachlorobenzene	2016/11/22		96	%
			1,3,5-Trichlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,4-Trichlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,3-Trichlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,3,4-Tetrachlorobenzene	2016/11/22	<0.01		mg/kg
			Pentachlorobenzene	2016/11/22	<0.01		mg/kg
			Hexachlorobenzene	2016/11/22	<0.01		mg/kg
1695678	JF2	Spiked blank	C13-1,2,3,4,6,7,8-H7CDD	2016/11/23		81	%
			C13-1,2,3,4,6,7,8-H7CDF	2016/11/23		73	%
			C13-1,2,3,6,7,8-H6CDD	2016/11/23		67	%
			C13-1,2,3,6,7,8-H6CDF	2016/11/23		63	%
			C13-1,2,3,7,8-P5CDD	2016/11/23		65	%
			C13-1,2,3,7,8-PCDF	2016/11/23		61	%
			C13-2,3,7,8-TCDD	2016/11/23		68	%
			C13-2,3,7,8-TCDF	2016/11/23		55	%
			C13-OCTA-CDD	2016/11/23		81	%
			2,3,7,8-Tetra CDD	2016/11/23		89	%
			1,2,3,7,8-Penta CDD	2016/11/23		89	%
			1,2,3,4,7,8-Hexa CDD	2016/11/23		96	%
			1,2,3,6,7,8-Hexa CDD	2016/11/23		122	%
			1,2,3,7,8,9-Hexa CDD	2016/11/23		104	%
			1,2,3,4,6,7,8-Hepta CDD	2016/11/23		102	%
			Octachlorodibenzo-p-dioxin	2016/11/23		164 (1)	%
			2,3,7,8-Tetra CDF	2016/11/23		104	%
			1,2,3,7,8-Penta CDF	2016/11/23		105	%
			2,3,4,7,8-Penta CDF	2016/11/23		104	%
			1,2,3,4,7,8,-Hexa CDF	2016/11/23		96	%
			1,2,3,6,7,8-Hexa CDF	2016/11/23		105	%
			2,3,4,6,7,8-Hexa CDF	2016/11/23		113	%
			1,2,3,7,8,9-Hexa CDF	2016/11/23		117	%
			1,2,3,4,6,7,8-Hepta CDF	2016/11/23		109	%
			1,2,3,4,7,8,9-Hepta CDF	2016/11/23		100	%
			Octachlorodibenzofuran	2016/11/23		95	%
1695678	JF2	Method blank	C13-1,2,3,4,6,7,8-H7CDD	2016/11/23		78	%

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### QUALITY ASSURANCE REPORT (CONTINUED)

Batch QA/QC	Init	QC Type	Group	Date Analyzed	Value	Rec	Units
			C13-1,2,3,4,6,7,8-H7CDF	2016/11/23		71	%
			C13-1,2,3,6,7,8-H6CDD	2016/11/23		64	%
			C13-1,2,3,6,7,8-H6CDF	2016/11/23		59	%
			C13-1,2,3,7,8-P5CDD	2016/11/23		61	%
			C13-1,2,3,7,8-PCDF	2016/11/23		56	%
			C13-2,3,7,8-TCDD	2016/11/23		63	%
			C13-2,3,7,8-TCDF	2016/11/23		52	%
			C13-OCTA-CDD	2016/11/23		77	%
			2,3,7,8-Tetra CDD	2016/11/23	<0.022, EDL=0.022		pg/g
			1,2,3,7,8-Penta CDD	2016/11/23	<0.024, EDL=0.024		pg/g
			1,2,3,4,7,8-Hexa CDD	2016/11/23	<0.032, EDL=0.032		pg/g
			1,2,3,6,7,8-Hexa CDD	2016/11/23	<0.029, EDL=0.029		pg/g
			1,2,3,7,8,9-Hexa CDD	2016/11/23	<0.028, EDL=0.028		pg/g
			1,2,3,4,6,7,8-Hepta CDD	2016/11/23	0.36, EDL=0.033		pg/g
			Octachlorodibenzo-p-dioxin	2016/11/23	2.6, EDL=0.17		pg/g
			Total tetrachlorodibenzo-p-dioxins	2016/11/23	<0.022, EDL=0.022		pg/g
			Total pentachlorodibenzo-p-dioxins	2016/11/23	<0.024, EDL=0.024		pg/g
			Total hexachlorodibenzo-p-dioxins	2016/11/23	<0.030, EDL=0.030		pg/g
			Total heptachlorodibenzo-p-dioxins	2016/11/23	0.36, EDL=0.033		pg/g
			Total chlorodibenzo-p-dioxins	2016/11/23	3.0		pg/g
			2,3,7,8-Tetra CDF	2016/11/23	<0.020, EDL=0.020		pg/g
			1,2,3,7,8-Penta CDF	2016/11/23	<0.023, EDL=0.023		pg/g
			2,3,4,7,8-Penta CDF	2016/11/23	<0.024, EDL=0.024		pg/g
			1,2,3,4,7,8,-Hexa CDF	2016/11/23	<0.027, EDL=0.027		pg/g
			1,2,3,6,7,8-Hexa CDF	2016/11/23	<0.024, EDL=0.024		pg/g
			2,3,4,6,7,8-Hexa CDF	2016/11/23	<0.029, EDL=0.029		pg/g
			1,2,3,7,8,9-Hexa CDF	2016/11/23	<0.032, EDL=0.032		pg/g
			1,2,3,4,6,7,8-Hepta CDF	2016/11/23	<0.099, EDL=0.099		pg/g

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC							
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
			1,2,3,4,7,8,9-Hepta CDF	2016/11/23	<0.034, EDL=0.034		pg/g
			Octachlorodibenzofuran	2016/11/23	0.30, EDL=0.069		pg/g
			Total tetrachlorodibenzofurans	2016/11/23	<0.020, EDL=0.020		pg/g
			Total pentachlorodibenzofurans	2016/11/23	<0.024, EDL=0.024		pg/g
			Total hexachlorodibenzofurans	2016/11/23	<0.028, EDL=0.028		pg/g
			Total heptachlorodibenzofurans	2016/11/23	0.18, EDL=0.029		pg/g
			Total chlorodibenzofurans	2016/11/23	0.48		pg/g
1696165	JL1	RCN	Sulphur (S)	2016/11/22		96	%
1696165	JL1	Method blank	Sulphur (S)	2016/11/22	<0.01		% g/g
<p>RCN: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.</p> <p>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.</p> <p>Method blank: An aliquot portion of pure matrix that is submitted to the same analytical process as the samples, from pre-treatment to assaying. Used to identify laboratory contamination.</p> <p>Surrogate: Compound of similar composition to the compounds analyzed and added to the pre-analysis sample. Used to evaluate the quality of the extraction.</p> <p>EDL = Estimated Detection Limit</p> <p>Rec = Recovery</p> <p>(1) Recovery or relative variation (RPD) for this composite is beyond control limits, but the overall quality control meets the criteria of acceptability for this analysis</p>							

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### **VALIDATION SIGNATURE PAGE**

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

Aomar Kaidi, B.Sc., Chemist

Caroline Bougie, B.Sc. Chemist

Corina Tue, B.Sc. Chemist

David Provencher, B.Sc., Chemist, Quebec

Karyn Vaucher

Maria Dragna Apopei, B.Sc., Chemist

Marie-Claude Poupart, B.Sc., Chemist

Maxxam Job #: B681373  
Report Date: 2016/11/29

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514  
Sampler's initials: PV

### **VALIDATION SIGNATURE PAGE (CONTINUED)**

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

Madina Hamrouni, B.Sc., Chemist

Noureddine Chafiaai, B.Sc., Chemist

Phuc Khanh Tuong, B.Sc., Chemist

Sylvain Chevigny, B.Sc., Chemist

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.



**B681373**

**Maxxam analytique inc.**  
889, Montée de Liesse  
Saint-Laurent (Québec) H4T 1P5  
Téléphone : 514-448-9001  
Télécopieur : 514-448-9199

Chair / de /

B681373 - COC

Client : Englobe Corp.			Téléphone : 514-849-7281 Télécopieur : 514-849-6770		
Adresse : 1453, Saint-Thimothée Montréal (Québec) H2L 3N7			N° projet : 11905		
Échantillonneur : P. Verhaar			Chargé(e) de projet : M. Demarty		

N°	Identification de l'échantillon	N° labo Maxxam	Matrice							Échantillonnage		Date	Analyses														
			Eau potable	Eau usée	Eau sout.	Eau de surf.	Sols	Sédiments	Autres*	# de contenants	À filtrer (oui/non)		HYDROCARBURES PETROLIERS (C10-C50)	HYDROCARBURES AROMATIQUES POLYCYCLIQUES	BPC TOTAUX	MÉTALUX extractibles totaux*	MERCURE PAR ICP-MS	CARBONE ORGANIQUE TOTAL	CHLOROENZÈNES	SOUFRE	Composés acides (phénols)	COMPOSÉS ORGANIQUES VOLATILS HMA-HHT (pot 60mL, sans air)	Granulométrie	DIOXINES & FURANES PAR CGSM HF	Mono-, Di et Tributylétains	Détermination potentiel acidogène (TDPAS)	
1	CAR-7-1											16-11-17	X	X	X	X	X	X	X	X	X	X		X			
2	CAR-7-2											↓	X	X	X	X	X	X	X	X	X	X		X			
3	CAR-7-3												X	X	X	X	X	X	X	X	X	X		X			
4	CAR-8-1												X	X	X	X	X	X	X	X	X	X		X			
5	CAR-8-2												X	X	X	X	X	X	X	X	X	X		X			
6	CAR-9-1												X	X	X	X	X	X	X	X	X	X		X			
7	CAR-9-2												X	X	X	X	X	X	X	X	X	X		X			
8	CAR-10-1												X	X	X	X	X	X	X	X	X	X		X			
9	CAR-10-2												X	X	X	X	X	X	X	X	X	X		X			
10	CAR-10-3												16-11-17	X	X	X	X	X	X	X	X	X	X		X		
11																											
12																											

**DÉLAIS :**  
C10-50 : 24 h  
COV : 24h  
Métaux : 24h  
Autres : 48 h

**\*Autres =**

N° d'offre de service Maxxam :

Site : KS

N° de bon de commande Englobe : 23 514

Autres :

**Limites de détection requises / types de contaminants :**

**Instructions spéciales :** 10 10 10 / 9 99 / 10 10 10 / 10 10 10  
999/555  
\* Métaux: Politique + Se - Délais minimal requis ICG YES  
SEALNO

**Date :** 2016 11/17 **Heure :** 17:00 **Reçu par :** K.C. PIANTE

Maxxam analytique inc. 889, Montée de Liesse Saint-Laurent (Québec) H4T 1P5 Téléphone : Télécopieur :	Maxxam Analytics Inc. 889 Montée de Liesse Saint-Laurent, Quebec H4T 1P5 Telephone: Fax:
Chaîne de responsabilité	Chain of Accountability
Analyse pour échantillon intégré	Analysis for integrated sample
Client : Englobe Corp.	Customer: Englobe Corp.
Téléphone : Télécopieur :	Telephone: Fax:
Adresse : 1453, Saint-Thimothée Montréal (Québec) H2L 3N7	Address: 1453 Saint-Thimothée Montreal, Quebec H2L 3N7
N° de projet :	Project #:
Échantillonneur :	Sampler:
Chargé(e) de projet :	Project Manager:
N°	#
Identification de l'échantillon	Sample Identification
N° labo Maxxam	Maxxam Lab #
Matrice	Matrix
Échantillonnage	Sampling
Eau potable	Drinking water
Eau usée	Waste water

Eau sout.	Groundwater
Eau de surf.	Surface water
Sols	Soils
Sédiments	Sediments
Autres	Other
# de contenants	# of containers
À livrer (oui/non)	To be delivered (yes/no)
Date	Date
HYDROCARBURES PÉTROLIERS (C10-C50)	PETROLEUM HYDROCARBONS (C10-C50)
HYDROCARBURES AROMATIQUES POLYCYCLIQUES	POLYCYCLIC AROMATIC HYDROCARBONS
BPC TOTAUX	TOTAL PCBs
MÉTAUX extractibles totaux	Total extractable METALS
MERCURE PAR ICP-MS	MERCURY BY ICP-MS
CARBONE ORGANIQUE TOTAL	TOTAL ORGANIC CARBON
CHLOROBENZENES	CHLOROBENZENES
SOUFRE	SULPHUR
Composés acides (phénols)	Acid compounds (Phenols)
COMPOSÉS ORGANIQUES VOLATILS HMA-HHT (pot 60mL, sans air)	VOLATILE ORGANIC COMPOUNDS HMA-HHT (pot 60 mL, no air)
Granulométrie	Granulometry
DIOXINES ET FURANNES PAR CGSM HR	DIOXINS AND FURANS BY CGSM HR
Mono-, Di et Tributylène	Mono-, Di- and Tributylene
Détermination potentiel acidogène (TDPAS)	Acid base accounting (ABA)
DÉLAI : C10-C50 : 24 h COV : 24h Métaux : 24h Autres : 48 h	DEADLINE: C10-C50: 24 h COV: 24 h Metals: 24 h Other: 48 h
N° d'offre de service Maxxam :	Maxxam service offer #:
Site : KS	Location: KS
N° de bon de commande Englobe :	Englobe P.O #:
Autres	Other
Limites de détection requises / types de contamina	Required detection limits / types of contaminants
Instructions spéciales : *Métaux : Politique + Se – Délais minimal requis	Special Instructions: *Metals: Policy + Se – Minimal deadlines required
*Autres =	*Other =
Livré par :	Delivered by:
Livré par messagerie :	Delivered by courier:
Date :	Date:
Heure :	Time:



Your P.O. #: 23513  
Your project #: 11905  
Site address: KS  
Your waybill #: N/A

Attention: Maud Demarty  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2016/11/21  
Report #: R2220787  
Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B681382  
Received: 2016/11/17, 5:00 PM

Matrix: SURFACE WATER  
Samples received: 6

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Volatile organic compounds*	6	N/A	2016/11/18 STL SOP-00145		MA400-COV 2.0 R4 m
Petroleum hydrocarbons (C10-C50)*	6	2016/11/17	2016/11/18 STL SOP-00173		MA.400-HYD. 1.1 R3 m
Chlorobenzenes*	6	2016/11/18	2016/11/19 STL SOP-00154		MA400-Clbz 1.0 R4 m
Conductivity*	6	N/A	2016/11/18 STL SOP-00038		SM 22 2510-B m
Dissolved organic carbon (1)***	6	2016/11/18	2016/11/18 STL SOP-00243		SM 22 5310-B m
Suspended Solids*	6	2016/11/17	2016/11/17 STL SOP-00015		MA104 – S.S. 2.0 m
Total extractable metals (low limit)*	6	2016/11/17	2016/11/18 STL SOP-00006		MA200-Mét 1.2 R5 m
Polycyclic aromatic hydrocarbons*	6	2016/11/17	2016/11/18 STL SOP-00177		MA400-HAP 1.1 R5 m
Total PCBs*	6	2016/11/17	2016/11/18 STL SOP-00132		MA400-BPC 1.0 R5 m
Acid compounds (Phenols)*	6	2016/11/17	2016/11/18 STL SOP-00134		MA400-Phe 1.0 R3 m
Total KJELDAHL nitrogen (TKN)*	6	2016/11/17	2016/11/18 STL SOP-00043		MA300-NTPT 2.0 R1 m
Total Organic Carbon (2)*	6	N/A	2016/11/18 STL SOP-00243		SM 22 5310-B m

#### **Notes:**

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.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

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.

Your P.O. #: 23513  
Your project #: 11905  
Site address: KS  
Your waybill #: N/A

Attention: Maud Demarty  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2016/11/21  
Report #: R2220787  
Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B681382  
Received: 2016/11/17, 5:00 PM

This Certificate shall not be reproduced except in full, without the written approval of the laboratory. Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

Note: RPDs calculated using raw data (% of relative variation). The rounding of final results may result in the apparent difference.

(1) DOC present in the sample refers to non-volatile dissolved organic carbon.

(2) TOC present in the sample refers to non-volatile total organic carbon.

\* Maxxam is accredited for this analysis under the MDDELCC program.

\*\*\* This analysis is not part of the MDDELCC accreditation program.

Encryption key

Please direct all questions regarding this Certificate of Analysis to your Project Manager  
Rodrigo Caffarengo,  
E-mail: [RCaffarengo@maxxam.ca](mailto:RCaffarengo@maxxam.ca)  
Telephone: 514-448-9001 Ext: 6336

This report has been generated and distributed using a secure automated process.

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

Maxxam Job #: B681382  
Report Date: 2016/11/21

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### PAH BY GCMS (SURFACE WATER)

Maxxam Job				DI0444		DI0445		DI0446		DI0447			
Sampling date				2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #				N/A		N/A		N/A		N/A			
	Units	ALC	ALA	SQE-01	CR	SQE-02	CR	SQE-03	CR	SQE-04	CR	RDL	QC batch
<b>PAHs</b>													
Acenaphthene	ug/L	38	100	<0.03		<0.03		<0.03		<0.03		0.03	1694604
Anthracene	ug/L	-	-	<0.03		<0.03		<0.03		<0.03		0.03	1694604
Benzo(a)anthracene	ug/L	-	-	<0.03		<0.03		<0.03		<0.03		0.03	1694604
Benzo(b)fluoranthene	ug/L	-	-	0.06		0.06		0.06		0.06		0.06	1694604
Benzo(j)fluoranthene	ug/L	-	-	0.06		0.06		0.06		0.06		0.06	1694604
Benzo(k)fluoranthene	ug/L	-	-	0.06		0.06		0.06		0.06		0.06	1694604
Benzo(a)pyrene	ug/L	-	-	<0.008		<0.008		<0.008		<0.008		0.008	1694604
Chrysene	ug/L	-	-	<0.03		<0.03		<0.03		<0.03		0.03	1694604
Dibenzo(a,h)anthracene	ug/L	-	-	<0.03		<0.03		<0.03		<0.03		0.03	1694604
Fluoranthene	ug/L	1.6	14	<0.03		<0.03		<0.03		<0.03		0.03	1694604
Fluorene	ug/L	12	110	<0.03		<0.03		<0.03		<0.03		0.03	1694604
Ideno(1,2,3-cd)pyrene	ug/L	-	-	<0.03		<0.03		<0.03		<0.03		0.03	1694604
Naphthalene	ug/L	11	100	<0.03		<0.03		<0.03		<0.03		0.03	1694604
Phenanthrene	ug/L	1.4	4.7	<0.03		<0.03		<0.03		<0.03		0.03	1694604
Pyrene	ug/L	-	-	<0.03		<0.03		<0.03		<0.03		0.03	1694604
Total PAHs (RES)	ug/L	-	-	0.06		0.06		0.06		0.06		0.06	1694604
<b>Surrogate Recovery (%)</b>													
D10-Anthracene	%	-	-	69		69		67		71			1694604
D12-Benzo(a)pyrene	%	-	-	81		80		79		81			1694604
D14-Terphenyl	%	-	-	72		71		70		74			1694604
D8-Acenaphthylene	%	-	-	76		77		76		79			1694604
D8-Naphthalene	%	-	-	75		75		75		77			1694604
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													

Maxxam Job #: B681382  
Report Date: 2016/11/21

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### PAH BY GCMS (SURFACE WATER)

Maxxam Job				DI0448		DI0449			
Sampling date				2016/11/17		2016/11/17			
Waybill #				N/A		N/A			
	Units	ALC	ALA	SQE-05	CR	SQE-06	CR	RDL	QC batch
<b>PAHs</b>									
Acenaphthene	ug/L	38	100	<0.03		<0.03		0.03	1694604
Anthracene	ug/L	-	-	<0.03		<0.03		0.03	1694604
Benzo(a)anthracene	ug/L	-	-	<0.03		<0.03		0.03	1694604
Benzo(b)fluoranthene	ug/L	-	-	0.06		0.06		0.06	1694604
Benzo(j)fluoranthene	ug/L	-	-	0.06		0.06		0.06	1694604
Benzo(k)fluoranthene	ug/L	-	-	0.06		0.06		0.06	1694604
Benzo(a)pyrene	ug/L	-	-	<0.008		<0.008		0.008	1694604
Chrysene	ug/L	-	-	<0.03		<0.03		0.03	1694604
Dibenzo(a,h)anthracene	ug/L	-	-	<0.03		<0.03		0.03	1694604
Fluoranthene	ug/L	1.6	14	<0.03		<0.03		0.03	1694604
Fluorene	ug/L	12	110	<0.03		<0.03		0.03	1694604
Ideno(1,2,3-cd)pyrene	ug/L	-	-	<0.03		<0.03		0.03	1694604
Naphthalene	ug/L	11	100	<0.03		<0.03		0.03	1694604
Phenanthrene	ug/L	1.4	4.7	<0.03		<0.03		0.03	1694604
Pyrene	ug/L	-	-	<0.03		<0.03		0.03	1694604
Total PAHs (RES)	ug/L	-	-	0.06		0.06		0.06	1694604
<b>Surrogate Recovery (%)</b>									
D10-Anthracene	%	-	-	71		66			1694604
D12-Benzo(a)pyrene	%	-	-	82		78			1694604
D14-Terphenyl	%	-	-	74		70			1694604
D8-Acenaphthylene	%	-	-	80		75			1694604
D8-Naphtalene	%	-	-	78		72			1694604
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam Job #: B681382  
Report Date: 2016/11/21

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### PHENOLS BY GCMS (SURFACE WATER)

Maxxam Job		DI0444	DI0445	DI0446	DI0447	DI0448	DI0449		
Sampling date		2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17		
Waybill #		N/A	N/A	N/A	N/A	N/A	N/A		
	<b>Units</b>	<b>SQE-01</b>	<b>SQE-02</b>	<b>SQE-03</b>	<b>SQE-04</b>	<b>SQE-05</b>	<b>SQE-06</b>	<b>RDL</b>	<b>QC batch</b>
<b>PHENOLS</b>									
2,4-Dimethylphenol	ug/L	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	0.6	1694581
2,4-Dinitrophenol	ug/L	<10	<10	<10	<10	<10	<10	10	1694581
2-Méthyl-4,6-dinitrophénol	ug/L	<10	<10	<10	<10	<10	<10	10	1694581
4-Nitrophenol	ug/L	<1	<1	<1	<1	<1	<1	1	1694581
Phenol	ug/L	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	0.6	1694581
2-Chlorophenol	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1694581
3-Chlorophenol	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1694581
4-Chlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
2,3-Dichlorophenol	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1694581
2,4 + 2,5-Dichlorophenol	ug/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.3	1694581
2,6-Dichlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
3,4-Dichlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
3,5-Dichlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
Pentachlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
2,3,4,6-Tetrachlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
2,3,5,6-Tetrachlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
2,4,5-Trichlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
2,4,6-Trichlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
2,3,5-Trichlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
2,3,4-Trichlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
2,3,6-Trichlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
2,3,4,5-Tetrachlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
3,4,5-Trichlorophenol	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694581
o-Cresol	ug/L	<1	<1	<1	<1	<1	<1	1	1694581
p-Cresol	ug/L	<1	<1	<1	<1	<1	<1	1	1694581
<b>Surrogate Recovery (%)</b>									
D6-Phenol	%	75	73	85	82	86	82		1694581
Tribromophenol-2,4,6	%	100	98	104	104	96	94		1694581
Trifluoro-m-cresol	%	84	83	93	91	90	89		1694581
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam Job #: B681382  
 Report Date: 2016/11/21

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23513  
 Sampler's initials: JB

### CHLOROBENZENES (SURFACE WATER)

Maxxam Job		DI0444	DI0445	DI0446	DI0447	DI0448	DI0449		
Sampling date		2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17		
Waybill #		N/A	N/A	N/A	N/A	N/A	N/A		
	<b>Units</b>	<b>SQE-01</b>	<b>SQE-02</b>	<b>SQE-03</b>	<b>SQE-04</b>	<b>SQE-05</b>	<b>SQE-06</b>	<b>RDL</b>	<b>QC batch</b>
<b>CHLOROBENZENES</b>									
1,3,5-Trichlorobenzene	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	1695122
1,2,4-Trichlorobenzene	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	1695122
1,2,3-Trichlorobenzene	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	1695122
1,2,3,5+1,2,4,5-Tetrachlorobenzene	ug/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	1695122
1,2,3,4-Tetrachlorobenzene	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	1695122
Pentachlorobenzene	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	1695122
Hexachlorobenzene	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	1695122
<b>Surrogate Recovery (%)</b>									
C13-1,2,4-Trichlorobenzene	%	83	107	104	101	99	110		1695122
C13-Hexachlorobenzene	%	91	121	123	112	114	126		1695122
RDL = Reportable Detection Limit QC Batch = Quality Control Batch									

Maxxam Job #: B681382  
 Report Date: 2016/11/21

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23513  
 Sampler's initials: JB

### HYDROCARBONS BY GCFID (SURFACE WATER)

Maxxam Job		DI0444	DI0445	DI0446	DI0447	DI0448	DI0449		
Sampling date		2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17		
Waybill #		N/A	N/A	N/A	N/A	N/A	N/A		
	<b>Units</b>	<b>SQE-01</b>	<b>SQE-02</b>	<b>SQE-03</b>	<b>SQE-04</b>	<b>SQE-05</b>	<b>SQE-06</b>	<b>RDL</b>	<b>QC batch</b>
<b>PETROLEUM HYDROCARBONS</b>									
Petroleum hydrocarbons (C10-C50)	ug/L	<100	<100	<100	<100	<100	<100	100	1694603
<b>Surrogate Recovery (%)</b>									
1-Chlorooctadecane	%	72	84	73	82	71	74		1694603
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam Job #: B681382  
Report Date: 2016/11/21

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### COV BY GC/MS (SURFACE WATER)

Maxxam Job		DI0444	DI0445	DI0446	DI0447	DI0448	DI0449		
Sampling date		2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17		
Waybill #		N/A	N/A	N/A	N/A	N/A	N/A		
	Units	SQE-01	SQE-02	SQE-03	SQE-04	SQE-05	SQE-06	RDL	QC batch
<b>COMPOUNDS</b>									
Benzene	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
Chlorobenzene	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
Dichloro-1,2 benzene	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
Dichloro-1,3 benzene	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
Dichloro-1,4 benzene	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
Ethylbenzene	ug/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
Styrene	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
Toluene	ug/L	0.1	0.9	0.2	0.2	0.2	0.3	0.1	1694602
Xylenes (o,m,p)	ug/L	<0.4	0.6	<0.4	<0.4	<0.4	<0.4	0.4	1694602
Chloroform	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
Vinylchloride (Chloroethene)	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
1,2-Dichloroethane	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
1,1-Dichloroethene	ug/L	<1	<1	<1	<1	<1	<1	1	1694602
1,2-Dichloroethene (cis)	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
1,2-Dichloroethene (trans)	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
1,2-Dichloroethene (cis and trans)	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
Dichloromethane	ug/L	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	0.9	1694602
1,2-Dichloropropane	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
1,3-Dichloropropane	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
1,3-Dichloropropene (cis)	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
1,3-Dichloropropene (trans)	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
1,3-Dichloropropene (cis and trans)	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
1,1,2,2-Tetrachloroethane	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
Tetrachloroethene	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
Carbon tetrachloride	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
1,1,1-Trichloroethane	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
1,1,2-Trichloroethane	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
Trichloroethene	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
Pentachloroethane	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	1694602
Hexachloroethane	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1694602
1,1-Dichloroethane	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1694602
<b>Surrogate Recovery (%)</b>									
4-Bromofluorobenzene	%	99	101	100	101	99	99		1694602
D4-1,2-Dichloroethane	%	88	86	81	85	85	85		1694602
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									



Maxxam Job #: B681382  
 Report Date: 2016/11/21

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23513  
 Sampler's initials: JB

### COV BY GC/MS (SURFACE WATER)

Maxxam Job		DI0444	DI0445	DI0446	DI0447	DI0448	DI0449		
Sampling date		2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17		
Waybill #		N/A	N/A	N/A	N/A	N/A	N/A		
	<b>Units</b>	<b>SQE-01</b>	<b>SQE-02</b>	<b>SQE-03</b>	<b>SQE-04</b>	<b>SQE-05</b>	<b>SQE-06</b>	<b>RDL</b>	<b>QC batch</b>
D8-Toluene	%	112	111	113	112	110	110		1694602
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam Job #: B681382  
Report Date: 2016/11/21

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### TOTAL EXTRACTABLE METALS (SURFACE WATER)

Maxxam Job				DI0444		DI0445		DI0446			
Sampling date				2016/11/17		2016/11/17		2016/11/17			
Waybill #				N/A		N/A		N/A			
	Units	ALC	ALA	SQE-01	CR	SQE-02	CR	SQE-03	CR	RDL	QC batch
<b>METALS ICP-MS</b>											
Aluminum (Al)	ug/L	87	750	33	<ALC	45	<ALC	33	<ALC	10	1694580
Antimony (Sb)	ug/L	-	-	<1.0		<1.0		<1.0		1.0	1694580
Silver (Ag)	ug/L	0.1	0.039	<1.0		<1.0		<1.0		1.0	1694580
Arsenic (As)	ug/L	150	340	<1.0		<1.0		<1.0		1.0	1694580
Barium (Ba)	ug/L	38	110	24	<ALC	23	<ALC	23	<ALC	2.0	1694580
Cadmium (Cd)	ug/L	0.049	0.21	<0.20		<0.20		<0.20		0.20	1694580
Calcium (Ca)	ug/L	-	-	34000		33000		33000		500	1694580
Chromium (Cr)	ug/L	-	-	<5.0		<5.0		<5.0		5.0	1694580
Cobalt (Co)	ug/L	100	370	<1.0		<1.0		<1.0		1.0	1694580
Copper (Cu)	ug/L	1.3	1.6	<1.0		<1.0		<1.0		1.0	1694580
Total hardness (CaCO3)	ug/L	-	-	120000		120000		120000		1000	1694580
Magnesium (Mg)	ug/L	-	-	8700		8400		8500		100	1694580
Manganese (Mn)	ug/L	260	550	2.9	<ALC	7.8	<ALC	4.1	<ALC	1.0	1694580
Molybdenum (Mo)	ug/L	3200	29000	1.1	<ALC	1.1	<ALC	1.1	<ALC	1.0	1694580
Mercury (Hg)	ug/L	0.91	1.6	0.14	<ALC	0.12	<ALC	<0.10		0.10	1694580
Nickel (Ni)	ug/L	7.4	67	<2.0		<2.0		<2.0		2.0	1694580
Total phosphorus	ug/L	30	-	<10		<10		<10		10	1694580
Lead (Pb)	ug/L	0.17	4.4	<0.50		<0.50		<0.50		0.50	1694580
Selenium (Se)	ug/L	5	62	<3.0		<3.0		<3.0		3.0	1694580
Sodium (Na)	ug/L	-	-	13000		12000		13000		500	1694580
Zinc (Zn)	ug/L	1.7	17	<7.0		<7.0		<7.0		7.0	1694580
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job #: B681382  
Report Date: 2016/11/21

Englobe Corp.  
Your project #: 11905  
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Sampler's initials: JB

### TOTAL EXTRACTABLE METALS (SURFACE WATER)

Maxxam Job				DI0447		DI0448		DI0449			
Sampling date				2016/11/17		2016/11/17		2016/11/17			
Waybill #				N/A		N/A		N/A			
	Units	ALC	ALA	SQE-04	CR	SQE-05	CR	SQE-06	CR	RDL	QC batch
<b>METALS ICP-MS</b>											
Aluminum (Al)	ug/L	87	750	22	<ALC	29	<ALC	48	<ALC	10	1694580
Antimony (Sb)	ug/L	-	-	<1.0		<1.0		<1.0		1.0	1694580
Silver (Ag)	ug/L	0.1	0.039	<1.0		<1.0		<1.0		1.0	1694580
Arsenic (As)	ug/L	150	340	<1.0		<1.0		<1.0		1.0	1694580
Barium (Ba)	ug/L	38	110	23	<ALC	23	<ALC	25	<ALC	2.0	1694580
Cadmium (Cd)	ug/L	0.049	0.21	<0.20		<0.20		<0.20		0.20	1694580
Calcium (Ca)	ug/L	-	-	34000		34000		34000		500	1694580
Chromium (Cr)	ug/L	-	-	<5.0		<5.0		<5.0		5.0	1694580
Cobalt (Co)	ug/L	100	370	<1.0		<1.0		<1.0		1.0	1694580
Copper (Cu)	ug/L	1.3	1.6	<1.0		<1.0		<1.0		1.0	1694580
Total hardness (CaCO3)	ug/L	-	-	120000		120000		120000		1000	1694580
Magnesium (Mg)	ug/L	-	-	8700		8600		8900		100	1694580
Manganese (Mn)	ug/L	260	550	<1.0		2.3	<ALC	6.7	<ALC	1.0	1694580
Molybdenum (Mo)	ug/L	3200	29000	1.2	<ALC	1.1	<ALC	1.1	<ALC	1.0	1694580
Mercury (Hg)	ug/L	0.91	1.6	<0.10		<0.10		<0.10		0.10	1694580
Nickel (Ni)	ug/L	7.4	67	<2.0		<2.0		<2.0		2.0	1694580
Total phosphorus	ug/L	30	-	<10		<10		<10		10	1694580
Lead (Pb)	ug/L	0.17	4.4	<0.50		<0.50		<0.50		0.50	1694580
Selenium (Se)	ug/L	5	62	<3.0		<3.0		<3.0		3.0	1694580
Sodium (Na)	ug/L	-	-	13000		13000		13000		500	1694580
Zinc (Zn)	ug/L	1.7	17	<7.0		<7.0		<7.0		7.0	1694580
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job #: B681382  
Report Date: 2016/11/21

Englobe Corp.  
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Sampler's initials: JB

### CONVENTIONAL PARAMETERS (SURFACE WATER)

Maxxam Job		DI0444	DI0445	DI0446	DI0447	DI0448	DI0449	DI0449		
Sampling date		2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17		
Waybill #		N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	Units	SQE-01	SQE-02	SQE-03	SQE-04	SQE-05	SQE-06	SQE-06 Lab. Dup.	RDL	QC batch
<b>CONVENTIONAL</b>										
Dissolved Organic Carbon	m2	2.2	2.2	2.2	2.2	2.2	2.2		0.2	1694822
Total Organic Carbon	m2	2.2	2.3	2.3	2.3	2.3	2.3		0.2	1694778
Cadmium (Cd)	mS/cm	0.30	0.31	0.31	0.31	0.31	0.31		0.001	1694600
NTK Nitrogen Total Kjeldahl	m2	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	1694512
Suspended solids (SS)	m2	<2	<2	<2	<2	<2	<2	<2	2	1694570
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										
Laboratory duplicate										

Maxxam Job #: B681382  
 Report Date: 2016/11/21

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23513  
 Sampler's initials: JB

### PBC CONGENERS (SURFACE WATER)

Maxxam Job		DI0444	DI0445	DI0446	DI0447	DI0448	DI0449		
Sampling date		2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17		
Waybill #		N/A	N/A	N/A	N/A	N/A	N/A		
	<b>Units</b>	<b>SQE-01</b>	<b>SQE-02</b>	<b>SQE-03</b>	<b>SQE-04</b>	<b>SQE-05</b>	<b>SQE-06</b>	<b>RDL</b>	<b>QC batch</b>
<b>PCBs</b>									
Total PCBs	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	1694585
<b>Surrogate Recovery (%)</b>									
2,3,3',4,6-Pentachlorobiphenyl	%	102	107	97	102	96	96		1694585
2',3,5-Trichlorobiphenyl	%	87	88	80	70	69	65		1694585
22'33'44'566'-Nonachlorobiphenyl	%	124	123	123	105	101	101		1694585
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Englobe Corp.  
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Your P.O. #: 23513  
Sampler's initials: JB

## GENERAL COMMENTS

Condition of samples upon arrival: GOOD  
ALC,ALA,CR: Quality criteria for surface water in Quebec, 2013

ALC = Protection of Aquatic Life (Chronic Effect)  
ALA = Protection of Aquatic Life (Acute Effect)

The metal criteria vary in hardness. These criteria are based on a hardness of 10 mg/L.  
- = This compound is not part of the Regulations.

### PAH BY GCMS (SURFACE WATER)

Please note that the results have not been corrected for quality control sample recovery (spiked blank and method blank) or for surrogates.

The result for total PAH (RES) represents the sum of the following 8 compounds: benzo(a)anthracene, benzo(b)fluoranthene, benzo(j)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene et indeno(1,2,3-c,d)pyrene.

The raw, unrounded results are used to calculate total PAH (RES). This total result is then rounded to two significant digits.

### PHENOLS BY GCMS (SURFACE WATER)

Please note that the results have not been corrected for quality control sample recovery (spiked blank and method blank) or for surrogates.

### CHLOROBENZENES (SURFACE WATER)

Please note that the results have not been corrected for quality control sample recovery (spiked blank ) or for the blank. The sample results have been corrected for surrogate recovery percentage.

### HYDROCARBONS BY GCFID (SURFACE WATER)

Please note that the results have not been corrected for quality control sample recovery (spiked blank and surrogates). Please note that the results have not been corrected for method blank.

### COV BY GC/MS (SURFACE WATER)

Please note that the results have not been corrected for quality control sample recovery (spiked blank and method blank) or for surrogates.

Please note that the samples are analyzed by Headspace GC/MS.

### TOTAL EXTRACTABLE METALS (SURFACE WATER)

Please note that the results have not been corrected for quality control sample recovery or for method blank values.

### CONVENTIONAL PARAMETERS (SURFACE WATER)

Please note that the results have not been corrected for quality control sample recovery or for method blank values.

### PBC CONGENERS (SURFACE WATER)

Please note that the results have not been corrected for quality control sample recovery (spiked blank ) or for the blank. The sample results have been corrected for surrogate recovery percentage.

**The results refer only to the samples submitted for analysis.**

Englobe Corp.  
Your project #: 11905  
Site address: KS  
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Sampler's initials: JB

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1694512	DKH	RCN	NTK Nitrogen Total Kjeldahl	2016/11/18		102	%
1694512	DKH	Spiked blank	NTK Nitrogen Total Kjeldahl	2016/11/18		110	%
1694512	DKH	Method blank	NTK Nitrogen Total Kjeldahl	2016/11/18	<0.40		m2
1694570	ISF	Spiked blank	Suspended solids (SS)	2016/11/17		94	%
1694570	ISF	Method blank	Suspended solids (SS)	2016/11/17	<2		m2
1694580	ACM	Spiked blank	Aluminum (Al)	2016/11/18		98	%
			Antimony (Sb)	2016/11/18		106	%
			Silver (Ag)	2016/11/18		99	%
			Arsenic (As)	2016/11/18		98	%
			Barium (Ba)	2016/11/18		101	%
			Cadmium (Cd)	2016/11/18		98	%
			Calcium (Ca)	2016/11/18		99	%
			Chromium (Cr)	2016/11/18		92	%
			Cobalt (Co)	2016/11/18		92	%
			Copper (Cu)	2016/11/18		89	%
			Magnesium (Mg)	2016/11/18		94	%
			Manganese (Mn)	2016/11/18		104	%
			Molybdenum (Mo)	2016/11/18		100	%
			Mercury (Hg)	2016/11/18		92	%
			Nickel (Ni)	2016/11/18		90	%
			Total phosphorus	2016/11/18		90	%
			Lead (Pb)	2016/11/18		100	%
			Selenium (Se)	2016/11/18		94	%
			Sodium (Na)	2016/11/18		93	%
			Zinc (Zn)	2016/11/18		90	%
1694580	ACM	Method blank	Aluminum (Al)	2016/11/18	<10		ug/L
			Antimony (Sb)	2016/11/18	<1.0		ug/L
			Silver (Ag)	2016/11/18	<1.0		ug/L
			Arsenic (As)	2016/11/18	<1.0		ug/L
			Barium (Ba)	2016/11/18	<2.0		ug/L
			Cadmium (Cd)	2016/11/18	<0.20		ug/L
			Calcium (Ca)	2016/11/18	<500		ug/L
			Chromium (Cr)	2016/11/18	<5.0		ug/L
			Cobalt (Co)	2016/11/18	<1.0		ug/L
			Copper (Cu)	2016/11/18	<1.0		ug/L
			Total hardness (CaCO3)	2016/11/18	<1000		ug/L
			Magnesium (Mg)	2016/11/18	<100		ug/L
			Manganese (Mn)	2016/11/18	<1.0		ug/L
			Molybdenum (Mo)	2016/11/18	<1.0		ug/L
			Mercury (Hg)	2016/11/18	<0.10		ug/L
			Nickel (Ni)	2016/11/18	<2.0		ug/L
			Total phosphorus	2016/11/18	<10		ug/L
			Lead (Pb)	2016/11/18	<0.50		ug/L
			Selenium (Se)	2016/11/18	<3.0		ug/L
			Sodium (Na)	2016/11/18	<500		ug/L
			Zinc (Zn)	2016/11/18	<7.0		ug/L
1694581	MA1	Spiked blank	D6-Phenol	2016/11/18		94	%
			Tribromophenol-2,4,6	2016/11/18		116	%
			Trifluoro-m-cresol	2016/11/18		101	%
			2,4-Dimethylphenol	2016/11/18		99	%

Englobe Corp.  
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### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1694581	MA1	Method blank	4-Nitrophenol	2016/11/18		97	%
			Phenol	2016/11/18		84	%
			2-Chlorophenol	2016/11/18		98	%
			3-Chlorophenol	2016/11/18		95	%
			4-Chlorophenol	2016/11/18		95	%
			2,3-Dichlorophenol	2016/11/18		103	%
			2,4 + 2,5-Dichlorophenol	2016/11/18		100	%
			2,6-Dichlorophenol	2016/11/18		101	%
			3,4-Dichlorophenol	2016/11/18		100	%
			3,5-Dichlorophenol	2016/11/18		101	%
			Pentachlorophenol	2016/11/18		102	%
			2,3,4,6-Tetrachlorophenol	2016/11/18		113	%
			2,3,5,6-Tetrachlorophenol	2016/11/18		107	%
			2,4,5-Trichlorophenol	2016/11/18		109	%
			2,4,6-Trichlorophenol	2016/11/18		99	%
			2,3,5-Trichlorophenol	2016/11/18		97	%
			2,3,4-Trichlorophenol	2016/11/18		101	%
			2,3,6-Trichlorophenol	2016/11/18		109	%
			2,3,4,5-Tetrachlorophenol	2016/11/18		100	%
			3,4,5-Trichlorophenol	2016/11/18		108	%
			o-Cresol	2016/11/18		97	%
			p-Cresol	2016/11/18		99	%
			D6-Phenol	2016/11/18		75	%
			Tribromophenol-2,4,6	2016/11/18		101	%
			Trifluoro-m-cresol	2016/11/18		83	%
			2,4-Dimethylphenol	2016/11/18	<0.6		ug/L
			2,4-Dinitrophenol	2016/11/18	<10		ug/L
			2-Méthyl-4,6-dinitrophénol	2016/11/18	<10		ug/L
			4-Nitrophenol	2016/11/18	<1		ug/L
			Phenol	2016/11/18	<0.6		ug/L
			2-Chlorophenol	2016/11/18	<0.5		ug/L
			3-Chlorophenol	2016/11/18	<0.5		ug/L
			4-Chlorophenol	2016/11/18	<0.4		ug/L
			2,3-Dichlorophenol	2016/11/18	<0.5		ug/L
			2,4 + 2,5-Dichlorophenol	2016/11/18	<0.3		ug/L
			2,6-Dichlorophenol	2016/11/18	<0.4		ug/L
			3,4-Dichlorophenol	2016/11/18	<0.4		ug/L
			3,5-Dichlorophenol	2016/11/18	<0.4		ug/L
			Pentachlorophenol	2016/11/18	<0.4		ug/L
			2,3,4,6-Tetrachlorophenol	2016/11/18	<0.4		ug/L
			2,3,5,6-Tetrachlorophenol	2016/11/18	<0.4		ug/L
			2,4,5-Trichlorophenol	2016/11/18	<0.4		ug/L
			2,4,6-Trichlorophenol	2016/11/18	<0.4		ug/L
			2,3,5-Trichlorophenol	2016/11/18	<0.4		ug/L
			2,3,4-Trichlorophenol	2016/11/18	<0.4		ug/L
			2,3,6-Trichlorophenol	2016/11/18	<0.4		ug/L
			2,3,4,5-Tetrachlorophenol	2016/11/18	<0.4		ug/L
			3,4,5-Trichlorophenol	2016/11/18	<0.4		ug/L
			o-Cresol	2016/11/18	<1		ug/L
			p-Cresol	2016/11/18	<1		ug/L



Englobe Corp.  
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Your P.O. #: 23513  
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### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1694585	CB5	Spiked blank	2,3,3',4,6-Pentachlorobiphenyl	2016/11/18		89	%
			2',3,5-Trichlorobiphenyl	2016/11/18		82	%
			22'33'44'566'-Nonachlorobiphenyl	2016/11/18		107	%
			Total PCBs	2016/11/18		94	%
1694585	CB5	Method blank	2,3,3',4,6-Pentachlorobiphenyl	2016/11/18		94	%
			2',3,5-Trichlorobiphenyl	2016/11/18		89	%
			22'33'44'566'-Nonachlorobiphenyl	2016/11/18		118	%
			Total PCBs	2016/11/18	<0.010		ug/L
1694600	HLU	Spiked blank	Conductivity	2016/11/18		102	%
1694600	HLU	Method blank	Conductivity	2016/11/18	<0.001		mS/cm
1694602	ST1	Spiked blank	4-Bromofluorobenzene	2016/11/18		96	%
			D4-1,2-Dichloroethane	2016/11/18		84	%
			D8-Toluene	2016/11/18		109	%
			Benzene	2016/11/18		88	%
			Chlorobenzene	2016/11/18		94	%
			Dichloro-1,2 benzene	2016/11/18		92	%
			Dichloro-1,3 benzene	2016/11/18		87	%
			Dichloro-1,4 benzene	2016/11/18		92	%
			Ethylbenzene	2016/11/18		82	%
			Styrene	2016/11/18		82	%
			Toluene	2016/11/18		91	%
			Xylenes (o,m,p)	2016/11/18		87	%
			Chloroform	2016/11/18		83	%
			Vinylchloride (Chloroethene)	2016/11/18		67 (1)	%
			1,2-Dichloroethane	2016/11/18		78	%
			1,1-Dichloroethene	2016/11/18		84	%
			1,2-Dichloroethene (cis)	2016/11/18		83	%
			1,2-Dichloroethene (trans)	2016/11/18		82	%
			1,2-Dichloroethene (cis and trans)	2016/11/18		83	%
			Dichloromethane	2016/11/18		106	%
			1,2-Dichloropropane	2016/11/18		92	%
			1,3-Dichloropropane	2016/11/18		93	%
			1,3-Dichloropropene (cis)	2016/11/18		90	%
			1,3-Dichloropropene (trans)	2016/11/18		96	%
			1,3-Dichloropropene (cis and trans)	2016/11/18		93	%
			1,1,2,2-Tetrachloroethane	2016/11/18		94	%
			Tetrachloroethene	2016/11/18		103	%
			Carbon tetrachloride	2016/11/18		77	%
			1,1,1-Trichloroethane	2016/11/18		76	%
			1,1,2-Trichloroethane	2016/11/18		96	%
			Trichloroethene	2016/11/18		90	%
			Pentachloroethane	2016/11/18		70	%
			Hexachloroethane	2016/11/18		79	%
			1,1-Dichloroethane	2016/11/18		90	%
1694602	ST1	Method blank	4-Bromofluorobenzene	2016/11/18		96	%
			D4-1,2-Dichloroethane	2016/11/18		86	%
			D8-Toluene	2016/11/18		109	%
			Benzene	2016/11/18	<0.2		ug/L
			Chlorobenzene	2016/11/18	<0.2		ug/L
			1,2-dichlorobenzene	2016/11/18	<0.2		ug/L

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
			1,2-dichlorobenzene	2016/11/18	<0.1		ug/L
			1,4-dichlorobenzene	2016/11/18	<0.2		ug/L
			Ethylbenzene	2016/11/18	<0.1		ug/L
			Styrene	2016/11/18	<0.1		ug/L
			Toluene	2016/11/18	<0.1		ug/L
			Xylenes (o,m,p)	2016/11/18	<0.4		ug/L
			Chloroform	2016/11/18	<0.2		ug/L
			Vinylchloride (Chloroethene)	2016/11/18	<0.2		ug/L
			1,2-Dichloroethane	2016/11/18	<0.1		ug/L
			1,1-Dichloroethene	2016/11/18	<1		ug/L
			1,2-Dichloroethene (cis)	2016/11/18	<0.2		ug/L
			1,2-Dichloroethene (trans)	2016/11/18	<0.2		ug/L
			1,2-Dichloroethene (cis and trans)	2016/11/18	<0.2		ug/L
			Dichloromethane	2016/11/18	<0.9		ug/L
			1,2-Dichloropropane	2016/11/18	<0.1		ug/L
			1,3-Dichloropropane	2016/11/18	<0.1		ug/L
			1,3-Dichloropropene (cis)	2016/11/18	<0.1		ug/L
			1,3-Dichloropropene (trans)	2016/11/18	<0.1		ug/L
			1,3-Dichloropropene (cis and trans)	2016/11/18	<0.1		ug/L
			1,1,2,2-Tetrachloroethane	2016/11/18	<0.1		ug/L
			Tetrachloroethene	2016/11/18	<0.2		ug/L
			Carbon tetrachloride	2016/11/18	<0.2		ug/L
			1,1,1-Trichloroethane	2016/11/18	<0.2		ug/L
			1,1,2-Trichloroethane	2016/11/18	<0.1		ug/L
			Trichloroethene	2016/11/18	<0.1		ug/L
			Pentachloroethane	2016/11/18	<0.4		ug/L
			Hexachloroethane	2016/11/18	<0.1		ug/L
			1,1-Dichloroethane	2016/11/18	<0.2		ug/L
1694603	CT2	Spiked blank	1-Chlorooctadecane	2016/11/18		91	%
			Petroleum hydrocarbons (C10-C50)	2016/11/18		93	%
1694603	CT2	Method blank	1-Chlorooctadecane	2016/11/18		80	%
			Petroleum hydrocarbons (C10-C50)	2016/11/18	<100		ug/L
1694604	DSC	Spiked blank	D10-Anthracene	2016/11/18		72	%
			D12-Benzo(a)pyrene	2016/11/18		84	%
			D14-Terphenyl	2016/11/18		72	%
			D8-Acenaphthylene	2016/11/18		75	%
			D8-Naphtalene	2016/11/18		72	%
			Acenaphthene	2016/11/18		72	%
			Anthracene	2016/11/18		77	%
			Benzo(a)anthracene	2016/11/18		87	%
			Benzo(b)fluoranthene	2016/11/18		89	%
			Benzo(j)fluoranthene	2016/11/18		89	%
			Benzo(k)fluoranthene	2016/11/18		82	%
			Benzo(a)pyrene	2016/11/18		84	%
			Chrysene	2016/11/18		93	%
			Dibenzo(a,h)anthracene	2016/11/18		85	%
			Fluoranthene	2016/11/18		77	%
			Fluorene	2016/11/18		76	%
			Ideno(1,2,3-cd)pyrene	2016/11/18		82	%
			Naphthalene	2016/11/18		71	%

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC							
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1694604	DSC	Method blank	Phenanthrene	2016/11/18		74	%
			Pyrene	2016/11/18		78	%
			D10-Anthracene	2016/11/18		71	%
			D12-Benzo(a)pyrene	2016/11/18		82	%
			D14-Terphenyl	2016/11/18		72	%
			D8-Acenaphthylene	2016/11/18		77	%
			D8-Naphtalene	2016/11/18		75	%
			Acenaphthene	2016/11/18	<0.03		ug/L
			Anthracene	2016/11/18	<0.03		ug/L
			Benzo(a)anthracene	2016/11/18	<0.03		ug/L
			Benzo(b)fluoranthene	2016/11/18	0.06		ug/L
			Benzo(j)fluoranthene	2016/11/18	0.06		ug/L
			Benzo(k)fluoranthene	2016/11/18	0.06		ug/L
			Benzo(a)pyrene	2016/11/18	<0.008		ug/L
			Chrysene	2016/11/18	<0.03		ug/L
			Dibenzo(a,h)anthracene	2016/11/18	<0.03		ug/L
			Fluoranthene	2016/11/18	<0.03		ug/L
			Fluorene	2016/11/18	<0.03		ug/L
			Ideno(1,2,3-cd)pyrene	2016/11/18	<0.03		ug/L
			Naphthalene	2016/11/18	<0.03		ug/L
			Phenanthrene	2016/11/18	<0.03		ug/L
			Pyrene	2016/11/18	<0.03		ug/L
			Total PAHs (RES)	2016/11/18	0.06		ug/L
1694778	MR4	Spiked blank	Total Organic Carbon	2016/11/18		102	%
1694778	MR4	Method blank	Total Organic Carbon	2016/11/18	<0.2		m2
1694822	MR4	Spiked blank	Dissolved Organic Carbon	2016/11/18		104	%
1694822	MR4	Method blank	Dissolved Organic Carbon	2016/11/18	<0.2		m2
1695122	CB5	Spiked blank	C13-1,2,4-Trichlorobenzene	2016/11/19		95	%
			C13-Hexachlorobenzene	2016/11/19		92	%
			1,3,5-Trichlorobenzene	2016/11/19		106	%
			1,2,4-Trichlorobenzene	2016/11/19		99	%
			1,2,3-Trichlorobenzene	2016/11/19		103	%
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/19		102	%
			1,2,3,4-Tetrachlorobenzene	2016/11/19		102	%
			Pentachlorobenzene	2016/11/19		107	%
			Hexachlorobenzene	2016/11/19		108	%
			C13-1,2,4-Trichlorobenzene	2016/11/19		86	%
			C13-Hexachlorobenzene	2016/11/19		90	%
			1,3,5-Trichlorobenzene	2016/11/19	<0.02		ug/L
			1,2,4-Trichlorobenzene	2016/11/19	<0.02		ug/L
			1,2,3-Trichlorobenzene	2016/11/19	<0.02		ug/L
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/19	<0.03		ug/L
			1,2,3,4-Tetrachlorobenzene	2016/11/19	<0.02		ug/L
			Pentachlorobenzene	2016/11/19	<0.02		ug/L
1695122	CB5	Method blank					

Maxxam Job #: B681382  
Report Date: 2016/11/21

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### QUALITY ASSURANCE REPORT (CONTINUED)

Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
QA/QC			Hexachlorobenzene	2016/11/19	<0.02		ug/L
RCN: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.							
Spiked blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.							
Method blank: An aliquot portion of pure matrix that is submitted to the same analytical process as the samples, from pre-treatment to assaying. Used to identify laboratory contamination.							
Surrogate: Compound of similar composition to the compounds analyzed and added to the pre-analysis sample. Used to evaluate the quality of the extraction.							
Rec = Recovery							
(1) Recovery or relative variation (RPD) for this composite is beyond control limits, but the overall quality control meets the criteria of acceptability for this analysis							

Maxxam Job #: B681382  
Report Date: 2016/11/21

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### **VALIDATION SIGNATURE PAGE**

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

Caroline Bougie, B.Sc. Chemist

Dochka Koleva Hristova, B.Sc., Chemist

Faouzi Sarsi, B.Sc. Chemist

Miryam Assayag, B.Sc. Chemist

Madina Hamrouni, B.Sc., Chemist

Noureddine Chafiaai, B.Sc., Chemist

Ngoc-Thuy Do, B.Sc., Chemist

Maxxam Job #: B681382  
Report Date: 2016/11/21

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### **VALIDATION SIGNATURE PAGE (CONTINUED)**

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

Olga Zlatov Polevoi

Phuc Khanh Tuong, B.Sc., Chemist

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.

B681382 COC

ICE YES  
SFAL NO

257

Eau de surf.	Surface water
Sols	Soils
Sédiments	Sediments
Autres	Other
# de contenants	# of containers
À livrer (oui/non)	To be delivered (yes/no)
Date	Date
HYDROCARBURES PÉTROLIERS (C10-C50)	PETROLEUM HYDROCARBONS (C10-C50)
HYDROCARBURES AROMATIQUES POLYCYCLIQUES	POLYCYCLIC AROMATIC HYDROCARBONS
BPC TOTAUX	TOTAL PCBs
MÉTALX extractibles totaux	Total extractable METALS
MERCURE PAR ICP-MS	MERCURY BY ICP-MS
CARBONE ORGANIQUE TOTAL	TOTAL ORGANIC CARBON
CHLOROBENZENES	CHLOROBENZENES
SOUFRE	SULPHUR
Composés acides (phénols)	Acid compounds (Phenols)
COMPOSÉS ORGANIQUES VOLATILS HMA-HHT (pot 60mL, sans air)	VOLATILE ORGANIC COMPOUNDS HMA-HHT (pot 60 mL, no air)
Granulométrie	Granulometry
DIOXINES ET FURANES PAR CGSM HR	DIOXINS AND FURANS BY CGSM HR
Mono-, Di et Tributylène	Mono-, Di- and Tributylene
Détermination potentiel acidogène (TDPAS)	Acid base accounting (ABA)
DÉLAI : C10-C50 : 24 h COV : 24h Métaux : 24h Autres : 48 h	DEADLINE: C10-C50: 24 h COV: 24 h Metals: 24 h Other: 48 h
N° d'offre de service Maxxam :	Maxxam service offer #:
Site : KS	Location: KS
N° de bon de commande Englobe :	Englobe P.O #:
Autres	Other
Limites de détection requises / types de contamina	Required detection limits / types of contaminants
Instructions spéciales : *Métaux : Politique + Se – Délais minimal requis	Special Instructions: *Metals: Policy + Se – Minimal deadlines required
*Autres =	*Other =
Livré par :	Delivered by:
Livré par messagerie :	Delivered by courier:
Date :	Date:
Heure :	Time:



Your P.O. #: 23514  
 Your project #: 11905  
 Your waybill #: N/A

Attention: Maud Demarty  
 Englobe Corp.  
 Division of Englobe Corp.  
 1453 St-Timothée  
 Montreal, QC  
 Canada H2L 3N7

Report Date: 2016/12/08  
 Report #: R2227576  
 Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B681391  
 Received: 2016/11/17, 5:45 PM

Matrix: SOIL  
 Samples received: 13

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Volatile organic compounds*	2	2016/11/17	2016/11/17	STL SOP-00145	MA400–COV 2.0 R4 m
Volatile organic compounds*	11	2016/11/17	2016/11/18	STL SOP-00145	MA400–COV 2.0 R4 m
Available anions*	1	2016/11/21	2016/11/22	STL SOP-00014	MA300-Ions 1.3 R3 m
Petroleum hydrocarbons (C10-C50)*	13	2016/11/18	2016/11/18	STL SOP-00172	MA.400–HYD. 1.1 R3 m
Chlorobenzenes*	13	2016/11/21	2016/11/22	STL SOP-00154	MA400-Clbz 1.0 R4 m
Total extractable metals*	13	2016/11/18	2016/11/18	STL SOP-00006	MA200–Mét 1.2 R5 m
Polycyclic aromatic hydrocarbons*	13	2016/11/18	2016/11/18	STL SOP-00120	MA400-HAP 1.1 R4 m
Total PCBs*	13	2016/11/18	2016/11/19	STL SOP-00133	MA400-BPC 1.0 R5 m
Acid compounds (Phenols)*	1	2016/11/18	2016/11/18	STL SOP-00135	MA400–Phe 1.0 R3 m
Acid compounds (Phenols)*	12	2016/11/18	2016/11/19	STL SOP-00135	MA400–Phe 1.0 R3 m
Granulometry and sediment analysis (1)	7	N/A	N/A		
Sulphur*	13	N/A	2016/11/18	STL SOP-00028	MA310-CS 1.0 R3 m
Acid base accounting (ABA)***	1	2016/11/18	2016/11/24	STL SOP-00067	MA110-ACISOL 1.0 R4m
Total organic carbon by titration (2)*	13	2016/11/19	2016/11/21	QUE SOP-00153	MA. 405 – C 1.1 r2 m

#### **Notes:**

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.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not

Your P.O. #: 23514  
Your project #: 11905  
Your waybill #: N/A

Attention: Maud Demarty  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2016/12/08  
Report #: R2227576  
Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B681391  
Received: 2016/11/17, 5:45 PM

Recovery corrected except for isotope dilution methods.  
Results relate to samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory. Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

Note: RPDs calculated using raw data (% of relative variation). The rounding of final results may result in the apparent difference.

(1) This analysis was performed by Maxxam Analytics - Bedford

(2) This analysis was performed by Maxxam - Québec

\* Maxxam is accredited for this analysis under the MDDELCC program.

\*\*\* This analysis is not part of the MDDELCC accreditation program.

Encryption key

Please direct all questions regarding this Certificate of Analysis to your Project Manager  
Rodrigo Caffarengo,  
E-mail: [RCaffarengo@maxxam.ca](mailto:RCaffarengo@maxxam.ca)  
Telephone: 514-448-9001 Ext: 6336

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.

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PAH BY GCMS (SOIL)

Maxxam Job					DI0492			DI0493			DI0494			
Sampling date					2016/11/17			2016/11/17			2016/11/17			
Waybill #					N/A			N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-09</b>	<b>CR</b>	<b>RDL</b>	<b>SED-10</b>	<b>CR</b>	<b>RDL</b>	<b>SED-11</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	71			71			74			
<b>PAHs</b>														
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		0.1	<0.1		0.1	<0.1		0.1	1694746
Naphthalene	mg/kg	0.1	5	50	0.02	<A	0.01	0.03	<A	0.01	0.01	<A	0.01	1694746
Acenaphthylene	mg/kg	0.1	10	100	0.030	<A	0.003	0.054	<A	0.003	0.018	<A	0.003	1694746
Acenaphthene	mg/kg	0.1	10	100	0.015	<A	0.003	0.020	<A	0.003	0.013	<A	0.003	1694746
Fluorene	mg/kg	0.1	10	100	0.03	<A	0.01	0.04	<A	0.01	0.02	<A	0.01	1694746
Phenanthrene	mg/kg	0.1	5	50	0.23	A-B	0.01	0.26	A-B	0.01	0.12	A-B	0.01	1694746
Anthracene	mg/kg	0.1	10	100	0.16	A-B	0.01	0.20	A-B	0.01	0.06	<A	0.01	1694746
Fluoranthene	mg/kg	0.1	10	100	0.80	A-B	0.01	1.0	A-B	0.01	0.36	A-B	0.01	1694746
Pyrene	mg/kg	0.1	10	100	0.69	A-B	0.01	0.92	A-B	0.01	0.30	A-B	0.01	1694746
Benzo(a)anthracene	mg/kg	0.1	1	10	1.4	B-C	0.01	1.7	B-C	0.01	0.32	A-B	0.01	1694746
Chrysene	mg/kg	0.1	1	10	2.8	B-C	0.01	3.3	B-C	0.01	0.37	A-B	0.01	1694746
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	6.0		0.1	6.8		0.1	1.1		0.01	1694746
Benzo(e)pyrene	mg/kg	-	-	-	2.5		0.01	2.9		0.01	0.49		0.01	1694746
Benzo(a)pyrene	mg/kg	0.1	1	10	2.4	B-C	0.01	3.0	B-C	0.01	0.43	A-B	0.01	1694746
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	2.5	B-C	0.01	3.2	B-C	0.01	0.51	A-B	0.01	1694746
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.51	A-B	0.003	0.63	A-B	0.003	0.10	A	0.003	1694746
Benzo(ghi)perylene	mg/kg	0.1	1	10	2.6	B-C	0.01	4.5	B-C	0.1	0.55	A-B	0.01	1694746
2-Methylnaphthalene	mg/kg	0.1	1	10	0.01	<A	0.01	0.02	<A	0.01	0.01	<A	0.01	1694746
1-Methylnaphthalene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694746
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.11	A-B	0.01	0.15	A-B	0.01	0.04	<A	0.01	1694746
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694746
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694746
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.14	A-B	0.01	0.22	A-B	0.01	0.03	<A	0.01	1694746
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694746
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.05	<A	0.01	0.07	<A	0.01	0.01	<A	0.01	1694746
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.01	0.02	<A	0.01	0.02	<A	0.01	1694746
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		0.01	<0.01		0.01	1694746
<b>Surrogate Recovery (%)</b>														
D10-Anthracene	%	-	-	-	75			80			77			1694746
D12-Benzo(a)pyrene	%	-	-	-	84			87			77			1694746
D14-Terphenyl	%	-	-	-	86			86			83			1694746
D8-Acenaphthylene	%	-	-	-	73			75			74			1694746
D8-Naphtalene	%	-	-	-	69			75			75			1694746
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PAH BY GCMS (SOIL)

Maxxam Job					DI0496		DI0497			DI0498			
Sampling date					2016/11/17		2016/11/17			2016/11/17			
Waybill #					N/A		N/A			N/A			
	Units	A	B	C	SED-12-1	CR	SED-13	CR	RDL	SED-14	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		73			70			
<b>PAHs</b>													
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		<0.1		0.1	<0.1		0.1	1694746
Naphthalene	mg/kg	0.1	5	50	0.01	<A	0.01	<A	0.01	0.04	<A	0.01	1694746
Acenaphthylene	mg/kg	0.1	10	100	0.024	<A	0.021	<A	0.003	0.059	<A	0.003	1694746
Acenaphthene	mg/kg	0.1	10	100	0.012	<A	0.015	<A	0.003	0.035	<A	0.003	1694746
Fluorene	mg/kg	0.1	10	100	0.02	<A	0.02	<A	0.01	0.07	<A	0.01	1694746
Phenanthrene	mg/kg	0.1	5	50	0.13	A-B	0.12	A-B	0.01	0.41	A-B	0.01	1694746
Anthracene	mg/kg	0.1	10	100	0.08	<A	0.06	<A	0.01	0.33	A-B	0.01	1694746
Fluoranthene	mg/kg	0.1	10	100	0.46	A-B	0.40	A-B	0.01	2.3	A-B	0.01	1694746
Pyrene	mg/kg	0.1	10	100	0.39	A-B	0.34	A-B	0.01	2.1	A-B	0.01	1694746
Benzo(a)anthracene	mg/kg	0.1	1	10	0.57	A-B	0.33	A-B	0.01	3.1	B-C	0.01	1694746
Chrysene	mg/kg	0.1	1	10	0.94	A-B	0.41	A-B	0.01	6.3	B-C	0.1	1694746
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	2.1		1.1		0.01	11		0.1	1694746
Benzo(e)pyrene	mg/kg	-	-	-	0.99		0.51		0.01	5.5		0.1	1694746
Benzo(a)pyrene	mg/kg	0.1	1	10	0.91	A-B	0.43	A-B	0.01	5.5	B-C	0.1	1694746
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	1.0	B	0.49	A-B	0.01	4.7	B-C	0.1	1694746
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.21	A-B	0.11	A-B	0.003	0.96	A-B	0.003	1694746
Benzo(ghi)perylene	mg/kg	0.1	1	10	1.1	B-C	0.55	A-B	0.01	5.4	B-C	0.1	1694746
2-Methylnaphthalene	mg/kg	0.1	1	10	0.01	<A	0.02	<A	0.01	0.02	<A	0.01	1694746
1-Methylnaphthalene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		0.01	1694746
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.05	<A	0.04	<A	0.01	0.31	A-B	0.01	1694746
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		0.01	1694746
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		0.01	1694746
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.06	<A	0.03	<A	0.01	0.30	A-B	0.01	1694746
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		0.01	1694746
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.02	<A	0.01	<A	0.01	0.10	A	0.01	1694746
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.03	<A	0.01	0.03	<A	0.01	1694746
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		0.01	1694746
<b>Surrogate Recovery (%)</b>													
D10-Anthracene	%	-	-	-	81		79			95			1694746
D12-Benzo(a)pyrene	%	-	-	-	84		79			93			1694746
D14-Terphenyl	%	-	-	-	89		87			86			1694746
D8-Acenaphthylene	%	-	-	-	75		74			67			1694746
D8-Naphtalene	%	-	-	-	73		75			67			1694746
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PAH BY GCMS (SOIL)

Maxxam Job					DI0499		DI0500		DI0501			DI0502			
Sampling date					2016/11/17		2016/11/17		2016/11/17			2016/11/17			
Waybill #					N/A		N/A		N/A			N/A			
	Units	A	B	C	SED-15-1	CR	SED-16	CR	SED-17	CR	RDL	SED-18	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		75		75			72			
<b>PAHs</b>															
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		<0.1		<0.1		0.1	<0.1		0.1	1694746
Naphthalene	mg/kg	0.1	5	50	0.01	<A	0.01	<A	<0.01		0.01	0.02	<A	0.01	1694746
Acenaphthylene	mg/kg	0.1	10	100	0.020	<A	0.020	<A	0.019	<A	0.003	0.045	<A	0.003	1694746
Acenaphthene	mg/kg	0.1	10	100	0.015	<A	0.016	<A	0.009	<A	0.003	0.023	<A	0.003	1694746
Fluorene	mg/kg	0.1	10	100	0.02	<A	0.02	<A	0.02	<A	0.01	0.05	<A	0.01	1694746
Phenanthrene	mg/kg	0.1	5	50	0.23	A-B	0.13	A-B	0.12	A-B	0.01	0.38	A-B	0.01	1694746
Anthracene	mg/kg	0.1	10	100	0.17	A-B	0.07	<A	0.07	<A	0.01	0.28	A-B	0.01	1694746
Fluoranthene	mg/kg	0.1	10	100	0.87	A-B	0.44	A-B	0.42	A-B	0.01	2.1	A-B	0.01	1694746
Pyrene	mg/kg	0.1	10	100	0.70	A-B	0.40	A-B	0.35	A-B	0.01	1.8	A-B	0.01	1694746
Benzo(a)anthracene	mg/kg	0.1	1	10	1.5	B-C	0.36	A-B	0.31	A-B	0.01	2.1	B-C	0.01	1694746
Chrysene	mg/kg	0.1	1	10	3.0	B-C	0.46	A-B	0.38	A-B	0.01	3.6	B-C	0.1	1694746
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	5.1		1.2		0.98		0.01	6.5		0.1	1694746
Benzo(e)pyrene	mg/kg	-	-	-	2.3		0.58		0.43		0.01	2.4		0.01	1694746
Benzo(a)pyrene	mg/kg	0.1	1	10	2.2	B-C	0.50	A-B	0.40	A-B	0.01	2.4	B-C	0.01	1694746
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	1.8	B-C	0.59	A-B	0.42	A-B	0.01	2.0	B-C	0.01	1694746
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.42	A-B	0.12	A-B	0.087	<A	0.003	0.44	A-B	0.003	1694746
Benzo(ghi)perylene	mg/kg	0.1	1	10	1.9	B-C	0.64	A-B	0.45	A-B	0.01	2.1	B-C	0.01	1694746
2-Methylnaphtalene	mg/kg	0.1	1	10	0.01	<A	0.01	<A	<0.01		0.01	0.02	<A	0.01	1694746
1-Methylnaphtalene	mg/kg	0.1	1	10	<0.01		<0.01		<0.01		0.01	<0.01		0.01	1694746
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.11	A-B	0.05	<A	0.04	<A	0.01	0.18	A-B	0.01	1694746
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.01		<0.01		<0.01		0.01	<0.02 (1)		0.02	1694746
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		<0.01		<0.01		0.01	<0.01		0.01	1694746
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.09	<A	0.04	<A	0.03	<A	0.01	0.10	A	0.01	1694746
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		<0.01		<0.01		0.01	<0.01		0.01	1694746
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.04	<A	0.01	<A	0.01	<A	0.01	0.04	<A	0.01	1694746
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.02	<A	0.02	<A	0.01	0.03	<A	0.01	1694746
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01		<0.01		<0.01		0.01	<0.01		0.01	1694746
<b>Surrogate Recovery (%)</b>															
D10-Anthracene	%	-	-	-	78		85		83			85			1694746
D12-Benzo(a)pyrene	%	-	-	-	80		85		82			84			1694746
D14-Terphenyl	%	-	-	-	82		97		87			91			1694746
D8-Acenaphthylene	%	-	-	-	72		79		78			80			1694746
RDL = Reportable Detection Limit															
QC Batch = Quality Control Batch															
(1) Due to matrix interference, the detection limit was increased.															

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PAH BY GCMS (SOIL)

Maxxam Job					DI0499		DI0500		DI0501			DI0502			
Sampling date					2016/11/17		2016/11/17		2016/11/17			2016/11/17			
Waybill #					N/A		N/A		N/A			N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-15-1</b>	<b>CR</b>	<b>SED-16</b>	<b>CR</b>	<b>SED-17</b>	<b>CR</b>	<b>RDL</b>	<b>SED-18</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D8-Naphtalene	%	-	-	-	73		78		70			70			1694746
RDL = Reportable Detection Limit															
QC Batch = Quality Control Batch															

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PAH BY GCMS (SOIL)

Maxxam Job					DI0503		DI0504			DI0505		DI0505			
Sampling date					2016/11/17		2016/11/17			2016/11/17		2016/11/17			
Waybill #					N/A		N/A			N/A		N/A			
	Units	A	B	C	SED-21	CR	SED-12-2	CR	RDL	SED-15-2	CR	SED-15-2 Lab. Dup.	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		73			73		73			
<b>PAHs</b>															
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		<0.1		0.1	<0.1		<0.1		0.1	1694746
Naphthalene	mg/kg	0.1	5	50	0.02	<A	0.01	<A	0.01	0.01	<A	0.01	<A	0.01	1694746
Acenaphthylene	mg/kg	0.1	10	100	0.042	<A	0.029	<A	0.003	0.030	<A	0.029	<A	0.003	1694746
Acenaphthene	mg/kg	0.1	10	100	0.018	<A	0.010	<A	0.003	0.014	<A	0.013	<A	0.003	1694746
Fluorene	mg/kg	0.1	10	100	0.05	<A	0.03	<A	0.01	0.03	<A	0.03	<A	0.01	1694746
Phenanthrene	mg/kg	0.1	5	50	0.21	A-B	0.14	A-B	0.01	0.25	A-B	0.24	A-B	0.01	1694746
Anthracene	mg/kg	0.1	10	100	0.15	A-B	0.11	A-B	0.01	0.19	A-B	0.19	A-B	0.01	1694746
Fluoranthene	mg/kg	0.1	10	100	0.76	A-B	0.51	A-B	0.01	0.93	A-B	0.94	A-B	0.01	1694746
Pyrene	mg/kg	0.1	10	100	0.64	A-B	0.42	A-B	0.01	0.76	A-B	0.76	A-B	0.01	1694746
Benzo(a)anthracene	mg/kg	0.1	1	10	0.56	A-B	0.64	A-B	0.01	1.6	B-C	1.6	B-C	0.01	1694746
Chrysene	mg/kg	0.1	1	10	0.69	A-B	1.1	B-C	0.01	3.1	B-C	3.1	B-C	0.01	1694746
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	1.7		2.4		0.01	5.1		5.2		0.01	1694746
Benzo(e)pyrene	mg/kg	-	-	-	0.72		1.1		0.01	2.2		2.3		0.01	1694746
Benzo(a)pyrene	mg/kg	0.1	1	10	0.69	A-B	1.0	B	0.01	2.3	B-C	2.3	B-C	0.01	1694746
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	0.75	A-B	1.1	B-C	0.01	1.8	B-C	1.8	B-C	0.01	1694746
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.15	A-B	0.23	A-B	0.003	0.42	A-B	0.42	A-B	0.003	1694746
Benzo(ghi)perylene	mg/kg	0.1	1	10	0.80	A-B	1.1	B-C	0.01	1.9	B-C	2.0	B-C	0.01	1694746
2-Methylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.01	<A	0.01	0.01	<A	0.01	<A	0.01	1694746
1-Methylnaphthalene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		<0.01		0.01	1694746
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.07	<A	0.05	<A	0.01	0.12	A-B	0.12	A-B	0.01	1694746
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.02 (1)		<0.02 (1)		0.02	<0.01		<0.01		0.01	1694746
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		<0.01		0.01	1694746
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.06	<A	0.06	<A	0.01	0.10	A	0.09	<A	0.01	1694746
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		<0.01		0.01	1694746
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.02	<A	0.02	<A	0.01	0.04	<A	0.04	<A	0.01	1694746
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.03	<A	0.02	<A	0.01	0.02	<A	0.02	<A	0.01	1694746
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01		<0.01		0.01	<0.01		<0.01		0.01	1694746
<b>Surrogate Recovery (%)</b>															
D10-Anthracene	%	-	-	-	87		86			85		85			1694746
D12-Benzo(a)pyrene	%	-	-	-	84		82			84		83			1694746
D14-Terphenyl	%	-	-	-	93		90			91		89			1694746
RDL = Reportable Detection Limit															
QC Batch = Quality Control Batch															
Laboratory duplicate															
(1) Due to matrix interference, the detection limit was increased.															

Maxxam Job #: B681391  
 Report Date: 2016/12/08

Englobe Corp.  
 Your project #: 11905  
 Your P.O. #: 23514

### PAH BY GCMS (SOIL)

Maxxam Job					DI0503		DI0504			DI0505		DI0505			
Sampling date					2016/11/17		2016/11/17			2016/11/17		2016/11/17			
Waybill #					N/A		N/A			N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-21</b>	<b>CR</b>	<b>SED-12-2</b>	<b>CR</b>	<b>RDL</b>	<b>SED-15-2</b>	<b>CR</b>	<b>SED-15-2 Lab. Dup.</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D8-Acenaphthylene	%	-	-	-	81		83			79		81			1694746
D8-Naphtalene	%	-	-	-	72		73			71		72			1694746
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate															



Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PAH BY GCMS (SOIL)

Maxxam Job					DI0505			
Sampling date					2016/11/17			
Waybill #					N/A			
	Units	A	B	C	SED-15-2 Lab. Dup. 2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73			
<b>PAHs</b>								
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		0.1	1694746
Naphthalene	mg/kg	0.1	5	50	0.02	<A	0.01	1694746
Acenaphthylene	mg/kg	0.1	10	100	0.031	<A	0.003	1694746
Acenaphthene	mg/kg	0.1	10	100	0.015	<A	0.003	1694746
Fluorene	mg/kg	0.1	10	100	0.03	<A	0.01	1694746
Phenanthrene	mg/kg	0.1	5	50	0.27	A-B	0.01	1694746
Anthracene	mg/kg	0.1	10	100	0.21	A-B	0.01	1694746
Fluoranthene	mg/kg	0.1	10	100	1.0	A-B	0.01	1694746
Pyrene	mg/kg	0.1	10	100	0.82	A-B	0.01	1694746
Benzo(a)anthracene	mg/kg	0.1	1	10	1.7	B-C	0.01	1694746
Chrysene	mg/kg	0.1	1	10	3.3	B-C	0.01	1694746
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	5.4		0.01	1694746
Benzo(e)pyrene	mg/kg	-	-	-	2.4		0.01	1694746
Benzo(a)pyrene	mg/kg	0.1	1	10	2.4	B-C	0.01	1694746
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	1.9	B-C	0.01	1694746
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.45	A-B	0.003	1694746
Benzo(ghi)perylene	mg/kg	0.1	1	10	2.0	B-C	0.01	1694746
2-Methylnaphthalene	mg/kg	0.1	1	10	0.01	<A	0.01	1694746
1-Methylnaphthalene	mg/kg	0.1	1	10	<0.01		0.01	1694746
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.13	A-B	0.01	1694746
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.01		0.01	1694746
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		0.01	1694746
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.10	A	0.01	1694746
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		0.01	1694746
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.04	<A	0.01	1694746
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.01	1694746
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01		0.01	1694746
<b>Surrogate Recovery (%)</b>								
D10-Anthracene	%	-	-	-	89			1694746
D12-Benzo(a)pyrene	%	-	-	-	87			1694746
D14-Terphenyl	%	-	-	-	95			1694746
D8-Acenaphthylene	%	-	-	-	82			1694746
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate								

Maxxam Job #: B681391  
 Report Date: 2016/12/08

Englobe Corp.  
 Your project #: 11905  
 Your P.O. #: 23514

# PAH BY GCMS (SOIL)

Maxxam Job					DI0505			
Sampling date					2016/11/17			
Waybill #					N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-15-2 Lab. Dup. 2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D8-Naphtalene	%	-	-	-	72			1694746
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate								

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PHENOLS BY GCMS (SOIL)

Maxxam Job					DI0492		DI0493		DI0494		DI0496			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-09	CR	SED-10	CR	SED-11	CR	SED-12-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	71		71		74		73			
<b>PHENOLS</b>														
o-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
m-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
p-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
4-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
Phenol	mg/kg	0.2	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
<b>Surrogate Recovery (%)</b>														
D6-Phenol	%	-	-	-	77		78		75		77			1694835
Tribromophenol-2,4,6	%	-	-	-	98		102		99		102			1694835
Trifluoro-m-cresol	%	-	-	-	80		81		78		79			1694835
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PHENOLS BY GCMS (SOIL)

Maxxam Job					DI0497		DI0498		DI0499		DI0500			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-13	CR	SED-14	CR	SED-15-1	CR	SED-16	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		70		73		75			
<b>PHENOLS</b>														
o-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
m-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
p-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
4-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
Phenol	mg/kg	0.2	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
<b>Surrogate Recovery (%)</b>														
D6-Phenol	%	-	-	-	76		77		74		76			1694835
Tribromophenol-2,4,6	%	-	-	-	94		102		105		107			1694835
Trifluoro-m-cresol	%	-	-	-	78		79		76		78			1694835
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PHENOLS BY GCMS (SOIL)

Maxxam Job					DI0500		DI0501		DI0502		DI0503			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-16 Lab. Dup.	CR	SED-17	CR	SED-18	CR	SED-21	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	75		75		72		73			
<b>PHENOLS</b>														
o-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
m-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
p-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
4-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
Phenol	mg/kg	0.2	1	10	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		<0.1		<0.1		0.1	1694835
<b>Surrogate Recovery (%)</b>														
D6-Phenol	%	-	-	-	71		66		64		67			1694835
Tribromophenol-2,4,6	%	-	-	-	106		103		105		103			1694835
Trifluoro-m-cresol	%	-	-	-	74		68		68		71			1694835
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate														

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PHENOLS BY GCMS (SOIL)

Maxxam Job					DI0504		DI0505			
Sampling date					2016/11/17		2016/11/17			
Waybill #					N/A		N/A			
	Units	A	B	C	SED-12-2	CR	SED-15-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		73			
<b>PHENOLS</b>										
o-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		0.1	1694835
m-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		0.1	1694835
p-Cresol	mg/kg	0.1	1	10	<0.1		<0.1		0.1	1694835
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		<0.1		0.1	1694835
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		0.1	1694835
4-Nitrophenol	mg/kg	0.5	1	10	<0.1		<0.1		0.1	1694835
Phenol	mg/kg	0.2	1	10	<0.1		<0.1		0.1	1694835
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		<0.1		0.1	1694835
<b>Surrogate Recovery (%)</b>										
D6-Phenol	%	-	-	-	76		79			1694835
Tribromophenol-2,4,6	%	-	-	-	105		105			1694835
Trifluoro-m-cresol	%	-	-	-	78		81			1694835
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### CHLOROBENZENES (SOL)

Maxxam Job					DI0492		DI0493		DI0494		DI0496			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-09	CR	SED-10	CR	SED-11	CR	SED-12-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	71		71		74		73			
<b>CHLOROBENZENES</b>														
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
Hexachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
<b>Surrogate Recovery (%)</b>														
C13-1,2,4-Trichlorobenzene	%	-	-	-	85		82		83		83			1695567
C13-Hexachlorobenzene	%	-	-	-	97		95		96		93			1695567
RDL = Reportable Detection Limit QC Batch = Quality Control Batch														

Maxxam Job					DI0497		DI0498		DI0499		DI0500			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-13	CR	SED-14	CR	SED-15-1	CR	SED-16	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		70		73		75			
<b>CHLOROBENZENES</b>														
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		0.01	<A	<0.01		<0.01		0.01	1695567
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
Hexachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
<b>Surrogate Recovery (%)</b>														
C13-1,2,4-Trichlorobenzene	%	-	-	-	82		76		76		80			1695567
C13-Hexachlorobenzene	%	-	-	-	92		95		90		91			1695567
RDL = Reportable Detection Limit QC Batch = Quality Control Batch														

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### CHLOROBENZENES (SOL)

Maxxam Job					DI0500		DI0501		DI0502		DI0503			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-16 Lab. Dup.	CR	SED-17	CR	SED-18	CR	SED-21	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	75		75		72		73			
<b>CHLOROBENZENES</b>														
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
Hexachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		<0.01		0.01	1695567
<b>Surrogate Recovery (%)</b>														
C13-1,2,4-Trichlorobenzene	%	-	-	-	81		73		82		80			1695567
C13-Hexachlorobenzene	%	-	-	-	92		86		102		98			1695567
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														
Laboratory duplicate														

Maxxam Job					DI0504		DI0505							
Sampling date					2016/11/17		2016/11/17							
Waybill #					N/A		N/A							
	Units	A	B	C	SED-12-2	CR	SED-15-2	CR	RDL	QC batch				
% HUMIDITY	%	-	-	-	73		73							
<b>CHLOROBENZENES</b>														
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		0.01	1695567				
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		0.01	1695567				
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		0.01	1695567				
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		0.01	1695567				
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		0.01	1695567				
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		0.01	1695567				
Hexachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		0.01	1695567				
<b>Surrogate Recovery (%)</b>														
C13-1,2,4-Trichlorobenzene	%	-	-	-	80		62			1695567				
C13-Hexachlorobenzene	%	-	-	-	93		71			1695567				
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														



Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### HYDROCARBONS BY GCFID (SOIL)

Maxxam Job					DI0492		DI0493			DI0494			
Sampling date					2016/11/17		2016/11/17			2016/11/17			
Waybill #					N/A		N/A			N/A			
	Units	A	B	C	SED-09	CR	SED-10	CR	QC batch	SED-11	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	71		71			74			
<b>PETROLEUM HYDROCARBONS</b>													
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	280	<A	310	A-B	1695023	220	<A	100	1694752
<b>Surrogate Recovery (%)</b>													
1-Chlorooctadecane	%	-	-	-	90		93		1695023	73			1694752
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													

Maxxam Job					DI0496		DI0497		DI0498		DI0499		
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17		
Waybill #					N/A		N/A		N/A		N/A		
	Units	A	B	C	SED-12-1	CR	SED-13	CR	SED-14	CR	SED-15-1	CR	RDL QC batch
% HUMIDITY	%	-	-	-	73		73		70		73		
<b>PETROLEUM HYDROCARBONS</b>													
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	200	<A	190	<A	850	B-C	650	A-B	100 1695023
<b>Surrogate Recovery (%)</b>													
1-Chlorooctadecane	%	-	-	-	92		96		86		90		1695023
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													

Maxxam Job					DI0500		DI0501		DI0501				
Sampling date					2016/11/17		2016/11/17		2016/11/17				
Waybill #					N/A		N/A		N/A				
	Units	A	B	C	SED-16	CR	QC batch	SED-17	CR	SED-17 Lab. Dup.	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	75			75		75			
<b>PETROLEUM HYDROCARBONS</b>													
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	220	<A	1694752	570	A-B	550	A-B	100	1695023
<b>Surrogate Recovery (%)</b>													
1-Chlorooctadecane	%	-	-	-	67		1694752	89		92			1695023
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													
Laboratory duplicate													

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### HYDROCARBONS BY GCFID (SOIL)

Maxxam Job					DI0502			DI0503		DI0504			
Sampling date					2016/11/17			2016/11/17		2016/11/17			
Waybill #					N/A			N/A		N/A			
	Units	A	B	C	SED-18	CR	QC batch	SED-21	CR	SED-12-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	72			73		73			
<b>PETROLEUM HYDROCARBONS</b>													
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	260	<A	1694752	660	A-B	530	A-B	100	1695023
<b>Surrogate Recovery (%)</b>													
1-Chlorooctadecane	%	-	-	-	61		1694752	89		88			1695023
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													

Maxxam Job					DI0505				
Sampling date					2016/11/17				
Waybill #					N/A				
	Units	A	B	C	SED-15-2	CR	RDL	QC batch	
% HUMIDITY	%	-	-	-	73				
<b>PETROLEUM HYDROCARBONS</b>									
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	630	A-B	100	1695023	
<b>Surrogate Recovery (%)</b>									
1-Chlorooctadecane	%	-	-	-	94			1695023	
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam Job #: B681391  
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Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### COV BY GC/MS (SOIL)

Maxxam Job					DI0492		DI0493		DI0494		DI0496			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-09	CR	SED-10	CR	SED-11	CR	SED-12-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	71		71		74		73			
<b>COMPOUNDS</b>														
Benzene	mg/kg	0.2	0.5	5	<0.3		<0.3		<0.3		<0.3		0.3	1694579
Chlorobenzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Ethylbenzene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Styrene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Toluene	mg/kg	0.2	3	30	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Chloroform	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	0.06		0.06		0.06		0.06		0.06	1694579
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Dichloromethane	mg/kg	-	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Tetrachloroethene	mg/kg	0.3	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Carbon tetrachloride	mg/kg	0.1	5	50	<0.3		<0.3		<0.3		<0.3		0.3	1694579
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Trichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
<b>Surrogate Recovery (%)</b>														
4-Bromofluorobenzene	%	-	-	-	99		99		98		99			1694579
D10-Ethylbenzene	%	-	-	-	103		104		104		100			1694579
D4-1,2-Dichloroethane	%	-	-	-	107		107		107		108			1694579
D8-Toluene	%	-	-	-	100		100		100		100			1694579
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681391  
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Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### COV BY GC/MS (SOIL)

Maxxam Job					DI0497		DI0498		DI0499		DI0500			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-13	CR	SED-14	CR	SED-15-1	CR	SED-16	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		70		73		75			
<b>COMPOUNDS</b>														
Benzene	mg/kg	0.2	0.5	5	<0.3		<0.3		<0.3		<0.3		0.3	1694579
Chlorobenzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Ethylbenzene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Styrene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Toluene	mg/kg	0.2	3	30	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Chloroform	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	0.06		0.06		0.06		0.06		0.06	1694579
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Dichloromethane	mg/kg	-	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Tetrachloroethene	mg/kg	0.3	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Carbon tetrachloride	mg/kg	0.1	5	50	<0.3		<0.3		<0.3		<0.3		0.3	1694579
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Trichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
<b>Surrogate Recovery (%)</b>														
4-Bromofluorobenzene	%	-	-	-	98		98		99		99			1694579
D10-Ethylbenzene	%	-	-	-	101		100		99		103			1694579
D4-1,2-Dichloroethane	%	-	-	-	105		107		106		106			1694579
D8-Toluene	%	-	-	-	101		100		100		100			1694579
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681391  
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Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### COV BY GC/MS (SOIL)

Maxxam Job					DI0501		DI0502		DI0503		DI0504			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-17	CR	SED-18	CR	SED-21	CR	SED-12-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	75		72		73		73			
<b>COMPOUNDS</b>														
Benzene	mg/kg	0.2	0.5	5	<0.3		<0.3		<0.3		<0.3		0.3	1694579
Chlorobenzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Ethylbenzene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Styrene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Toluene	mg/kg	0.2	3	30	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Chloroform	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	0.06		0.06		0.06		0.06		0.06	1694579
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Dichloromethane	mg/kg	-	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Tetrachloroethene	mg/kg	0.3	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Carbon tetrachloride	mg/kg	0.1	5	50	<0.3		<0.3		<0.3		<0.3		0.3	1694579
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
Trichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1694579
<b>Surrogate Recovery (%)</b>														
4-Bromofluorobenzene	%	-	-	-	98		91		99		99			1694579
D10-Ethylbenzene	%	-	-	-	103		85		98		103			1694579
D4-1,2-Dichloroethane	%	-	-	-	106		109		109		107			1694579
D8-Toluene	%	-	-	-	100		103		99		99			1694579
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### COV BY GC/MS (SOIL)

Maxxam Job					DI0505			
Sampling date					2016/11/17			
Waybill #					N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-15-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	73			
<b>COMPOUNDS</b>								
Benzene	mg/kg	0.2	0.5	5	<0.3		0.3	1694579
Chlorobenzene	mg/kg	0.2	1	10	<0.6		0.6	1694579
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.6		0.6	1694579
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.6		0.6	1694579
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.6		0.6	1694579
Ethylbenzene	mg/kg	0.2	5	50	<0.6		0.6	1694579
Styrene	mg/kg	0.2	5	50	<0.6		0.6	1694579
Toluene	mg/kg	0.2	3	30	<0.6		0.6	1694579
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.6		0.6	1694579
Chloroform	mg/kg	0.2	5	50	<0.6		0.6	1694579
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	0.06		0.06	1694579
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.6		0.6	1694579
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.6		0.6	1694579
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.6		0.6	1694579
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.6		0.6	1694579
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.6		0.6	1694579
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.6		0.6	1694579
Dichloromethane	mg/kg	-	5	50	<0.6		0.6	1694579
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.6		0.6	1694579
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.6		0.6	1694579
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.6		0.6	1694579
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.6		0.6	1694579
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.6		0.6	1694579
Tetrachloroethene	mg/kg	0.3	5	50	<0.6		0.6	1694579
Carbon tetrachloride	mg/kg	0.1	5	50	<0.3		0.3	1694579
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.6		0.6	1694579
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.6		0.6	1694579
Trichloroethene	mg/kg	0.2	5	50	<0.6		0.6	1694579
<b>Surrogate Recovery (%)</b>								
4-Bromofluorobenzene	%	-	-	-	99			1694579
D10-Ethylbenzene	%	-	-	-	99			1694579
D4-1,2-Dichloroethane	%	-	-	-	108			1694579
D8-Toluene	%	-	-	-	99			1694579
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### TOTAL EXTRACTABLE METALS (SOIL)

Maxxam Job					DI0492		DI0493		DI0494		DI0496			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-09</b>	<b>CR</b>	<b>SED-10</b>	<b>CR</b>	<b>SED-11</b>	<b>CR</b>	<b>SED-12-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	71		71		74		73			
<b>METALS</b>														
Silver (Ag)	mg/kg	2	20	40	<2		<2		<2		<2		2	1694637
Arsenic (As)	mg/kg	6	30	50	18	A-B	18	A-B	7	A-B	9	A-B	2	1694637
Barium (Ba)	mg/kg	340	500	2000	340	A	330	<A	300	<A	350	A-B	5	1694637
Cadmium (Cd)	mg/kg	1.5	5	20	15	B-C	16	B-C	2.7	A-B	4.9	A-B	0.1	1694637
Chromium (Cr)	mg/kg	100	250	800	69	<A	60	<A	65	<A	68	<A	2	1694637
Copper (Cu)	mg/kg	50	100	500	61	A-B	56	A-B	51	A-B	56	A-B	1	1694637
Cobalt (Co)	mg/kg	25	50	300	27	A-B	24	<A	18	<A	20	<A	2	1694637
Tin (Sn)	mg/kg	5	50	300	9	A-B	12	A-B	6	A-B	6	A-B	5	1694637
Manganese (Mn)	mg/kg	1000	1000	2200	5400	>C	5400	>C	1300	B-C	2500	>C	2	1694637
Molybdenum (Mo)	mg/kg	2	10	40	2	A	2	A	<2		<2		2	1694637
Nickel (Ni)	mg/kg	50	100	500	55	A-B	51	A-B	47	<A	50	A	1	1694637
Mercury (Hg)	mg/kg	0.2	2	10	2.9	B-C	3.2	B-C	2.4	B-C	2.7	B-C	0.05	1694637
Lead (Pb)	mg/kg	50	500	1000	100	A-B	110	A-B	42	<A	54	A-B	5	1694637
Selenium (Se)	mg/kg	1	3	10	2	A-B	1	A	1	A	1	A	1	1694637
Zinc (Zn)	mg/kg	140	500	1500	800	B-C	760	B-C	280	A-B	390	A-B	5	1694637
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### TOTAL EXTRACTABLE METALS (SOIL)

Maxxam Job					DI0497		DI0498		DI0499		DI0500			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-13	CR	SED-14	CR	SED-15-1	CR	SED-16	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		70		73		75			
<b>METALS</b>														
Silver (Ag)	mg/kg	2	20	40	<2		<2		<2		<2		2	1694637
Arsenic (As)	mg/kg	6	30	50	7	A-B	20	A-B	12	A-B	7	A-B	2	1694637
Barium (Ba)	mg/kg	340	500	2000	330	<A	450	A-B	340	A	400	A-B	5	1694637
Cadmium (Cd)	mg/kg	1.5	5	20	2.4	A-B	16	B-C	8.9	B-C	2.6	A-B	0.1	1694637
Chromium (Cr)	mg/kg	100	250	800	62	<A	60	<A	58	<A	67	<A	2	1694637
Copper (Cu)	mg/kg	50	100	500	51	A-B	58	A-B	50	A	54	A-B	1	1694637
Cobalt (Co)	mg/kg	25	50	300	18	<A	24	<A	20	<A	19	<A	2	1694637
Tin (Sn)	mg/kg	5	50	300	6	A-B	14	A-B	6	A-B	7	A-B	5	1694637
Manganese (Mn)	mg/kg	1000	1000	2200	1100	B-C	7700	>C	4500	>C	1800	B-C	2	1694637
Molybdenum (Mo)	mg/kg	2	10	40	<2		<2		<2		<2		2	1694637
Nickel (Ni)	mg/kg	50	100	500	47	<A	49	<A	45	<A	49	<A	1	1694637
Mercury (Hg)	mg/kg	0.2	2	10	2.5	B-C	4.1	B-C	2.7	B-C	2.8	B-C	0.05	1694637
Lead (Pb)	mg/kg	50	500	1000	41	<A	120	A-B	69	A-B	45	<A	5	1694637
Selenium (Se)	mg/kg	1	3	10	1	A	1	A	1	A	1	A	1	1694637
Zinc (Zn)	mg/kg	140	500	1500	260	A-B	820	B-C	520	B-C	280	A-B	5	1694637
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														



Maxxam Job #: B681391  
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Englobe Corp.  
Your project #: 11905  
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### TOTAL EXTRACTABLE METALS (SOIL)

Maxxam Job					DI0501		DI0502		DI0502		DI0503			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-17	CR	SED-18	CR	SED-18 Lab. Dup.	CR	SED-21	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	75		72		72		73			
<b>METALS</b>														
Silver (Ag)	mg/kg	2	20	40	<2		<2		<2		<2		2	1694637
Arsenic (As)	mg/kg	6	30	50	7	A-B	19	A-B	18	A-B	8	A-B	2	1694637
Barium (Ba)	mg/kg	340	500	2000	340	A	420	A-B	410	A-B	420	A-B	5	1694637
Cadmium (Cd)	mg/kg	1.5	5	20	2.1	A-B	12	B-C	11	B-C	2.9	A-B	0.1	1694637
Chromium (Cr)	mg/kg	100	250	800	65	<A	61	<A	60	<A	64	<A	2	1694637
Copper (Cu)	mg/kg	50	100	500	55	A-B	55	A-B	54	A-B	58	A-B	1	1694637
Cobalt (Co)	mg/kg	25	50	300	18	<A	24	<A	23	<A	21	<A	2	1694637
Tin (Sn)	mg/kg	5	50	300	6	A-B	7	A-B	7	A-B	7	A-B	5	1694637
Manganese (Mn)	mg/kg	1000	1000	2200	1400	B-C	6500	>C	6400	>C	2200	C	2	1694637
Molybdenum (Mo)	mg/kg	2	10	40	<2		<2		<2		<2		2	1694637
Nickel (Ni)	mg/kg	50	100	500	47	<A	50	A	49	<A	50	A	1	1694637
Mercury (Hg)	mg/kg	0.2	2	10	2.5	B-C	3.2	B-C	3.3	B-C	3.2	B-C	0.05	1694637
Lead (Pb)	mg/kg	50	500	1000	39	<A	89	A-B	85	A-B	49	<A	5	1694637
Selenium (Se)	mg/kg	1	3	10	1	A	1	A	1	A	1	A	1	1694637
Zinc (Zn)	mg/kg	140	500	1500	260	A-B	700	B-C	660	B-C	310	A-B	5	1694637
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														
Laboratory duplicate														

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### TOTAL EXTRACTABLE METALS (SOIL)

Maxxam Job					DI0504		DI0505			
Sampling date					2016/11/17		2016/11/17			
Waybill #					N/A		N/A			
	Units	A	B	C	SED-12-2	CR	SED-15-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		73			
<b>METALS</b>										
Silver (Ag)	mg/kg	2	20	40	<2		<2		2	1694637
Arsenic (As)	mg/kg	6	30	50	8	A-B	13	A-B	2	1694637
Barium (Ba)	mg/kg	340	500	2000	340	A	380	A-B	5	1694637
Cadmium (Cd)	mg/kg	1.5	5	20	4.8	A-B	9.1	B-C	0.1	1694637
Chromium (Cr)	mg/kg	100	250	800	62	<A	66	<A	2	1694637
Copper (Cu)	mg/kg	50	100	500	52	A-B	56	A-B	1	1694637
Cobalt (Co)	mg/kg	25	50	300	19	<A	22	<A	2	1694637
Tin (Sn)	mg/kg	5	50	300	6	A-B	7	A-B	5	1694637
Manganese (Mn)	mg/kg	1000	1000	2200	2400	>C	4800	>C	2	1694637
Molybdenum (Mo)	mg/kg	2	10	40	<2		<2		2	1694637
Nickel (Ni)	mg/kg	50	100	500	47	<A	50	A	1	1694637
Mercury (Hg)	mg/kg	0.2	2	10	2.8	B-C	3.0	B-C	0.05	1694637
Lead (Pb)	mg/kg	50	500	1000	54	A-B	74	A-B	5	1694637
Selenium (Se)	mg/kg	1	3	10	1	A	2	A-B	1	1694637
Zinc (Zn)	mg/kg	140	500	1500	370	A-B	560	B-C	5	1694637
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### CONVENTIONAL PARAMETERS (SOIL)

Maxxam Job					DI0492		DI0493		DI0494		DI0496			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-09	CR	SED-10	CR	SED-11	CR	SED-12-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	71		71		74		73			
<b>CONVENTIONAL</b>														
Total organic carbon (titration)	% g/g	-	-	-	4.8		4.7		4.6		4.9		0.05	1695428
S stat (cmole H+/kg)	n/a	-	-	-							19		1	1695127
Sulphur (S)	% g/g	0.04	0.2	0.2	0.49	>C	0.44	>C	0.34	>C	0.33	>C	0.01	1694832
pH static (pH stat)	n/a	-	-	-							7.0		N/A	1695127
Sulphate (SO <sub>4</sub> )	mg/kg	-	-	-							390		50	1695796
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable														

Maxxam Job					DI0496		DI0497		DI0498		DI0499			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-12-1 Lab. Dup.	CR	SED-13	CR	SED-14	CR	SED-15-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		73		70		73			
<b>CONVENTIONAL</b>														
Total organic carbon (titration)	% g/g	-	-	-	4.8		5.1		4.4		4.8		0.05	1695428
Sulphur (S)	% g/g	0.04	0.2	0.2			0.41	>C	0.43	>C	0.39	>C	0.01	1694832
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate														

Maxxam Job					DI0499		DI0500		DI0501		DI0502			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-15-1 Lab. Dup.	CR	SED-16	CR	SED-17	CR	SED-18	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		75		75		72			
<b>CONVENTIONAL</b>														
Total organic carbon (titration)	% g/g	-	-	-			4.7		5.1		4.5		0.05	1695428
Sulphur (S)	% g/g	0.04	0.2	0.2	0.37	>C	0.32	>C	0.33	>C	0.34	>C	0.01	1694832
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate														

Maxxam Job #: B681391  
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Englobe Corp.  
 Your project #: 11905  
 Your P.O. #: 23514

### CONVENTIONAL PARAMETERS (SOIL)

Maxxam Job					DI0503		DI0504		DI0505			
Sampling date					2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-21</b>	<b>CR</b>	<b>SED-12-2</b>	<b>CR</b>	<b>SED-15-2</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	73		73		73			
<b>CONVENTIONAL</b>												
Total organic carbon (titration)	% g/g	-	-	-	5.0		4.7		4.6		0.05	1695428
Sulphur (S)	% g/g	0.04	0.2	0.2	0.38	>C	0.31	>C	0.40	>C	0.01	1694832
RDL = Reportable Detection Limit												
QC Batch = Quality Control Batch												

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PCB CONGENERS (SOIL)

Maxxam Job					DI0492		DI0493		DI0494		DI0496			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-09	CR	SED-10	CR	SED-11	CR	SED-12-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	71		71		74		73			
<b>PCBs</b>														
CL3-IUPAC-17+18	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL3-IUPAC-28+31	mg/kg	-	-	-	0.01		0.02		<0.01		0.01		0.01	1694949
CL3-IUPAC-33	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL4-IUPAC-52	mg/kg	-	-	-	0.01		0.03		0.01		0.01		0.01	1694949
CL4-IUPAC-49	mg/kg	-	-	-	<0.01		0.02		<0.01		<0.01		0.01	1694949
CL4-IUPAC-44	mg/kg	-	-	-	<0.01		0.01		<0.01		<0.01		0.01	1694949
CL4-IUPAC-74	mg/kg	-	-	-	<0.01		0.01		<0.01		<0.01		0.01	1694949
CL4-IUPAC-70	mg/kg	-	-	-	0.01		0.02		0.01		0.01		0.01	1694949
CL5-IUPAC-95	mg/kg	-	-	-	0.01		0.03		<0.01		0.01		0.01	1694949
CL5-IUPAC-101	mg/kg	-	-	-	0.03		0.05		0.02		0.03		0.01	1694949
CL5-IUPAC-99	mg/kg	-	-	-	0.02		0.03		0.01		0.01		0.01	1694949
CL5-IUPAC-87	mg/kg	-	-	-	<0.01		0.01		<0.01		0.01		0.01	1694949
CL5-IUPAC-110	mg/kg	-	-	-	0.03		0.05		0.02		0.03		0.01	1694949
CL5-IUPAC-82	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-151	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-149	mg/kg	-	-	-	0.01		0.02		<0.01		<0.01		0.01	1694949
CL5-IUPAC-118	mg/kg	-	-	-	0.03		0.05		0.02		0.03		0.01	1694949
CL6-IUPAC-153	mg/kg	-	-	-	0.02		0.03		0.01		0.01		0.01	1694949
CL6-IUPAC-132	mg/kg	-	-	-	<0.01		0.01		<0.01		<0.01		0.01	1694949
CL5-IUPAC-105	mg/kg	-	-	-	0.01		0.02		0.01		0.01		0.01	1694949
CL6-IUPAC-138+158	mg/kg	-	-	-	0.03		0.04		0.02		0.03		0.01	1694949
CL7-IUPAC-187	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-183	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-128	mg/kg	-	-	-	<0.01		0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-177	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-156	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-180	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-170	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PCB CONGENERS (SOIL)

Maxxam Job					DI0492		DI0493		DI0494		DI0496			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-09	CR	SED-10	CR	SED-11	CR	SED-12-1	CR	RDL	QC batch
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total trichlorobiphenyls	mg/kg	-	-	-	0.01		0.02		<0.01		0.01		0.01	1694949
Total tetrachlorobiphenyls	mg/kg	-	-	-	0.05		0.15		0.04		0.03		0.01	1694949
Total pentachlorobiphenyls	mg/kg	-	-	-	0.14		0.26		0.09		0.13		0.01	1694949
Total hexachlorobiphenyls	mg/kg	-	-	-	0.05		0.12		0.03		0.04		0.01	1694949
Total heptachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total PCBs	mg/kg	0.2	1	10	0.24	A-B	0.54	A-B	0.16	<A	0.21	A-B	0.01	1694949
<b>Surrogate Recovery (%)</b>														
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	100		99		101		94			1694949
2',3,5-Trichlorobiphenyl	%	-	-	-	93		96		95		87			1694949
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	93		85		88		84			1694949
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PCB CONGENERS (SOIL)

Maxxam Job					DI0497		DI0498		DI0499		DI0500			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-13	CR	SED-14	CR	SED-15-1	CR	SED-16	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		70		73		75			
<b>PCBs</b>														
CL3-IUPAC-17+18	mg/kg	-	-	-	<0.01		0.03		<0.01		<0.01		0.01	1694949
CL3-IUPAC-28+31	mg/kg	-	-	-	<0.01		0.03		0.01		0.01		0.01	1694949
CL3-IUPAC-33	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL4-IUPAC-52	mg/kg	-	-	-	0.01		0.09		0.02		0.02		0.01	1694949
CL4-IUPAC-49	mg/kg	-	-	-	<0.01		0.06		<0.01		<0.01		0.01	1694949
CL4-IUPAC-44	mg/kg	-	-	-	<0.01		0.03		0.01		<0.01		0.01	1694949
CL4-IUPAC-74	mg/kg	-	-	-	<0.01		0.01		<0.01		<0.01		0.01	1694949
CL4-IUPAC-70	mg/kg	-	-	-	0.01		0.03		0.01		0.02		0.01	1694949
CL5-IUPAC-95	mg/kg	-	-	-	<0.01		0.04		0.01		0.01		0.01	1694949
CL5-IUPAC-101	mg/kg	-	-	-	0.02		0.06		0.02		0.03		0.01	1694949
CL5-IUPAC-99	mg/kg	-	-	-	0.01		0.03		0.01		0.02		0.01	1694949
CL5-IUPAC-87	mg/kg	-	-	-	<0.01		0.02		<0.01		0.01		0.01	1694949
CL5-IUPAC-110	mg/kg	-	-	-	0.02		0.07		0.02		0.03		0.01	1694949
CL5-IUPAC-82	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-151	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-149	mg/kg	-	-	-	<0.01		0.03		<0.01		0.01		0.01	1694949
CL5-IUPAC-118	mg/kg	-	-	-	0.03		0.05		0.03		0.04		0.01	1694949
CL6-IUPAC-153	mg/kg	-	-	-	0.01		0.03		0.01		0.02		0.01	1694949
CL6-IUPAC-132	mg/kg	-	-	-	<0.01		0.01		<0.01		<0.01		0.01	1694949
CL5-IUPAC-105	mg/kg	-	-	-	0.01		0.02		0.01		0.02		0.01	1694949
CL6-IUPAC-138+158	mg/kg	-	-	-	0.02		0.05		0.02		0.03		0.01	1694949
CL7-IUPAC-187	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-183	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-128	mg/kg	-	-	-	<0.01		0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-177	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-156	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-180	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-170	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PCB CONGENERS (SOIL)

Maxxam Job					DI0497		DI0498		DI0499		DI0500			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-13	CR	SED-14	CR	SED-15-1	CR	SED-16	CR	RDL	QC batch
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total trichlorobiphenyls	mg/kg	-	-	-	<0.01		0.15		0.01		0.01		0.01	1694949
Total tetrachlorobiphenyls	mg/kg	-	-	-	0.02		0.28		0.06		0.04		0.01	1694949
Total pentachlorobiphenyls	mg/kg	-	-	-	0.09		0.30		0.11		0.15		0.01	1694949
Total hexachlorobiphenyls	mg/kg	-	-	-	0.03		0.13		0.04		0.06		0.01	1694949
Total heptachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total PCBs	mg/kg	0.2	1	10	0.17	<A	0.86	A-B	0.22	A-B	0.29	A-B	0.01	1694949
<b>Surrogate Recovery (%)</b>														
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	94		96		95		106			1694949
2',3,5-Trichlorobiphenyl	%	-	-	-	87		95		91		97			1694949
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	82		89		90		105			1694949
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														



Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PCB CONGENERS (SOIL)

Maxxam Job					DI0501		DI0502		DI0503		DI0504			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-17	CR	SED-18	CR	SED-21	CR	SED-12-2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	75		72		73		73			
PCBs														
CL3-IUPAC-17+18	mg/kg	-	-	-	<0.01		0.01		<0.01		<0.01		0.01	1694949
CL3-IUPAC-28+31	mg/kg	-	-	-	<0.01		0.01		0.01		<0.01		0.01	1694949
CL3-IUPAC-33	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL4-IUPAC-52	mg/kg	-	-	-	<0.01		0.02		0.03		0.01		0.01	1694949
CL4-IUPAC-49	mg/kg	-	-	-	<0.01		0.02		0.02		<0.01		0.01	1694949
CL4-IUPAC-44	mg/kg	-	-	-	<0.01		0.01		0.01		<0.01		0.01	1694949
CL4-IUPAC-74	mg/kg	-	-	-	<0.01		<0.01		0.01		<0.01		0.01	1694949
CL4-IUPAC-70	mg/kg	-	-	-	0.01		0.02		0.03		0.01		0.01	1694949
CL5-IUPAC-95	mg/kg	-	-	-	<0.01		0.02		0.02		0.01		0.01	1694949
CL5-IUPAC-101	mg/kg	-	-	-	0.02		0.05		0.05		0.02		0.01	1694949
CL5-IUPAC-99	mg/kg	-	-	-	0.01		0.03		0.03		0.01		0.01	1694949
CL5-IUPAC-87	mg/kg	-	-	-	0.01		0.02		0.02		<0.01		0.01	1694949
CL5-IUPAC-110	mg/kg	-	-	-	0.02		0.05		0.05		0.02		0.01	1694949
CL5-IUPAC-82	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-151	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-149	mg/kg	-	-	-	<0.01		0.02		0.02		<0.01		0.01	1694949
CL5-IUPAC-118	mg/kg	-	-	-	0.02		0.05		0.06		0.03		0.01	1694949
CL6-IUPAC-153	mg/kg	-	-	-	0.01		0.02		0.03		0.01		0.01	1694949
CL6-IUPAC-132	mg/kg	-	-	-	<0.01		0.01		0.01		<0.01		0.01	1694949
CL5-IUPAC-105	mg/kg	-	-	-	0.01		0.02		0.03		0.01		0.01	1694949
CL6-IUPAC-138+158	mg/kg	-	-	-	0.02		0.04		0.05		0.02		0.01	1694949
CL7-IUPAC-187	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-183	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-128	mg/kg	-	-	-	<0.01		0.01		0.01		<0.01		0.01	1694949
CL7-IUPAC-177	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-156	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-180	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-170	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PCB CONGENERS (SOIL)

Maxxam Job					DI0501		DI0502		DI0503		DI0504			
Sampling date					2016/11/17		2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-17	CR	SED-18	CR	SED-21	CR	SED-12-2	CR	RDL	QC batch
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total trichlorobiphenyls	mg/kg	-	-	-	<0.01		0.03		0.01		<0.01		0.01	1694949
Total tetrachlorobiphenyls	mg/kg	-	-	-	0.01		0.10		0.10		0.03		0.01	1694949
Total pentachlorobiphenyls	mg/kg	-	-	-	0.10		0.24		0.28		0.12		0.01	1694949
Total hexachlorobiphenyls	mg/kg	-	-	-	0.03		0.11		0.12		0.04		0.01	1694949
Total heptachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1694949
Total PCBs	mg/kg	0.2	1	10	0.16	<A	0.50	A-B	0.53	A-B	0.20	A	0.01	1694949
<b>Surrogate Recovery (%)</b>														
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	93		95		101		111			1694949
2',3,5-Trichlorobiphenyl	%	-	-	-	88		91		96		103			1694949
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	90		88		94		103			1694949
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PCB CONGENERS (SOIL)

Maxxam Job					DI0505		DI0505		DI0505			
Sampling date					2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A			
	Units	A	B	C	SED-15-2	CR	SED-15-2 Lab. Dup.	CR	SED-15-2 Lab. Dup. 2	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73		73		73			
<b>PCBs</b>												
CL3-IUPAC-17+18	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL3-IUPAC-28+31	mg/kg	-	-	-	0.01		0.01		0.01		0.01	1694949
CL3-IUPAC-33	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL4-IUPAC-52	mg/kg	-	-	-	0.01		0.01		0.02		0.01	1694949
CL4-IUPAC-49	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL4-IUPAC-44	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL4-IUPAC-74	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL4-IUPAC-70	mg/kg	-	-	-	0.01		0.01		0.01		0.01	1694949
CL5-IUPAC-95	mg/kg	-	-	-	0.01		0.01		0.01		0.01	1694949
CL5-IUPAC-101	mg/kg	-	-	-	0.02		0.02		0.03		0.01	1694949
CL5-IUPAC-99	mg/kg	-	-	-	0.01		0.01		0.01		0.01	1694949
CL5-IUPAC-87	mg/kg	-	-	-	<0.01		<0.01		0.01		0.01	1694949
CL5-IUPAC-110	mg/kg	-	-	-	0.02		0.03		0.03		0.01	1694949
CL5-IUPAC-82	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-151	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-149	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL5-IUPAC-118	mg/kg	-	-	-	0.03		0.03		0.03		0.01	1694949
CL6-IUPAC-153	mg/kg	-	-	-	0.01		0.01		0.01		0.01	1694949
CL6-IUPAC-132	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL5-IUPAC-105	mg/kg	-	-	-	0.01		0.01		0.01		0.01	1694949
CL6-IUPAC-138+158	mg/kg	-	-	-	0.02		0.03		0.02		0.01	1694949
CL7-IUPAC-187	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-183	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-128	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-177	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-156	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-180	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL7-IUPAC-170	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Laboratory duplicate												

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### PCB CONGENERS (SOIL)

Maxxam Job					DI0505		DI0505		DI0505			
Sampling date					2016/11/17		2016/11/17		2016/11/17			
Waybill #					N/A		N/A		N/A			
	Units	A	B	C	SED-15-2	CR	SED-15-2 Lab. Dup.	CR	SED-15-2 Lab. Dup. 2	CR	RDL	QC batch
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
Total trichlorobiphenyls	mg/kg	-	-	-	0.01		0.01		0.01		0.01	1694949
Total tetrachlorobiphenyls	mg/kg	-	-	-	0.04		0.03		0.05		0.01	1694949
Total pentachlorobiphenyls	mg/kg	-	-	-	0.11		0.12		0.13		0.01	1694949
Total hexachlorobiphenyls	mg/kg	-	-	-	0.04		0.04		0.04		0.01	1694949
Total heptachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1694949
Total PCBs	mg/kg	0.2	1	10	0.22	A-B	0.22	A-B	0.25	A-B	0.01	1694949
<b>Surrogate Recovery (%)</b>												
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	100		105		100			1694949
2',3,5-Trichlorobiphenyl	%	-	-	-	94		101		94			1694949
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	97		102		94			1694949
RDL = Reportable Detection Limit												
QC Batch = Quality Control Batch												
Laboratory duplicate												

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

## GENERAL COMMENTS

All results are calculated using a dry base, except when not applicable.

Condition of samples upon arrival: GOOD

A,B,C,CR: Soil criteria taken from Appendix 2 of the "Intervention Guide-Soil Protection and Rehabilitation of Contaminated Sites. MDDELCC, 2016." entitled "Generic Soil Evaluation Criteria". For analyses of metals (and metalloids) in the soil, Criteria A designated the "Substantive Content - St. Lawrence Lowlands".

Criteria A and B for groundwater are taken from Appendix 7, "Groundwater Quality Evaluation Criteria" of the aforementioned Intervention Guide. A=Drinking water; B=Seepage into surface water

These references are reported for information purposes only and must not be interpreted in any other context.

- = This compound is not part of the Regulations.

## CHLOROBENZENES (SOL)

Please note that the results have not been corrected for quality control sample recovery (spiked blank ) or for the blank. The sample results have been corrected for surrogate recovery percentage.

## CONVENTIONAL PARAMETERS (SOIL)

Please note that the results have not been corrected for quality control sample recovery or for method blank values.

The indicated detection limits are multiplied by the dilution factors used for sample analysis.

ABA\_S: According to reference method MA.110-ACISOL1.0:

If the pH stat value obtained is higher than or equal to 5.5, the sample is considered non-acid producing. If the value is below 5.5, the sample is considered acid-producing and the kinetic step must be carried out.

**The results refer only to the samples submitted for analysis.**

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1694579	ST1	Spiked blank	4-Bromofluorobenzene	2016/11/17		97	%
			D10-Ethylbenzene	2016/11/17		112	%
			D4-1,2-Dichloroethane	2016/11/17		89	%
			D8-Toluene	2016/11/17		105	%
			Benzene	2016/11/17		97	%
			Chlorobenzene	2016/11/17		96	%
			Dichloro-1,2 benzene	2016/11/17		97	%
			Dichloro-1,3 benzene	2016/11/17		104	%
			Dichloro-1,4 benzene	2016/11/17		99	%
			Ethylbenzene	2016/11/17		102	%
			Styrene	2016/11/17		103	%
			Toluene	2016/11/17		90	%
			Xylenes (o,m,p)	2016/11/17		105	%
			Chloroform	2016/11/17		96	%
			Vinylchloride (Chloroethene)	2016/11/17		85	%
			1,1-Dichloroethane	2016/11/17		104	%
			1,2-Dichloroethane	2016/11/17		90	%
			1,1-Dichloroethene	2016/11/17		101	%
			1,2-Dichloroethene (cis)	2016/11/17		102	%
			1,2-Dichloroethene (trans)	2016/11/17		100	%
			1,2-Dichloroethene (cis and trans)	2016/11/17		101	%
			Dichloromethane	2016/11/17		104	%
			1,2-Dichloropropane	2016/11/17		93	%
			1,3-Dichloropropene (cis)	2016/11/17		100	%
			1,3-Dichloropropene (trans)	2016/11/17		97	%
			1,3-Dichloropropene (cis and trans)	2016/11/17		99	%
			1,1,2,2-Tetrachloroethane	2016/11/17		83	%
			Tetrachloroethene	2016/11/17		105	%
			Carbon tetrachloride	2016/11/17		100	%
			1,1,1-Trichloroethane	2016/11/17		100	%
			1,1,2-Trichloroethane	2016/11/17		82	%
			Trichloroethene	2016/11/17		91	%
1694579	ST1	Method blank	4-Bromofluorobenzene	2016/11/17		98	%
			D10-Ethylbenzene	2016/11/17		103	%
			D4-1,2-Dichloroethane	2016/11/17		99	%
			D8-Toluene	2016/11/17		102	%
			Benzene	2016/11/17	<0.1		mg/kg
			Chlorobenzene	2016/11/17	<0.2		mg/kg
			Dichloro-1,2 benzene	2016/11/17	<0.2		mg/kg
			Dichloro-1,3 benzene	2016/11/17	<0.2		mg/kg
			Dichloro-1,4 benzene	2016/11/17	<0.2		mg/kg
			Ethylbenzene	2016/11/17	<0.2		mg/kg
			Styrene	2016/11/17	<0.2		mg/kg
			Toluene	2016/11/17	<0.2		mg/kg
			Xylenes (o,m,p)	2016/11/17	<0.2		mg/kg
			Chloroform	2016/11/17	<0.2		mg/kg
			Vinylchloride (Chloroethene)	2016/11/17	<0.02		mg/kg
			1,1-Dichloroethane	2016/11/17	<0.2		mg/kg
			1,2-Dichloroethane	2016/11/17	<0.2		mg/kg
			1,1-Dichloroethene	2016/11/17	<0.2		mg/kg
			1,2-Dichloroethene (cis)	2016/11/17	<0.2		mg/kg
			1,2-Dichloroethene (trans)	2016/11/17	<0.2		mg/kg

Englobe Corp.  
Your project #: 11905  
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### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1694637	KV1	Spiked blank	1,2-Dichloroethene (cis and trans)	2016/11/17	<0.2		mg/kg
			Dichloromethane	2016/11/17	<0.2		mg/kg
			1,2-Dichloropropane	2016/11/17	<0.2		mg/kg
			1,3-Dichloropropene (cis)	2016/11/17	<0.2		mg/kg
			1,3-Dichloropropene (trans)	2016/11/17	<0.2		mg/kg
			1,3-Dichloropropene (cis and trans)	2016/11/17	<0.2		mg/kg
			1,1,2,2-Tetrachloroethane	2016/11/17	<0.2		mg/kg
			Tetrachloroethene	2016/11/17	<0.2		mg/kg
			Carbon tetrachloride	2016/11/17	<0.1		mg/kg
			1,1,1-Trichloroethane	2016/11/17	<0.2		mg/kg
			1,1,2-Trichloroethane	2016/11/17	<0.2		mg/kg
			Trichloroethene	2016/11/17	<0.2		mg/kg
			Silver (Ag)	2016/11/18		101	%
			Arsenic (As)	2016/11/18		98	%
			Barium (Ba)	2016/11/18		100	%
1694637	KV1	Method blank	Cadmium (Cd)	2016/11/18		100	%
			Chromium (Cr)	2016/11/18		101	%
			Copper (Cu)	2016/11/18		102	%
			Cobalt (Co)	2016/11/18		107	%
			Tin (Sn)	2016/11/18		111	%
			Manganese (Mn)	2016/11/18		102	%
			Molybdenum (Mo)	2016/11/18		102	%
			Nickel (Ni)	2016/11/18		104	%
			Mercury (Hg)	2016/11/18		104	%
			Lead (Pb)	2016/11/18		106	%
			Selenium (Se)	2016/11/18		95	%
			Zinc (Zn)	2016/11/18		100	%
			Silver (Ag)	2016/11/18	<2		mg/kg
			Arsenic (As)	2016/11/18	<2		mg/kg
			Barium (Ba)	2016/11/18	<5		mg/kg
1694746	AH3	Spiked blank	Cadmium (Cd)	2016/11/18	<0.1		mg/kg
			Chromium (Cr)	2016/11/18	<2		mg/kg
			Copper (Cu)	2016/11/18	<1		mg/kg
			Cobalt (Co)	2016/11/18	<2		mg/kg
			Tin (Sn)	2016/11/18	<5		mg/kg
			Manganese (Mn)	2016/11/18	<2		mg/kg
			Molybdenum (Mo)	2016/11/18	<2		mg/kg
			Nickel (Ni)	2016/11/18	<1		mg/kg
			Mercury (Hg)	2016/11/18	<0.05		mg/kg
			Lead (Pb)	2016/11/18	<5		mg/kg
			Selenium (Se)	2016/11/18	<1		mg/kg
			Zinc (Zn)	2016/11/18	<5		mg/kg
			2-Chloronaphthalene	2016/11/18		82	%
			D10-Anthracene	2016/11/18		67	%
			D12-Benzo(a)pyrene	2016/11/18		85	%
			D14-Terphenyl	2016/11/18		83	%
			D8-Acenaphthylene	2016/11/18		67	%
			D8-Naphtalene	2016/11/18		77	%
			Naphthalene	2016/11/18		84	%
			Acenaphthylene	2016/11/18		71	%
			Acenaphthene	2016/11/18		84	%
			Fluorene	2016/11/18		83	%

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1694746	AH3	Method blank	Phenanthrene	2016/11/18		75	%
			Anthracene	2016/11/18		75	%
			Fluoranthene	2016/11/18		81	%
			Pyrene	2016/11/18		85	%
			Benzo(a)anthracene	2016/11/18		94	%
			Chrysene	2016/11/18		97	%
			Benzo(b+j+k)fluoranthene	2016/11/18		96	%
			Benzo(e)pyrene	2016/11/18		97	%
			Benzo(a)pyrene	2016/11/18		87	%
			Ideno(1,2,3-cd)pyrene	2016/11/18		95	%
			Dibenzo(a,h)anthracene	2016/11/18		102	%
			Benzo(ghi)perylene	2016/11/18		103	%
			2-Methylnaphtalene	2016/11/18		93	%
			1-Methylnaphtalene	2016/11/18		76	%
			Benzo(c)phenanthrene	2016/11/18		95	%
			3-Methylcholanthrene	2016/11/18		101	%
			7,12-Dimethylbenzanthracene	2016/11/18		91	%
			Dibenzo(a,i)pyrene	2016/11/18		85	%
			Dibenzo(a,l)pyrene	2016/11/18		98	%
			Dibenzo(a,h)pyrene	2016/11/18		72	%
			1,3-Dimethylnaphthalene	2016/11/18		84	%
			2,3,5-Trimethylnaphthalene	2016/11/18		80	%
			2-Chloronaphthalene	2016/11/18	<0.1		mg/kg
			D10-Anthracene	2016/11/18		67	%
			D12-Benzo(a)pyrene	2016/11/18		83	%
			D14-Terphenyl	2016/11/18		77	%
			D8-Acenaphthylene	2016/11/18		65	%
			D8-Naphtalene	2016/11/18		72	%
			Naphthalene	2016/11/18	<0.01		mg/kg
			Acenaphthylene	2016/11/18	<0.003		mg/kg
			Acenaphthene	2016/11/18	0.003, RDL=0.003		mg/kg
			Fluorene	2016/11/18	<0.01		mg/kg
			Phenanthrene	2016/11/18	<0.01		mg/kg
			Anthracene	2016/11/18	<0.01		mg/kg
			Fluoranthene	2016/11/18	<0.01		mg/kg
			Pyrene	2016/11/18	<0.01		mg/kg
			Benzo(a)anthracene	2016/11/18	<0.01		mg/kg
			Chrysene	2016/11/18	<0.01		mg/kg
			Benzo(b+j+k)fluoranthene	2016/11/18	<0.01		mg/kg
			Benzo(e)pyrene	2016/11/18	<0.01		mg/kg
			Benzo(a)pyrene	2016/11/18	<0.01		mg/kg
			Ideno(1,2,3-cd)pyrene	2016/11/18	<0.01		mg/kg
			Dibenzo(a,h)anthracene	2016/11/18	<0.003		mg/kg
			Benzo(ghi)perylene	2016/11/18	<0.01		mg/kg
			2-Methylnaphtalene	2016/11/18	<0.01		mg/kg
			1-Methylnaphtalene	2016/11/18	<0.01		mg/kg
			Benzo(c)phenanthrene	2016/11/18	<0.01		mg/kg
			3-Methylcholanthrene	2016/11/18	<0.01		mg/kg
			7,12-Dimethylbenzanthracene	2016/11/18	<0.01		mg/kg
			Dibenzo(a,i)pyrene	2016/11/18	<0.01		mg/kg
			Dibenzo(a,l)pyrene	2016/11/18	<0.01		mg/kg



Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1694752	CT2	Spiked blank	Dibenzo(a,h)pyrene	2016/11/18	<0.01		mg/kg
			1.3-Dimethylnaphthalene	2016/11/18	<0.01		mg/kg
			2.3.5-Trimethylnaphthalene	2016/11/18	<0.01		mg/kg
			1-Chlorooctadecane	2016/11/18		82	%
			Petroleum hydrocarbons (C10-C50)	2016/11/18		85	%
1694752	CT2	Method blank	1-Chlorooctadecane	2016/11/18		89	%
			Petroleum hydrocarbons (C10-C50)	2016/11/18	<100		mg/kg
			Sulphur (S)	2016/11/18		96	%
1694832	JL1	RCN	Sulphur (S)	2016/11/18	<0.01		% g/g
1694832	JL1	Method blank	Sulphur (S)	2016/11/18			
1694835	MA1	Spiked blank	D6-Phenol	2016/11/18		102	%
			Tribromophenol-2,4,6	2016/11/18		107	%
			Trifluoro-m-cresol	2016/11/18		105	%
			o-Cresol	2016/11/18		79	%
			m-Cresol	2016/11/18		91	%
			p-Cresol	2016/11/18		95	%
			2,4-Dimethylphenol	2016/11/18		77	%
			2-Nitrophenol	2016/11/18		83	%
			4-Nitrophenol	2016/11/18		94	%
			Phenol	2016/11/18		90	%
			2-Chlorophenol	2016/11/18		93	%
			3-Chlorophenol	2016/11/18		93	%
			4-Chlorophenol	2016/11/18		95	%
			2,3-Dichlorophenol	2016/11/18		98	%
			2,4 + 2,5-Dichlorophenol	2016/11/18		95	%
			2,6-Dichlorophenol	2016/11/18		88	%
			3,4-Dichlorophenol	2016/11/18		94	%
			3,5-Dichlorophenol	2016/11/18		97	%
			Pentachlorophenol	2016/11/18		91	%
			2,3,4,5-Tetrachlorophenol	2016/11/18		92	%
			2,3,4,6-Tetrachlorophenol	2016/11/18		99	%
			2,3,5,6-Tetrachlorophenol	2016/11/18		98	%
			2,3,4-Trichlorophenol	2016/11/18		95	%
			2,3,5-Trichlorophenol	2016/11/18		93	%
			2,3,6-Trichlorophenol	2016/11/18		98	%
			2,4,5-Trichlorophenol	2016/11/18		104	%
			2,4,6-Trichlorophenol	2016/11/18		91	%
			3,4,5-Trichlorophenol	2016/11/18		102	%
			D6-Phenol	2016/11/18		95	%
			Tribromophenol-2,4,6	2016/11/18		95	%
			Trifluoro-m-cresol	2016/11/18		97	%
			o-Cresol	2016/11/18	<0.1		mg/kg
			m-Cresol	2016/11/18	<0.1		mg/kg
			p-Cresol	2016/11/18	<0.1		mg/kg
			2,4-Dimethylphenol	2016/11/18	<0.1		mg/kg
			2-Nitrophenol	2016/11/18	<0.1		mg/kg
			4-Nitrophenol	2016/11/18	<0.1		mg/kg
			Phenol	2016/11/18	<0.1		mg/kg
			2-Chlorophenol	2016/11/18	<0.1		mg/kg
			3-Chlorophenol	2016/11/18	<0.1		mg/kg
			4-Chlorophenol	2016/11/18	<0.1		mg/kg
			2,3-Dichlorophenol	2016/11/18	<0.1		mg/kg
			2,4 + 2,5-Dichlorophenol	2016/11/18	<0.1		mg/kg

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1694949	CB5	Spiked blank	2,6-Dichlorophenol	2016/11/18	<0.1		mg/kg
			3,4-Dichlorophenol	2016/11/18	<0.1		mg/kg
			3,5-Dichlorophenol	2016/11/18	<0.1		mg/kg
			Pentachlorophenol	2016/11/18	<0.1		mg/kg
			2,3,4,5-Tetrachlorophenol	2016/11/18	<0.1		mg/kg
			2,3,4,6-Tetrachlorophenol	2016/11/18	<0.1		mg/kg
			2,3,5,6-Tetrachlorophenol	2016/11/18	<0.1		mg/kg
			2,3,4-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,3,5-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,3,6-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,4,5-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,4,6-Trichlorophenol	2016/11/18	<0.1		mg/kg
			3,4,5-Trichlorophenol	2016/11/18	<0.1		mg/kg
			2,3,3',4,6-Pentachlorobiphenyl	2016/11/18		90	%
1694949	CB5	Method blank	2',3,5-Trichlorobiphenyl	2016/11/18		83	%
			22'33'44'566'-Nonachlorobiphenyl	2016/11/18		93	%
			Total PCBs	2016/11/18		101	%
			2,3,3',4,6-Pentachlorobiphenyl	2016/11/18		90	%
			2',3,5-Trichlorobiphenyl	2016/11/18		84	%
			22'33'44'566'-Nonachlorobiphenyl	2016/11/18		97	%
			CL3-IUPAC-17+18	2016/11/18	<0.01		mg/kg
			CL3-IUPAC-28+31	2016/11/18	<0.01		mg/kg
			CL3-IUPAC-33	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-52	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-49	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-44	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-74	2016/11/18	<0.01		mg/kg
			CL4-IUPAC-70	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-95	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-101	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-99	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-87	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-110	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-82	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-151	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-149	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-118	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-153	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-132	2016/11/18	<0.01		mg/kg
			CL5-IUPAC-105	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-138+158	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-187	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-183	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-128	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-177	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-171	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-156	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-180	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-191	2016/11/18	<0.01		mg/kg
			CL6-IUPAC-169	2016/11/18	<0.01		mg/kg
			CL7-IUPAC-170	2016/11/18	<0.01		mg/kg
			CL8-IUPAC-199	2016/11/18	<0.01		mg/kg

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
			CL9-IUPAC-208	2016/11/18	<0.01		mg/kg
			CL8-IUPAC-195	2016/11/18	<0.01		mg/kg
			CL8-IUPAC-194	2016/11/18	<0.01		mg/kg
			CL8-IUPAC-205	2016/11/18	<0.01		mg/kg
			CL9-IUPAC-206	2016/11/18	<0.01		mg/kg
			CL10-IUPAC-209	2016/11/18	<0.01		mg/kg
			Total trichlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total tetrachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total pentachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total hexachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total heptachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total octachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total nonachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total decachlorobiphenyls	2016/11/18	<0.01		mg/kg
			Total PCBs	2016/11/18	<0.01		mg/kg
1695023	BSM	Spiked blank	1-Chlorooctadecane	2016/11/18		95	%
			Petroleum hydrocarbons (C10-C50)	2016/11/18		93	%
1695023	BSM	Method blank	1-Chlorooctadecane	2016/11/18		94	%
			Petroleum hydrocarbons (C10-C50)	2016/11/18	<100		mg/kg
1695428	NS	RCN	Total organic carbon (titration)	2016/11/21		120	%
1695567	CB5	Spiked blank	C13-1,2,4-Trichlorobenzene	2016/11/22		84	%
			C13-Hexachlorobenzene	2016/11/22		91	%
			1,3,5-Trichlorobenzene	2016/11/22		116	%
			1,2,4-Trichlorobenzene	2016/11/22		107	%
			1,2,3-Trichlorobenzene	2016/11/22		110	%
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/22		109	%
			1,2,3,4-Tetrachlorobenzene	2016/11/22		105	%
			Pentachlorobenzene	2016/11/22		102	%
			Hexachlorobenzene	2016/11/22		107	%
1695567	CB5	Method blank	C13-1,2,4-Trichlorobenzene	2016/11/22		79	%
			C13-Hexachlorobenzene	2016/11/22		96	%
			1,3,5-Trichlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,4-Trichlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,3-Trichlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,3,4-Tetrachlorobenzene	2016/11/22	<0.01		mg/kg
			Pentachlorobenzene	2016/11/22	<0.01		mg/kg
			Hexachlorobenzene	2016/11/22	<0.01		mg/kg
1695796	HLU	Spiked blank	Sulphate (SO <sub>4</sub> )	2016/11/22		100	%

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
1695796	HLU	Method blank	Sulphate (SO <sub>4</sub> )	2016/11/22	<5		mg/kg
RDL = Reportable Detection Limit							
RCN: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.							
Spiked blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.							
Method blank: An aliquot portion of pure matrix that is submitted to the same analytical process as the samples, from pre-treatment to assaying. Used to identify laboratory contamination.							
Surrogate: Compound of similar composition to the compounds analyzed and added to the pre-analysis sample. Used to evaluate the quality of the extraction.							
Rec = Recovery							

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

#### **VALIDATION SIGNATURE PAGE**

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

Aomar Kaidi, B.Sc., Chemist

Caroline Bougie, B.Sc. Chemist

Christian Guiang, B.Sc., Chemist

Corina Tue, B.Sc. Chemist

David Provencher, B.Sc., Chemist, Quebec

Faouzi Sarsi, B.Sc. Chemist

Karyn Vaucher

Maxxam Job #: B681391  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Your P.O. #: 23514

#### **VALIDATION SIGNATURE PAGE (CONTINUED)**

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

Maria Dragna Apopei, B.Sc., Chemist

Madina Hamrouni, B.Sc., Chemist

Ngoc-Thuy Do, B.Sc., Chemist

Olga Zlatov Polevoi

Ramona Dascal

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

**Maxxam analytique inc.**  
889, Montée de Liesse  
Saint-Laurent (Québec) H4T 1P5

Téléphone : 514-448-9001  
Télécopieur : 514-448-9199

# Chaîne de responsabilité

Page 1 de 2

Client : Englobe Corp.		Téléphone : 514-849-7281 Télécopieur : 514-849-6770	
Adresse : 1453, Saint-Timothée Montréal (Québec) H2L 3N7		N° projet : 11905	
Échantillonneur : P. Verhaar		Chargé(e) de projet : M. Demarty	

N°	Identification de l'échantillon	N° labo Maxxam	Matrice							Échantillonnage		Date	Analyse pour échantillon intégré															
			Eau potable	Eau usée	Eau sout.	Eau de surf.	Sols	Sédiments	Autres*	# de contenants	A filtrer (oui/non)		HYDROCARBURES PÉTROLIERS (C10-C50)	HYDROCARBURES AROMATIQUES POLYCYCLIQUES	BPC TOTAL	MÉTALUX extr	MERCURE P/L	CARBONE ORG	CHLOROBENZ	SOUFRE	Composés acic	COMPOSES OR	VOLATILS HMA-air	Granulométrie	DIOXINES & FURANES PAR CGSM HR	Mono-, Di et Tributylés	Détermination potentiel acidogène (TDPAS)	EDOTOX
1	SED-03							x			2016-11-17	x	x	x	x	x	x	x	x	x	x	x	x	x				
2	SED-10							x																				
3	SED-11							x																				
4	SED-12-1							x																				
5	SED-13							x																				
6	SED-14							x																				
7	SED-15-1							x																				
8	SED-16							x																				
9	SED-17							x																				
10	SED-18							x																				
11	SED-21							x																				
12	SED-12-2							x																				

<b>DÉLAIS :</b> C10-50 : 24 h COV : 24h Métaux : 24h Autres : 48 h	N° d'offre de service Maxxam :	Limites de détection requises / types de contaminants :	
	Site : KS	Instructions spéciales : 10 10 10 / 3 3 3 / 10 10 10 / 10 10 10 999/555	
	N° de bon de commande Englobe : 23 514	* Métaux: Politique + Se - Délais minimal requis	
	Autres :	± 16 YCS SEALAB	

*Autres =	Livré par :	Date :	Heure :	Reçu par :
	Livré par messagerie :	Date :	Heure :	Reçu par :
	Livré par :	Date :	Heure :	Reçu par Maxxam :

2016-11-17 17:00 Giuseppina Marucci

Maxxam analytique inc.  
889, Montée de Liesse  
Saint-Laurent (Québec) H4T 1P5

Téléphone : 514-448-9001  
Télécopieur : 514-448-9199

### Chaîne de responsabilité

Page 2 de 2

Client :		Téléphone : 514-849-7261																									
Englobe Corp.		Télécopieur : 514-849-6770																									
Adresse :		N° projet :																									
1453, Saint-Thimothée		11905																									
Montréal (Québec) H2L 3N7																											
Échantillonneur :		Chargé(e) de projet :																									
P. Verhaar		M. Demarty																									
N°	Identification de l'échantillon	N° labo Maxxam	Matrice						Échantillonnage		Date	HYDROCARBURES PÉTROLIERS (C10-C50)	HYDROCARBURES AROMATIQUES POLYCYCLIQUES	BPC TOTAUX	MÉTALUX extractibles totaux*	MERCURE PAR ICP-MS	CARBONE ORGANIQUE TOTAL	CHLOROBENZÈNES	SOUFRE	Composés acides (phénols)	COMPOSÉS ORGANIQUES VOLATILS HMA-HHT (pot 60mL, sans air)	Granulométrie	DIOXINES & FURANES PAR CGSM HR	Mono-, Di et Tributylétains	Détermination potentiel acidogène (TDPAS)		
			Eau potable	Eau usée	Eau sout.	Eau de surf.	Sols	Sédiments	Autres*	# de contenants																À filtrer (ou/none)	
1	SED-15-2										2016-11-17	X	X	X	X	X	X	X	X	X	X						
2																											
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											
DÉLAIS :		N° d'offre de service Maxxam :		Limites de détection requises / types de contaminants :																							
C10-50 : 24 h		Site :		Instructions spéciales : 101010/999/101010/101010 999/555 * Métaux: Polytique + Se - Délais minimal requis ICE YES SCALLO																							
COV : 24h		KS																									
Métaux : 24h		N° de bon de commande Englobe :																									
Autres : 48 h		Autres :																									
*Autres =		Livré par :		Date :		Heure :		Reçu par :																			
		Livré par messagerie :		Date :		Heure :		Reçu par :																			
		Livré par :		Date :		Heure :		Reçu par Maxxam :																			

2016-11-17

17:00

Guillaume Mercurio

Maxxam analytique inc. 889, Montée de Liesse Saint-Laurent (Québec) H4T 1P5 Téléphone : Télécopieur :	Maxxam Analytics Inc. 889 Montée de Liesse Saint-Laurent, Quebec H4T 1P5 Telephone: Fax:
Chaîne de responsabilité	Chain of Accountability
Analyse pour échantillon intégré	Analysis for integrated sample
Client : Englobe Corp.	Customer: Englobe Corp.
Téléphone : Télécopieur :	Telephone: Fax:
Adresse : 1453, Saint-Thimothée Montréal (Québec) H2L 3N7	Address: 1453 Saint-Thimothée Montreal, Quebec H2L 3N7
N° de projet :	Project #:
Échantillonneur :	Sampler:
Chargé(e) de projet :	Project Manager:
N°	#
Identification de l'échantillon	Sample Identification
N° labo Maxxam	Maxxam Lab #
Matrice	Matrix
Échantillonnage	Sampling
Eau potable	Drinking water
Eau usée	Waste water
Eau sout.	Groundwater



Eau de surf.	Surface water
Sols	Soils
Sédiments	Sediments
Autres	Other
# de contenants	# of containers
À livrer (oui/non)	To be delivered (yes/no)
Date	Date
HYDROCARBURES PÉTROLIERS (C10-C50)	PETROLEUM HYDROCARBONS (C10-C50)
HYDROCARBURES AROMATIQUES POLYCYCLIQUES	POLYCYCLIC AROMATIC HYDROCARBONS
BPC TOTAUX	TOTAL PCBs
MÉTALX extractibles totaux	Total extractable METALS
MERCURE PAR ICP-MS	MERCURY BY ICP-MS
CARBONE ORGANIQUE TOTAL	TOTAL ORGANIC CARBON
CHLOROBENZENES	CHLOROBENZENES
SOUFRE	SULPHUR
Composés acides (phénols)	Acid compounds (Phenols)
COMPOSÉS ORGANIQUES VOLATILS HMA-HHT (pot 60mL, sans air)	VOLATILE ORGANIC COMPOUNDS HMA-HHT (pot 60 mL, no air)
Granulométrie	Granulometry
DIOXINES ET FURANES PAR CGSM HR	DIOXINS AND FURANS BY CGSM HR
Mono-, Di et Tributylène	Mono-, Di- and Tributylene
Détermination potentiel acidogène (TDPAS)	Acid base accounting (ABA)
DÉLAI : C10-C50 : 24 h COV : 24h Métaux : 24h Autres : 48 h	DEADLINE: C10-C50: 24 h COV: 24 h Metals: 24 h Other: 48 h
N° d'offre de service Maxxam :	Maxxam service offer #:
Site : KS	Location: KS
N° de bon de commande Englobe :	Englobe P.O #:
Autres	Other
Limites de détection requises / types de contamina	Required detection limits / types of contaminants
Instructions spéciales : *Métaux : Politique + Se – Délais minimal requis	Special Instructions: *Metals: Policy + Se – Minimal deadlines required
*Autres =	*Other =
Livré par :	Delivered by:
Livré par messagerie :	Delivered by courier:
Date :	Date:
Heure :	Time:

Your Project #: B681391  
Your C.O.C. #: N/A

Attention: Rodrigo Caffarengo  
Maxxam Analytics  
889 Montée de Liesse  
Ville St-Laurent, QC  
H4T 1P5

Report Date: 2016/12/07  
Report #: R4278036  
Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B6P3461  
Received: 2016/11/22, 10:49

Sample Matrix: Soil  
# Samples Received: 7

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Particle size in solids (Custom) (1)	3	N/A	2016/11/25	ATL SOP 00012	MSAMS 1978 m
Particle size in solids (Custom) (1)	4	N/A	2016/11/28	ATL SOP 00012	MSAMS 1978 m

#### **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.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) Note: Graphical representation of larger fractions (PHI-4, PHI -3 and PHI -2) not applicable unless these optional parameters are specifically requested.

Your Project #: B681391  
Your C.O.C. #: N/A

Attention: Rodrigo Caffarengo  
Maxxam Analytics  
889 Montée de Liesse  
Ville St-Laurent, QC  
H4T 1P5

Report Date: 2016/12/07  
Report #: R4278036  
Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B681024  
Received: 2016/11/16, 17:50

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Katie Campbell, Project Manager  
Email: [kcampbell@maxxam.ca](mailto:kcampbell@maxxam.ca) Phone #: 902-420-0203 Ext: 298

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

Maxxam Job #: B6P3461  
Report Date: 2016/12/07

Maxxam Analytics  
Client Project #: B681391

# RESULTS OF ANALYSES OF SOIL

Maxxam ID		DMK494	DMK495	DMK496	DMK497		
Sampling Date		2016/11/17	2016/11/17	2016/11/17	2016/11/17		
COC Number		N/A	N/A	N/A	N/A		
	UNITS	DI0492-05R-SED-09	DI0494-05R-SED-11	DI0496-05R-SED-12-1	DI0498-05R-SED-14	RDL	QC Batch
< -1 Phi (2 mm)	%	100	100	100	100	0.10	4766100
< 0 Phi (1 mm)	%	100	99	99	99	0.10	4766100
< +1 Phi (0.5 mm)	%	98	98	98	97	0.10	4766100
< +2 Phi (0.25 mm)	%	94	95	94	92	0.10	4766100
< +3 Phi (0.12 mm)	%	91	92	91	88	0.10	4766100
< +4 Phi (0.062 mm)	%	89	90	88	87	0.10	4766100
< +5 Phi (0.031 mm)	%	86	87	86	84	0.10	4766100
< +6 Phi (0.016 mm)	%	72	77	74	69	0.10	4766100
< +7 Phi (0.0078 mm)	%	49	53	52	47	0.10	4766100
< +8 Phi (0.0039 mm)	%	39	43	43	40	0.10	4766100
< +9 Phi (0.0020 mm)	%	27	30	30	32	0.10	4766100
Gravel	%	<0.10	<0.10	<0.10	<0.10	0.10	4766100
Coarse Sand	%	7.0	6.3	7.5	9.6	0.10	4766100
Fine Sand	%	4.1	3.6	4.1	3.2	0.10	4766100
Silt	%	50	47	45	47	0.10	4766100
Clay	%	39	43	43	40	0.10	4766100
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

Maxxam Job #: B6P3461  
Report Date: 2016/12/07

Maxxam Analytics  
Client Project #: B681391

# RESULTS OF ANALYSES OF SOIL

<b>Maxxam ID</b>		DMK498	DMK499	DMK500		
<b>Sampling Date</b>		2016/11/17	2016/11/17	2016/11/17		
<b>COC Number</b>		N/A	N/A	N/A		
	<b>UNITS</b>	<b>DI0501-05R-SED-17</b>	<b>DI0503-05R-SED-21</b>	<b>DI0504-05R-SED-12-2</b>	<b>RDL</b>	<b>QC Batch</b>
< -1 Phi (2 mm)	%	100	100	100	0.10	4766100
< 0 Phi (1 mm)	%	100	100	100	0.10	4766100
< +1 Phi (0.5 mm)	%	100	98	98	0.10	4766100
< +2 Phi (0.25 mm)	%	96	86	94	0.10	4766100
< +3 Phi (0.12 mm)	%	91	80	91	0.10	4766100
< +4 Phi (0.062 mm)	%	87	76	89	0.10	4766100
< +5 Phi (0.031 mm)	%	83	75	85	0.10	4766100
< +6 Phi (0.016 mm)	%	68	57	73	0.10	4766100
< +7 Phi (0.0078 mm)	%	40	48	49	0.10	4766100
< +8 Phi (0.0039 mm)	%	33	28	42	0.10	4766100
< +9 Phi (0.0020 mm)	%	23	24	21	0.10	4766100
Gravel	%	<0.10	<0.10	<0.10	0.10	4766100
Coarse Sand	%	6.3	16	7.5	0.10	4766100
Fine Sand	%	6.9	7.6	3.5	0.10	4766100
Silt	%	54	48	47	0.10	4766100
Clay	%	33	28	42	0.10	4766100
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

Maxxam Job #: B6P3461  
Report Date: 2016/12/07

Maxxam Analytics  
Client Project #: B681391

#### GENERAL COMMENTS

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

Package 1	6.7°C
-----------	-------

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

Maxxam Job #: B6P3461  
Report Date: 2016/12/07

Maxxam Analytics  
Client Project #: B681391

### QUALITY ASSURANCE REPORT

QA/QC				Date Analyzed			
Batch	Init	QC Type	Parameter	Value	Recovery	UNITS	QC Limits
4766100	JKI	RPD	Gravel	2016/11/28	NC	%	35
			Coarse Sand	2016/11/28	2.9	%	35
			Fine Sand	2016/11/28	13	%	35
			Silt	2016/11/28	0.049	%	35
			Clay	2016/11/28	0.68	%	35
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.							
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).							

Maxxam Job #: B6P3461  
Report Date: 2016/12/07

Maxxam Analytics  
Client Project #: B681391

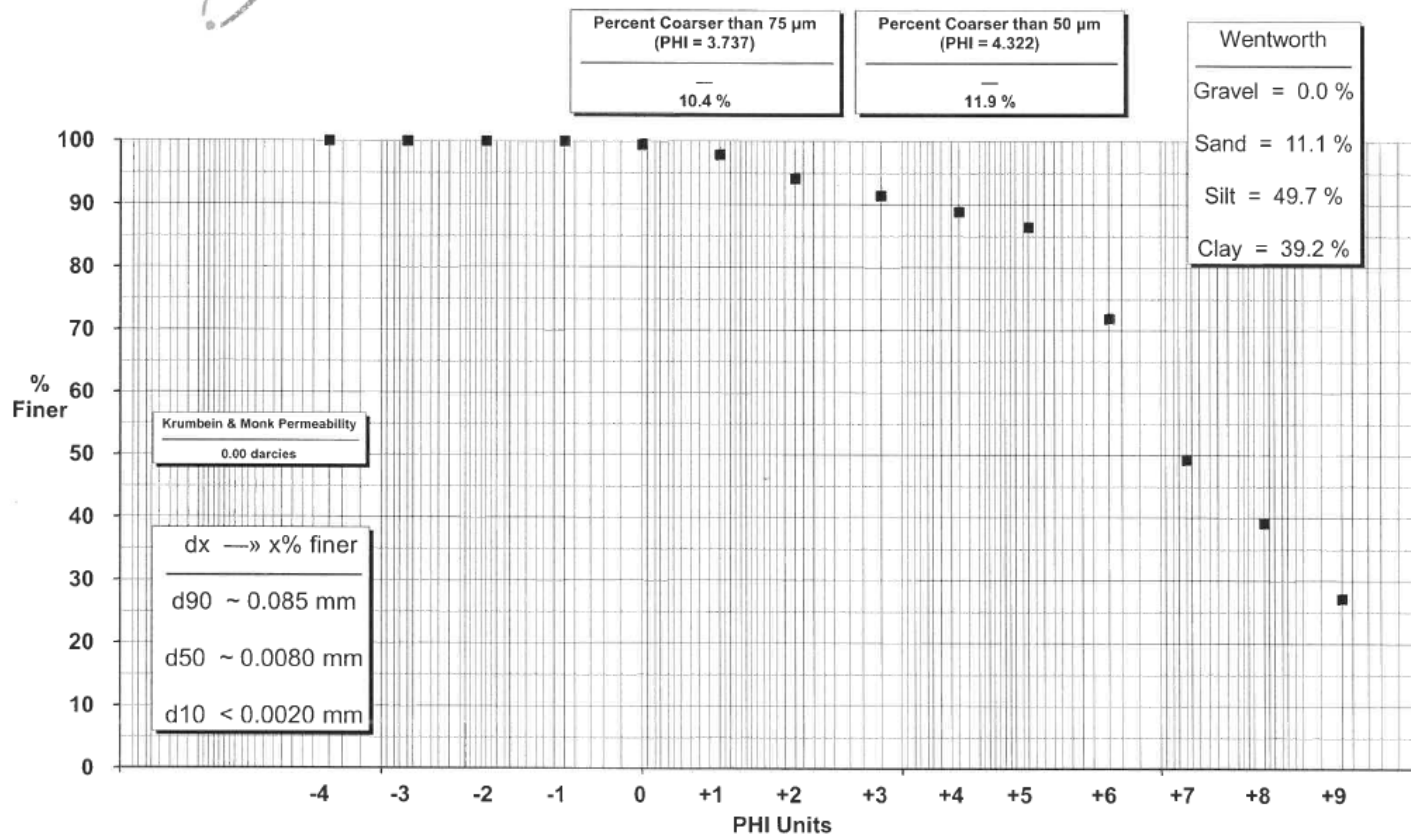
#### **VALIDATION SIGNATURE PAGE**

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

Mike MacGillivray, Scientific Specialist (Inorganics)

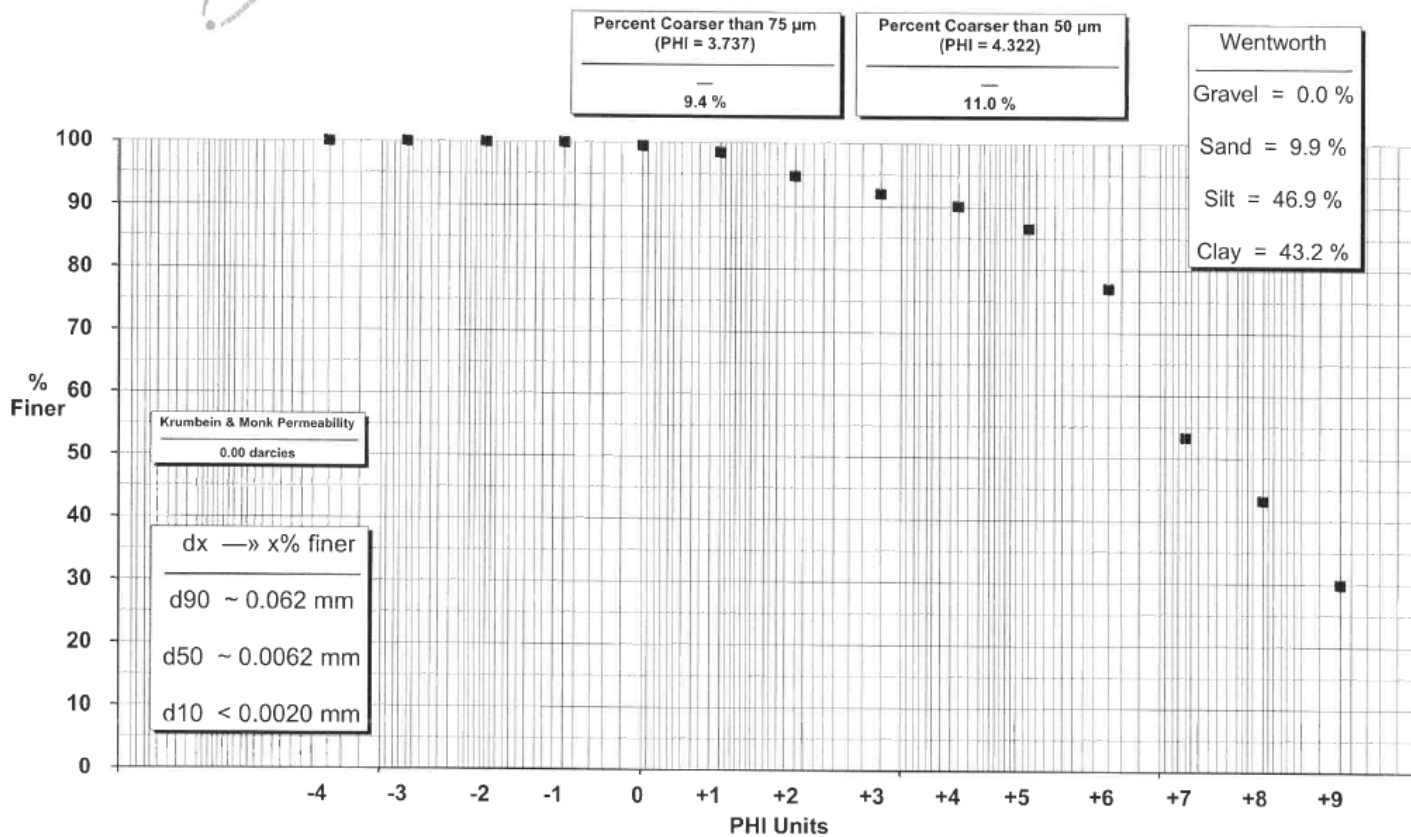
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.







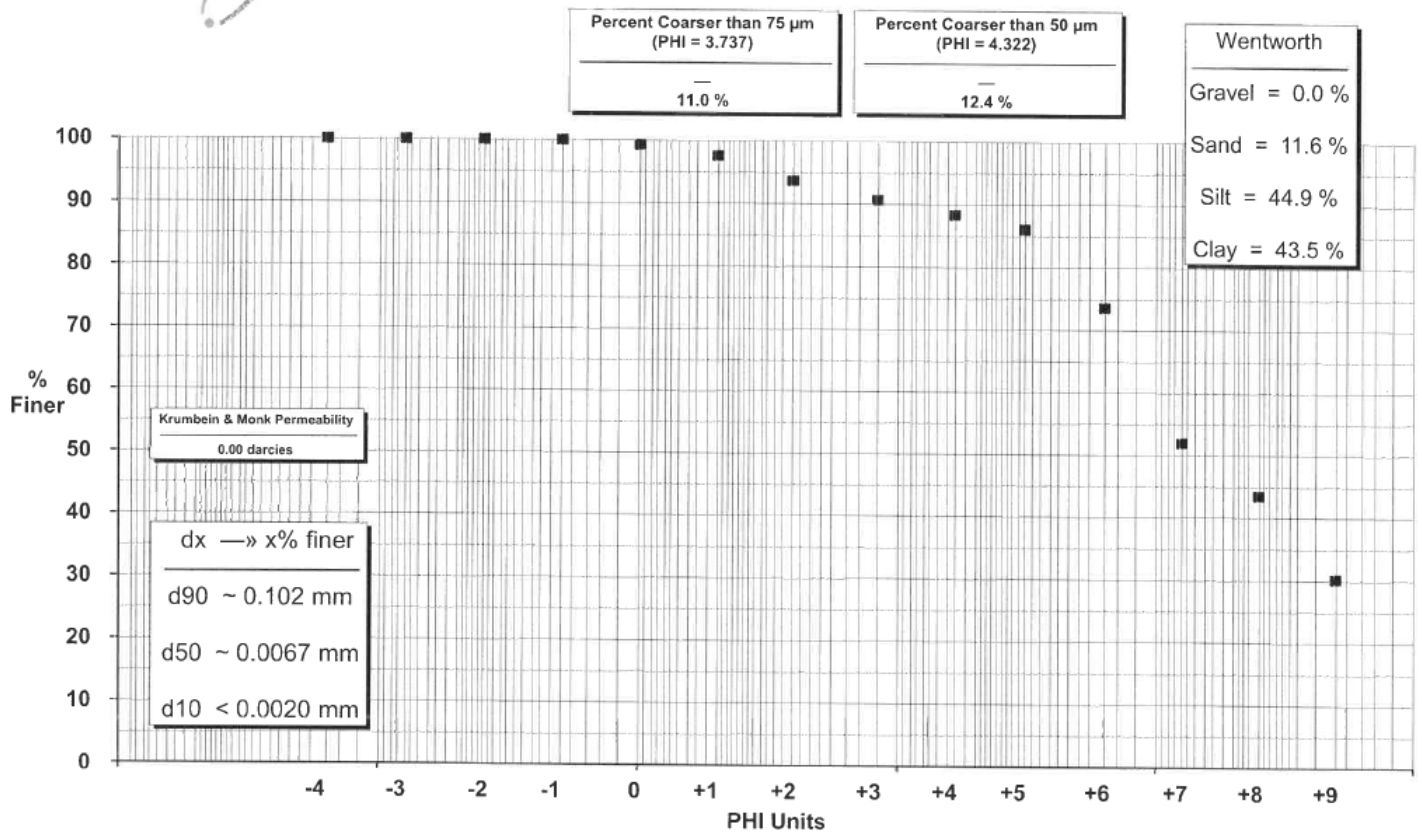
Maxxam ID: DMK495-01  
DI0494-05R\SED-11



*M. J. G.*  
Approved



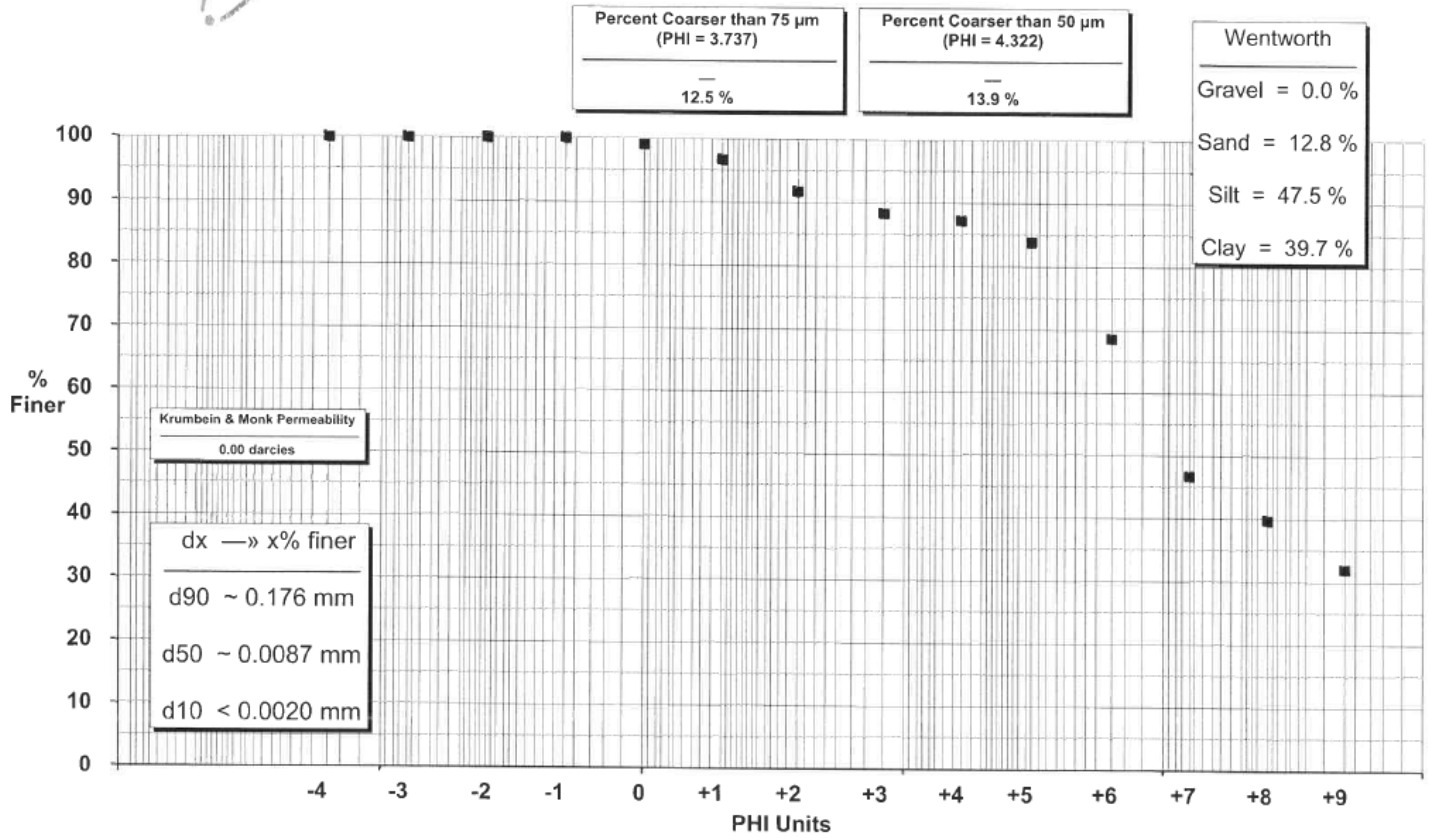
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DI0496-05R\SED-12-1



*[Signature]*  
Approved



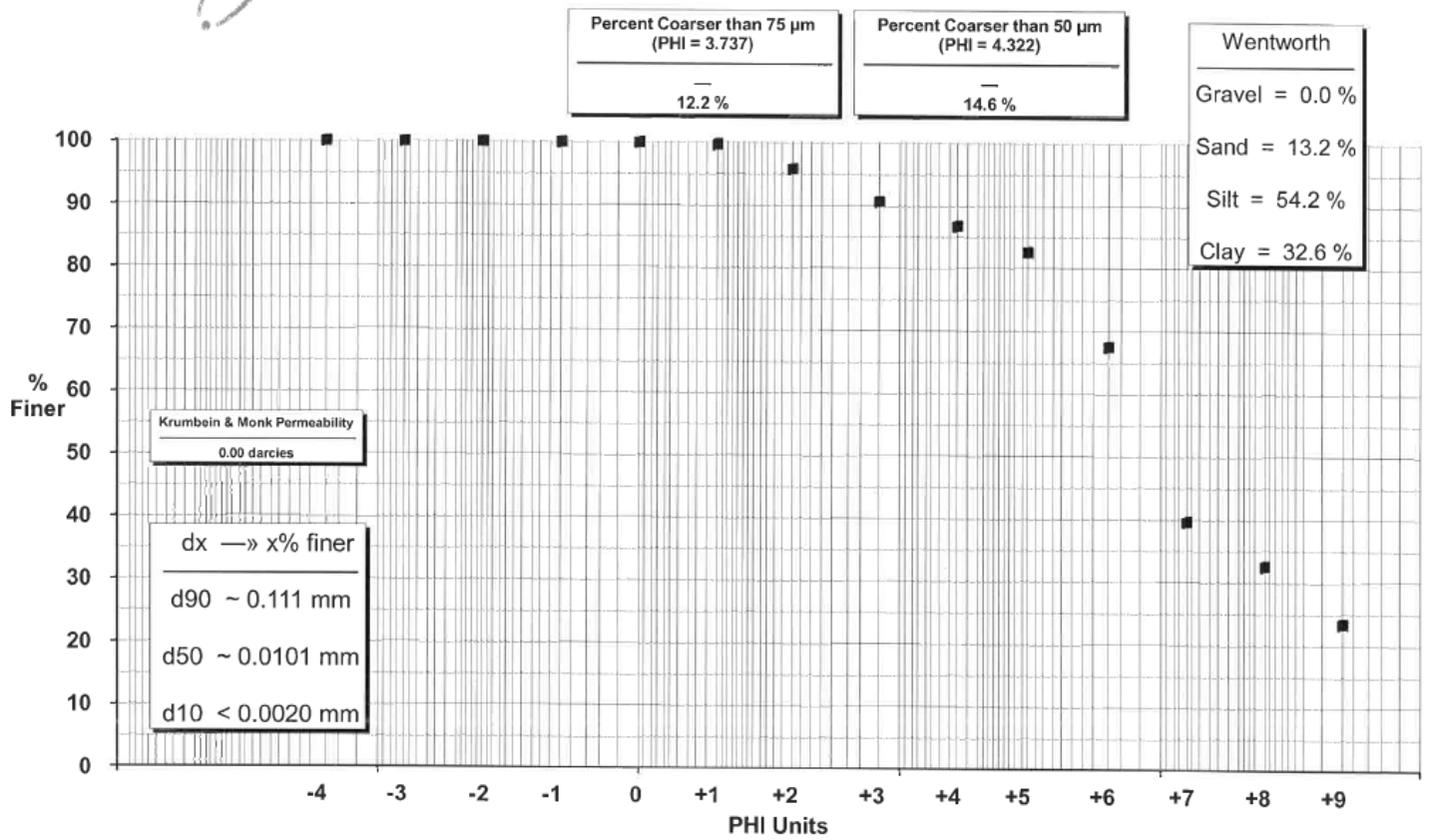
Maxxam ID: DMK497-01  
**DI0498-05R\SED-14**



*JMB*  
Approved



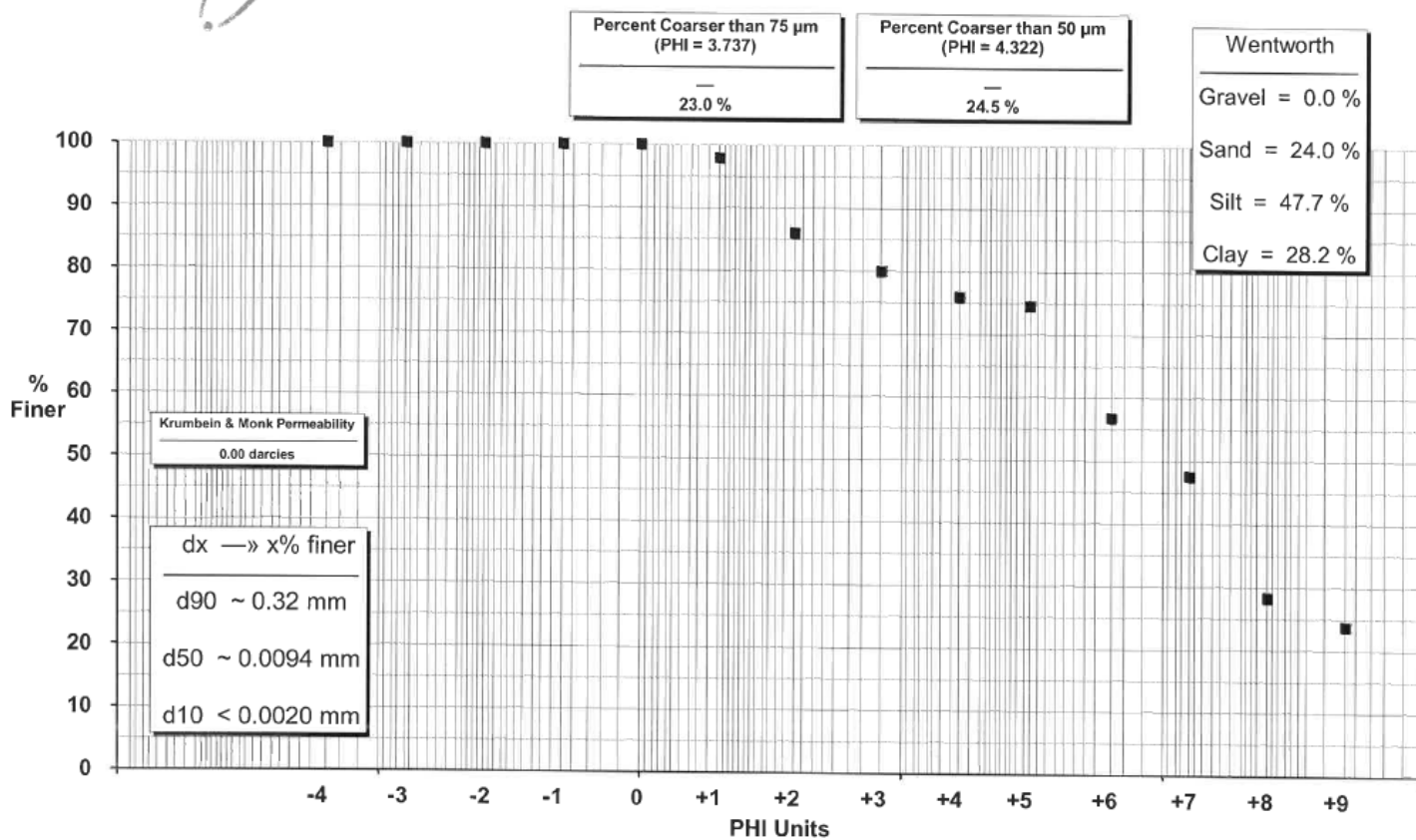
Maxxam ID: DMK498-  
DI0501-05R\SED-17<sup>01R</sup>



*[Signature]*  
Approved



Maxxam ID: DMK499-  
DI0503-05R\SED-21<sup>01R</sup>

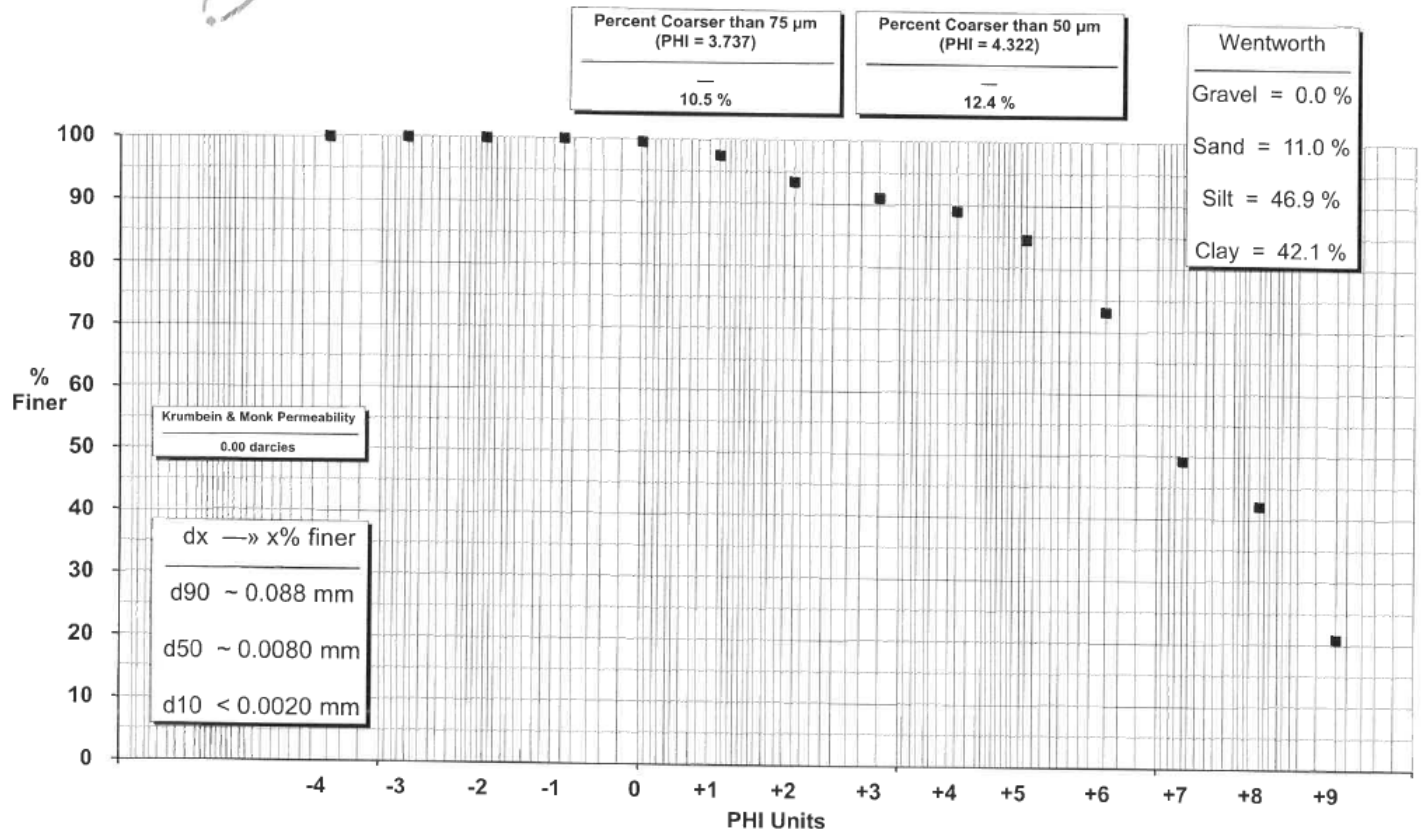


*Imp*

Approved



Maxxam ID: DMK500-01  
**DI0504-05R\SED-12-2**



Approved

Your P.O. #: 23514  
 Your project #: 11905  
 Site address: KS  
 Your waybill #: N/A

Attention: Maud Demarty  
 Englobe Corp.  
 Division of Englobe Corp.  
 1453 St-Timothée  
 Montreal, QC  
 Canada H2L 3N7

Report Date: 2016/12/08  
 Report #: R2227583  
 Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B681706  
 Received: 2016/11/18, 4:30 PM

Matrix: SOIL  
 Samples received: 7

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Volatile organic compounds*	7	2016/11/18	2016/11/19	STL SOP-00145	MA400-COV 2.0 R4 m
Available anions*	1	2016/11/21	2016/11/21	STL SOP-00014	MA300-Ions 1.3 R3 m
Petroleum hydrocarbons (C10-C50)*	7	2016/11/19	2016/11/19	STL SOP-00172	MA.400-HYD. 1.1 R3 m
Chlorobenzenes*	4	2016/11/21	2016/11/22	STL SOP-00154	MA400-Clbz 1.0 R4 m
Chlorobenzenes*	3	2016/11/22	2016/11/23	STL SOP-00154	MA400-Clbz 1.0 R4 m
Total extractable metals*	7	2016/11/19	2016/11/19	STL SOP-00006	MA200-Mét 1.2 R5 m
Polycyclic aromatic hydrocarbons*	7	2016/11/19	2016/11/19	STL SOP-00120	MA400-HAP 1.1 R4 m
Total PCBs*	7	2016/11/19	2016/11/21	STL SOP-00133	MA400-BPC 1.0 R5 m
Dioxins & Furans per CGSM HR*	7	2016/11/21	2016/11/23	STL SOP-00171 / STL SOP-00179	MA400 D.F. 1.1 R1 m
Acid compounds (Phenols)*	6	2016/11/19	2016/11/20	STL SOP-00135	MA400-Phe 1.0 R3 m
Acid compounds (Phenols)*	1	2016/11/19	2016/11/21	STL SOP-00135	MA400-Phe 1.0 R3 m
Granulometry and sediment analysis (1)	7	N/A	N/A		
Sulphur*	7	N/A	2016/11/21	STL SOP-00028	MA310-CS 1.0 R3 m
Mono-, Di- and Tributyltin (2)	1	N/A	N/A		
Acid base accounting (ABA)***	1	2016/11/22	2016/11/23	STL SOP-00067	MA110-ACISOL 1.0 R4m
Total organic carbon by titration (3)*	7	2016/11/22	2016/11/22	QUE SOP-00153	MA. 405 – C 1.1 r2 m

#### **Notes:**

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.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.



Your P.O. #: 23514  
Your project #: 11905  
Site address: KS  
Your waybill #: N/A

Attention: Maud Demarty  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2016/12/08  
Report #: R2227583  
Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B681706  
Received: 2016/11/18, 4:30 PM

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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

Note: RPDs calculated using raw data (% of relative variation). The rounding of final results may result in the apparent difference.

(1) This analysis was performed by Maxxam Analytics - Bedford

(2) This analysis was performed by Pacific Rim Laboratories Inc.

(3) This analysis was performed by Maxxam - Québec

\* Maxxam is accredited for this analysis under the MDDELCC program.

\*\*\* This analysis is not part of the MDDELCC accreditation program.

Encryption key

Please direct all questions regarding this Certificate of Analysis to your Project Manager  
Rodrigo Caffarengo,  
E-mail: [RCaffarengo@maxxam.ca](mailto:RCaffarengo@maxxam.ca)  
Telephone: 514-448-9001 Ext: 6336

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.

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### PAH BY GCMS (SOIL)

Maxxam Job					DI2146			DI2147		DI2148		DI2149			
Sampling date					2016/11/18			2016/11/18		2016/11/18		2016/11/18			
Waybill #					N/A			N/A		N/A		N/A			
	Units	A	B	C	SED-19	CR	RDL	SED-20	CR	SED-22	CR	SED-23-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	71			74		72		73			
<b>PAHs</b>															
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		0.1	<0.1		<0.1		<0.1		0.1	1695413
Naphthalene	mg/kg	0.1	5	50	0.01	<A	0.01	0.02	<A	0.02	<A	0.05	<A	0.01	1695413
Acenaphthylene	mg/kg	0.1	10	100	0.023	<A	0.003	0.034	<A	0.041	<A	0.086	<A	0.003	1695413
Acenaphthene	mg/kg	0.1	10	100	0.012	<A	0.003	0.021	<A	0.021	<A	0.079	<A	0.003	1695413
Fluorene	mg/kg	0.1	10	100	0.03	<A	0.01	0.07	<A	0.05	<A	0.16	A-B	0.01	1695413
Phenanthrene	mg/kg	0.1	5	50	0.12	A-B	0.01	0.22	A-B	0.30	A-B	0.58	A-B	0.01	1695413
Anthracene	mg/kg	0.1	10	100	0.08	<A	0.01	0.16	A-B	0.17	A-B	0.38	A-B	0.01	1695413
Fluoranthene	mg/kg	0.1	10	100	0.48	A-B	0.01	0.75	A-B	0.92	A-B	2.2	A-B	0.01	1695413
Pyrene	mg/kg	0.1	10	100	0.40	A-B	0.01	0.61	A-B	0.78	A-B	2.0	A-B	0.01	1695413
Benzo(a)anthracene	mg/kg	0.1	1	10	0.36	A-B	0.01	0.47	A-B	0.62	A-B	1.8	B-C	0.01	1695413
Chrysene	mg/kg	0.1	1	10	0.42	A-B	0.01	0.59	A-B	0.79	A-B	2.6	B-C	0.01	1695413
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	1.3		0.01	1.4		1.7		4.0		0.01	1695413
Benzo(e)pyrene	mg/kg	-	-	-	0.56		0.01	0.59		0.73		1.7		0.01	1695413
Benzo(a)pyrene	mg/kg	0.1	1	10	0.48	A-B	0.01	0.54	A-B	0.69	A-B	1.7	B-C	0.01	1695413
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	0.53	A-B	0.01	0.53	A-B	0.67	A-B	1.6	B-C	0.01	1695413
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.10	A	0.003	0.11	A-B	0.14	A-B	0.35	A-B	0.003	1695413
Benzo(ghi)perylene	mg/kg	0.1	1	10	0.58	A-B	0.01	0.60	A-B	0.73	A-B	1.7	B-C	0.01	1695413
2-Methylnaphtalene	mg/kg	0.1	1	10	<0.01		0.01	0.01	<A	0.01	<A	0.03	<A	0.01	1695413
1-Methylnaphtalene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		<0.01		0.02	<A	0.01	1695413
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.05	<A	0.01	0.06	<A	0.08	<A	0.21	A-B	0.01	1695413
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		<0.01		<0.01		0.01	1695413
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		<0.01		<0.01		0.01	1695413
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.04	<A	0.01	0.04	<A	0.05	<A	0.13	A-B	0.01	1695413
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		<0.01		<0.01		0.01	1695413
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.01	<A	0.01	0.01	<A	0.01	<A	0.03	<A	0.01	1695413
1.3-Dimethylnaphthalene	mg/kg	0.1	1	10	<0.02 (1)		0.02	0.02	<A	0.02	<A	0.03	<A	0.01	1695413
2.3.5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01		0.01	<0.01		<0.01		<0.01		0.01	1695413
<b>Surrogate Recovery (%)</b>															
D10-Anthracene	%	-	-	-	77			76		82		83			1695413
D12-Benzo(a)pyrene	%	-	-	-	76			75		79		81			1695413
D14-Terphenyl	%	-	-	-	86			84		89		92			1695413
D8-Acenaphthylene	%	-	-	-	72			71		77		76			1695413
RDL = Reportable Detection Limit															
QC Batch = Quality Control Batch															
(1) Due to matrix interference, the detection limit was increased.															

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### PAH BY GCMS (SOIL)

Maxxam Job					DI2146			DI2147		DI2148		DI2149			
Sampling date					2016/11/18			2016/11/18		2016/11/18		2016/11/18			
Waybill #					N/A			N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-19</b>	<b>CR</b>	<b>RDL</b>	<b>SED-20</b>	<b>CR</b>	<b>SED-22</b>	<b>CR</b>	<b>SED-23-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
D8-Naphtalene	%	-	-	-	70			68		73		73			1695413
RDL = Reportable Detection Limit															
QC Batch = Quality Control Batch															

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### PAH BY GCMS (SOIL)

Maxxam Job					DI2150		DI2151		DI2154			
Sampling date					2016/11/18		2016/11/18		2016/11/18			
Waybill #					N/A		N/A		N/A			
	Units	A	B	C	SED-23-2	CR	SED-24	CR	SED-07-7BIS	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	74		74		67			
<b>PAHs</b>												
2-Chloronaphthalene	mg/kg	-	-	-	<0.1		<0.1		<0.1		0.1	1695413
Naphthalene	mg/kg	0.1	5	50	0.06	<A	0.09	<A	0.02	<A	0.01	1695413
Acenaphthylene	mg/kg	0.1	10	100	0.099	<A	0.033	<A	0.039	<A	0.003	1695413
Acenaphthene	mg/kg	0.1	10	100	0.078	<A	0.035	<A	0.011	<A	0.003	1695413
Fluorene	mg/kg	0.1	10	100	0.17	A-B	0.11	A-B	0.03	<A	0.01	1695413
Phenanthrene	mg/kg	0.1	5	50	0.55	A-B	0.41	A-B	0.17	A-B	0.01	1695413
Anthracene	mg/kg	0.1	10	100	0.42	A-B	0.15	A-B	0.12	A-B	0.01	1695413
Fluoranthene	mg/kg	0.1	10	100	2.3	A-B	0.72	A-B	0.62	A-B	0.01	1695413
Pyrene	mg/kg	0.1	10	100	2.1	A-B	0.54	A-B	0.54	A-B	0.01	1695413
Benzo(a)anthracene	mg/kg	0.1	1	10	1.8	B-C	0.33	A-B	0.71	A-B	0.01	1695413
Chrysene	mg/kg	0.1	1	10	2.6	B-C	0.42	A-B	1.0	B	0.01	1695413
Benzo(b+j+k)fluoranthene	mg/kg	-	-	-	4.0		0.71		2.9		0.01	1695413
Benzo(e)pyrene	mg/kg	-	-	-	1.7		0.31		1.4		0.01	1695413
Benzo(a)pyrene	mg/kg	0.1	1	10	1.8	B-C	0.30	A-B	1.2	B-C	0.01	1695413
Ideno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	1.6	B-C	0.31	A-B	1.4	B-C	0.01	1695413
Dibenzo(a,h)anthracene	mg/kg	0.1	1	10	0.37	A-B	0.062	<A	0.27	A-B	0.003	1695413
Benzo(ghi)perylene	mg/kg	0.1	1	10	1.8	B-C	0.32	A-B	1.5	B-C	0.01	1695413
2-Methylnaphthalene	mg/kg	0.1	1	10	0.03	<A	0.03	<A	0.02	<A	0.01	1695413
1-Methylnaphthalene	mg/kg	0.1	1	10	0.02	<A	0.02	<A	<0.01		0.01	1695413
Benzo(c)phenanthrene	mg/kg	0.1	1	10	0.21	A-B	0.05	<A	0.07	<A	0.01	1695413
3-Methylcholanthrene	mg/kg	0.1	1	10	0.01	<A	<0.01		<0.01		0.01	1695413
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.01		<0.01		<0.01		0.01	1695413
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	0.16	A-B	0.03	<A	0.09	<A	0.01	1695413
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.01		<0.01		<0.01		0.01	1695413
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	0.04	<A	0.01	<A	0.03	<A	0.01	1695413
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	0.04	<A	0.05	<A	0.03	<A	0.01	1695413
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.01		<0.01		<0.01		0.01	1695413
<b>Surrogate Recovery (%)</b>												
D10-Anthracene	%	-	-	-	88		80		74			1695413
D12-Benzo(a)pyrene	%	-	-	-	85		79		75			1695413
D14-Terphenyl	%	-	-	-	98		89		80			1695413
D8-Acenaphthylene	%	-	-	-	83		73		65			1695413
D8-Naphtalene	%	-	-	-	77		67		60			1695413
RDL = Reportable Detection Limit												
QC Batch = Quality Control Batch												

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### PHENOLS BY GCMS (SOIL)

Maxxam Job					DI2146			DI2147			DI2148			
Sampling date					2016/11/18			2016/11/18			2016/11/18			
Waybill #					N/A			N/A			N/A			
	Units	A	B	C	SED-19	CR	RDL	SED-20	CR	RDL	SED-22	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	71			74			72			
<b>PHENOLS</b>														
o-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
m-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
p-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
4-Nitrophenol	mg/kg	0.5	1	10	<0.2 (1)		0.2	<0.1		0.1	<0.2 (1)		0.2	1695375
Phenol	mg/kg	0.2	1	10	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		0.1	1695375
<b>Surrogate Recovery (%)</b>														
D6-Phenol	%	-	-	-	95			62			75			1695375
Tribromophenol-2,4,6	%	-	-	-	102			85			100			1695375
Trifluoro-m-cresol	%	-	-	-	96			61			75			1695375
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														
(1) Due to matrix interference, the detection limit was increased.														

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### PHENOLS BY GCMS (SOIL)

Maxxam Job					DI2149			DI2150			DI2151		DI2154			
Sampling date					2016/11/18			2016/11/18			2016/11/18		2016/11/18			
Waybill #					N/A			N/A			N/A		N/A			
	Units	A	B	C	SED-23-1	CR	RDL	SED-23-2	CR	RDL	SED-24	CR	SED-07-7BIS	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	73			74			74		67			
<b>PHENOLS</b>																
o-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
m-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
p-Cresol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2,4-Dimethylphenol	mg/kg	0.1	1	10	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2-Nitrophenol	mg/kg	0.5	1	10	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
4-Nitrophenol	mg/kg	0.5	1	10	<0.1		0.1	<0.3 (1)		0.3	<0.1		<0.1		0.1	1695375
Phenol	mg/kg	0.2	1	10	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
3-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
4-Chlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2,3-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2,4 + 2,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2,6-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
3,4-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
3,5-Dichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
Pentachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2,3,4,5-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2,3,4,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2,3,5,6-Tetrachlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2,3,4-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2,3,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2,3,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
2,4,6-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
3,4,5-Trichlorophenol	mg/kg	0.1	0.5	5	<0.1		0.1	<0.1		0.1	<0.1		<0.1		0.1	1695375
<b>Surrogate Recovery (%)</b>																
D6-Phenol	%	-	-	-	73			104			97		71			1695375
Tribromophenol-2,4,6	%	-	-	-	89			124			122		82			1695375
Trifluoro-m-cresol	%	-	-	-	74			105			97		72			1695375
RDL = Reportable Detection Limit																
QC Batch = Quality Control Batch																
(1) Due to matrix interference, the detection limit was increased.																

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### CHLOROBENZENES (SOL)

Maxxam Job					DI2146			DI2147		DI2148		DI2149			
Sampling date					2016/11/18			2016/11/18		2016/11/18		2016/11/18			
Waybill #					N/A			N/A		N/A		N/A			
	Units	A	B	C	SED-19	CR	QC batch	SED-20	CR	SED-22	CR	SED-23-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	71			74		72		73			
<b>CHLOROBENZENES</b>															
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		<0.01		<0.01		0.01	1696106
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		<0.01		<0.01		0.01	1696106
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		<0.01		<0.01		0.01	1696106
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		<0.01		<0.01		0.01	1696106
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		<0.01		<0.01		0.01	1696106
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		<0.01		<0.01		0.01	1696106
Hexachlorobenzene	mg/kg	0.1	2	10	<0.01		1695512	<0.01		<0.01		<0.01		0.01	1696106
<b>Surrogate Recovery (%)</b>															
C13-1,2,4-Trichlorobenzene	%	-	-	-	79		1695512	96		94		84			1696106
C13-Hexachlorobenzene	%	-	-	-	91		1695512	112		110		99			1696106
RDL = Reportable Detection Limit															
QC Batch = Quality Control Batch															

Maxxam Job					DI2150			DI2151		DI2154					
Sampling date					2016/11/18			2016/11/18		2016/11/18					
Waybill #					N/A			N/A		N/A					
	Units	A	B	C	SED-23-2	CR	SED-24	CR	SED-07-7BIS	CR	RDL	QC batch			
% HUMIDITY	%	-	-	-	74		74		67						
<b>CHLOROBENZENES</b>															
1,3,5-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		0.02	<A	0.01	1695512			
1,2,4-Trichlorobenzene	mg/kg	0.1	2	10	0.01	<A	<0.01		0.02	<A	0.01	1695512			
1,2,3-Trichlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		0.01	1695512			
1,2,3,5+1,2,4,5-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		0.01	1695512			
1,2,3,4-Tetrachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		0.01	1695512			
Pentachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		0.01	1695512			
Hexachlorobenzene	mg/kg	0.1	2	10	<0.01		<0.01		<0.01		0.01	1695512			
<b>Surrogate Recovery (%)</b>															
C13-1,2,4-Trichlorobenzene	%	-	-	-	85		87		83			1695512			
C13-Hexachlorobenzene	%	-	-	-	96		99		94			1695512			
RDL = Reportable Detection Limit															
QC Batch = Quality Control Batch															

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### HYDROCARBONS BY GC/FID (SOIL)

Maxxam Job					DI2146		DI2147		DI2148		DI2149			
Sampling date					2016/11/18		2016/11/18		2016/11/18		2016/11/18			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-19</b>	<b>CR</b>	<b>SED-20</b>	<b>CR</b>	<b>SED-22</b>	<b>CR</b>	<b>SED-23-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	71		74		72		73			
<b>PETROLEUM HYDROCARBONS</b>														
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	270	<A	540	A-B	300	A	220	<A	100	1695414
<b>Surrogate Recovery (%)</b>														
1-Chlorooctadecane	%	-	-	-	92		95		98		91			1695414
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job					DI2150		DI2151		DI2154					
Sampling date					2016/11/18		2016/11/18		2016/11/18					
Waybill #					N/A		N/A		N/A					
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-23-2</b>	<b>CR</b>	<b>SED-24</b>	<b>CR</b>	<b>SED-07-7BIS</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>		
% HUMIDITY	%	-	-	-	74		74		67					
<b>PETROLEUM HYDROCARBONS</b>														
Petroleum hydrocarbons (C10-C50)	mg/kg	300	700	3500	370	A-B	480	A-B	150	<A	100	1695414		
<b>Surrogate Recovery (%)</b>														
1-Chlorooctadecane	%	-	-	-	97		94		95			1695414		
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														



Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### COV BY GC/MS (SOIL)

Maxxam Job					DI2146		DI2147		DI2148		DI2149			
Sampling date					2016/11/18		2016/11/18		2016/11/18		2016/11/18			
Waybill #					N/A		N/A		N/A		N/A			
	Units	A	B	C	SED-19	CR	SED-20	CR	SED-22	CR	SED-23-1	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	71		74		72		73			
<b>COMPOUNDS</b>														
Benzene	mg/kg	0.2	0.5	5	<0.3		<0.3		<0.3		<0.3		0.3	1695223
Chlorobenzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Ethylbenzene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Styrene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Toluene	mg/kg	0.2	3	30	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Chloroform	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	0.06		0.06		0.06		0.06		0.06	1695223
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Dichloromethane	mg/kg	-	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Tetrachloroethene	mg/kg	0.3	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Carbon tetrachloride	mg/kg	0.1	5	50	<0.3		<0.3		<0.3		<0.3		0.3	1695223
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
Trichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		<0.6		<0.6		0.6	1695223
<b>Surrogate Recovery (%)</b>														
4-Bromofluorobenzene	%	-	-	-	105		105		104		105			1695223
D10-Ethylbenzene	%	-	-	-	99		99		99		101			1695223
D4-1,2-Dichloroethane	%	-	-	-	105		105		104		104			1695223
D8-Toluene	%	-	-	-	96		96		96		96			1695223
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### COV BY GC/MS (SOIL)

Maxxam Job					DI2150		DI2151			DI2154			
Sampling date					2016/11/18		2016/11/18			2016/11/18			
Waybill #					N/A		N/A			N/A			
	Units	A	B	C	SED-23-2	CR	SED-24	CR	RDL	SED-07-7BIS	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	74		74			67			
<b>COMPOUNDS</b>													
Benzene	mg/kg	0.2	0.5	5	<0.3		<0.3		0.3	<0.2		0.2	1695223
Chlorobenzene	mg/kg	0.2	1	10	<0.6		<0.6		0.6	<0.4		0.4	1695223
Dichloro-1,2 benzene	mg/kg	0.2	1	10	<0.6		<0.6		0.6	<0.4		0.4	1695223
Dichloro-1,3 benzene	mg/kg	0.2	1	10	<0.6		<0.6		0.6	<0.4		0.4	1695223
Dichloro-1,4 benzene	mg/kg	0.2	1	10	<0.6		<0.6		0.6	<0.4		0.4	1695223
Ethylbenzene	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
Styrene	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
Toluene	mg/kg	0.2	3	30	<0.6		<0.6		0.6	<0.4		0.4	1695223
Xylenes (o,m,p)	mg/kg	0.4	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
Chloroform	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
Vinylchloride (Chloroethene)	mg/kg	0.4	0.02	0.03	0.06		0.06		0.06	<0.04		0.04	1695223
1,1-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
1,2-Dichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
1,1-Dichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
1,2-Dichloroethene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
1,2-Dichloroethene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
1,2-Dichloroethene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
Dichloromethane	mg/kg	-	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
1,2-Dichloropropane	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
1,3-Dichloropropene (cis)	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
1,3-Dichloropropene (trans)	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
1,3-Dichloropropene (cis and trans)	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
1,1,2,2-Tetrachloroethane	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
Tetrachloroethene	mg/kg	0.3	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
Carbon tetrachloride	mg/kg	0.1	5	50	<0.3		<0.3		0.3	<0.2		0.2	1695223
1,1,1-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
1,1,2-Trichloroethane	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
Trichloroethene	mg/kg	0.2	5	50	<0.6		<0.6		0.6	<0.4		0.4	1695223
<b>Surrogate Recovery (%)</b>													
4-Bromofluorobenzene	%	-	-	-	105		106			103			1695223
D10-Ethylbenzene	%	-	-	-	99		99			99			1695223
D4-1,2-Dichloroethane	%	-	-	-	105		106			105			1695223
D8-Toluene	%	-	-	-	96		97			96			1695223
RDL = Reportable Detection Limit													
QC Batch = Quality Control Batch													

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### TOTAL EXTRACTABLE METALS (SOIL)

Maxxam Job					DI2146		DI2147		DI2148		DI2149			
Sampling date					2016/11/18		2016/11/18		2016/11/18		2016/11/18			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-19</b>	<b>CR</b>	<b>SED-20</b>	<b>CR</b>	<b>SED-22</b>	<b>CR</b>	<b>SED-23-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	71		74		72		73			
<b>METALS</b>														
Silver (Ag)	mg/kg	2	20	40	<2		<2		<2		<2		2	1695378
Arsenic (As)	mg/kg	6	30	50	7	A-B	8	A-B	9	A-B	14	A-B	2	1695378
Barium (Ba)	mg/kg	340	500	2000	380	A-B	390	A-B	390	A-B	420	A-B	5	1695378
Cadmium (Cd)	mg/kg	1.5	5	20	2.6	A-B	2.5	A-B	2.8	A-B	4.5	A-B	0.1	1695378
Chromium (Cr)	mg/kg	100	250	800	62	<A	62	<A	58	<A	57	<A	2	1695378
Copper (Cu)	mg/kg	50	100	500	54	A-B	56	A-B	52	A-B	59	A-B	1	1695378
Cobalt (Co)	mg/kg	25	50	300	18	<A	19	<A	18	<A	24	<A	2	1695378
Tin (Sn)	mg/kg	5	50	300	6	A-B	6	A-B	7	A-B	8	A-B	5	1695378
Manganese (Mn)	mg/kg	1000	1000	2200	1400	B-C	1800	B-C	2700	>C	5800	>C	2	1695378
Molybdenum (Mo)	mg/kg	2	10	40	<2		<2		<2		<2		2	1695378
Nickel (Ni)	mg/kg	50	100	500	46	<A	46	<A	44	<A	49	<A	1	1695378
Mercury (Hg)	mg/kg	0.2	2	10	2.7	B-C	2.6	B-C	2.8	B-C	3.0	B-C	0.05	1695378
Lead (Pb)	mg/kg	50	500	1000	41	<A	40	<A	40	<A	60	A-B	5	1695378
Selenium (Se)	mg/kg	1	3	10	1	A	1	A	1	A	1	A	1	1695378
Zinc (Zn)	mg/kg	140	500	1500	280	A-B	280	A-B	290	A-B	380	A-B	5	1695378
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681706  
 Report Date: 2016/12/08

Englobe Corp.  
 Your project #: 11905  
 Site address: KS  
 Your P.O. #: 23514

### TOTAL EXTRACTABLE METALS (SOIL)

Maxxam Job					DI2150		DI2151		DI2154			
Sampling date					2016/11/18		2016/11/18		2016/11/18			
Waybill #					N/A		N/A		N/A			
	Units	A	B	C	SED-23-2	CR	SED-24	CR	SED-07-7BIS	CR	RDL	QC batch
% HUMIDITY	%	-	-	-	74		74		67			
<b>METALS</b>												
Silver (Ag)	mg/kg	2	20	40	<2		<2		<2		2	1695378
Arsenic (As)	mg/kg	6	30	50	13	A-B	12	A-B	19	A-B	2	1695378
Barium (Ba)	mg/kg	340	500	2000	410	A-B	340	A	420	A-B	5	1695378
Cadmium (Cd)	mg/kg	1.5	5	20	4.3	A-B	1.4	<A	8.4	B-C	0.1	1695378
Chromium (Cr)	mg/kg	100	250	800	55	<A	52	<A	58	<A	2	1695378
Copper (Cu)	mg/kg	50	100	500	56	A-B	48	<A	53	A-B	1	1695378
Cobalt (Co)	mg/kg	25	50	300	22	<A	23	<A	22	<A	2	1695378
Tin (Sn)	mg/kg	5	50	300	8	A-B	<5		11	A-B	5	1695378
Manganese (Mn)	mg/kg	1000	1000	2200	5400	>C	5700	>C	3300	>C	2	1695378
Molybdenum (Mo)	mg/kg	2	10	40	<2		2	A	2	A	2	1695378
Nickel (Ni)	mg/kg	50	100	500	45	<A	46	<A	49	<A	1	1695378
Mercury (Hg)	mg/kg	0.2	2	10	2.8	B-C	1.1	A-B	4.6	B-C	0.05	1695378
Lead (Pb)	mg/kg	50	500	1000	58	A-B	33	<A	83	A-B	5	1695378
Selenium (Se)	mg/kg	1	3	10	1	A	<1		1	A	1	1695378
Zinc (Zn)	mg/kg	140	500	1500	360	A-B	200	A-B	500	B	5	1695378
RDL = Reportable Detection Limit												
QC Batch = Quality Control Batch												

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### CONVENTIONAL PARAMETERS (SOIL)

Maxxam Job					DI2146		DI2147		DI2148		DI2149			
Sampling date					2016/11/18		2016/11/18		2016/11/18		2016/11/18			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-19</b>	<b>CR</b>	<b>SED-20</b>	<b>CR</b>	<b>SED-22</b>	<b>CR</b>	<b>SED-23-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	71		74		72		73			
<b>CONVENTIONAL</b>														
Total organic carbon (titration)	% g/g	-	-	-	4.3		4.9		4.7		4.6		0.05	1696252
S stat (cmole H+/kg)	n/a	-	-	-							21		1	1696448
Sulphur (S)	% g/g	0.04	0.2	0.2	0.35	>C	0.38	>C	0.35	>C	0.36	>C	0.01	1695490
Bromide (Br-)	mg/kg	6	50	300							<10		10	1695725
pH static (pH stat)	n/a	-	-	-							7.0		N/A	1696448
Chloride (Cl)	mg/kg	-	-	-							52		10	1695725
Nitrate (N) and Nitrite (N)	mg/kg	-	-	-							<10		10	1695725
Sulphate (SO <sub>4</sub> )	mg/kg	-	-	-							<50		50	1695725
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable														

Maxxam Job					DI2150		DI2151		DI2154					
Sampling date					2016/11/18		2016/11/18		2016/11/18					
Waybill #					N/A		N/A		N/A					
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-23-2</b>	<b>CR</b>	<b>SED-24</b>	<b>CR</b>	<b>SED-07-7BIS</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>		
% HUMIDITY	%	-	-	-	74		74		67					
<b>CONVENTIONAL</b>														
Total organic carbon (titration)	% g/g	-	-	-	4.7		4.0		4.4		0.05	1696252		
Sulphur (S)	% g/g	0.04	0.2	0.2	0.35	>C	0.22	>C	0.67	>C	0.01	1695490		
RDL = Reportable Detection Limit QC Batch = Quality Control Batch														

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### PCB CONGENERS (SOIL)

Maxxam Job					DI2146		DI2147		DI2148		DI2149			
Sampling date					2016/11/18		2016/11/18		2016/11/18		2016/11/18			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-19</b>	<b>CR</b>	<b>SED-20</b>	<b>CR</b>	<b>SED-22</b>	<b>CR</b>	<b>SED-23-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
% HUMIDITY	%	-	-	-	71		74		72		73			
<b>PCBs</b>														
CL3-IUPAC-17+18	mg/kg	-	-	-	<0.01		<0.01		0.01		0.04		0.01	1695377
CL3-IUPAC-28+31	mg/kg	-	-	-	0.01		0.01		0.02		0.03		0.01	1695377
CL3-IUPAC-33	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL4-IUPAC-52	mg/kg	-	-	-	0.01		0.02		0.05		0.05		0.01	1695377
CL4-IUPAC-49	mg/kg	-	-	-	<0.01		0.01		0.03		0.04		0.01	1695377
CL4-IUPAC-44	mg/kg	-	-	-	<0.01		<0.01		0.02		0.02		0.01	1695377
CL4-IUPAC-74	mg/kg	-	-	-	<0.01		<0.01		0.02		0.01		0.01	1695377
CL4-IUPAC-70	mg/kg	-	-	-	0.02		0.02		0.05		0.03		0.01	1695377
CL5-IUPAC-95	mg/kg	-	-	-	0.01		0.02		0.05		0.04		0.01	1695377
CL5-IUPAC-101	mg/kg	-	-	-	0.03		0.03		0.11		0.08		0.01	1695377
CL5-IUPAC-99	mg/kg	-	-	-	0.02		0.02		0.06		0.04		0.01	1695377
CL5-IUPAC-87	mg/kg	-	-	-	0.01		0.01		0.04		0.03		0.01	1695377
CL5-IUPAC-110	mg/kg	-	-	-	0.03		0.03		0.11		0.08		0.01	1695377
CL5-IUPAC-82	mg/kg	-	-	-	<0.01		<0.01		0.01		<0.01		0.01	1695377
CL6-IUPAC-151	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL6-IUPAC-149	mg/kg	-	-	-	0.01		0.01		0.05		0.03		0.01	1695377
CL5-IUPAC-118	mg/kg	-	-	-	0.03		0.04		0.15		0.09		0.01	1695377
CL6-IUPAC-153	mg/kg	-	-	-	0.02		0.02		0.08		0.04		0.01	1695377
CL6-IUPAC-132	mg/kg	-	-	-	<0.01		<0.01		0.03		0.02		0.01	1695377
CL5-IUPAC-105	mg/kg	-	-	-	0.02		0.02		0.07		0.04		0.01	1695377
CL6-IUPAC-138+158	mg/kg	-	-	-	0.03		0.03		0.14		0.07		0.01	1695377
CL7-IUPAC-187	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL7-IUPAC-183	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL6-IUPAC-128	mg/kg	-	-	-	<0.01		<0.01		0.04		0.02		0.01	1695377
CL7-IUPAC-177	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL6-IUPAC-156	mg/kg	-	-	-	<0.01		<0.01		0.02		<0.01		0.01	1695377
CL7-IUPAC-180	mg/kg	-	-	-	<0.01		<0.01		0.02		<0.01		0.01	1695377
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL7-IUPAC-170	mg/kg	-	-	-	<0.01		<0.01		0.02		<0.01		0.01	1695377
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### PCB CONGENERS (SOIL)

Maxxam Job					DI2146		DI2147		DI2148		DI2149			
Sampling date					2016/11/18		2016/11/18		2016/11/18		2016/11/18			
Waybill #					N/A		N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>SED-19</b>	<b>CR</b>	<b>SED-20</b>	<b>CR</b>	<b>SED-22</b>	<b>CR</b>	<b>SED-23-1</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
Total trichlorobiphenyls	mg/kg	-	-	-	0.01		0.01		0.06		0.14		0.01	1695377
Total tetrachlorobiphenyls	mg/kg	-	-	-	0.06		0.08		0.29		0.27		0.01	1695377
Total pentachlorobiphenyls	mg/kg	-	-	-	0.15		0.16		0.68		0.44		0.01	1695377
Total hexachlorobiphenyls	mg/kg	-	-	-	0.06		0.06		0.41		0.18		0.01	1695377
Total heptachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		0.04		<0.01		0.01	1695377
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		<0.01		0.01	1695377
Total PCBs	mg/kg	0.2	1	10	0.29	A-B	0.32	A-B	1.5	B-C	1.0	B	0.01	1695377
<b>Surrogate Recovery (%)</b>														
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	97		105		93		71			1695377
2',3,5-Trichlorobiphenyl	%	-	-	-	92		103		89		72			1695377
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	89		94		83		60			1695377
RDL = Reportable Detection Limit														
QC Batch = Quality Control Batch														

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### PCB CONGENERS (SOIL)

Maxxam Job				DI2150		DI2151		DI2154			
Sampling date				2016/11/18		2016/11/18		2016/11/18			
Waybill #				N/A		N/A		N/A			
	Units	A	B	C	SED-23-2	CR	SED-24	CR	SED-07-7BIS	CR	RDL QC batch
% HUMIDITY	%	-	-	-	74		74		67		
<b>PCBs</b>											
CL3-IUPAC-17+18	mg/kg	-	-	-	0.02		<0.01		0.01		0.01 1695377
CL3-IUPAC-28+31	mg/kg	-	-	-	0.02		<0.01		0.03		0.01 1695377
CL3-IUPAC-33	mg/kg	-	-	-	<0.01		<0.01		0.01		0.01 1695377
CL4-IUPAC-52	mg/kg	-	-	-	0.04		0.01		0.06		0.01 1695377
CL4-IUPAC-49	mg/kg	-	-	-	0.03		<0.01		0.05		0.01 1695377
CL4-IUPAC-44	mg/kg	-	-	-	0.02		<0.01		0.03		0.01 1695377
CL4-IUPAC-74	mg/kg	-	-	-	0.01		<0.01		0.02		0.01 1695377
CL4-IUPAC-70	mg/kg	-	-	-	0.03		0.02		0.06		0.01 1695377
CL5-IUPAC-95	mg/kg	-	-	-	0.04		0.01		0.06		0.01 1695377
CL5-IUPAC-101	mg/kg	-	-	-	0.07		0.02		0.14		0.01 1695377
CL5-IUPAC-99	mg/kg	-	-	-	0.04		0.01		0.09		0.01 1695377
CL5-IUPAC-87	mg/kg	-	-	-	0.03		0.01		0.03		0.01 1695377
CL5-IUPAC-110	mg/kg	-	-	-	0.07		0.02		0.13		0.01 1695377
CL5-IUPAC-82	mg/kg	-	-	-	<0.01		<0.01		0.01		0.01 1695377
CL6-IUPAC-151	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1695377
CL6-IUPAC-149	mg/kg	-	-	-	0.02		<0.01		0.05		0.01 1695377
CL5-IUPAC-118	mg/kg	-	-	-	0.07		0.03		0.12		0.01 1695377
CL6-IUPAC-153	mg/kg	-	-	-	0.03		0.01		0.06		0.01 1695377
CL6-IUPAC-132	mg/kg	-	-	-	0.02		<0.01		0.03		0.01 1695377
CL5-IUPAC-105	mg/kg	-	-	-	0.03		0.02		0.03		0.01 1695377
CL6-IUPAC-138+158	mg/kg	-	-	-	0.06		0.03		0.09		0.01 1695377
CL7-IUPAC-187	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1695377
CL7-IUPAC-183	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1695377
CL6-IUPAC-128	mg/kg	-	-	-	0.02		<0.01		0.03		0.01 1695377
CL7-IUPAC-177	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1695377
CL7-IUPAC-171	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1695377
CL6-IUPAC-156	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1695377
CL7-IUPAC-180	mg/kg	-	-	-	<0.01		<0.01		0.01		0.01 1695377
CL7-IUPAC-191	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1695377
CL6-IUPAC-169	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1695377
CL7-IUPAC-170	mg/kg	-	-	-	<0.01		<0.01		0.01		0.01 1695377
CL8-IUPAC-199	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1695377
CL9-IUPAC-208	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01 1695377
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											



Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### PCB CONGENERS (SOIL)

Maxxam Job					DI2150		DI2151		DI2154			
Sampling date					2016/11/18		2016/11/18		2016/11/18			
Waybill #					N/A		N/A		N/A			
	Units	A	B	C	SED-23-2	CR	SED-24	CR	SED-07-7BIS	CR	RDL	QC batch
CL8-IUPAC-195	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1695377
CL8-IUPAC-194	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1695377
CL8-IUPAC-205	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1695377
CL9-IUPAC-206	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1695377
CL10-IUPAC-209	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1695377
Total trichlorobiphenyls	mg/kg	-	-	-	0.06		<0.01		0.07		0.01	1695377
Total tetrachlorobiphenyls	mg/kg	-	-	-	0.23		0.07		0.48		0.01	1695377
Total pentachlorobiphenyls	mg/kg	-	-	-	0.36		0.13		0.71		0.01	1695377
Total hexachlorobiphenyls	mg/kg	-	-	-	0.15		0.04		0.28		0.01	1695377
Total heptachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		0.02		0.01	1695377
Total octachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1695377
Total nonachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1695377
Total decachlorobiphenyls	mg/kg	-	-	-	<0.01		<0.01		<0.01		0.01	1695377
Total PCBs	mg/kg	0.2	1	10	0.81	A-B	0.24	A-B	1.6	B-C	0.01	1695377
<b>Surrogate Recovery (%)</b>												
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	-	95		96		89			1695377
2',3,5-Trichlorobiphenyl	%	-	-	-	94		91		93			1695377
22'33'44'566'-Nonachlorobiphenyl	%	-	-	-	81		90		78			1695377
RDL = Reportable Detection Limit												
QC Batch = Quality Control Batch												

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2146						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY	#		
	Units	A	B	C	SED-19	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	71						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	1.1		0.11	1.0	1.1		1695457
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	1.6		0.27	0.50	0.80		1695457
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	1.7		0.61	0.10	0.17		1695457
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	7.1		0.57	0.10	0.71		1695457
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	4.5		0.47	0.10	0.45		1695457
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	120		0.89	0.010	1.2		1695457
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	950		4.5	0.0010	0.95	1	1695457
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	13		0.11			7	1695457
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	22		0.27			10	1695457
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	76		0.54			7	1695457
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	270		0.89			2	1695457
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	1300		N/A			27	1695457
2,3,7,8-Tetra CDF **	pg/g	-	-	-	36		0.19	0.10	3.6		1695457
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	34		0.25	0.050	1.7		1695457
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	17		0.25	0.50	8.5		1695457
1,2,3,4,7,8,-Hexa CDF **	pg/g	-	-	-	60		0.61	0.10	6.0		1695457
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	17		0.55	0.10	1.7		1695457
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	3.7		0.69	0.10	0.37		1695457
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	1.6		0.71	0.10	0.16		1695457
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	<48		48	0.010	0		1695457
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	16		0.73	0.010	0.16		1695457
Octachlorodibenzofuran	pg/g	-	-	-	100		0.59	0.0010	0.10	1	1695457
Total tetrachlorodibenzofurans	pg/g	-	-	-	160		0.19			16	1695457
Total pentachlorodibenzofurans	pg/g	-	-	-	160		0.25			13	1695457
Total hexachlorodibenzofurans	pg/g	-	-	-	170		0.63			10	1695457
EDL = Estimated Detection Limit											
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency											
The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.											
NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic											
Equivalency Factors (I-TEF)											
QC Batch = Quality Control Batch											
* CDD = Chloro Dibenzo-p-Dioxin											
N/A = Not Applicable											
** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2146						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	SED-19	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	76		0.64			2	1695457
Total chlorodibenzofurans	pg/g	-	-	-	670		N/A			42	1695457
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					28		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	112						1695457
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	120						1695457
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	102						1695457
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	108						1695457
C13-1,2,3,7,8-P5CDD *	%	-	-	-	100						1695457
C13-1,2,3,7,8-PCDF **	%	-	-	-	108						1695457
C13-2,3,7,8-TCDD *	%	-	-	-	84						1695457
C13-2,3,7,8-TCDF **	%	-	-	-	100						1695457
C13-OCTA-CDD *	%	-	-	-	104						1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

## DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2147						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	SED-20	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	74						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	0.91		0.11	1.0	0.91		1695457
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	1.5		0.29	0.50	0.75		1695457
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	1.6		0.39	0.10	0.16		1695457
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	6.6		0.37	0.10	0.66		1695457
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	4.0		0.30	0.10	0.40		1695457
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	150		3.1	0.010	1.5		1695457
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	1300		4.6	0.0010	1.3	1	1695457
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	12		0.11			9	1695457
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	19		0.29			9	1695457
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	81		0.35			8	1695457
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	490		3.1			2	1695457
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	1900		N/A			29	1695457
2,3,7,8-Tetra CDF **	pg/g	-	-	-	36		0.17	0.10	3.6		1695457
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	34		0.43	0.050	1.7		1695457
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	16		0.42	0.50	8.0		1695457
1,2,3,4,7,8,-Hexa CDF **	pg/g	-	-	-	60		0.41	0.10	6.0		1695457
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	16		0.37	0.10	1.6		1695457
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	3.5		0.47	0.10	0.35		1695457
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	<1.5		1.5	0.10	0		1695457
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	<47		47	0.010	0		1695457
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	15		1.0	0.010	0.15		1695457
Octachlorodibenzofuran	pg/g	-	-	-	100		0.90	0.0010	0.10	1	1695457
Total tetrachlorodibenzofurans	pg/g	-	-	-	150		0.17			16	1695457
Total pentachlorodibenzofurans	pg/g	-	-	-	150		0.42			13	1695457
Total hexachlorodibenzofurans	pg/g	-	-	-	160		0.43			9	1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2147						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	SED-20	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	78		0.88			2	1695457
Total chlorodibenzofurans	pg/g	-	-	-	640		N/A			41	1695457
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					27		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	115						1695457
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	120						1695457
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	103						1695457
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	105						1695457
C13-1,2,3,7,8-P5CDD *	%	-	-	-	113						1695457
C13-1,2,3,7,8-PCDF **	%	-	-	-	118						1695457
C13-2,3,7,8-TCDD *	%	-	-	-	86						1695457
C13-2,3,7,8-TCDF **	%	-	-	-	100						1695457
C13-OCTA-CDD *	%	-	-	-	104						1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2148						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY	#		
	Units	A	B	C	SED-22	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	72						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	1.0		0.23	1.0	1.0		1695457
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	1.7		0.25	0.50	0.85		1695457
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	1.7		0.41	0.10	0.17		1695457
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	6.5		0.38	0.10	0.65		1695457
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	3.9		0.31	0.10	0.39		1695457
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	120		2.8	0.010	1.2		1695457
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	990		2.2	0.0010	0.99	1	1695457
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	13		0.23			9	1695457
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	23		0.25			11	1695457
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	80		0.36			6	1695457
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	310		2.8			2	1695457
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	1400		N/A			29	1695457
2,3,7,8-Tetra CDF **	pg/g	-	-	-	42		0.14	0.10	4.2		1695457
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	41		0.35	0.050	2.1		1695457
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	21		0.34	0.50	11		1695457
1,2,3,4,7,8-Hexa CDF **	pg/g	-	-	-	67		0.58	0.10	6.7		1695457
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	18		0.53	0.10	1.8		1695457
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	3.8		0.66	0.10	0.38		1695457
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	0.92		0.68	0.10	0.092		1695457
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	<50		50	0.010	0		1695457
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	22		1.9	0.010	0.22		1695457
Octachlorodibenzofuran	pg/g	-	-	-	110		1.2	0.0010	0.11	1	1695457
Total tetrachlorodibenzofurans	pg/g	-	-	-	180		0.14			17	1695457
Total pentachlorodibenzofurans	pg/g	-	-	-	190		0.34			15	1695457
Total hexachlorodibenzofurans	pg/g	-	-	-	180		0.61			10	1695457

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2148						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	SED-22	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	96		1.6			3	1695457
Total chlorodibenzofurans	pg/g	-	-	-	760		N/A			46	1695457
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					32		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	96						1695457
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	94						1695457
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	92						1695457
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	99						1695457
C13-1,2,3,7,8-P5CDD *	%	-	-	-	94						1695457
C13-1,2,3,7,8-PCDF **	%	-	-	-	104						1695457
C13-2,3,7,8-TCDD *	%	-	-	-	81						1695457
C13-2,3,7,8-TCDF **	%	-	-	-	98						1695457
C13-OCTA-CDD *	%	-	-	-	77						1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2149						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	SED-23-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	73						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	1.5		0.45	1.0	1.5		1695457
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	2.9		0.69	0.50	1.5		1695457
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	3.0		1.1	0.10	0.30		1695457
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	13		1.1	0.10	1.3		1695457
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	7.8		0.88	0.10	0.78		1695457
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	420		7.9	0.010	4.2		1695457
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	4300		15	0.0010	4.3	1	1695457
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	17		0.45			8	1695457
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	31		0.69			7	1695457
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	190		1.0			8	1695457
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	1800		7.9			2	1695457
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	6300		N/A			26	1695457
2,3,7,8-Tetra CDF **	pg/g	-	-	-	55		0.36	0.10	5.5		1695457
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	50		0.70	0.050	2.5		1695457
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	26		0.69	0.50	13		1695457
1,2,3,4,7,8,-Hexa CDF **	pg/g	-	-	-	94		0.64	0.10	9.4		1695457
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	26		0.58	0.10	2.6		1695457
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	7.2		0.73	0.10	0.72		1695457
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	2.8		0.75	0.10	0.28		1695457
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	92		1.2	0.010	0.92		1695457
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	28		1.6	0.010	0.28		1695457
Octachlorodibenzofuran	pg/g	-	-	-	220		1.6	0.0010	0.22	1	1695457
Total tetrachlorodibenzofurans	pg/g	-	-	-	240		0.36			20	1695457
Total pentachlorodibenzofurans	pg/g	-	-	-	240		0.70			13	1695457
Total hexachlorodibenzofurans	pg/g	-	-	-	280		0.67			10	1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											



Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2149						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	SED-23-1	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	310		1.4			4	1695457
Total chlorodibenzofurans	pg/g	-	-	-	1300		N/A			48	1695457
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					49		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	67						1695457
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	74						1695457
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	72						1695457
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	82						1695457
C13-1,2,3,7,8-P5CDD *	%	-	-	-	73						1695457
C13-1,2,3,7,8-PCDF **	%	-	-	-	85						1695457
C13-2,3,7,8-TCDD *	%	-	-	-	66						1695457
C13-2,3,7,8-TCDF **	%	-	-	-	79						1695457
C13-OCTA-CDD *	%	-	-	-	59						1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2150						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	SED-23-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	74						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	1.1		0.15	1.0	1.1		1695457
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	2.2		0.33	0.50	1.1		1695457
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	2.3		0.70	0.10	0.23		1695457
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	9.8		0.66	0.10	0.98		1695457
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	5.7		0.53	0.10	0.57		1695457
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	210		3.7	0.010	2.1		1695457
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	1900		5.2	0.0010	1.9	1	1695457
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	15		0.15			11	1695457
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	29		0.33			10	1695457
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	130		0.62			8	1695457
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	620		3.7			2	1695457
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	2700		N/A			32	1695457
2,3,7,8-Tetra CDF **	pg/g	-	-	-	55		0.11	0.10	5.5		1695457
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	65		0.27	0.050	3.3		1695457
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	29		0.27	0.50	15		1695457
1,2,3,4,7,8,-Hexa CDF **	pg/g	-	-	-	120		0.36	0.10	12		1695457
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	33		0.33	0.10	3.3		1695457
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	6.9		0.41	0.10	0.69		1695457
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	<0.94		0.94	0.10	0		1695457
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	<75		75	0.010	0		1695457
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	30		2.4	0.010	0.30		1695457
Octachlorodibenzofuran	pg/g	-	-	-	160		1.1	0.0010	0.16	1	1695457
Total tetrachlorodibenzofurans	pg/g	-	-	-	210		0.11			15	1695457
Total pentachlorodibenzofurans	pg/g	-	-	-	250		0.27			11	1695457
Total hexachlorodibenzofurans	pg/g	-	-	-	300		0.38			12	1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2150						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	SED-23-2	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	150		2.1			3	1695457
Total chlorodibenzofurans	pg/g	-	-	-	1100		N/A			42	1695457
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					48		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	99						1695457
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	94						1695457
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	88						1695457
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	98						1695457
C13-1,2,3,7,8-P5CDD *	%	-	-	-	94						1695457
C13-1,2,3,7,8-PCDF **	%	-	-	-	98						1695457
C13-2,3,7,8-TCDD *	%	-	-	-	77						1695457
C13-2,3,7,8-TCDF **	%	-	-	-	89						1695457
C13-OCTA-CDD *	%	-	-	-	84						1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Englobe Corp.  
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### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2151						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	SED-24	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	74						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	0.77		0.15	1.0	0.77		1695457
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	1.3		0.25	0.50	0.65		1695457
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	1.9		0.46	0.10	0.19		1695457
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	7.4		0.44	0.10	0.74		1695457
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	4.4		0.36	0.10	0.44		1695457
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	210		2.6	0.010	2.1		1695457
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	2000		3.6	0.0010	2.0	1	1695457
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	10		0.15			7	1695457
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	19		0.25			10	1695457
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	98		0.41			8	1695457
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	730		2.6			2	1695457
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	2900		N/A			28	1695457
2,3,7,8-Tetra CDF **	pg/g	-	-	-	28		0.15	0.10	2.8		1695457
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	18		0.22	0.050	0.90		1695457
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	10		0.22	0.50	5.0		1695457
1,2,3,4,7,8,-Hexa CDF **	pg/g	-	-	-	35		0.28	0.10	3.5		1695457
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	9.3		0.26	0.10	0.93		1695457
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	3.0		0.32	0.10	0.30		1695457
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	1.1		0.33	0.10	0.11		1695457
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	<42		42	0.010	0		1695457
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	10		1.0	0.010	0.10		1695457
Octachlorodibenzofuran	pg/g	-	-	-	97		0.33	0.0010	0.097	1	1695457
Total tetrachlorodibenzofurans	pg/g	-	-	-	130		0.15			19	1695457
Total pentachlorodibenzofurans	pg/g	-	-	-	100		0.22			13	1695457
Total hexachlorodibenzofurans	pg/g	-	-	-	120		0.29			11	1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2151						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	SED-24	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	85		0.91			3	1695457
Total chlorodibenzofurans	pg/g	-	-	-	530		N/A			47	1695457
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					21		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	91						1695457
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	92						1695457
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	82						1695457
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	85						1695457
C13-1,2,3,7,8-P5CDD *	%	-	-	-	90						1695457
C13-1,2,3,7,8-PCDF **	%	-	-	-	98						1695457
C13-2,3,7,8-TCDD *	%	-	-	-	72						1695457
C13-2,3,7,8-TCDF **	%	-	-	-	83						1695457
C13-OCTA-CDD *	%	-	-	-	86						1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Englobe Corp.  
Your project #: 11905  
Site address: KS  
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### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2154						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	SED-07-7BIS	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
% HUMIDITY	%	-	-	-	67						
<b>DIOXINS</b>											
2,3,7,8-Tetra CDD *	pg/g	-	-	-	2.8		0.14	1.0	2.8		1695457
1,2,3,7,8-Penta CDD *	pg/g	-	-	-	2.9		0.20	0.50	1.5		1695457
1,2,3,4,7,8-Hexa CDD *	pg/g	-	-	-	2.9		0.42	0.10	0.29		1695457
1,2,3,6,7,8-Hexa CDD *	pg/g	-	-	-	14		0.40	0.10	1.4		1695457
1,2,3,7,8,9-Hexa CDD *	pg/g	-	-	-	7.7		0.32	0.10	0.77		1695457
1,2,3,4,6,7,8-Hepta CDD *	pg/g	-	-	-	240		2.4	0.010	2.4		1695457
Octachlorodibenzo-p-dioxin	pg/g	-	-	-	1800		2.8	0.0010	1.8	1	1695457
Total tetrachlorodibenzo-p-dioxins	pg/g	-	-	-	21		0.14			13	1695457
Total pentachlorodibenzo-p-dioxins	pg/g	-	-	-	39		0.20			12	1695457
Total hexachlorodibenzo-p-dioxins	pg/g	-	-	-	150		0.37			6	1695457
Total heptachlorodibenzo-p-dioxins	pg/g	-	-	-	490		2.4			2	1695457
Total chlorodibenzo-p-dioxins	pg/g	-	-	-	2500		N/A			34	1695457
2,3,7,8-Tetra CDF **	pg/g	-	-	-	95		0.17	0.10	9.5		1695457
1,2,3,7,8-Penta CDF **	pg/g	-	-	-	67		0.21	0.050	3.4		1695457
2,3,4,7,8-Penta CDF **	pg/g	-	-	-	34		0.21	0.50	17		1695457
1,2,3,4,7,8,-Hexa CDF **	pg/g	-	-	-	130		0.58	0.10	13		1695457
1,2,3,6,7,8-Hexa CDF **	pg/g	-	-	-	34		0.53	0.10	3.4		1695457
2,3,4,6,7,8-Hexa CDF **	pg/g	-	-	-	7.8		0.66	0.10	0.78		1695457
1,2,3,7,8,9-Hexa CDF **	pg/g	-	-	-	4.6		0.68	0.10	0.46		1695457
1,2,3,4,6,7,8-Hepta CDF **	pg/g	-	-	-	120		0.48	0.010	1.2		1695457
1,2,3,4,7,8,9-Hepta CDF **	pg/g	-	-	-	56		0.62	0.010	0.56		1695457
Octachlorodibenzofuran	pg/g	-	-	-	240		1.2	0.0010	0.24	1	1695457
Total tetrachlorodibenzofurans	pg/g	-	-	-	370		0.17			17	1695457
Total pentachlorodibenzofurans	pg/g	-	-	-	310		0.21			14	1695457
Total hexachlorodibenzofurans	pg/g	-	-	-	330		0.61			10	1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### DIOXINS AND FURANS BY HIGH RESOLUTION (SOIL)

Maxxam Job					DI2154						
Sampling date					2016/11/18						
Waybill #					N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	C	SED-07-7BIS	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total heptachlorodibenzofurans	pg/g	-	-	-	330		0.54			4	1695457
Total chlorodibenzofurans	pg/g	-	-	-	1600		N/A			46	1695457
TOTAL TOXIC EQUIVALENCY	pg/g	1.8	15	750					61		
<b>Surrogate Recovery (%)</b>											
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	-	96						1695457
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	-	93						1695457
C13-1,2,3,6,7,8-H6CDD *	%	-	-	-	83						1695457
C13-1,2,3,6,7,8-H6CDF **	%	-	-	-	89						1695457
C13-1,2,3,7,8-P5CDD *	%	-	-	-	93						1695457
C13-1,2,3,7,8-PCDF **	%	-	-	-	102						1695457
C13-2,3,7,8-TCDD *	%	-	-	-	75						1695457
C13-2,3,7,8-TCDF **	%	-	-	-	87						1695457
C13-OCTA-CDD *	%	-	-	-	86						1695457
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.											

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

## GENERAL COMMENTS

All results are calculated using a dry base, except when not applicable.

Condition of samples upon arrival: GOOD

A,B,C,CR: Soil criteria taken from Appendix 2 of the "Intervention Guide-Soil Protection and Rehabilitation of Contaminated Sites. MDDELCC, 2016." entitled "Generic Soil Evaluation Criteria". For analyses of metals (and metalloids) in the soil, Criteria A designated the "Substantive Content - St. Lawrence Lowlands".

Criteria A and B for groundwater are taken from Appendix 7, "Groundwater Quality Evaluation Criteria" of the aforementioned Intervention Guide. A=Drinking water; B=Seepage into surface water

These references are reported for information purposes only and must not be interpreted in any other context.

- = This compound is not part of the Regulations.

### CHLOROBENZENES (SOL)

Please note that the results have not been corrected for quality control sample recovery (spiked blank ) or for the blank. The sample results have been corrected for surrogate recovery percentage.

### CONVENTIONAL PARAMETERS (SOIL)

Please note that the results have not been corrected for quality control sample recovery or for method blank values.

**The results refer only to the samples submitted for analysis.**



Englobe Corp.  
Your project #: 11905  
Site address: KS  
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## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1695223	ST1	Spiked blank	4-Bromofluorobenzene	2016/11/19		105	%
			D10-Ethylbenzene	2016/11/19		113	%
			D4-1,2-Dichloroethane	2016/11/19		101	%
			D8-Toluene	2016/11/19		98	%
			Benzene	2016/11/19		115	%
			Chlorobenzene	2016/11/19		113	%
			Dichloro-1,2 benzene	2016/11/19		122	%
			Dichloro-1,3 benzene	2016/11/19		113	%
			Dichloro-1,4 benzene	2016/11/19		121	%
			Ethylbenzene	2016/11/19		109	%
			Styrene	2016/11/19		114	%
			Toluene	2016/11/19		105	%
			Xylenes (o,m,p)	2016/11/19		112	%
			Chloroform	2016/11/19		109	%
			Vinylchloride (Chloroethene)	2016/11/19		92	%
			1,1-Dichloroethane	2016/11/19		122	%
			1,2-Dichloroethane	2016/11/19		115	%
			1,1-Dichloroethene	2016/11/19		109	%
			1,2-Dichloroethene (cis)	2016/11/19		114	%
			1,2-Dichloroethene (trans)	2016/11/19		114	%
			1,2-Dichloroethene (cis and trans)	2016/11/19		114	%
			Dichloromethane	2016/11/19		126	%
			1,2-Dichloropropane	2016/11/19		118	%
			1,3-Dichloropropene (cis)	2016/11/19		108	%
			1,3-Dichloropropene (trans)	2016/11/19		108	%
			1,3-Dichloropropene (cis and trans)	2016/11/19		108	%
			1,1,2,2-Tetrachloroethane	2016/11/19		114	%
			Tetrachloroethene	2016/11/19		116	%
			Carbon tetrachloride	2016/11/19		113	%
			1,1,1-Trichloroethane	2016/11/19		113	%
			1,1,2-Trichloroethane	2016/11/19		110	%
			Trichloroethene	2016/11/19		119	%
1695223	ST1	Method blank	4-Bromofluorobenzene	2016/11/19		105	%
			D10-Ethylbenzene	2016/11/19		112	%
			D4-1,2-Dichloroethane	2016/11/19		99	%
			D8-Toluene	2016/11/19		97	%
			Benzene	2016/11/19	<0.1		mg/kg
			Chlorobenzene	2016/11/19	<0.2		mg/kg
			Dichloro-1,2 benzene	2016/11/19	<0.2		mg/kg
			Dichloro-1,3 benzene	2016/11/19	<0.2		mg/kg
			Dichloro-1,4 benzene	2016/11/19	<0.2		mg/kg
			Ethylbenzene	2016/11/19	<0.2		mg/kg
			Styrene	2016/11/19	<0.2		mg/kg
			Toluene	2016/11/19	<0.2		mg/kg
			Xylenes (o,m,p)	2016/11/19	<0.2		mg/kg
			Chloroform	2016/11/19	<0.2		mg/kg
			Vinylchloride (Chloroethene)	2016/11/19	<0.02		mg/kg
			1,1-Dichloroethane	2016/11/19	<0.2		mg/kg
			1,2-Dichloroethane	2016/11/19	<0.2		mg/kg
			1,1-Dichloroethene	2016/11/19	<0.2		mg/kg
			1,2-Dichloroethene (cis)	2016/11/19	<0.2		mg/kg

Englobe Corp.  
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Your P.O. #: 23514

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1695375	MA1	Spiked blank	1,2-Dichloroethene (trans)	2016/11/19	<0.2		mg/kg
			1,2-Dichloroethene (cis and trans)	2016/11/19	<0.2		mg/kg
			Dichloromethane	2016/11/19	<0.2		mg/kg
			1,2-Dichloropropane	2016/11/19	<0.2		mg/kg
			1,3-Dichloropropene (cis)	2016/11/19	<0.2		mg/kg
			1,3-Dichloropropene (trans)	2016/11/19	<0.2		mg/kg
			1,3-Dichloropropene (cis and trans)	2016/11/19	<0.2		mg/kg
			1,1,2,2-Tetrachloroethane	2016/11/19	<0.2		mg/kg
			Tetrachloroethene	2016/11/19	<0.2		mg/kg
			Carbon tetrachloride	2016/11/19	<0.1		mg/kg
			1,1,1-Trichloroethane	2016/11/19	<0.2		mg/kg
			1,1,2-Trichloroethane	2016/11/19	<0.2		mg/kg
			Trichloroethene	2016/11/19	<0.2		mg/kg
			D6-Phenol	2016/11/20		121	%
			Tribromophenol-2,4,6	2016/11/20		102	%
			Trifluoro-m-cresol	2016/11/20		125	%
			o-Cresol	2016/11/20		103	%
			m-Cresol	2016/11/20		105	%
			p-Cresol	2016/11/20		107	%
			2,4-Dimethylphenol	2016/11/20		102	%
			2-Nitrophenol	2016/11/20		80	%
			4-Nitrophenol	2016/11/20		96	%
			Phenol	2016/11/20		110	%
			2-Chlorophenol	2016/11/20		96	%
			3-Chlorophenol	2016/11/20		100	%
			4-Chlorophenol	2016/11/20		103	%
			2,3-Dichlorophenol	2016/11/20		99	%
			2,4 + 2,5-Dichlorophenol	2016/11/20		99	%
			2,6-Dichlorophenol	2016/11/20		81	%
			3,4-Dichlorophenol	2016/11/20		101	%
			3,5-Dichlorophenol	2016/11/20		104	%
			Pentachlorophenol	2016/11/20		93	%
			2,3,4,5-Tetrachlorophenol	2016/11/20		97	%
			2,3,4,6-Tetrachlorophenol	2016/11/20		99	%
			2,3,5,6-Tetrachlorophenol	2016/11/20		98	%
			2,3,4-Trichlorophenol	2016/11/20		100	%
			2,3,5-Trichlorophenol	2016/11/20		97	%
			2,3,6-Trichlorophenol	2016/11/20		96	%
			2,4,5-Trichlorophenol	2016/11/20		109	%
			2,4,6-Trichlorophenol	2016/11/20		88	%
			3,4,5-Trichlorophenol	2016/11/20		108	%
1695375	MA1	Method blank	D6-Phenol	2016/11/20		116	%
			Tribromophenol-2,4,6	2016/11/20		92	%
			Trifluoro-m-cresol	2016/11/20		120	%
			o-Cresol	2016/11/20	<0.1		mg/kg
			m-Cresol	2016/11/20	<0.1		mg/kg
			p-Cresol	2016/11/20	<0.1		mg/kg
			2,4-Dimethylphenol	2016/11/20	<0.1		mg/kg
			2-Nitrophenol	2016/11/20	<0.1		mg/kg
			4-Nitrophenol	2016/11/20	<0.1		mg/kg
			Phenol	2016/11/20	<0.1		mg/kg

Englobe Corp.  
Your project #: 11905  
Site address: KS  
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### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
			2-Chlorophenol	2016/11/20	<0.1		mg/kg
			3-Chlorophenol	2016/11/20	<0.1		mg/kg
			4-Chlorophenol	2016/11/20	<0.1		mg/kg
			2,3-Dichlorophenol	2016/11/20	<0.1		mg/kg
			2,4 + 2,5-Dichlorophenol	2016/11/20	<0.1		mg/kg
			2,6-Dichlorophenol	2016/11/20	<0.1		mg/kg
			3,4-Dichlorophenol	2016/11/20	<0.1		mg/kg
			3,5-Dichlorophenol	2016/11/20	<0.1		mg/kg
			Pentachlorophenol	2016/11/20	<0.1		mg/kg
			2,3,4,5-Tetrachlorophenol	2016/11/20	<0.1		mg/kg
			2,3,4,6-Tetrachlorophenol	2016/11/20	<0.1		mg/kg
			2,3,5,6-Tetrachlorophenol	2016/11/20	<0.1		mg/kg
			2,3,4-Trichlorophenol	2016/11/20	<0.1		mg/kg
			2,3,5-Trichlorophenol	2016/11/20	<0.1		mg/kg
			2,3,6-Trichlorophenol	2016/11/20	<0.1		mg/kg
			2,4,5-Trichlorophenol	2016/11/20	<0.1		mg/kg
			2,4,6-Trichlorophenol	2016/11/20	<0.1		mg/kg
			3,4,5-Trichlorophenol	2016/11/20	<0.1		mg/kg
1695377	CB5	Spiked blank	2,3,3',4,6-Pentachlorobiphenyl	2016/11/21		90	%
			2',3,5-Trichlorobiphenyl	2016/11/21		81	%
			22'33'44'566'-Nonachlorobiphenyl	2016/11/21		89	%
			Total PCBs	2016/11/21		98	%
1695377	CB5	Method blank	2,3,3',4,6-Pentachlorobiphenyl	2016/11/21		104	%
			2',3,5-Trichlorobiphenyl	2016/11/21		73	%
			22'33'44'566'-Nonachlorobiphenyl	2016/11/21		96	%
			CL3-IUPAC-17+18	2016/11/21	<0.01		mg/kg
			CL3-IUPAC-28+31	2016/11/21	<0.01		mg/kg
			CL3-IUPAC-33	2016/11/21	<0.01		mg/kg
			CL4-IUPAC-52	2016/11/21	<0.01		mg/kg
			CL4-IUPAC-49	2016/11/21	<0.01		mg/kg
			CL4-IUPAC-44	2016/11/21	<0.01		mg/kg
			CL4-IUPAC-74	2016/11/21	<0.01		mg/kg
			CL4-IUPAC-70	2016/11/21	<0.01		mg/kg
			CL5-IUPAC-95	2016/11/21	<0.01		mg/kg
			CL5-IUPAC-101	2016/11/21	<0.01		mg/kg
			CL5-IUPAC-99	2016/11/21	<0.01		mg/kg
			CL5-IUPAC-87	2016/11/21	<0.01		mg/kg
			CL5-IUPAC-110	2016/11/21	<0.01		mg/kg
			CL5-IUPAC-82	2016/11/21	<0.01		mg/kg
			CL6-IUPAC-151	2016/11/21	<0.01		mg/kg
			CL6-IUPAC-149	2016/11/21	<0.01		mg/kg
			CL5-IUPAC-118	2016/11/21	<0.01		mg/kg
			CL6-IUPAC-153	2016/11/21	<0.01		mg/kg
			CL6-IUPAC-132	2016/11/21	<0.01		mg/kg
			CL5-IUPAC-105	2016/11/21	<0.01		mg/kg
			CL6-IUPAC-138+158	2016/11/21	<0.01		mg/kg
			CL7-IUPAC-187	2016/11/21	<0.01		mg/kg
			CL7-IUPAC-183	2016/11/21	<0.01		mg/kg
			CL6-IUPAC-128	2016/11/21	<0.01		mg/kg
			CL7-IUPAC-177	2016/11/21	<0.01		mg/kg
			CL7-IUPAC-171	2016/11/21	<0.01		mg/kg

Englobe Corp.  
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### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
			CL6-IUPAC-156	2016/11/21	<0.01		mg/kg
			CL7-IUPAC-180	2016/11/21	<0.01		mg/kg
			CL7-IUPAC-191	2016/11/21	<0.01		mg/kg
			CL6-IUPAC-169	2016/11/21	<0.01		mg/kg
			CL7-IUPAC-170	2016/11/21	<0.01		mg/kg
			CL8-IUPAC-199	2016/11/21	<0.01		mg/kg
			CL9-IUPAC-208	2016/11/21	<0.01		mg/kg
			CL8-IUPAC-195	2016/11/21	<0.01		mg/kg
			CL8-IUPAC-194	2016/11/21	<0.01		mg/kg
			CL8-IUPAC-205	2016/11/21	<0.01		mg/kg
			CL9-IUPAC-206	2016/11/21	<0.01		mg/kg
			CL10-IUPAC-209	2016/11/21	<0.01		mg/kg
			Total trichlorobiphenyls	2016/11/21	<0.01		mg/kg
			Total tetrachlorobiphenyls	2016/11/21	<0.01		mg/kg
			Total pentachlorobiphenyls	2016/11/21	<0.01		mg/kg
			Total hexachlorobiphenyls	2016/11/21	<0.01		mg/kg
			Total heptachlorobiphenyls	2016/11/21	<0.01		mg/kg
			Total octachlorobiphenyls	2016/11/21	<0.01		mg/kg
			Total nonachlorobiphenyls	2016/11/21	<0.01		mg/kg
			Total decachlorobiphenyls	2016/11/21	<0.01		mg/kg
			Total PCBs	2016/11/21	<0.01		mg/kg
1695378	ACF	RCN	Arsenic (As)	2016/11/19		133 (1)	%
			Cadmium (Cd)	2016/11/19		134 (1)	%
			Chromium (Cr)	2016/11/19		106	%
			Copper (Cu)	2016/11/19		113	%
			Cobalt (Co)	2016/11/19		115	%
			Manganese (Mn)	2016/11/19		104	%
			Molybdenum (Mo)	2016/11/19		103	%
			Nickel (Ni)	2016/11/19		130	%
			Mercury (Hg)	2016/11/19		122	%
			Lead (Pb)	2016/11/19		119	%
			Zinc (Zn)	2016/11/19		108	%
1695378	ACF	Spiked blank	Silver (Ag)	2016/11/19		96	%
			Arsenic (As)	2016/11/19		96	%
			Barium (Ba)	2016/11/19		99	%
			Cadmium (Cd)	2016/11/19		97	%
			Chromium (Cr)	2016/11/19		97	%
			Copper (Cu)	2016/11/19		99	%
			Cobalt (Co)	2016/11/19		100	%
			Tin (Sn)	2016/11/19		107	%
			Manganese (Mn)	2016/11/19		93	%
			Molybdenum (Mo)	2016/11/19		99	%
			Nickel (Ni)	2016/11/19		98	%
			Mercury (Hg)	2016/11/19		95	%
			Lead (Pb)	2016/11/19		95	%
			Selenium (Se)	2016/11/19		97	%
			Zinc (Zn)	2016/11/19		94	%
1695378	ACF	Method blank	Silver (Ag)	2016/11/19	<2		mg/kg
			Arsenic (As)	2016/11/19	<2		mg/kg
			Barium (Ba)	2016/11/19	<5		mg/kg
			Cadmium (Cd)	2016/11/19	<0.1		mg/kg

Englobe Corp.  
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### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1695413	AK2	Spiked blank	Chromium (Cr)	2016/11/19	<2		mg/kg
			Copper (Cu)	2016/11/19	<1		mg/kg
			Cobalt (Co)	2016/11/19	<2		mg/kg
			Tin (Sn)	2016/11/19	<5		mg/kg
			Manganese (Mn)	2016/11/19	<2		mg/kg
			Molybdenum (Mo)	2016/11/19	<2		mg/kg
			Nickel (Ni)	2016/11/19	<1		mg/kg
			Mercury (Hg)	2016/11/19	<0.05		mg/kg
			Lead (Pb)	2016/11/19	<5		mg/kg
			Selenium (Se)	2016/11/19	<1		mg/kg
			Zinc (Zn)	2016/11/19	<5		mg/kg
			2-Chloronaphthalene	2016/11/19		85	%
			D10-Anthracene	2016/11/19		84	%
			D12-Benzo(a)pyrene	2016/11/19		92	%
			D14-Terphenyl	2016/11/19		90	%
			D8-Acenaphthylene	2016/11/19		73	%
			D8-Naphtalene	2016/11/19		81	%
			Naphthalene	2016/11/19		89	%
			Acenaphthylene	2016/11/19		79	%
			Acenaphthene	2016/11/19		90	%
			Fluorene	2016/11/19		88	%
			Phenanthrene	2016/11/19		90	%
			Anthracene	2016/11/19		91	%
			Fluoranthene	2016/11/19		90	%
			Pyrene	2016/11/19		89	%
			Benzo(a)anthracene	2016/11/19		98	%
			Chrysene	2016/11/19		98	%
			Benzo(b+j+k)fluoranthene	2016/11/19		103	%
			Benzo(e)pyrene	2016/11/19		101	%
			Benzo(a)pyrene	2016/11/19		95	%
			Ideno(1,2,3-cd)pyrene	2016/11/19		95	%
			Dibenzo(a,h)anthracene	2016/11/19		98	%
			Benzo(ghi)perylene	2016/11/19		99	%
			2-Methylnaphtalene	2016/11/19		94	%
			1-Methylnaphtalene	2016/11/19		80	%
			Benzo(c)phenanthrene	2016/11/19		99	%
			3-Methylcholanthrene	2016/11/19		95	%
			7,12-Dimethylbenzanthracene	2016/11/19		100	%
			Dibenzo(a,i)pyrene	2016/11/19		89	%
			Dibenzo(a,l)pyrene	2016/11/19		98	%
			Dibenzo(a,h)pyrene	2016/11/19		76	%
			1,3-Dimethylnaphthalene	2016/11/19		89	%
			2,3,5-Trimethylnaphthalene	2016/11/19		88	%
1695413	AK2	Method blank	2-Chloronaphthalene	2016/11/19	<0.1		mg/kg
			D10-Anthracene	2016/11/19		76	%
			D12-Benzo(a)pyrene	2016/11/19		85	%
			D14-Terphenyl	2016/11/19		82	%
			D8-Acenaphthylene	2016/11/19		67	%
			D8-Naphtalene	2016/11/19		73	%
			Naphthalene	2016/11/19	<0.01		mg/kg
			Acenaphthylene	2016/11/19	<0.003		mg/kg

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
			Acenaphthene	2016/11/19	<0.003		mg/kg
			Fluorene	2016/11/19	<0.01		mg/kg
			Phenanthrene	2016/11/19	<0.01		mg/kg
			Anthracene	2016/11/19	<0.01		mg/kg
			Fluoranthene	2016/11/19	<0.01		mg/kg
			Pyrene	2016/11/19	<0.01		mg/kg
			Benzo(a)anthracene	2016/11/19	<0.01		mg/kg
			Chrysene	2016/11/19	<0.01		mg/kg
			Benzo(b+j+k)fluoranthene	2016/11/19	<0.01		mg/kg
			Benzo(e)pyrene	2016/11/19	<0.01		mg/kg
			Benzo(a)pyrene	2016/11/19	<0.01		mg/kg
			Ideno(1,2,3-cd)pyrene	2016/11/19	<0.01		mg/kg
			Dibenzo(a,h)anthracene	2016/11/19	<0.003		mg/kg
			Benzo(ghi)perylene	2016/11/19	<0.01		mg/kg
			2-Methylnaphthalene	2016/11/19	<0.01		mg/kg
			1-Methylnaphthalene	2016/11/19	<0.01		mg/kg
			Benzo(c)phenanthrene	2016/11/19	<0.01		mg/kg
			3-Methylcholanthrene	2016/11/19	<0.01		mg/kg
			7,12-Dimethylbenzanthracene	2016/11/19	<0.01		mg/kg
			Dibenzo(a,i)pyrene	2016/11/19	<0.01		mg/kg
			Dibenzo(a,l)pyrene	2016/11/19	<0.01		mg/kg
			Dibenzo(a,h)pyrene	2016/11/19	<0.01		mg/kg
			1,3-Dimethylnaphthalene	2016/11/19	<0.01		mg/kg
			2,3,5-Trimethylnaphthalene	2016/11/19	<0.01		mg/kg
1695414	CT2	Spiked blank	1-Chlorooctadecane	2016/11/19		87	%
			Petroleum hydrocarbons (C10-C50)	2016/11/19		83	%
1695414	CT2	Method blank	1-Chlorooctadecane	2016/11/19		94	%
			Petroleum hydrocarbons (C10-C50)	2016/11/19	<100		mg/kg
1695457	AS2	Spiked blank	C13-1,2,3,4,6,7,8-H7CDD	2016/11/23		114	%
			C13-1,2,3,4,6,7,8-H7CDF	2016/11/23		126	%
			C13-1,2,3,6,7,8-H6CDD	2016/11/23		87	%
			C13-1,2,3,6,7,8-H6CDF	2016/11/23		101	%
			C13-1,2,3,7,8-P5CDD	2016/11/23		96	%
			C13-1,2,3,7,8-PCDF	2016/11/23		114	%
			C13-2,3,7,8-TCDD	2016/11/23		72	%
			C13-2,3,7,8-TCDF	2016/11/23		91	%
			C13-OCTA-CDD	2016/11/23		95	%
			2,3,7,8-Tetra CDD	2016/11/23		109	%
			1,2,3,7,8-Penta CDD	2016/11/23		109	%
			1,2,3,4,7,8-Hexa CDD	2016/11/23		123	%
			1,2,3,6,7,8-Hexa CDD	2016/11/23		126	%
			1,2,3,7,8,9-Hexa CDD	2016/11/23		103	%
			1,2,3,4,6,7,8-Hepta CDD	2016/11/23		105	%
			Octachlorodibenzo-p-dioxin	2016/11/23		119	%
			2,3,7,8-Tetra CDF	2016/11/23		109	%
			1,2,3,7,8-Penta CDF	2016/11/23		112	%
			2,3,4,7,8-Penta CDF	2016/11/23		109	%
			1,2,3,4,7,8,-Hexa CDF	2016/11/23		113	%
			1,2,3,6,7,8-Hexa CDF	2016/11/23		107	%
			2,3,4,6,7,8-Hexa CDF	2016/11/23		129	%
			1,2,3,7,8,9-Hexa CDF	2016/11/23		115	%

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1695457	AS2	Method blank	1,2,3,4,6,7,8-Hepta CDF	2016/11/23		109	%
			1,2,3,4,7,8,9-Hepta CDF	2016/11/23		100	%
			Octachlorodibenzofuran	2016/11/23		102	%
			C13-1,2,3,4,6,7,8-H7CDD	2016/11/22		113	%
			C13-1,2,3,4,6,7,8-H7CDF	2016/11/22		113	%
			C13-1,2,3,6,7,8-H6CDD	2016/11/22		90	%
			C13-1,2,3,6,7,8-H6CDF	2016/11/22		98	%
			C13-1,2,3,7,8-P5CDD	2016/11/22		99	%
			C13-1,2,3,7,8-PCDF	2016/11/22		106	%
			C13-2,3,7,8-TCDD	2016/11/22		81	%
			C13-2,3,7,8-TCDF	2016/11/22		92	%
			C13-OCTA-CDD	2016/11/22		98	%
			2,3,7,8-Tetra CDD	2016/11/22	<0.031, EDL=0.031		pg/g
			1,2,3,7,8-Penta CDD	2016/11/22	<0.049, EDL=0.049		pg/g
			1,2,3,4,7,8-Hexa CDD	2016/11/22	<0.030, EDL=0.030		pg/g
			1,2,3,6,7,8-Hexa CDD	2016/11/22	<0.028, EDL=0.028		pg/g
			1,2,3,7,8,9-Hexa CDD	2016/11/22	<0.023, EDL=0.023		pg/g
			1,2,3,4,6,7,8-Hepta CDD	2016/11/22	0.17 EDL=0.039		pg/g
			Octachlorodibenzo-p-dioxin	2016/11/22	0.87, EDL=0.085		pg/g
			Total tetrachlorodibenzo-p-dioxins	2016/11/22	<0.031, EDL=0.031		pg/g
			Total pentachlorodibenzo-p-dioxins	2016/11/22	<0.049, EDL=0.049		pg/g
			Total hexachlorodibenzo-p-dioxins	2016/11/22	0.059, EDL=0.026		pg/g
			Total heptachlorodibenzo-p-dioxins	2016/11/22	0.31, EDL=0.039		pg/g
			Total chlorodibenzo-p-dioxins	2016/11/22	1.2		pg/g
			2,3,7,8-Tetra CDF	2016/11/22	<0.056, EDL=0.056		pg/g
			1,2,3,7,8-Penta CDF	2016/11/22	<0.045, EDL=0.045		pg/g
			2,3,4,7,8-Penta CDF	2016/11/22	<0.023, EDL=0.023		pg/g
			1,2,3,4,7,8,-Hexa CDF	2016/11/22	0.078, EDL=0.019		pg/g
			1,2,3,6,7,8-Hexa CDF	2016/11/22	<0.029, EDL=0.029		pg/g
			2,3,4,6,7,8-Hexa CDF	2016/11/22	<0.022, EDL=0.022		pg/g

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
			1,2,3,7,8,9-Hexa CDF	2016/11/22	<0.022, EDL=0.022		pg/g
			1,2,3,4,6,7,8-Hepta CDF	2016/11/22	<0.078, EDL=0.078		pg/g
			1,2,3,4,7,8,9-Hepta CDF	2016/11/22	<0.049, EDL=0.049		pg/g
			Octachlorodibenzofuran	2016/11/22	<0.14, EDL=0.14		pg/g
			Total tetrachlorodibenzofurans	2016/11/22	0.044, EDL=0.019		pg/g
			Total pentachlorodibenzofurans	2016/11/22	0.043, EDL=0.021		pg/g
			Total hexachlorodibenzofurans	2016/11/22	0.11, EDL=0.020		pg/g
			Total heptachlorodibenzofurans	2016/11/22	0.16, EDL=0.032		pg/g
			Total chlorodibenzofurans	2016/11/22	0.36		pg/g
1695490	JL1	RCN	Sulphur (S)	2016/11/21		100	%
1695490	JL1	Method blank	Sulphur (S)	2016/11/21	0.01, RDL=0.01		% g/g
1695512	CB5	Spiked blank	C13-1,2,4-Trichlorobenzene	2016/11/21		80	%
			C13-Hexachlorobenzene	2016/11/21		95	%
			1,3,5-Trichlorobenzene	2016/11/21		120	%
			1,2,4-Trichlorobenzene	2016/11/21		110	%
			1,2,3-Trichlorobenzene	2016/11/21		113	%
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/21		114	%
			1,2,3,4-Tetrachlorobenzene	2016/11/21		105	%
			Pentachlorobenzene	2016/11/21		94	%
			Hexachlorobenzene	2016/11/21		101	%
1695512	CB5	Spiked blank DUP	C13-1,2,4-Trichlorobenzene	2016/11/21		79	%
			C13-Hexachlorobenzene	2016/11/21		95	%
			1,3,5-Trichlorobenzene	2016/11/21		129	%
			1,2,4-Trichlorobenzene	2016/11/21		119	%
			1,2,3-Trichlorobenzene	2016/11/21		122	%
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/21		119	%
			1,2,3,4-Tetrachlorobenzene	2016/11/21		111	%
			Pentachlorobenzene	2016/11/21		100	%
			Hexachlorobenzene	2016/11/21		108	%
1695512	CB5	Method blank	C13-1,2,4-Trichlorobenzene	2016/11/21		80	%
			C13-Hexachlorobenzene	2016/11/21		94	%
			1,3,5-Trichlorobenzene	2016/11/21	<0.01		mg/kg
			1,2,4-Trichlorobenzene	2016/11/21	<0.01		mg/kg
			1,2,3-Trichlorobenzene	2016/11/21	<0.01		mg/kg
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/21	<0.01		mg/kg
			1,2,3,4-Tetrachlorobenzene	2016/11/21	<0.01		mg/kg
			Pentachlorobenzene	2016/11/21	<0.01		mg/kg
			Hexachlorobenzene	2016/11/21	<0.01		mg/kg
1695725	JL1	Spiked blank	Bromide (Br-)	2016/11/21		97	%
			Chloride (Cl)	2016/11/21		96	%
			Nitrate (N) and Nitrite (N)	2016/11/21		99	%



Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1695725	JL1	Method blank	Sulphate (SO <sub>4</sub> )	2016/11/21		100	%
			Bromide (Br <sup>-</sup> )	2016/11/21	<1		mg/kg
			Chloride (Cl)	2016/11/21	<1		mg/kg
			Nitrate (N) and Nitrite (N)	2016/11/21	<1		mg/kg
			Sulphate (SO <sub>4</sub> )	2016/11/21	<5		mg/kg
1696106	CB5	Spiked blank	C13-1,2,4-Trichlorobenzene	2016/11/22		83	%
			C13-Hexachlorobenzene	2016/11/22		102	%
			1,3,5-Trichlorobenzene	2016/11/22		106	%
			1,2,4-Trichlorobenzene	2016/11/22		98	%
			1,2,3-Trichlorobenzene	2016/11/22		103	%
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/22		103	%
			1,2,3,4-Tetrachlorobenzene	2016/11/22		102	%
			Pentachlorobenzene	2016/11/22		84	%
			Hexachlorobenzene	2016/11/22		90	%
			C13-1,2,4-Trichlorobenzene	2016/11/22		84	%
			C13-Hexachlorobenzene	2016/11/22		103	%
			1,3,5-Trichlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,4-Trichlorobenzene	2016/11/22	<0.01		mg/kg
1696106	CB5	Method blank	1,2,3-Trichlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/11/22	<0.01		mg/kg
			1,2,3,4-Tetrachlorobenzene	2016/11/22	<0.01		mg/kg
			Pentachlorobenzene	2016/11/22	<0.01		mg/kg
			Hexachlorobenzene	2016/11/22	<0.01		mg/kg
			Total organic carbon (titration)	2016/11/22		111	%

RDL = Reportable Detection Limit

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

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

Method blank: An aliquot portion of pure matrix that is submitted to the same analytical process as the samples, from pre-treatment to assaying. Used to identify laboratory contamination.

Surrogate: Compound of similar composition to the compounds analyzed and added to the pre-analysis sample. Used to evaluate the quality of the extraction.

EDL = Estimated Detection Limit

Rec = Recovery

(1) Recovery or relative variation (RPD) for this composite is beyond control limits, but the overall quality control meets the criteria of acceptability for this analysis

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### **VALIDATION SIGNATURE PAGE**

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

Caroline Bougie, B.Sc. Chemist

David Provencher, B.Sc., Chemist, Quebec

Faouzi Sarsi, B.Sc. Chemist

Miryam Assayag, B.Sc. Chemist

Marie-Claude Poupart, B.Sc., Chemist

Noureddine Chafiaai, B.Sc., Chemist

Olga Zlatov Polevoi

Maxxam Job #: B681706  
Report Date: 2016/12/08

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23514

### **VALIDATION SIGNATURE PAGE (CONTINUED)**

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

Phuc Khanh Tuong, B.Sc., Chemist

Ramona Dascal

Sylvain Chevigny, B.Sc., Chemist

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



**Maxxam analytique inc.**  
889, Montée de Liesse  
Saint-Laurent (Québec) H4T 1P5

Téléphone : 514-448-9001  
Télécopieur : 514-448-9199

# Chaîne de responsabilité

Page de

Client : <b>Englobe Corp.</b>	Téléphone : 514-849-7281 Télécopieur : 514-849-6770
Adresse : 1453, Saint-Thimothée Montréal (Québec) H2L 3N7	N° projet : 11905
Échantillonneur : P. Verhaar	Chargé(e) de projet : M. Demarty

N°	Identification de l'échantillon	N° labo Maxxam	Matrice						Échantillonnage	
			Eau potable	Eau usée	Eau sout.	Eau de surf.	Sols	Sédiments	Autres*	Date
1	SED-19							x		2016-11-18
2	SED-20							x		
3	SED-22							x		
4	SED-23-1							x		
5	SED-23-2							x		
6	SED-24							x		
7	SED-07-7 B0							x		
8								x		
9								x		
10								x		
11								x		
12								x		

Analyse pour échantillon intégré														
HYDROCARBURES PÉTROLIERS (C10-C50)	HYDROCARBURES AROMATIQUES POLYCYCLIQUES	BPC TOTAUX	MÉTAUX extractibles totaux*	MERCURE PAR ICP-MS	CARBONE ORGANIQUE TOTAL	CHLOROBENZÈNES	SOUFRE	Composés acides (phénols)	COMPOSÉS ORGANIQUES VOLATILS HMA-HHT (pot 60mL, sans air)	Granulométrie	DIOXINES & FURANES PAR CGSM HR	Mono-, Di et Tributylés	Détermination potentiel acidogène (TDPAS)	
x	x	x	x	x	x	x	x	x	x	x	x	x	x	

<b>DÉLAIS :</b> C10-50 : 24 h COV : 24h Métaux : 24h Autres : 48 h	N° d'offre de service Maxxam :
	Site : KS
	N° de bon de commande Englobe : 23514
	Autres :
Autres :	Livré par : Livré par messagerie : Livré par :

Limites de détection requises / types de contaminants :
Instructions spéciales :
<b>* Métaux: Politique + Se - Délais minimal requis</b>
Date :      Heure :      Reçu par : Date :      Heure :      Reçu par : Date :      Heure :      Reçu par Maxxam :

Maxxam analytique inc. 889, Montée de Liesse Saint-Laurent (Québec) H4T 1P5 Téléphone : Télécopieur :	Maxxam Analytics Inc. 889 Montée de Liesse Saint-Laurent, Quebec H4T 1P5 Telephone: Fax:
Chaîne de responsabilité	Chain of Accountability
Analyse pour échantillon intégré	Analysis for integrated sample
Client : Englobe Corp.	Customer: Englobe Corp.
Téléphone : Télécopieur :	Telephone: Fax:
Adresse : 1453, Saint-Thimothée Montréal (Québec) H2L 3N7	Address: 1453 Saint-Thimothée Montreal, Quebec H2L 3N7
N° de projet :	Project #:
Échantillonneur :	Sampler:
Chargé(e) de projet :	Project Manager:
N°	#
Identification de l'échantillon	Sample Identification
N° labo Maxxam	Maxxam Lab #
Matrice	Matrix
Échantillonnage	Sampling
Eau potable	Drinking water
Eau usée	Waste water

Eau sout.	Groundwater
Eau de surf.	Surface water
Sols	Soils
Sédiments	Sediments
Autres	Other
# de contenants	# of containers
À livrer (oui/non)	To be delivered (yes/no)
Date	Date
HYDROCARBURES PÉTROLIERS (C10-C50)	PETROLEUM HYDROCARBONS (C10-C50)
HYDROCARBURES AROMATIQUES POLYCYCLIQUES	POLYCYCLIC AROMATIC HYDROCARBONS
BPC TOTAUX	TOTAL PCBs
MÉTAUX extractibles totaux	Total extractable METALS
MERCURE PAR ICP-MS	MERCURY BY ICP-MS
CARBONE ORGANIQUE TOTAL	TOTAL ORGANIC CARBON
CHLOROBENZENES	CHLOROBENZENES
SOUFRE	SULPHUR
Composés acides (phénols)	Acid compounds (Phenols)
COMPOSÉS ORGANIQUES VOLATILS HMA-HHT (pot 60mL, sans air)	VOLATILE ORGANIC COMPOUNDS HMA-HHT (pot 60 mL, no air)
Granulométrie	Granulometry
DIOXINES ET FURANNES PAR CGSM HR	DIOXINS AND FURANS BY CGSM HR
Mono-, Di et Tributylène	Mono-, Di- and Tributylene
Détermination potentiel acidogène (TDPAS)	Acid base accounting (ABA)
DÉLAI : C10-C50 : 24 h COV : 24h Métaux : 24h Autres : 48 h	DEADLINE: C10-C50: 24 h COV: 24 h Metals: 24 h Other: 48 h
N° d'offre de service Maxxam :	Maxxam service offer #:
Site : KS	Location: KS
N° de bon de commande Englobe :	Englobe P.O #:
Autres	Other
Limites de détection requises / types de contamina	Required detection limits / types of contaminants
Instructions spéciales : *Métaux : Politique + Se – Délais minimal requis	Special Instructions: *Metals: Policy + Se – Minimal deadlines required
*Autres =	*Other =
Livré par :	Delivered by:
Livré par messagerie :	Delivered by courier:
Date :	Date:
Heure :	Time:

Your Project #: B687061  
Your C.O.C. #: N/A

Attention: Rodrigo Caffarengo  
Maxxam Analytics  
889 Montée de Liesse  
Ville St-Laurent, QC  
H4T 1P5

Report Date: 2016/11/29  
Report #: R4267157  
Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B6P3459  
Received: 2016/11/22, 10:48

Sample Matrix: Soil  
# Samples Received: 7

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Particle size in solids (Custom) (1)	7	N/A	2016/11/28	ATL SOP 00012	MSAMS 1978 m

#### **Remarks:**

Procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) Note: Graphical representation of larger fractions (PHI-4, PHI -3 and PHI -2) not applicable unless these optional parameters are specifically requested.

Encryption Key

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

Katie Campbell, Project Manager

Email: [kcampbell@maxxam.ca](mailto:kcampbell@maxxam.ca)

Phone #: 902-420-0203 Ext: 298

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

Maxxam Job #: B6P3459  
Report Date: 2016/11/29

Maxxam Analytics  
Client Project #: B681706

### RESULTS OF ANALYSES OF SOIL

Maxxam ID		DMK486	DMK487	DMK488	DMK489		
Sampling Date		2016/11/18	2016/11/18	2016/11/18	2016/11/18		
COC Number		N/A	N/A	N/A	N/A		
	UNITS	DI2146-05R/SED-19	DI2147-05R/SED-20	DI2148-05R/SED-22	DI2149-05R/SED-23-1	RDL	QC Batch
< -1 Phi (2 mm)	%	100	100	100	100	0.10	4766100
< 0 Phi (1 mm)	%	100	100	99	100	0.10	4766100
< +1 Phi (0.5 mm)	%	100	99	98	97	0.10	4766100
< +2 Phi (0.25 mm)	%	98	97	95	94	0.10	4766100
< +3 Phi (0.12 mm)	%	96	95	92	91	0.10	4766100
< +4 Phi (0.062 mm)	%	94	94	89	87	0.10	4766100
< +5 Phi (0.031 mm)	%	92	91	87	86	0.10	4766100
< +6 Phi (0.016 mm)	%	81	79	75	65	0.10	4766100
< +7 Phi (0.0078 mm)	%	56	55	55	50	0.10	4766100
< +8 Phi (0.0039 mm)	%	43	43	43	40	0.10	4766100
< +9 Phi (0.0020 mm)	%	34	32	32	31	0.10	4766100
Gravel	%	<0.10	<0.10	<0.10	<0.10	0.10	4766100
Coarse Sand	%	3.1	3.6	6.2	7.0	0.10	4766100
Fine Sand	%	3.2	2.9	5.2	6.0	0.10	4766100
Silt	%	51	51	45	47	0.10	4766100
Clay	%	43	43	43	40	0.10	4766100
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							



### RESULTS OF ANALYSES OF SOIL

Maxxam ID		DMK490	DMK491	DMK492		
Sampling Date		2016/11/18	2016/11/18	2016/11/18		
COC Number		N/A	N/A	N/A		
	UNITS	DI2150-05R/SED-23-2	DI2151-05R/SED-24	DI2154-05R/SED-07-7	RDL	QC Batch
< -1 Phi (2 mm)	%	100	99 (1)	100	0.10	4766100
< 0 Phi (1 mm)	%	100	98	100	0.10	4766100
< +1 Phi (0.5 mm)	%	98	96	96	0.10	4766100
< +2 Phi (0.25 mm)	%	95	91	93	0.10	4766100
< +3 Phi (0.12 mm)	%	91	87	88	0.10	4766100
< +4 Phi (0.062 mm)	%	88	84	81	0.10	4766100
< +5 Phi (0.031 mm)	%	86	83	76	0.10	4766100
< +6 Phi (0.016 mm)	%	73	74	60	0.10	4766100
< +7 Phi (0.0078 mm)	%	53	54	48	0.10	4766100
< +8 Phi (0.0039 mm)	%	43	46	36	0.10	4766100
< +9 Phi (0.0020 mm)	%	31	31	12	0.10	4766100
Gravel	%	<0.10	0.69	<0.10	0.10	4766100
Coarse Sand	%	6.4	10	8.9	0.10	4766100
Fine Sand	%	6.1	5.0	9.8	0.10	4766100
Silt	%	44	38	46	0.10	4766100
Clay	%	43	46	36	0.10	4766100
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
(1) Sample observation comment: fraction contained a large shell						

Maxxam Job #: B6P3459  
Report Date: 2016/11/29

Maxxam Analytics  
Client Project #: B681706

## GENERAL COMMENTS

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

Package 1	7.3°C
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**Results relate only to the items tested.**

Maxxam Job #: B6P3459  
Report Date: 2016/11/29

Maxxam Analytics  
Client Project #: B681706

### QUALITY ASSURANCE REPORT

QA/QC			Date Analyzed					
Batch	Init	QC Type	Parameter		Value	Recovery	UNITS	QC Limits
4766100	JKI	RPD [DMK486-01]	Gravel	2016/11/28	NC		%	35
			Coarse Sand	2016/11/28	2.9		%	35
			Fine Sand	2016/11/28	13		%	35
			Silt	2016/11/28	0.049		%	35
			Clay	2016/11/28	0.68		%	35
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.								
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).								

Maxxam Job #: B6P3459  
Report Date: 2016/11/29

Maxxam Analytics  
Client Project #: B681706

### **VALIDATION SIGNATURE PAGE**

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

Mike MacGillivray, Scientific Specialist (Inorganics)

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.

Your P.O. #: 23513  
Your project #: 11905  
Site address: KS  
Your waybill #: N/A

Attention: Maud Demarty  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2016/12/09  
Report #: R2228062  
Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B683493  
Received: 2016/11/17, 5:00 PM

Matrix: SURFACE WATER  
Samples received: 2

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Dioxins & Furans per CGSM HR*	2	2016/11/29	2016/12/04	STL SOP-00249	MA400 D.F. 1.1 R1 m

#### **Notes:**

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.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

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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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

Note: RPDs calculated using raw data (% of relative variation). The rounding of final results may result in the apparent difference.

\* Maxxam is accredited for this analysis under the MDDELCC program.

Your P.O. #: 23514  
Your project #: 11905  
Site address: KS  
Your waybill #: N/A

Attention: Maud Demarty  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2016/12/09  
Report #: R2228062  
Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B683493  
Received: 2016/11/17, 5:00 PM

Encryption key

Please direct all questions regarding this Certificate of Analysis to your Project Manager  
Rodrigo Caffarengo,  
E-mail: [RCaffarengo@maxxam.ca](mailto:RCaffarengo@maxxam.ca)  
Telephone: 514-448-9001 Ext: 6336

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Maxxam Job #: B683493  
Report Date: 2016/12/09

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### DIOXINS AND FURANS BY HIGH RESOLUTION (SURFACE WATER)

Maxxam Job		DJ0901					
Sampling date		2016/11/17					
Waybill #		n/a		TOXIC EQUIVALENCY		#	
	Units	SQE-01	EDL	TEF (2005 WHO)	TEQ(OLD)	Isomers	QC batch
<b>DIOXINS</b>							
2,3,7,8-Tetra CDD *	pg/L	<0.33	0.33	1.0	0		1699183
1,2,3,7,8-Penta CDD *	pg/L	<0.39	0.39	1.0	0		1699183
1,2,3,4,7,8-Hexa CDD *	pg/L	<0.24	0.24	0.10	0		1699183
1,2,3,6,7,8-Hexa CDD *	pg/L	<0.24	0.24	0.10	0		1699183
1,2,3,7,8,9-Hexa CDD *	pg/L	<0.20	0.20	0.10	0		1699183
1,2,3,4,6,7,8-Hepta CDD *	pg/L	<0.44	0.44	0.010	0		1699183
Octachlorodibenzo-p-dioxin	pg/L	1.5	0.68	0.00030	0.00045	1	1699183
Total tetrachlorodibenzo-p-dioxins	pg/L	<0.33	0.33			0	1699183
Total pentachlorodibenzo-p-dioxins	pg/L	<0.39	0.39			0	1699183
Total hexachlorodibenzo-p-dioxins	pg/L	<0.22	0.22			0	1699183
Total heptachlorodibenzo-p-dioxins	pg/L	<0.44	0.44			0	1699183
Total chlorodibenzo-p-dioxins	pg/L	1.5	N/A			1	1699183
2,3,7,8-Tetra CDF **	pg/L	<0.28	0.28	0.10	0		1699183
1,2,3,7,8-Penta CDF **	pg/L	<0.20	0.20	0.030	0		1699183
2,3,4,7,8-Penta CDF **	pg/L	<0.20	0.20	0.30	0		1699183
1,2,3,4,7,8-Hexa CDF **	pg/L	<0.19	0.19	0.10	0		1699183
1,2,3,6,7,8-Hexa CDF **	pg/L	<0.18	0.18	0.10	0		1699183
2,3,4,6,7,8-Hexa CDF **	pg/L	<0.22	0.22	0.10	0		1699183
1,2,3,7,8,9-Hexa CDF **	pg/L	<0.23	0.23	0.10	0		1699183
1,2,3,4,6,7,8-Hepta CDF **	pg/L	<0.23	0.23	0.010	0		1699183
1,2,3,4,7,8,9-Hepta CDF **	pg/L	<0.29	0.29	0.010	0		1699183
Octachlorodibenzofuran	pg/L	<0.43	0.43	0.00030	0	0	1699183
Total tetrachlorodibenzofurans	pg/L	<0.28	0.28			0	1699183
Total pentachlorodibenzofurans	pg/L	<0.20	0.20			0	1699183
Total hexachlorodibenzofurans	pg/L	<0.20	0.20			0	1699183
Total heptachlorodibenzofurans	pg/L	<0.26	0.26			0	1699183
EDL = Estimated Detection Limit							
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency							
The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.							
WHO (2005): 2005 World Health Organization human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds							
QC Batch = Quality Control Batch							
* CDD = Chloro Dibenzo-p-Dioxin							
N/A = Not Applicable							
** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.							

Maxxam Job #: B683493  
Report Date: 2016/12/09

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### DIOXINS AND FURANS BY HIGH RESOLUTION (SURFACE WATER)

Maxxam Job		DJ0901					
Sampling date		2016/11/17					
Waybill #		n/a		TOXIC EQUIVALENCY		#	
	Units	SQE-01	EDL	TEF (2005 WHO)	TEQ(OLD)	Isomers	QC batch
Total chlorodibenzofurans	pg/L	ND	N/A			0	1699183
TOTAL TOXIC EQUIVALENCY	pg/L				0.00045		
<b>Surrogate Recovery (%)</b>							
C13-1,2,3,4,6,7,8-H7CDD *	%	78					1699183
C13-1,2,3,4,6,7,8-H7CDF **	%	81					1699183
C13-1,2,3,6,7,8-H6CDD *	%	83					1699183
C13-1,2,3,6,7,8-H6CDF **	%	73					1699183
C13-1,2,3,7,8-P5CDD *	%	72					1699183
C13-1,2,3,7,8-PCDF **	%	67					1699183
C13-2,3,7,8-TCDD *	%	62					1699183
C13-2,3,7,8-TCDF **	%	61					1699183
C13-OCTA-CDD *	%	68					1699183
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. WHO (2005): 2005 World Health Organization human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds QC Batch = Quality Control Batch ND = below the reported detection limit N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.							



Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### DIOXINS AND FURANS BY HIGH RESOLUTION (SURFACE WATER)

Maxxam Job		DJ0902					
Sampling date		2016/11/17					
Waybill #		n/a		TOXIC EQUIVALENCY			#
	Units	SQE-04	EDL	TEF (2005 WHO)	TEQ(OLD)	Isomers	QC batch
<b>DIOXINS</b>							
2,3,7,8-Tetra CDD *	pg/L	<0.30	0.30	1.0	0		1699183
1,2,3,7,8-Penta CDD *	pg/L	<0.35	0.35	1.0	0		1699183
1,2,3,4,7,8-Hexa CDD *	pg/L	<0.26	0.26	0.10	0		1699183
1,2,3,6,7,8-Hexa CDD *	pg/L	<0.26	0.26	0.10	0		1699183
1,2,3,7,8,9-Hexa CDD *	pg/L	<0.21	0.21	0.10	0		1699183
1,2,3,4,6,7,8-Hepta CDD *	pg/L	<0.33	0.33	0.010	0		1699183
Octachlorodibenzo-p-dioxin	pg/L	1.8	0.44	0.00030	0.00054	1	1699183
Total tetrachlorodibenzo-p-dioxins	pg/L	<0.30	0.30			0	1699183
Total pentachlorodibenzo-p-dioxins	pg/L	<0.35	0.35			0	1699183
Total hexachlorodibenzo-p-dioxins	pg/L	<0.24	0.24			0	1699183
Total heptachlorodibenzo-p-dioxins	pg/L	<0.29	0.29			0	1699183
Total chlorodibenzo-p-dioxins	pg/L	1.8	N/A			1	1699183
2,3,7,8-Tetra CDF **	pg/L	<0.26	0.26	0.10	0		1699183
1,2,3,7,8-Penta CDF **	pg/L	<0.21	0.21	0.030	0		1699183
2,3,4,7,8-Penta CDF **	pg/L	<0.21	0.21	0.30	0		1699183
1,2,3,4,7,8,-Hexa CDF **	pg/L	<0.22	0.22	0.10	0		1699183
1,2,3,6,7,8-Hexa CDF **	pg/L	<0.21	0.21	0.10	0		1699183
2,3,4,6,7,8-Hexa CDF **	pg/L	<0.25	0.25	0.10	0		1699183
1,2,3,7,8,9-Hexa CDF **	pg/L	<0.26	0.26	0.10	0		1699183
1,2,3,4,6,7,8-Hepta CDF **	pg/L	<0.24	0.24	0.010	0		1699183
1,2,3,4,7,8,9-Hepta CDF **	pg/L	<0.25	0.25	0.010	0		1699183
Octachlorodibenzofuran	pg/L	<0.37	0.37	0.00030	0	0	1699183
Total tetrachlorodibenzofurans	pg/L	<0.26	0.26			0	1699183
Total pentachlorodibenzofurans	pg/L	<0.21	0.21			0	1699183
Total hexachlorodibenzofurans	pg/L	<0.23	0.23			0	1699183
Total heptachlorodibenzofurans	pg/L	<0.23	0.23			0	1699183
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. WHO (2005): 2005 World Health Organization human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.							

Maxxam Job #: B683493  
Report Date: 2016/12/09

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### DIOXINS AND FURANS BY HIGH RESOLUTION (SURFACE WATER)

Maxxam Job		DJ0902					
Sampling date		2016/11/17					
Waybill #		n/a		TOXIC EQUIVALENCY		#	
	Units	SQE-04	EDL	TEF (2005 WHO)	TEQ(OLD)	Isomers	QC batch
Total chlorodibenzofurans	pg/L	ND	N/A			0	1699183
TOTAL TOXIC EQUIVALENCY	pg/L				0.00054		
<b>Surrogate Recovery (%)</b>							
C13-1,2,3,4,6,7,8-H7CDD *	%	82					1699183
C13-1,2,3,4,6,7,8-H7CDF **	%	85					1699183
C13-1,2,3,6,7,8-H6CDD *	%	83					1699183
C13-1,2,3,6,7,8-H6CDF **	%	73					1699183
C13-1,2,3,7,8-P5CDD *	%	75					1699183
C13-1,2,3,7,8-PCDF **	%	68					1699183
C13-2,3,7,8-TCDD *	%	67					1699183
C13-2,3,7,8-TCDF **	%	63					1699183
C13-OCTA-CDD *	%	75					1699183
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. WHO (2005): 2005 World Health Organization human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds QC Batch = Quality Control Batch ND = below the reported detection limit N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.							

Maxxam Job #: B683493  
Report Date: 2016/12/09

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

## GENERAL COMMENTS

Condition of samples upon arrival: GOOD

### DIOXINS AND FURANS BY HIGH RESOLUTION (SURFACE WATER)

Please note that the above results have not been corrected for quality control samples recovery (spiked blank) or for method blank values. Please note that the above results have been corrected for surrogate recovery percentage.

**The results refer only to the samples submitted for analysis.**

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1699183	JF2	Spiked blank	C13-1,2,3,4,6,7,8-H7CDD	2016/12/03		86	%
			C13-1,2,3,4,6,7,8-H7CDF	2016/12/03		87	%
			C13-1,2,3,6,7,8-H6CDD	2016/12/03		89	%
			C13-1,2,3,6,7,8-H6CDF	2016/12/03		80	%
			C13-1,2,3,7,8-P5CDD	2016/12/03		75	%
			C13-1,2,3,7,8-PCDF	2016/12/03		67	%
			C13-2,3,7,8-TCDD	2016/12/03		57	%
			C13-2,3,7,8-TCDF	2016/12/03		63	%
			C13-OCTA-CDD	2016/12/03		79	%
			2,3,7,8-Tetra CDD	2016/12/03		88	%
			1,2,3,7,8-Penta CDD	2016/12/03		86	%
			1,2,3,4,7,8-Hexa CDD	2016/12/03		93	%
			1,2,3,6,7,8-Hexa CDD	2016/12/03		104	%
			1,2,3,7,8,9-Hexa CDD	2016/12/03		95	%
			1,2,3,4,6,7,8-Hepta CDD	2016/12/03		98	%
			Octachlorodibenzo-p-dioxin	2016/12/03		102	%
			2,3,7,8-Tetra CDF	2016/12/03		100	%
			1,2,3,7,8-Penta CDF	2016/12/03		107	%
			2,3,4,7,8-Penta CDF	2016/12/03		107	%
			1,2,3,4,7,8,-Hexa CDF	2016/12/03		99	%
			1,2,3,6,7,8-Hexa CDF	2016/12/03		108	%
			2,3,4,6,7,8-Hexa CDF	2016/12/03		121	%
			1,2,3,7,8,9-Hexa CDF	2016/12/03		109	%
			1,2,3,4,6,7,8-Hepta CDF	2016/12/03		112	%
			1,2,3,4,7,8,9-Hepta CDF	2016/12/03		89	%
			Octachlorodibenzofuran	2016/12/03		92	%
1699183	JF2	Method blank	C13-1,2,3,4,6,7,8-H7CDD	2016/12/03		89	%
			C13-1,2,3,4,6,7,8-H7CDF	2016/12/03		91	%
			C13-1,2,3,6,7,8-H6CDD	2016/12/03		91	%
			C13-1,2,3,6,7,8-H6CDF	2016/12/03		82	%
			C13-1,2,3,7,8-P5CDD	2016/12/03		76	%
			C13-1,2,3,7,8-PCDF	2016/12/03		71	%
			C13-2,3,7,8-TCDD	2016/12/03		77	%
			C13-2,3,7,8-TCDF	2016/12/03		73	%
			C13-OCTA-CDD	2016/12/03		78	%
			2,3,7,8-Tetra CDD	2016/12/03	<0.33, EDL=0.33		pg/L
			1,2,3,7,8-Penta CDD	2016/12/03	<0.41, EDL=0.41		pg/L
			1,2,3,4,7,8-Hexa CDD	2016/12/03	<0.26, EDL=0.26		pg/L
			1,2,3,6,7,8-Hexa CDD	2016/12/03	<0.26, EDL=0.26		pg/L
			1,2,3,7,8,9-Hexa CDD	2016/12/03	<0.22, EDL=0.22		pg/L
			1,2,3,4,6,7,8-Hepta CDD	2016/12/03	<0.41, EDL=0.41		pg/L
			Octachlorodibenzo-p-dioxin	2016/12/03	1.9, EDL=0.46		pg/L

Maxxam Job #: B683493  
Report Date: 2016/12/09

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery Units
			Total tetrachlorodibenzo-p-dioxins	2016/12/03	<0.33, EDL=0.33	pg/L
			Total pentachlorodibenzo-p-dioxins	2016/12/03	<0.41, EDL=0.41	pg/L
			Total hexachlorodibenzo-p-dioxins	2016/12/03	<0.24, EDL=0.24	pg/L
			Total heptachlorodibenzo-p-dioxins	2016/12/03	<0.41, EDL=0.41	pg/L
			Total chlorodibenzo-p-dioxins	2016/12/03	1.9	pg/L
			2,3,7,8-Tetra CDF	2016/12/03	<0.26, EDL=0.26	pg/L
			1,2,3,7,8-Penta CDF	2016/12/03	<0.18, EDL=0.18	pg/L
			2,3,4,7,8-Penta CDF	2016/12/03	<0.18, EDL=0.18	pg/L
			1,2,3,4,7,8,-Hexa CDF	2016/12/03	<0.23, EDL=0.23	pg/L
			1,2,3,6,7,8-Hexa CDF	2016/12/03	<0.21, EDL=0.21	pg/L
			2,3,4,6,7,8-Hexa CDF	2016/12/03	<0.26, EDL=0.26	pg/L
			1,2,3,7,8,9-Hexa CDF	2016/12/03	<0.27, EDL=0.27	pg/L
			1,2,3,4,6,7,8-Hepta CDF	2016/12/03	<0.38, EDL=0.38	pg/L
			1,2,3,4,7,8,9-Hepta CDF	2016/12/03	<0.46, EDL=0.46	pg/L
			Octachlorodibenzofuran	2016/12/03	<0.49, EDL=0.49	pg/L
			Total tetrachlorodibenzofurans	2016/12/03	<0.26, EDL=0.26	pg/L
			Total pentachlorodibenzofurans	2016/12/03	<0.18, EDL=0.18	pg/L
			Total hexachlorodibenzofurans	2016/12/03	<0.24, EDL=0.24	pg/L
			Total heptachlorodibenzofurans	2016/12/03	<0.41, EDL=0.41	pg/L

Maxxam Job #: B683493  
Report Date: 2016/12/09

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
			Total chlorodibenzofurans	2016/12/03	ND		pg/L
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: An aliquot portion of pure matrix that is submitted to the same analytical process as the samples, from pre-treatment to assaying. Used to identify laboratory contamination.							
Surrogate: Compound of similar composition to the compounds analyzed and added to the pre-analysis sample. Used to evaluate the quality of the extraction.							
EDL = Estimated Detection Limit Rec = Recovery							

Maxxam Job #: B683493  
Report Date: 2016/12/09

Englobe Corp.  
Your project #: 11905  
Site address: KS  
Your P.O. #: 23513  
Sampler's initials: JB

### **VALIDATION SIGNATURE PAGE**

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

Marcello Manocchio, B.Sc., Chemist

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.

## Ramona Dascal

---

**From:** Rodrigo Caffarengo  
**Sent:** Friday, November 25, 2016 12:06 PM  
**To:** Ramona Dascal  
**Subject:** FW: Demande pour les eaux - DIOXINES & FURANNES  
**Attachments:** image005.png; image006.jpg; image007.jpg

merci

**RODRIGO CAFFARENGO, C. Chimie**  
Environmental Project Manager  
Chargé de Projets Environnement  
[rcaffarengo@maxxam.ca](mailto:rcaffarengo@maxxam.ca)

Bureau: 514 448 9001, Poste: 6336 / Cell. 438 880 9476  
Sans frais : 877 462 9926 / Télécopieur : 514 448 9199  
889 Montée de Liesse / Montréal, Qc, Canada, H4T 1P5

Veuillez noter que je suis au bureau de 08:30 h à 16:30 h. En cas d'urgence en dehors de ces heures, vous pouvez contacter : [ServiceTechniqueMontreal@maxxam.ca](mailto:ServiceTechniqueMontreal@maxxam.ca)

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**From:** Frederic Girard [<mailto:Frederic.Girard@englobecorp.com>]  
**Sent:** Friday, November 25, 2016 11:30 AM  
**To:** Rodrigo Caffarengo  
**Cc:** Bruno Vallee; Maud Demarty  
**Subject:** RE: Demande pour les eaux - DIOXINES & FURANNES

OK, merci.

**FRÉDÉRIC GIRARD, géo., M.Sc.**  
Chargé de projet - caractérisation et réhabilitation de site  
Géoenvironnement - Ouest du Québec

**Englobe**  
1080, Côte du Beaver Hall, bureau 200  
Montréal (Québec) H2Z 1S8  
T 514.281.5173, poste 122687 / cell. 514.926.2940  
F 514.657.8120  
[frederic.girard@englobecorp.com](mailto:frederic.girard@englobecorp.com)  
[www.englobecorp.com](http://www.englobecorp.com)





**De :** Rodrigo Caffarengo [<mailto:RCaffarengo@maxxam.ca>]  
**Envoyé :** 25 novembre 2016 11:30  
**À :** Frederic Girard  
**Cc :** Bruno Vallee; Maud Demarty  
**Objet :** RE: Demande pour les eaux - DIOXINES & FURANNES

Bonjour Frédéric,

On pourrait procéder à l'analyse de dioxines et furannes en combinant les volumes de deux bouteilles. Êtes-vous d'accord?

merci

**RODRIGO CAFFARENGO, C. Chimie**  
Environmental Project Manager  
Chargé de Projets Environnement  
[rcaffarengo@maxxam.ca](mailto:rcaffarengo@maxxam.ca)

Bureau: 514 448 9001, Poste: 6336 / Cell. 438 880 9476  
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889 Montée de Liesse / Montréal, Qc, Canada, H4T 1P5

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**From:** Rodrigo Caffarengo  
**Sent:** Friday, November 25, 2016 9:57 AM  
**To:** 'Frederic Girard'  
**Cc:** Bruno Vallee; Maud Demarty  
**Subject:** RE: Demande pour les eaux - DIOXINES & FURANNES

Bonjour Frédéric,

On n'a pas reçu des bouteilles pour l'analyse de dioxines et furannes. Je vais vérifier s'il nous reste encore de volume dans la bouteille utilisée pour les CB. Je vous reviens là-dessus.

merci

**RODRIGO CAFFARENGO, C. Chimie**  
Environmental Project Manager  
Chargé de Projets Environnement  
[rcaffarengo@maxxam.ca](mailto:rcaffarengo@maxxam.ca)

Bureau: 514 448 9001, Poste: 6336 / Cell. 438 880 9476  
Sans frais : 877 462 9926 / Télécopieur : 514 448 9199  
889 Montée de Liesse / Montréal, Qc, Canada, H4T 1P5

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**From:** Frederic Girard [<mailto:Frederic.Girard@englobecorp.com>]  
**Sent:** Friday, November 25, 2016 9:49 AM  
**To:** Rodrigo Caffarengo  
**Cc:** Bruno Vallee; Maud Demarty  
**Subject:** Demande pour les eaux - DIOXINES & FURANNES

Salut Rodrigo,

SVP, procéder à l'analyse des DIOXINES & FURANNES pour les échantillons SQE-01 et SQE-04.  
Délai 10 jours.

merci

**FRÉDÉRIC GIRARD, géo., M.Sc.**  
Chargé de projet - caractérisation et réhabilitation de site  
Géoenvironnement - Ouest du Québec

**Englobe**

1080, Côte du Beaver Hall, bureau 200  
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T 514.281.5173, poste 122687 / cell. 514.926.2940  
F 514.657.8120  
[frederic.girard@englobecorp.com](mailto:frederic.girard@englobecorp.com)  
[www.englobecorp.com](http://www.englobecorp.com)



---

**De :** Rodrigo Caffarengo [<mailto:RCaffarengo@maxxam.ca>]  
**Envoyé :** 25 novembre 2016 09:17  
**À :** Frederic Girard  
**Objet :** Demande pour les eaux

Bonjour Frédéric,

Voici la demande d'analyse pour les eaux.

Je t'envoie le rapport sous peu.

merci

**RODRIGO CAFFARENGO, C. Chimie**

Environmental Project Manager

Chargé de Projets Environnement

[rcaffarengo@maxxam.ca](mailto:rcaffarengo@maxxam.ca)

Bureau: 514 448 9001, poste: 6336 / Cell. 438 880 9476

Sans frais : 877 462 9926 / Télécopieur : 514 448 9199

889 Montée de Liesse / Montréal, Qc, Canada, H4T 1P5

Veuillez noter que je suis au bureau de 08:30 hrs à 16:30 hrs. En cas d'urgence en dehors de ces heures, vous pouvez contacter : [ServiceTechniqueMontreal@maxxam.ca](mailto:ServiceTechniqueMontreal@maxxam.ca)

**COMMANDE DE BOUTEILLES:**

Pour toute commande de bouteilles, vous pouvez maintenant envoyer un courriel directement à [MTL-PMA@maxxam.ca](mailto:MTL-PMA@maxxam.ca)

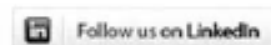
Noter qu'un minimum de **48 heures** est requis pour la préparation des commandes. Merci.

<p>Technical Education Webinar</p> <p><b>Crystalline Silica: OSHA Final Rule, New Permissible Exposure Limits (PELs)</b></p> <p>November 3, 2016 at 1pm EST</p>	<p><b>Maxxam</b> A Division of the Bureau Veritas Group</p> <p><b>REGISTER TODAY!</b></p>
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## SAMPLE RECEIPT FORM / CHEMICAL ANALYSIS FORM

FILE #: PR163638

CLIENT: Maxxam Analytics  
889 Montée de Liesse  
Saint-Laurent, QC  
H4T 1P5

Phone: 514-448-9001  
Email: RCaffarengo@maxxam.ca

RECEIVED BY: M.A. Wright  
DATE/TIME: November 23, 2016 (9:00 a.m.)  
CONDITION: okay, 8.9°C

# of Containers	Sample Type	Sample (Client Codes)	Lab Codes	Test Requested
		<b>JOB B681706</b>		
1	Sediment	DI2149-06R\SED-23-1	PR163638	TBT

STORAGE:        Stored at <-10°C.

ANALYTES:        HRGC/HRMS analysis for tributyltin (TBT).

SPECIAL INSTRUCTIONS: None.

### METHODOLOGY

Reference Method:        TBT: in house, SOP LAB04

Data summarized in Data Report Attached

Report sent to:        Rodrigo Caffarengo

Date:    December 7, 2016

Comments:        Results relate only to items tested.

David Hope PChem, CEO

# DATA REPORT

Client: Maxxam Analytics  
Contact: Rodrigo Caffarengo

Date Extracted: 25-Nov-16  
Date Analysed: 02-Dec-16

	<b>Client ID:</b>	<b>DI2148- 06R\SED-23-1</b>	<b>BLANK</b>
	<b>PRL ID:</b>	PR163638	TB160931B
<b>Compound</b>	<b>DL</b>		
	<b>µg/g</b>	<b>µg/g</b>	<b>µg/g</b>
Tributyltin Chloride	0.001	0.016	ND
Dibutyltin dichloride	0.001	0.020	ND
Monobutyltin trichloride	0.001	0.003	ND

<b>Compound</b>	<b>DL</b>		
	<b>µg/g</b>	<b>µg/g</b>	<b>µg/g</b>
TBT <sup>+</sup>	0.001	0.014	ND
DBT <sup>++</sup>	0.001	0.015	ND
MBT <sup>+++</sup>	0.001	0.002	ND
<b>Surrogate Recoveries (%)</b>			
Tributyltin - d27		48	122

ND - none detected

#### Acronyms used in reporting organotins:

TBT = Tributyltin

DBT = Dibutyltin

MBT = Monobutyltin

TBTCl = Tributyltin chloride

DBTCl = Dibutyltin dichloride

MBTCl = Monobutyltin trichloride

This method analyzes organotin derivatives in water, sediment and biota. The method cannot determine which organotin salt is present in the sample, therefore all data is quantified in terms of organotin chlorides and expressed as cation equivalents (TBT<sup>+</sup>, DBT<sup>++</sup>, MBT<sup>+++</sup>).

In sea water and under normal conditions, TBT exists as three species (hydroxide, chloride, and carbonate), which remain in equilibrium. At pH values less than 7.0, the predominate forms are Bu<sub>3</sub>SnOH<sub>2</sub><sup>+</sup> and Bu<sub>3</sub>SnCl, at pH 8, they are Bu<sub>3</sub>SnCl, Bu<sub>3</sub>SnOH, and Bu<sub>3</sub>SnCO<sub>3</sub><sup>-</sup>, and at pH values above 10, Bu<sub>3</sub>SnOH and Bu<sub>3</sub>SnCO<sub>3</sub><sup>-</sup> predominate.

Source: <http://www.inchem.org/documents/ehc/ehc/ehc116.htm#SectionNumber:1.1>

TBT data has been reported in many conventions over the years. To convert to other units, use the multipliers below.

To convert	To:	Multiply by:
Tributyltin chloride	As Sn	0.3647
Tributyltin chloride	As TBTO	0.9760
Tributyltin chloride	As TBT <sup>+</sup>	0.8911
Dibutyltin dichloride	As Sn	0.3907
Dibutyltin dichloride	As TBTO	0.9110
Dibutyltin dichloride	As DBT <sup>++</sup>	0.7666
Dibutyltin dichloride	As TBT <sup>+</sup>	0.9546
Monobutyltin trichloride	As Sn	0.4207
Monobutyltin trichloride	As TBTO	0.8461
Monobutyltin trichloride	As MBT <sup>+++</sup>	0.6231
Monobutyltin trichloride	As TBT <sup>+</sup>	1.0279
As Sn	As TBTO	2.8097

#### Acceptable recoveries for Tributyltin surrogate standards

Sediment/biota	TBT d27 20-150%
Water	TBT d27 10-130%

## SAMPLE RECEIPT FORM / CHEMICAL ANALYSIS FORM

FILE #: PR163639

CLIENT: Maxxam Analytics  
889 Montée de Liesse  
Saint-Laurent, QC  
H4T 1P5

Phone: 514-448-9001  
Email: RCaffarengo@maxxam.ca

RECEIVED BY: M.A. Wright  
DATE/TIME: November 23, 2016 (9:00 a.m.)  
CONDITION: okay, 8.9°C

# of Containers	Sample Type	Sample (Client Codes)	Lab Codes	Test Requested
		<b>JOB B681706</b>		
1	Sediment	DI2149-06R\SED-12-1	PR163639	TBT

STORAGE: Stored at <-10°C.

ANALYTES: HRGC/HRMS analysis for tributyltin (TBT).

SPECIAL INSTRUCTIONS: None.

### METHODOLOGY

Reference Method: TBT: in house, SOP LAB04

Data summarized in Data Report Attached

Report sent to: Rodrigo Caffarengo

Date: December 7, 2016

Comments: Results relate only to items tested.

David Hope PChem, CEO

# DATA REPORT

Client: Maxxam Analytics  
Contact: Rodrigo Caffarengo

Date Extracted: 25-Nov-16  
Date Analysed: 02-Dec-16

	<b>Client ID:</b>	<b>DI0496- 06R\SED-12-1</b>	<b>BLANK</b>
	<b>PRL ID:</b>	PR163639	TB160931B
<b>Compound</b>	<b>DL</b>	<b>µg/g</b>	<b>µg/g</b>
Tributyltin Chloride	0.001	0.004	ND
Dibutyltin dichloride	0.001	0.002	ND
Monobutyltin trichloride	0.001	ND	ND

<b>Compound</b>	<b>DL</b>	<b>µg/g</b>	<b>µg/g</b>
TBT <sup>+</sup>	0.001	0.004	ND
DBT <sup>++</sup>	0.001	0.002	ND
MBT <sup>+++</sup>	0.001	ND	ND
<b>Surrogate Recoveries (%)</b>			
Tributyltin - d27		86	122

ND - none detected



Acronyms used in reporting organotins:

TBT = Tributyltin

DBT = Dibutyltin

MBT = Monobutyltin

TBTCl = Tributyltin chloride

DBTCl = Dibutyltin dichloride

MBTCl = Monobutyltin trichloride

This method analyzes organotin derivatives in water, sediment and biota. The method cannot determine which organotin salt is present in the sample, therefore all data is quantified in terms of organotin chlorides and expressed as cation equivalents (TBT<sup>+</sup>, DBT<sup>++</sup>, MBT<sup>+++</sup>).

In sea water and under normal conditions, TBT exists as three species (hydroxide, chloride, and carbonate), which remain in equilibrium. At pH values less than 7.0, the predominate forms are Bu<sub>3</sub>SnOH<sub>2</sub><sup>+</sup> and Bu<sub>3</sub>SnCl, at pH 8, they are Bu<sub>3</sub>SnCl, Bu<sub>3</sub>SnOH, and Bu<sub>3</sub>SnCO<sub>3</sub><sup>-</sup>, and at pH values above 10, Bu<sub>3</sub>SnOH and Bu<sub>3</sub>SnCO<sub>3</sub><sup>-</sup> predominate.

Source: <http://www.inchem.org/documents/ehc/ehc/ehc116.htm#SectionNumber:1.1>

TBT data has been reported in many conventions over the years. To convert to other units, use the multipliers below.

To convert	To:	Multiply by:
Tributyltin chloride	As Sn	0.3647
Tributyltin chloride	As TBTO	0.9760
Tributyltin chloride	As TBT <sup>+</sup>	0.8911
Dibutyltin dichloride	As Sn	0.3907
Dibutyltin dichloride	As TBTO	0.9110
Dibutyltin dichloride	As DBT <sup>++</sup>	0.7666
Dibutyltin dichloride	As TBT <sup>+</sup>	0.9546
Monobutyltin trichloride	As Sn	0.4207
Monobutyltin trichloride	As TBTO	0.8461
Monobutyltin trichloride	As MBT <sup>+++</sup>	0.6231
Monobutyltin trichloride	As TBT <sup>+</sup>	1.0279
As Sn	As TBTO	2.8097

Acceptable recoveries for Tributyltin surrogate standards

Sediment/biota	TBT d27 20-150%
Water	TBT d27 10-130%

## Bioassays

Your P.O. #: 23530  
Your project #: 11905  
Site address: KS  
Your waybill #: N/A

Attention: Maud Demarty  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2017/01/10  
Report #: R2237352  
Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B681702  
Received: 2016/11/18, 4:32 PM

Matrix: SEDIMENT  
Samples received: 3

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Chironomus larvae (1)	3	N/A	N/A		
Granulometry (sieve) (1)	3	N/A	N/A		
Humidity (water content) (1)	3	2017/01/10	N/A		
Hyaella 14 day Sediment (1)	3	N/A	N/A		
Ammoniacal nitrogen (1)	3	2017/01/10	N/A		
Total Organic Carbon (1, 2)	3	2017/01/10	N/A		

#### **Notes:**

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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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.

Note: RPDs calculated using raw data (% of relative variation). The rounding of final results may result in the apparent difference.

(1) This analysis was performed by Maxxam Analytics - Burnaby

(2) The results of this analysis includes graphitic carbon.

Your P.O. #: 23530  
Your project #: 11905  
Site address: KS  
Your waybill #: N/A

Attention: Maud Demarty  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2017/01/10  
Report #: R2237352  
Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B681702  
Received: 2016/11/18, 4:32 PM

Encryption key

Please direct all questions regarding this Certificate of Analysis to your Project Manager  
Rodrigo Caffarengo,  
E-mail: [RCaffarengo@maxxam.ca](mailto:RCaffarengo@maxxam.ca)  
Telephone: 514-448-9001 Ext: 6336

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# Maxxam analytique inc.

889, Montée de Liesse  
Saint-Laurent (Québec) H4T 1P5

Téléphone : 514-448-9001  
Télécopieur : 514-448-9199

## Chaîne de responsabilité

Page 1 de 2

Client : Englobe Corp.		Téléphone : 514-849-7281 Télécopieur : 514-849-6770	
Adresse : 1453, Saint-Thimothée Montréal (Québec) H2L 3N7		N° projet : 11905	
Échantillonneur : P. Verhaar		Chargé(e) de projet : M. Demarty	

N°	Identification de l'échantillon	N° labo Maxxam	Matrice							Échantillonnage		Analyse pour échantillon intégré																
			Eau potable	Eau usée	Eau sout.	Eau de surf.	Sols	Sédiments	Autres*	# de contenants	A filtré (oui/non)	Date	HYDROCARBURES PÉTROLIERS (C10-C50)	HYDROCARBURES AROMATIQUES POLYCYCLIQUES	BPC TOTAUX	MÉTAUX extractibles totaux*	MERCURE PAR ICP-MS	CARBONE ORGANIQUE TOTAL	CHLOROBENZÈNES	SOUFRE	Composés acides (phénols)	COMPOSÉS ORGANIQUES VOLATILS HIMA-HHT (pot 60mL, sans air)	Granulométrie	DIOXINES & FURANES PAR CGSM HR	Mono-, Di et Tributylétains	Détermination potentiel acidogène (TDPAS)	EDOTOX	
1	SED-08							x			2016-11-17	x	x	x	x	x	x	x	x	x	x	x	x	x				
2	SED-10							x																				
3	SED-11							x																				
4	SED-12-1							x																	x	x	x	
5	SED-13							x																				
6	SED-14							x																				
7	SED-15-1							x																				
8	SED-16							x																				
9	SED-17							x																				
10	SED-18							x																				
11	SED-21							x																				
12	SED-12-2							x																				

DÉLAIS : C10-50 : 24 h COV : 24h Métaux : 24h Autres : 48 h	N° d'offre de service Maxxam :	Limites de détection requises / types de contaminants :	
	Site : KS	Instructions spéciales : 10 10 10 / 9 9 9 / 10 10 10 / 10 10 10	
	N° de bon de commande Englobe : 23514	* Métaux: Politique + Se - Délais minimal requis	
	Autres :	JCB YGS SALAD	

*Autres =	Livré par :	Date :	Heure :	Reçu par :
	Livré par messagerie :	Date :	Heure :	Reçu par :
	Livré par :	Date :	Heure :	Reçu par Maxxam :

2016-11-17 17:00 Guiseppe Maruca

Maxxam analytique inc. 889, Montée de Liesse Saint-Laurent (Québec) H4T 1P5 Téléphone : Télécopieur :	Maxxam Analytics Inc. 889 Montée de Liesse Saint-Laurent, Quebec H4T 1P5 Telephone: Fax:
Chaîne de responsabilité	Chain of Accountability
Analyse pour échantillon intégré	Analysis for integrated sample
Client : Englobe Corp.	Customer: Englobe Corp.
Téléphone : Télécopieur :	Telephone: Fax:
Adresse : 1453, Saint-Thimothée Montréal (Québec) H2L 3N7	Address: 1453 Saint-Thimothée Montreal, Quebec H2L 3N7
N° de projet :	Project #:
Échantillonneur :	Sampler:
Chargé(e) de projet :	Project Manager:
N°	#
Identification de l'échantillon	Sample Identification
N° labo Maxxam	Maxxam Lab #
Matrice	Matrix
Échantillonnage	Sampling
Eau potable	Drinking water
Eau usée	Waste water

Eau sout.	Groundwater
Eau de surf.	Surface water
Sols	Soils
Sédiments	Sediments
Autres	Other
# de contenants	# of containers
À livrer (oui/non)	To be delivered (yes/no)
Date	Date
HYDROCARBURES PÉTROLIERS (C10-C50)	PETROLEUM HYDROCARBONS (C10-C50)
HYDROCARBURES AROMATIQUES POLYCYCLIQUES	POLYCYCLIC AROMATIC HYDROCARBONS
BPC TOTAUX	TOTAL PCBs
MÉTAUX extractibles totaux	Total extractable METALS
MERCURE PAR ICP-MS	MERCURY BY ICP-MS
CARBONE ORGANIQUE TOTAL	TOTAL ORGANIC CARBON
CHLOROBENZENES	CHLOROBENZENES
SOUFRE	SULPHUR
Composés acides (phénols)	Acid compounds (Phenols)
COMPOSÉS ORGANIQUES VOLATILS HMA-HHT (pot 60mL, sans air)	VOLATILE ORGANIC COMPOUNDS HMA-HHT (pot 60 mL, no air)
Granulométrie	Granulometry
DIOXINES ET FURANNES PAR CGSM HR	DIOXINS AND FURANS BY CGSM HR
Mono-, Di et Tributylène	Mono-, Di- and Tributylene
Détermination potentiel acidogène (TDPAS)	Acid base accounting (ABA)
DÉLAI : C10-C50 : 24 h COV : 24h Métaux : 24h Autres : 48 h	DEADLINE: C10-C50: 24 h COV: 24 h Metals: 24 h Other: 48 h
N° d'offre de service Maxxam :	Maxxam service offer #:
Site : KS	Location: KS
N° de bon de commande Englobe :	Englobe P.O #:
Autres	Other
Limites de détection requises / types de contamina	Required detection limits / types of contaminants
Instructions spéciales : *Métaux : Politique + Se – Délais minimal requis	Special Instructions: *Metals: Policy + Se – Minimal deadlines required
*Autres =	*Other =
Livré par :	Delivered by:
Livré par messagerie :	Delivered by courier:
Date :	Date:
Heure :	Time:

Your P.O. # : N/A  
Your Project #: B6A5291  
Your C.O.C. #: VB6A5291-ONTV-01-01

Attention: Shanaz Akbar  
Maxxam Analytics  
4606 Canada Way  
Burnaby, BC  
V5G 1K5

Report Date: 2016/12/06  
Report #: R4276729  
Version : 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B6Q0845  
Received: 2016/11/30, 12:16

Sample Matrix: Soil  
# Samples Received: 3

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Total Organic Carbon in Soil	3	N/A	2016/12/06	CAM SOP 000468	BCMOE TOC Aug 2014

#### **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.

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

#### **Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Andrea Rieth, Project Manager  
Email: [ARieth@maxxam.ca](mailto:ARieth@maxxam.ca)  
Phone #: 905-817-5806

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Maxxam Job #: B6Q0845  
Report Date: 2016/12/06

Maxxam Analytics  
Client Project #: B6A5291  
Your P.O. #: N/A

### RESULTS OF ANALYSES OF SOIL

<b>Maxxam ID</b>		DNW199	DNW199	DNW200		
<b>Sampling Date</b>		2016/11/18	2016/11/18	2016/11/18		
<b>COC Number</b>		VB6A5291-ONTV-01-01	VB6A5291-ONTV-01-01	VB6A5291-ONTV-01-0		
	<b>UNITS</b>	<b>QC6614-SED-23-1 (DI2098)</b>	<b>QC6614-SED-23-1 (DI2098)</b> <b>Lab-Dup</b>	<b>QC6615-SED-07-7BIS (DI2157)</b>	<b>RDL</b>	<b>QC Batch</b>
Total Organic Carbon	mg/kg	53000	53000	51000	500	4779004
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate						

<b>Maxxam ID</b>		DNW201		
<b>Sampling Date</b>		2016/11/18		
<b>COC Number</b>		VB6A5291-ONTV-01-01		
	<b>UNITS</b>	<b>QC6616-SED-12-1 (DI2158)</b>	<b>RDL</b>	<b>QC Batch</b>
Total Organic Carbon	mg/kg	45000	500	4779004
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				

Maxxam Job #: B6Q0845  
Report Date: 2016/12/06

Maxxam Analytics  
Client Project #: B6A5291  
Your P.O. #: N/A

## TEST SUMMARY

**Maxxam ID:** DNW199  
**Sample ID:** QC6614-SED-23-1 (DI2098)  
**Matrix:** Soil

**Collected:** 2016/11/18  
**Shipped:**  
**Received:** 2016/11/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Organic Carbon in Soil	COMB	4779004	N/A	2016/12/06	Godwin Okereke

**Maxxam ID:** DNW199 Dup  
**Sample ID:** QC6614-SED-23-1 (DI2098)  
**Matrix:** Soil

**Collected:** 2016/11/18  
**Shipped:**  
**Received:** 2016/11/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Organic Carbon in Soil	COMB	4779004	N/A	2016/12/06	Godwin Okereke

**Maxxam ID:** DNW200  
**Sample ID:** QC6615-SED-07-7BIS (DI2157)  
**Matrix:** Soil

**Collected:** 2016/11/18  
**Shipped:**  
**Received:** 2016/11/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Organic Carbon in Soil	COMB	4779004	N/A	2016/12/06	Godwin Okereke

**Maxxam ID:** DNW201  
**Sample ID:** QC6616-SED-12-1 (DI2158)  
**Matrix:** Soil

**Collected:** 2016/11/18  
**Shipped:**  
**Received:** 2016/11/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Organic Carbon in Soil	COMB	4779004	N/A	2016/12/06	Godwin Okereke

Maxxam Job #: B6Q0845  
Report Date: 2016/12/06

Maxxam Analytics  
Client Project #: B6A5291  
Your P.O. #: N/A

## GENERAL COMMENTS

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

Package 1	9.0°C
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**Results relate only to the items tested.**

Maxxam Job #: B6Q0845  
Report Date: 2016/12/06

Maxxam Analytics  
Client Project #: B6A5291  
Your P.O. #: N/A

### QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Method Blank		RPD		QC Standard	
			Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
4779004	Total Organic Carbon	2016/12/06	<500	mg/kg	0.94	35	104	75 - 125
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.								
QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.								
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.								

Maxxam Job #: B6Q0845  
Report Date: 2016/12/06

Maxxam Analytics  
Client Project #: B6A5291  
Your P.O. #: N/A

### **VALIDATION SIGNATURE PAGE**

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

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

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Your Project #: LB681702  
Your C.O.C. #: 08432077

Attention: SOUSTRANCEQUE  
MAXXAM ANALYTICS  
889 MONTÉE DE LIESSE  
SAINT-LAURENT, QC  
CANADA H4T 1P5

Report Date: 2017/01/10  
Report #: R2329629  
Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B6A5291  
Received: 2016/11/23, 10:50

Sample Matrix: Sediment  
# Samples Received: 3

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Ecotox Report Attachment	3	2017/01/06	2017/01/06		
Moisture	3	2016/12/01	2016/12/01	BBY8SOP-00017	BCMOE BCLM Dec2000 m
Ammonia-N (Available)	3	2016/12/21	2016/12/21	BBY6SOP-00009	SM 22 4500-NH3- G m
Texture by Hydrometer, incl Gravel (Wet)	3	N/A	2016/12/08	BBY6SOP-00051	Carter 2nd ed 55.3
TOC Soil Subcontract (1)	3	N/A	2017/01/10		

#### **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.

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

(1) This test was performed by Maxxam Ontario (From Burnaby)

Your Project #: LB681702  
Your C.O.C. #: 08432077

Attention: SOUSTRAITANCEQUE  
MAXXAM ANALYTICS  
889 MONTÉE DE LIESSE  
SAINT-LAURENT, QC  
CANADA H4T 1P5

Report Date: 2017/01/10  
Report #: R2329629  
Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B6A5291  
Received: 2016/11/23, 10:50

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Shanaz Akbar, Project Manager  
Email: [SAkbar@maxxam.ca](mailto:SAkbar@maxxam.ca)  
Phone #: 604-639-2618

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Maxxam Job #: B6A5291  
Report Date: 2017/01/10

MAXXAM ANALYTICS  
Client Project #: LB681702

### RESULTS OF CHEMICAL ANALYSES OF SEDIMENT

Maxxam ID		QC6614	QC6614		QC6615	QC6616		
Sampling Date		2016/11/18	2016/11/18		2016/11/18	2016/11/18		
COC Number		08432077	08432077		08432077	08432077		
			SED-23-1 (DI2098)					
	UNITS	SED-23-1 (DI2098)	Lab-Dup	RDL	SED-07-7BIS (DI2157)	SED-12-1 (DI2158)	RDL	QC Batch
Parameter								
Subcontract Parameter	N/A	ATTACHED	N/A	N/A	ATTACHED	ATTACHED	N/A	8524191
Ecotox								
No Parameter	N/A	ATTACHED	N/A	N/A	ATTACHED	ATTACHED	N/A	8522236
Nutrients								
Available (KCl) Ammonia (N)	mg/kg	106 (1)	108	5.0	58.2	68.9	0.50	8509680
Physical Properties								
% sand by hydrometer	%	51	N/A	2.0	54	35	2.0	8497408
% silt by hydrometer	%	31	N/A	2.0	35	44	2.0	8497408
Clay Content	%	19	N/A	2.0	12	21	2.0	8497408
Gravel	%	<2.0	N/A	2.0	<2.0	<2.0	2.0	8497408
RDL = Reportable Detection Limit								
Lab-Dup = Laboratory Initiated Duplicate								
N/A = Not Applicable								
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.								



Maxxam Job #: B6A5291  
 Report Date: 2017/01/10

MAXXAM ANALYTICS  
 Client Project #: LB681702

### PHYSICAL TESTING (SEDIMENT)

<b>Maxxam ID</b>		QC6614	QC6615		QC6616		
<b>Sampling Date</b>		2016/11/18	2016/11/18		2016/11/18		
<b>COC Number</b>		08432077	08432077		08432077		
	<b>UNITS</b>	<b>SED-23-1 (DI2098)</b>	<b>SED-07-7BIS (DI2157)</b>	<b>QC Batch</b>	<b>SED-12-1 (DI2158)</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>							
Moisture	%	73	68	8490482	74	0.30	8488289
RDL = Reportable Detection Limit							

Maxxam Job #: B6A5291  
Report Date: 2017/01/10

MAXXAM ANALYTICS  
Client Project #: LB681702

## GENERAL COMMENTS

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

Package 1	4.3°C
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**Results relate only to the items tested.**

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8488289	LO1	Method Blank	Moisture	2016/12/02	<0.30		%	
8488289	LO1	RPD	Moisture	2016/12/02	3.1		%	20
8490482	LO1	Method Blank	Moisture	2016/12/02	<0.30		%	
8490482	LO1	RPD	Moisture	2016/12/02	0.24		%	20
8497408	AP8	QC Standard	% sand by hydrometer	2016/12/08		100	%	90 - 110
8497408	AP8	RPD	% sand by hydrometer	2016/12/08	0.50		%	35
8509680	CK	Matrix Spike [QC6614-01]	Available (KCl) Ammonia (N)	2016/12/21		NC	%	75 - 125
8509680	CK	Spiked Blank	Available (KCl) Ammonia (N)	2016/12/21		105	%	75 - 125
8509680	CK	Method Blank	Available (KCl) Ammonia (N)	2016/12/21	<0.50		mg/kg	
8509680	CK	RPD [QC6614-01]	Available (KCl) Ammonia (N)	2016/12/21	1.5		%	30

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

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

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

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

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

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

Maxxam Job #: B6A5291  
Report Date: 2017/01/10

MAXXAM ANALYTICS  
Client Project #: LB681702

### **VALIDATION SIGNATURE PAGE**

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

Andy Lu, Ph.D., P.Chem., Scientific Specialist

Donald Lai, Lab Coordinator

Rob Reinert, B.Sc., Scientific Specialist

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maxxam.ca  
MAXXAM ANALYTICS  
4606 Canada Way  
Burnaby, BC V5G 1K5

Office 604 734 7276  
Toll Free 800 665 8566  
Fax 604 731 2386

FRESHWATER SEDIMENT TOXICITY  
TESTING USING CHIRONOMUS DILUTUS  
AND HYALELLA AZTECA

Prepared for:  
Maxxam Analytics  
889 Montée de Liesse  
Saint-Laurent, QC  
Canada H4T 1P5

Prepared by:  
Ecotoxicology Group  
Maxxam Analytics  
Project No.: 2-11-16041  
Maxxam Job #: B6A5291  
January 2016

## EXECUTIVE SUMMARY

A total of 3 freshwater sediment samples were collected for ecotoxicology testing on November 18, 2016. The samples arrived at the Maxxam Laboratory, in good condition, on November 23, 2016.

The following freshwater sediment toxicity tests were conducted on the samples; a 10 day survival and growth test with the freshwater midge, *Chironomus dilutus*, and a 14 day survival and growth test with the freshwater amphipod, *Hyalomma azteca*.

The *Chironomus* test was initiated on December 6 and the *Hyalomma* test was initiated on December 1 for all three samples. Growth and survival endpoints for the samples were statistically assessed against that of the negative control.

Details regarding the test results, methods, test conditions, organism acclimation, and quality control measures are summarised within the report. All tabulated data, raw data, and associated supporting documents are located within the report appendices.

Each test was considered valid as survival and growth in the negative control(s) met the validity criteria outlined in the associated reference methods.

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## SECTION

### 1 SEDIMENT DESCRIPTION

#### 1.1 Sample Information

A total of 3 freshwater sediment samples were collected for ecotoxicology testing November 18, 2016. The samples arrived at the Maxxam Laboratory, in good condition, on November 23, 2016.

Composite samples were taken separately for grain size, total organic carbon content, and moisture content for each sample are not a part of this report. The data for these analyses were sent directly to the client.

All tests were initiated within their respective hold times. Sample information, including sample descriptions, porewater ammonia analyses, and water quality data are located in Appendix A.

All samples arrived at the laboratory in good condition, and there were no apparent events during shipping and handling which appeared to have compromised the quality of the samples. Upon opening the containers, a description of each sample was recorded ("Sediment Sample Descriptions" in Appendix A).

Prior to use in the tests, each sample was thoroughly homogenized, using a stainless steel spoon. Any headspace in the sample container was purged with nitrogen gas prior to re-sealing it in order to prevent oxidation of the sediment during storage. When not in use, the sediments were stored in the dark at  $4 \pm 2^{\circ}\text{C}$ .

#### 1.2 Negative Control Sediment

The control sediment (negative control) for the toxicity tests was collected from Yaquina Bay, Newport, Oregon, by staff of Northwestern Aquatic Sciences. This beach sand has been used as a negative control in previous studies within our laboratory, and has been found to be non-toxic to a variety of organisms. It was wet sieved through 500  $\mu\text{m}$  stainless steel mesh and thoroughly washed with the appropriate control water before use in the tests.

Table 1-1 Physiochemical Characterisation of Yaquina Bay Beach Sand

Total Organic Carbon (mg/kg)	Moisture Content (%)	Sand (%)	Silt (%)	Clay (%)
<500	19	97	<2.0	<2.0

#### 1.3 Porewater Characterization

On Day 0 of the Chironomus testing, composite vessels of each sample were prepared, filled with reconstituted control water and aerated overnight, in the same manner as the test vessels. The following morning (Day 1), the overlying water was decanted and aliquots of the sediment from these vessels were distributed into 500 mL polycarbonate bottles. Nitrogen gas was placed over the sediments prior to centrifuging for 20 minutes at  $\sim 5,000$  rpm. The resulting porewater was carefully decanted and analysed for ammonia, pH and temperature.

Analysis of ammonia in porewater was performed at the Maxxam Environmental Inorganic Water Laboratory. The total ammonia concentrations as N (mg/L) in the samples, was measured under basic conditions using the Berthelot reaction in the presence of EDTA. A sample was treated sequentially until a blue indophenol complex formed, which could then be measured photometrically at 660 nm.

Total ammonia in porewater for the Chironomus test is available in Appendix A.

## SECTION

## 2 10 DAY CHIRONOMUS DILUTUS SURVIVAL AND GROWTH TEST

### 2.1 Test Methods

The survival and growth of *Chironomus dilutus* larvae, when exposed to whole sediment samples for 10 days, was assessed according to the Maxxam Standard Operating Procedure: *Chironomus dilutus* 10-Day Survival and Growth Test (BBY2SOP-00010), which is based on the Environment Canada Biological Test Method: Test for Survival and Growth in Sediment Using the Larvae of Freshwater Midges (*Chironomus tentans* or *Chironomus riparius*) (EPS 1/RM/32).

One day prior to test initiation, the field replicates were individually homogenized and a 100 mL aliquot was distributed into a 375 mL labelled test vessel. Reconstituted moderately hard water was then slowly added to the vessel by pouring a stream of water onto a Plexiglas baffle to minimize disturbing the sediment layer. The test vessels were then randomized on the bench top, and airlines and lids were fitted to each test vessel.

A composite sample was produced by combining equal portions of each field replicate in a stainless steel bowl. Then, 100 mL of the composite sample was distributed into a sixth replicate test vessel used for water quality measurements.

The following day, aliquots of overlying water were removed from the test vessels for initial overlying water chemistry. The sixth replicate test vessel was used for water quality measurements for the duration of the test. Another composite sample was produced by combining equal portions of each field replicate in a stainless steel bowl. Then, 100 mL of the composite sample was distributed into a seventh replicate test vessel used for porewater quality measurements. To initiate the test, ten larval chironomids were randomly selected from their holding containers and directly seeded into the test vessels.

The seventh replicate overlying water was decanted and the sediment centrifuged the next day to extract porewater for ammonia, temperature and pH measurements (see Section 1.3).

During the test, daily observations and aeration checks were performed. Temperature and dissolved oxygen measurements were taken three times per week in the test vessel designated for water quality measurements. Test vessels were also fed 3.75 mL Tetramin™ flakes, prepared as a 4 g dry solids/L slurry, on the days water quality measurements were taken.

At test termination, the contents of each test vessel were sieved through a 500 µm sieve in order to retrieve the live larval midges. The number of larvae found was recorded along with any other observations made. The organisms were then placed into pre-weighed aluminum weigh boats that were subsequently placed into a drying oven. Missing chironomids were presumed to have died and decomposed during the test. Any larval midges that had reached the pupal or adult stage of development were excluded from the dry weight analysis.

### 2.2 Organism Information

#### 2.2.1 Organism Acclimation and Holding Information

One batch of laboratory-reared *Chironomus dilutus* larvae was received from Aquatic Biosystems on December 6, 2016. The midge larvae were shipped in 1L plastic containers filled with unbleached paper towels and overlying moderately hard water. Prior to shipping, the headspace in each container was filled with oxygen gas of a sufficient concentration to maintain adequate saturation levels in the shipping water. They were shipped directly for overnight delivery to Maxxam and arrived without incident.

Upon arrival at Maxxam, the water quality of the shipping water was measured and compared to the test conditions. Gentle aeration was supplied to each shipping container. Any moribund or deceased larvae were removed and recorded on the acclimation sheet (Appendix B).

The chironomid larvae were not fed during the holding period as they were used the same day. Historically at Maxxam, it has been determined that little to no acclimation is required as long as the shipping, testing and supplier laboratory conditions are similar.

#### 2.2.2 Organism Health

The mortality rate during shipping did not exceed 10% overall. Bench sheets with the receiving water quality and observations of the number dead or inactive larvae are available in Appendix B.

#### 2.2.3 Organism Age

At test initiation, 20 representative larvae were euthanized and their head capsule widths were measured to the nearest 0.10 mm, using an inverted microscope outfitted with an ocular micrometer. The average head capsule width of the organism batch was determined to be inside the 0.33 – 0.45 mm range, which indicated they were the recommended age (see Table 2-1).

### 2.3 Test Conditions

See Table 2-1 for a detailed list of the test conditions. All bench sheets used to record raw data are available in Appendix B.

Table 2-1 Test Conditions for the 10-day Chironomus dilutus Test

Parameter	Conditions and Methods
Test Type and Duration	10 Day, Static (non-renewal)
Temperature	Average daily temperature $23 \pm 1$ °C; instantaneous temperature $23 \pm 3$ °C.
Photoperiod and Light Intensity	16 hours light: 8 hours dark. Wide spectrum cool white fluorescent lights used to provide 620-721 lux during light cycle.
Aeration	< 100 bubbles/ minute. Clean oil-free air supplied to each test vessel via micro-bore plastic tubing
Test Chamber	375 mL glass jars with plastic lids containing small opening for airline tubing.
Sediment Volume	100 mL of homogenized sediment (3-4 cm depth)
Porewater Quality	Temperature, pH and ammonia.
Overlying Water Source and Volume	175 mL; Reconstituted Moderately Hard Water; warmed to $23 \pm 1$ °C and aerated >24 hours before use.
Overlying Water Quality	Temperature, pH, dissolved oxygen, conductance, hardness, alkalinity and ammonia, measurements on Day 0 and Day 10 of test. Temperature and dissolved oxygen were also measured three times weekly during the test.
Replicates	5 field replicates per sample, plus 2 additional replicates for water quality measurements.
Control Sediment (Negative Control)	Yaquina Bay Sand, rinsed with control water and sieved through a 500 µm stainless steel mesh
Feeding	3.75mL Tetramin™ flakes as slurry (4g dry solids/L) per vessel, three times weekly.
Organisms/ replicate	10
Organism Source	Aquatic Biosystems, Fort Collins, Colorado.
Mortality during acclimation	0.33%
Mean Head capsule width and organism age	$0.40 \pm 0.07$ mm; 3rd instar larval midges
Endpoints	Mean Survival and Growth
Test Validity Criteria	$\geq 70\%$ mean survival in the negative controls
	>0.6 mg mean dry weight in the negative controls
Statistical Software	CETIS™ version 1.9.2.4. Tidepool Scientific Software (Copyright 2000-2016).

## 2.4 Quality Assurance/Quality Control

### 2.4.1 Reference Toxicant Results

A 96 hour reference toxicant test, or positive control test, was conducted alongside the sediment test. The water-only test, using copper sulphate ( $\text{CuSO}_4$ ), was initiated to aid in the assessment of organism sensitivity and the precision of the results. The reference toxicant test LC50 result was then compared in a control chart against the results of previous tests. Table 2-2 summarises the results of the reference toxicant test.

The calculated LC50 for the reference toxicant test was within the two standard deviation (95%) range of the historic mean LC50. This supports the assumption that the sensitivity of organism batch was comparable to batches previously tested in this laboratory.

Table 2-2 Reference Toxicant Test Result for *Chironomus dilutus*

Organism Batch	Test Date	LC50 with 95% Confidence Limits (mg/L $\text{Cu}^{2+}$ )	Previous Mean with 2SD (mg/L $\text{Cu}^{2+}$ )
AB161206	2016 Dec 06	1.22 (0.94, 1.62)	1.04 (0.47, 2.28)

### 2.4.2 Test Validity Criteria

The test is considered to be acceptable if the mean percent survival in the negative control is  $\geq 70\%$  and the mean dry weight is  $\geq 0.6$  mg. The mean percent survival of the negative controls was 94% and the mean dry weight 1.83 mg.

## 2.5 Results

Total survival and dry weights in each replicate and the mean  $\pm$  SD in the control and test sediments are listed in the “*Chironomus dilutus* Survival and Growth Test- Survival of Larvae” and the “Chironomid Survival and Growth Test- Dry Weights of Larvae” data sheets, respectively. A summary of the test results is located in Table 2-3.

Total ammonia concentrations, pH, temperature, hardness, conductance and alkalinity in overlying water at test initiation (Day 0) and completion (Day 10), are available in Appendix B.

### 2.5.1 Data Analysis

The survival and dry weights data for all samples and the negative control was entered into the statistical program “Comprehensive Environmental Toxicity Information System” (CETIS™, 2000- 2016). When determining the appropriate comparison tests to use, the Environment Canada “Guidance Document on Statistical Methods for Environmental Toxicity Tests” (EPS 1/RM/46, 2005) was followed.

See the CETIS™ Analytical Reports for information on the specific tests used for the mean survival and dry weight comparisons. Analyses between the control and samples were conducted as one-tailed comparisons. All analyses were done with the decision level for determining statistical significance set to 0.05 (p value  $< 0.05$ ).

Table 2-3 Results for Mean *Chironomus dilutus* Survival and Growth

Sample ID	Mean Survival $\pm$ SD (%)	Mean Dry Weight $\pm$ SD (mg)
Negative Control	94 $\pm$ 9	1.83 $\pm$ 0.21
SED-23-21	94 $\pm$ 5	1.88 $\pm$ 0.11

SED-07-7BIS	93 ± 10	1.95 ± 0.10
SED-12-1	100 ± 0	1.97 ± 0.15

---

SD = Standard Deviation

No sample showed a statistically significant decrease relative to the negative control

#### 2.5.2 Test Observations

At test end, one dead pupating chironomid was found in replicate A of the Control sediment and one dead larval chironomid was found in replicate E of the Control sediment. Both were excluded from survival and dry weight analysis.

#### 2.6 Method Deviations

In sample SED-07-7BIS, replicate D was accidentally seeded with more than 10 chironomid at test initiation. It is unknown how many organisms were initially seeded into the test. Therefore, the replicate was removed from statistical analysis for both survival and chironomid mean dry weight.

## SECTION

### 3 14 DAY HYALELLA AZTECA SURVIVAL AND GROWTH TEST

#### 3.1 Test Methods

The survival and growth of the freshwater amphipod, *Hyalella azteca*, when exposed to whole sediment samples for 14 days, were assessed according to the Maxxam SOP: *Hyalella azteca* 14- Day Survival and Growth Test (BBY2SOP-00011), which is based on the Environment Canada Biological Test Method: Test for Survival and Growth in Sediment and Water Using the Freshwater Amphipod *Hyalella azteca* (EPS 1/RM/33).

One day prior to test initiation, the field replicates were individually homogenised and a 100 mL aliquot was distributed into a 375 mL labelled test vessel. Reconstituted moderately hard water was then slowly added to the vessel by pouring a stream of water onto a Plexiglas baffle to minimize disturbing the sediment layer. The test vessels were then randomized on the bench top and airlines and lids were fitted to each test vessel.

A composite sample was produced by combining equal portions of each field replicate in a stainless steel bowl. Then, 100 mL of the composite sample was distributed into a sixth replicate test vessel used for water quality measurements.

The following day, aliquots of overlying water were removed from the test vessels for initial overlying water chemistry. The sixth replicate test vessel was used for water quality measurements for the duration of the test. To initiate the test, the amphipods were removed from their holding containers and 10 *Hyalella* were randomly selected and placed into plastic medicine cups containing control water. Once enough organisms were collected to start the tests they were seeded into the test vessels.

During the test, daily observations and aeration checks were performed. Temperature and dissolved oxygen measurements were taken three times per week in the test vessel designated for water quality measurements. Test vessels were also fed 800 µL per replicate of a ground TetraMin™ flake slurry (4 g dry solids/L) and 1.75 mL YCT (yeast, alfalfa flakes and digested trout chow) on the days water quality measurements were taken.

At test termination, the contents of each test vessel were examined, a small portion at a time, in a glass pan on a light table. The live amphipods were collected and counted. The amphipods were then placed into aluminum foil weigh boats that were subsequently placed into a 60°C drying oven for >24 hours. Missing amphipods were presumed to have died and decomposed during the test.

#### 3.2 Organism Information

##### 3.2.1 Acclimation and Holding Information

One batch of *Hyalella azteca* was received from Aquatic Biosystems, Fort Collins, Colorado, USA, on November 30, 2016. Laboratory reared juvenile amphipods were packed into 1L plastic containers, filled with moderately hard water and a few plastic mesh squares. Prior to shipping, the headspace in each container was filled with oxygen gas of a sufficient concentration to maintain adequate saturation levels in the shipping water. They were shipped directly for overnight delivery to Maxxam and arrived without incident.

Upon arrival at Maxxam, the container contents were carefully poured into glass culture dishes, filled with a small amount of reconstituted water. Gentle aeration was supplied to each culture pan. An aliquot of shipping water from each container was set aside for water quality. It was then ensured that temperature adjustments to the holding water of the amphipods did not exceed 2°C per day.

The organisms were held at Maxxam for 1 day before the test was initiated. The amphipods were fed YCT and Tetramin™ slurry daily during the holding period. Datasheets containing the water quality measurements, with observations of number dead or inactive amphipods during the holding period, are available in Appendix C.

### 3.2.2 Organism Health

The average mortality rate in the culture did not exceed 10%.

### 3.2.3 Organism Age

At test initiation, the amphipods were 7-9 days old.

## 3.3 Test Conditions

See Table 3-1 for a detailed list of the test conditions. All bench sheets and raw data are available in Appendix C.



Table 3-1 Test Conditions for the 14-day *Hyalella azteca* Test

Parameter	Conditions and Methods
Test Type and Duration	14 Day, Static
Temperature	Average daily temperature $23 \pm 1$ °C; instantaneous temperature $23 \pm 3$ °C.
Photoperiod and Light Intensity	16 hours light: 8 hours dark. Wide spectrum cool white fluorescent lights used to provide: 620-721 lux during the light cycle.
Aeration	< 100 bubbles/ minute. Clean oil-free air supplied to each test vessel via micro-bore plastic tubing
Test Chamber	375 mL glass jars with plastic lids containing small opening for airline tubing.
Sediment Volume	100 mL of homogenized sediment (3-4 cm depth)
Overlying Water Volume and Source	175 mL; Reconstituted water; SAM5 recipe (Borgmann, 1996). Temperature adjusted and aerated >24h before use.
Overlying Water Quality	Temperature, pH, dissolved oxygen, hardness, conductance, alkalinity and ammonia, measurements on Day 0 and Day 14 of test. Temperature and dissolved oxygen were also measured three times weekly during the test.
Feeding	Every 2-3 days; 800 µL per replicate of a ground Tetramin™ flake slurry (4g dry solids/mL), and 1.75mL YCT.
Replicates	5 replicates per sample, plus an additional replicate for water quality measurements.
Control Sediment	Yaquina Bay sand. Rinsed with clean overlying water and sieved through a 500 µm stainless steel mesh
Organisms/ Replicate	10
Organism Source and age	Aquatic Biosystems; amphipods aged 7-9 days at test start.
Mortality during acclimation	0.0%
Endpoints	Mean Survival, Mean Dry weight
Test Validity Criteria	≥ 80% mean survival in the controls. ≥0.1mg/amphipod in the controls.
Statistical Software	CETIS™ version 1.9.2.4. Tidepool Scientific Software (Copyright 2000-2016).

### 3.4 Quality Assurance/Quality Control

#### 3.4.1 Reference Toxicant Results

A 96 hour reference toxicant test, or positive control test, was conducted alongside the sediment test. The water-only test, using copper sulphate ( $\text{CuSO}_4$ ) was initiated to aid in the assessment of organism sensitivity and the precision of the results. The reference toxicant test LC50 result was then compared in a control chart against the results of previous tests. Table 3-2 summarises the result of the reference toxicant test.

The calculated LC50 for the reference toxicant test was within the two standard deviation (95%) range of the historic mean LC50. This supports the assumption that the sensitivity of organism batch was comparable to batches previously tested in this laboratory.

Table 3-2 Reference Toxicant Test Results for *Hyalella azteca*

Organism Batch	Test Date	LC50 with 95% Confidence Limits ( $\mu\text{g/L Cu}^{2+}$ )	Previous Mean with 2SD ( $\mu\text{g/L Cu}^{2+}$ )
AB161130HA	2016 Dec 01	152 (58, 242)	209 (133, 326)

#### 3.4.2 Test Validity Criteria

Survival data in the negative control is considered to be acceptable if the mean percent survival in the negative control is  $\geq 80\%$ , and the mean dry weight in the negative control exceeds  $\geq 0.1$  mg/amphipod. The mean percent survival of the negative control was 94% and the mean dry weight was 0.11 mg/amphipod.

### 3.5 Results

Total survival and dry weights in each replicate, and the mean  $\pm$  SD in the control and sediments are listed in the “*Hyalella azteca* Survival and Growth Test-Survival” and “*Hyalella azteca* Survival and Growth Test- Dry Weights” data sheets, respectively. A summary of the results is located in Table 3-3.

Total ammonia concentrations, pH, temperature, dissolved oxygen, hardness, conductance and alkalinity in overlying water at test initiation (Day 0) and completion (Day 14) are available in Appendix C.

#### 3.5.1 Data Analysis

The survival and dry weight data for all samples, the laboratory control was entered into the statistical program “Comprehensive Environmental Toxicity Information System” (CETIS™, 2000- 2016). When determining the appropriate comparison tests to use, the Environment Canada “Guidance Document on Statistical Methods for Environmental Toxicity Tests” (EPS 1/RM/46, 2005) was followed.

See the CETIS™ Analytical Reports for information on the specific tests used for the mean survival and dry weight comparisons. Analyses between the control and samples were conducted as one-tailed comparisons. All analyses were done with the decision level for determining statistical significance set to 0.05 (p value  $< 0.05$ ).

Table 3-3 Results for Mean *Hyalella azteca* Survival and Growth

Sample ID	Mean Survival $\pm$ SD (%)	Mean Dry Weight $\pm$ SD (mg)
Negative Control	94 $\pm$ 5	0.11 $\pm$ 0.03
SED-23-21	92 $\pm$ 8	0.11 $\pm$ 0.01
SED-07-7BIS	100 $\pm$ 0	0.12 $\pm$ 0.03

SD: Standard Deviation

No sample showed a statistically significant decrease relative to the negative control

### 3.6 Method Deviations

Aeration checks were missed by the biologist for the mid-day and afternoon (late PM) time points on December 02, 2016. There appeared to be no issues with aeration during the missed checks, as all vessels were aerating properly the following morning.

In sample SED-07-7BIS, replicates A and D were accidentally seeded with 11 *Hyalella* at test initiation. The survival and mean dry weight analysis for each replicate was adjusted to account for the extra *Hyalella*.

## SECTION

### 4 REFERENCES

Borgmann, U. 1996. Systematic Analysis of Aqueous Ion Requirements of *Hyalella azteca*: A Standard Artificial Medium Including the Essential Bromide Ion. *Archives of Environmental Contamination and Toxicology*. 30: 356-363.

Comprehensive Environmental Toxicity Information System (CETIS™). 2000-2016. Tidepool Scientific. LLC. Version 1.9.2.4

Environment Canada. 1997. Biological Test method: Test for Survival and Growth in Sediment of Freshwater Midges (*Chironomus tentans* or *Chironomus riparius*). Environmental Protection Publications, Conservation and Protection. Ottawa, Ontario. EPS 1/RM/32.

Environment Canada. 2005. Guidance Document on Statistical Methods for Environmental Toxicity Tests. Environmental Protection Publications. Conservation and Protection. Ottawa, Ontario. EPS 1/RM/46.

Environment Canada. 2013. Biological Test method: Test for Survival and Growth in Sediment and Water Using the Freshwater Amphipod *Hyalella azteca*. Environmental Protection Publications, Conservation and Protection. Ottawa, Ontario. EPS 1/RM/33.

Maxxam SOP for the *Chironomus dilutus* 10-Day Survival and Growth Test. BBY2 SOP-00010.

Maxxam SOP for the *Hyalella azteca* 14-Day Survival and Growth Test. BBY2 SOP-00011.

## APPENDICES

## APPENDIX

### A SAMPLE INFORMATION

Report Name: Entry

Job #: B6A5291

Client: MAXXAM ANALYTIQUE  
889 MONTEE DE L'ESSE  
SAINT-LAURENT, QC  
CANADA H4T 1P5

Inv Attn: SOUSTRAITANCEQUE

Task Order:  
Line Item:

Attention: SOUSTRAITANCEQUE  
Phone: (514)448 - 9001  
Fax: () -  
EMAIL: soustraitanceque@maxxamana  
lytics.com

Project Coordinator: SAK

Printed: 2016/12/29 Version 5  
Reception Date: 2016/11/23  
Reception Time: 10:50  
Login Date: 2016/11/23  
**REQUIRED DATE: 2017/01/03, 18:00**  
**Quote Number: 800147**

P.O. Number:  
Project Number: LB681702  
Site Location:  
Site #:  
Client Number: 4918  
Rpt Address #:  
Q.C Samples: No

Report: same

Scenario: # 10450 BURNABY JOBS

Accounting Information		Report Copies	
Desc. Code		# cop. Fax	EMAIL
	Attention Rodrigo Caffarengo	1	RCaffarengo@maxxam.ca
Maxxam Number	Client Sample ID/Report ID	Cont's Store Code	Recd. Sampling OK Date Matrix Test Codes
QC6614-01R	SED-23-1 (DI2098) SED-23-1 (DI2098)	5-OTHP N/A-SO131	Yes 2016/11/18 SED AVKV-S, CHIROV-SD, DGV-S, DISPOSAL ECOATTACHS, HYALELV-SD, MOISTV-S NH4AVKV-S, TEXT4WV-S, VSUBTOC-S
QC6615-01R	SED-07-7BIS (DI2157) SED-07-7BIS (DI2157)	5-OTHP N/A-SO131	Yes 2016/11/18 SED AVKV-S, CHIROV-SD, DGV-S, DISPOSAL ECOATTACHS, HYALELV-SD, MOISTV-S NH4AVKV-S, TEXT4WV-S, VSUBTOC-S
QC6616-01R	SED-12-1 (DI2158) SED-12-1 (DI2158)	5-OTHP N/A-SO131	Yes 2016/11/18 SED AVKV-S, CHIROV-SD, DGV-S, DISPOSAL ECOATTACHS, HYALELV-SD, MOISTV-S NH4AVKV-S, TEXT4WV-S, VSUBTOC-S

Remarks: na: once TOX takes cuts please give the cuts to Soil Prep- they have to take a cut for subc

Inspected by: KCG  
Date: 2016/11/23  
Time: 18:34

Approved by: N45  
Date: 2016/11/24  
Time: 11:29

Date of Sample Disposal:  
Disposal by:

1/1

Maxxam analytique inc.  
 883, Montée de L'Église  
 Saint-Laurent (Québec) H4T 1P5

Téléphone : 514-848-7281  
 Télécopieur : 514-848-0139

# Chaîne de responsabilité

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Client : Englobe Corp.	Téléphone : 514-848-7281 Télécopieur : 514-848-0170
Adresse : 1453, Saint-Thomas Montréal (Québec) H3L 3H7	N° projet : 11985
Echantillonneur : P. Verbeur	Chargé(s) de projet : M. Desautels

N°	Matérialisation de l'échantillon	N° lot	Matrice						Echantillonnage	Date
			Eau potable	Eau usée	Eau de mer	Sol	Sédiments	Autres		
1	SFD-33-1									
2	SFD-07-780									
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

Analyse pour échantillon intégré									
Carbone total - Total carbon									
Scotox Caroténoïdes									
HYDROCARBURES PÉTROLIERS (C10)									
HYDROCARBURES AROMATIQUES									
MÉTALUX 7-9-10									
COMPOSÉS ORGANIQUES VOLATILS									
COMPOSÉS ACIDES (PHÉNOLS)									
SPEC TOTALX (Condensables)									
CHLOROBENZÈNES									
MERCURE PAR ICP-MS									
DIOXYDES ET SUPEROXYDES									



B681702\_COC

DÉLAIS : CR-85 : 24 h COV : 24h Métalux : 24h Autres : 48 h	N° d'ordre de service Maxxam :	Limites de détection requises / types de centralisation :		
	SDB :	Inspections spéciales :		
	RS :			
	N° de bon de commande Englobe :	Analyses chimiques à faire sur l'échantillon - Délais minimal requis		
Autres :				
*Autres :	Livré par :	Date :	Heure :	Reçu par :
	Livré par renseigné :	Date :	Heure :	Reçu par :
	Livré par :	Date :	Heure :	Reçu par :

10, 12, 10

ice - 40

Placer Seal - NO



889, Montée de Liesse Saint-Laurent (Québec) H4T 1P5 Téléphone : Télécopieur :	889 Montée de Liesse Saint-Laurent, Quebec H4T 1P5 Telephone: Fax:
Chaîne de responsabilité	Chain of Accountability
Analyse pour échantillon intégré	Analysis for integrated sample
Client : Englobe Corp.	Customer: Englobe Corp.
Téléphone : Télécopieur :	Telephone: Fax:
Adresse : 1453, Saint-Thimothée Montréal (Québec) H2L 3N7	Address: 1453 Saint-Thimothée Montreal, Quebec H2L 3N7
N° de projet :	Project #:
Échantillonneur :	Sampler:
Chargé(e) de projet :	Project Manager:
N°	#
Identification de l'échantillon	Sample Identification
N° labo Maxxam	Maxxam Lab #
Matrice	Matrix
Échantillonnage	Sampling
Eau potable	Drinking water
Eau usée	Waste water
Eau sout.	Groundwater
Eau de surf.	Surface water
Sols	Soils
Sédiments	Sediments
Autres	Other
# de contenants	# of containers
À livrer (oui/non)	To be delivered (yes/no)
Date	Date
HYDROCARBURES PÉTROLIERS (C10-C50)	PETROLEUM HYDROCARBONS (C10-C50)
HYDROCARBURES AROMATIQUES POLYCYCLIQUES	POLYCYCLIC AROMATIC HYDROCARBONS
BPC TOTAUX	TOTAL PCBs
MÉTAUX extractibles totaux	Total extractable METALS
MERCURE PAR ICP-MS	MERCURY BY ICP-MS
CARBONE ORGANIQUE TOTAL	TOTAL ORGANIC CARBON
CHLOROBENZENES	CHLOROBENZENES
SOUFRE	SULPHUR
Composés acides (phénols)	Acid compounds (Phenols)
COMPOSÉS ORGANIQUES VOLATILS HMA-HHT (pot 60mL, sans air)	VOLATILE ORGANIC COMPOUNDS HMA-HHT (pot 60 mL, no air)
Granulométrie	Granulometry
DIOXINES ET FURANNES PAR CGSM HR	DIOXINS AND FURANS BY CGSM HR
Mono-, Di et Tributylène	Mono-, Di- and Tributylene
Détermination potentiel acidogène (TDPAS)	Acid base accounting (ABA)
DÉLAI : C10-C50 : 24 h COV : 24h Métaux : 24h Autres : 48 h	DEADLINE: C10-C50: 24 h COV: 24 h Metals: 24 h Other: 48 h
N° d'offre de service Maxxam :	Maxxam service offer #:
Site : KS	Location: KS
N° de bon de commande Englobe :	Englobe P.O #:
Autres	Other
Limites de détection requises / types de contamina	Required detection limits / types of contaminants
Instructions spéciales :	Special Instructions:
*Métaux : Politique + Se – Délais minimal requis	*Metals: Policy + Se – Minimal deadlines required
*Autres =	*Other =
Livré par :	Delivered by:
Livré par messagerie :	Delivered by courier:
Date :	Date:
Heure :	Time:

ECOTOXICOLOGY  
SEDIMENT SAMPLE DESCRIPTIONS

Maxxam  
BBY2FCD-00136/3  
Page 1 of 1

Client # / Name: #4918		Maxxam Analtique		Job #:		B6A5291			
Maxxam Sample Name	Sample #	Client Sample Name	Date Homogenised / Subsampled	Grain Size & Colour	Type of Debris Removed (e.g. rock, wood, plant, etc...)	Endemic Animals Removed	Odour	Additional Comments/Observations	Analyst
SED-23-1(Rep A)	QC6614	SED-23-1	2016 NOV 28 2016 DEC 05 2016 NOV 30	Clay and grey/brown	N/A	N/A	N/A	N/A	SR MT
SED-23-1(Rep B)	QC6614	SED-23-1	2016 NOV 28 2016 DEC 05 2016 NOV 30	Clay and grey/brown	N/A	N/A	N/A	N/A	SR MT
SED-23-1(Rep C)	QC6614	SED-23-1	2016 NOV 28 2016 DEC 05 2016 NOV 30	clay and brown/grey	N/A	N/A	N/A	N/A	SR MT
SED-23-1(Rep D)	QC6614	SED-23-1	2016 NOV 28 2016 DEC 05 2016 NOV 30	clay and grey/brown	N/A	N/A	N/A	N/A	SR MT
SED-23-1(Rep E)	QC6614	SED-23-1	2016 NOV 28 2016 DEC 05 2016 NOV 30	Clay and grey/brown	N/A	N/A	N/A	N/A	SR MT
SED-07-7BIS (Rep A)	QC6615	SED-07-7BIS	2016 DEC 05 2016 NOV 28 2016 NOV 30	Dark brown clay-like	nb	nb	nb	nb	MT SR NS
SED-07-7BIS (Rep B)	QC6615	SED-07-7BIS	2016 DEC 05 2016 NOV 28 2016 NOV 30	Dark brown clay-like	nb	nb	nb	nb	SR MT NS
SED-07-7BIS (Rep C)	QC6615	SED-07-7BIS	2016 DEC 05 2016 NOV 28 2016 NOV 30	Dark brown clay-like	nb	nb	nb	nb	SR MT NS
SED-07-7BIS (Rep D)	QC6615	SED-07-7BIS	2016 DEC 05 2016 NOV 28 2016 NOV 30	Dark brown clay-like	nb	nb	nb	nb	SR MT NS
SED-07-7BIS (Rep E)	QC6615	SED-07-7BIS	2016 DEC 05 2016 NOV 28 2016 NOV 30	Dark brown clay-like	nb	nb	nb	nb	SR MT NS

ECOTOXICOLOGY  
SEDIMENT SAMPLE DESCRIPTIONS

Maxxam  
BBY2FCD-00136/3  
Page 1 of 1

Client # / Name: #4918		Maxxam Analtique		Job #:		B6A5291			
Maxxam Sample Name	Sample #	Client Sample Name	Date Homogenised / Subsampled	Grain Size & Colour	Type of Debris Removed (e.g. rock, wood, plant, etc...)	Endemic Animals Removed	Odour	Additional Comments/Observations	Analyst
SED-12-1(Rep A)	QC6616	SED-12-1	<del>2016 Dec 05</del> <del>2016 Nov 28</del> 2016 Nov 30	Dark grey clay-like	n/a	n/a	n/a	n/a	SR <del>CEB</del>
SED-12-1(Rep B)	QC6616	SED-12-1	<del>2016 Dec 05</del> <del>2016 Nov 28</del> 2016 Nov 30	Dark grey clay-like	n/a	n/a	n/a	n/a	SR <del>CEB</del>
SED-12-1(Rep C)	QC6616	SED-12-1	<del>2016 Dec 05</del> <del>2016 Nov 28</del> 2016 Nov 30	Dark grey clay-like	n/a	n/a	n/a	n/a	SR <del>CEB</del>
SED-12-1(Rep D)	QC6616	SED-12-1	<del>2016 Dec 05</del> <del>2016 Nov 28</del> 2016 Nov 30	Dark grey clay-like	n/a	n/a	n/a	n/a	NS <del>CEB</del>
SED-12-1(Rep E)	QC6616	SED-12-1	<del>2016 Dec 05</del> <del>2016 Nov 28</del> 2016 Nov 30	Dark grey clay-like	n/a	n/a	n/a	n/a	NS <del>CEB</del>

① NS 2016 Nov 28

Maxxam Job #: B680605  
Report Date: 2016/12/13

Maxxam Analytics (TOX Internal)  
Site Location: ECOTOX  
Sampler Initials: MT

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QF8411	QF8412	QF8413	
Sampling Date		2016/12/07 09:35	2016/12/07 09:35	2016/12/07 09:35	
COC Number		G120115	G120115	G120115	
	UNITS	SED-23-1 DAY 1 POREWATER CH	SED-07-7BIS DAY 1 POREWATER CH	SED-12-1 DAY 1 POREWATER CH	RDL
<b>Nutrients</b>					
Total Ammonia (N)	mg/L	7.9 (1)	4.7 (1)	4.7 (1)	0.050
RDL = Reportable Detection Limit					
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.					

## ECOTOXICOLOGY

## FRESHWATER SEDIMENT TESTS – POREWATER MEASUREMENTS

Client # &amp; Name: #4918 Maxxam Analytique

Date Measured: 2016 Dec 06 07

WE MT 2016 Dec 06

Method for Porewater Collection:

Centrifuged sediments for 20 minutes @ 5000 rpm @ 4°C  
using centrifuge BBY2-0318 -MT 2016 Dec 06

Sample ID	Temperature (°C)	pH	Ammonia (mg/L)
SED-23-1	18.3	7.4	✓ 7.9
SED-07-7BIS	18.9	7.7	✓ 4.7
SED-12-1	17.7	7.4	✓ 4.7
MT 2016 Dec 05			
Analyst	M. Thompson	M. Thompson	M. Thompson
Date	2016 Dec 07	2016 Dec 07	2016 Dec 07

## Comments:

Note: pore water vessels were set up on day 0 of test and measured/sub-sampled on day 1 (instead of being set up on day -1 and measured day 0) - MT 2016 Dec 06

AIA NB 2016 Dec 29

## APPENDIX

### B 10-DAY CHIRONOMUS DILUTUS SURVIVAL AND GROWTH TEST

# CETIS Analytical Report

Report Date: 04 Jan-17 15:46 (p 1 of 1)  
Test Code: CT-4918-0216 | 00-0850-0549

## Chironomus 10-d Survival and Growth Sediment Test

Maxxam Analytics

Analysis ID: 17-8035-3940	Endpoint: Survival Rate	CETIS Version: CETISv1.9.2
Analyzed: 04 Jan-17 15:45	Analysis: STP 2xK Contingency Tables	Official Results: Yes
Batch ID: 02-7801-4166	Test Type: Survival-AF Growth	Analyst:
Start Date: 06 Dec-16 15:37	Protocol: EC/EPS 1/RM/32	Diluent: Reconstituted Water
Ending Date: 16 Dec-16	Species: Chironomus dilutus	Brine: Not Applicable
Duration: 9d 8h	Source: Aquatic Biosystems, CO	Age:

## Fisher Exact/Bonferroni-Holm Test

Sample I	vs	Sample II	Test Stat	P-Type	P-Value	Decision(α:5%)
Control		SED-23-1	0.6811	Exact	1.0000	Non-Significant Effect
		SED-07-7BIS	0.5496	Exact	1.0000	Non-Significant Effect
		SED-12-1	1.0000	Exact	1.0000	Non-Significant Effect

## Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	2.159	2.681	0.4108	No Outliers Detected

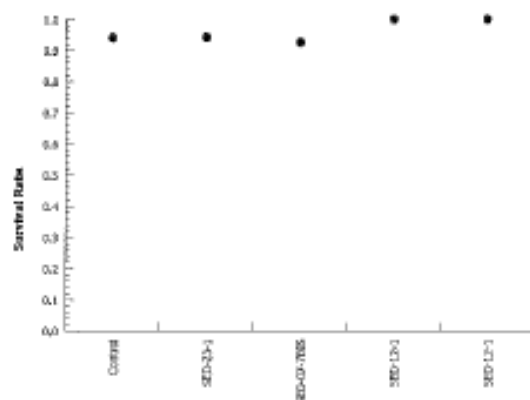
## Data Summary

Sample	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
Control		47	3	50	0.94	0.06	0.0%
SED-23-1		47	3	50	0.94	0.06	0.0%
SED-07-7BIS		37	3	40	0.925	0.075	1.6%
SED-12-1		50	0	50	1	0	-6.36%

## Survival Rate Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control		0.9000	1.0000	1.0000	1.0000	0.8000
SED-23-1		1.0000	0.9000	0.8000	1.0000	0.9000
SED-07-7BIS		1.0000	0.9000	1.0000	0.8000	
SED-12-1		1.0000	1.0000	1.0000	1.0000	1.0000

## Graphics



007-388-975-9

CETIS™ v1.9.2.4

2017 Jan 04  
Analyst: DMW  
2017 Jan 05  
QA: MT

# CETIS Analytical Report

Report Date: 04 Jan-17 15:46 (p 1 of 2)  
Test Code: CT-4918-0218 | 00-0850-0549

## Chironomus 10-d Survival and Growth Sediment Test

Maxxam Analytics

Analysis ID: 15-1077-8369	Endpoint: Mean Dry Weight	CETIS Version: CETISv1.9.2
Analyzed: 04 Jan-17 15:46	Analysis: Parametric-Control vs Treatments	Official Results: Yes
Batch ID: 02-7801-4166	Test Type: Survival-AF Growth	Analyst:
Start Date: 06 Dec-16 15:37	Protocol: EC/EPS 1/RM/32	Diluent: Reconstituted Water
Ending Date: 16 Dec-16	Species: Chironomus dilutus	Brine: Not Applicable
Duration: 9d 8h	Source: Aquatic Biosystems, CO	Age:

Data Transform	Alt Hyp	Comparison Result	PMSD
Untransformed	C > T	SED-23-1 passed mean dry weight	11.78%
		SED-07-7BIS passed mean dry weight	11.78%
		SED-12-1 passed mean dry weight	11.78%

## Dunnett Multiple Comparison Test

Sample I	vs	Sample II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Control		SED-23-1	-0.5117	2.244	0.215	8	CDF	0.6973	Non-Significant Effect
		SED-07-7BIS	-1.203	2.244	0.228	7	CDF	0.9775	Non-Significant Effect
		SED-12-1	-1.527	2.244	0.215	8	CDF	0.9900	Non-Significant Effect

## Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	2.656	2.681	0.0564	No Outliers Detected

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0858436	0.0219479	3	0.9549	0.4393	Non-Significant Effect
Error	0.344784	0.0229856	15			
Total	0.410628		18			

## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance Test	2.397	11.34	0.4942	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9098	0.8605	0.0733	Normal Distribution

## Mean Dry Weight Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
Control		5	1.828	1.684	2.091	1.907	1.48	1.989	0.09501	11.62%	0.00%
SED-23-1		5	1.877	1.737	2.016	1.9	1.754	2.013	0.05033	6.00%	-2.66%
SED-07-7BIS		4	1.95	1.796	2.104	1.908	1.893	2.094	0.04842	4.97%	-6.70%
SED-12-1		5	1.974	1.793	2.155	1.969	1.747	2.125	0.06538	7.40%	-6.01%

## Mean Dry Weight Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control		1.841	1.807	1.969	1.841	1.48
SED-23-1		1.8	1.947	2.013	1.769	1.754
SED-07-7BIS		1.897	2.094	1.916	1.893	
SED-12-1		1.952	1.969	2.125	1.747	2.077



# CETIS Analytical Report

Report Date: 04 Jan-17 15:46 (p 2 of 2)  
Test Code: CT-4918-0216 | 00-0850-0549

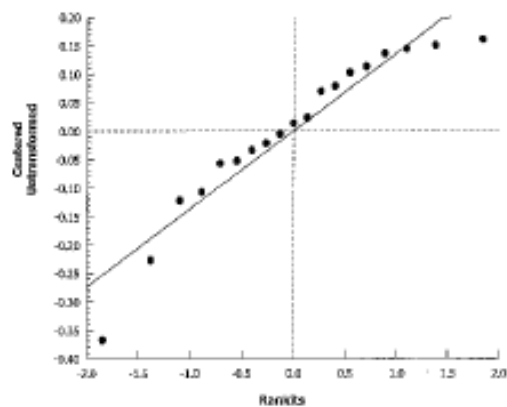
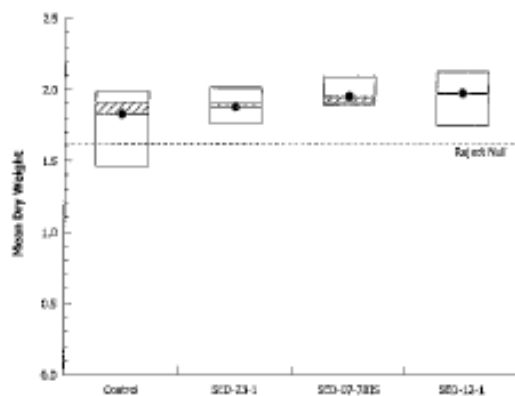
Chironomus 10-d Survival and Growth Sediment Test

Maxxam Analytics

Analysis ID: 15-1077-8369 Endpoint: Mean Dry Weight  
Analyzed: 04 Jan-17 15:46 Analysis: Parametric-Control vs Treatments

CETIS Version: CETISv1.9.2  
Official Results: Yes

## Graphics



Client # &amp; Name: #4918 Maxxam Analytique

Start Date and Time: 2016 Dec 06 @15:37

Sample Date: 2016 Nov 18

End Date: 2016 Dec 16

Job # B6A5291

Stats File ID: CT-4918-0216

Organism Lot #: AB161206

Analysts: S. Rostama

Sample	Rep	Initial # Larvae	Final # Larvae	% Survived	Survival	
					Mean %	SD %
Control	A	10	9	90	94	9
	B	10	10	100		
	C	10	10	100		
	D	10	10	100		
	E	10	8	80		
SED-23-1	A	10	10	100	94	5
	B	10	9	90		
	C	10	9	90		
	D	10	10	100		
	E	10	9	90		
SED-07-7BIS	A	10	10	100	92.5	10
	B	10	9	90		
	C	10	10	100		
	D*	-	15	--		
	E	10	8	80		
SED-12-1	A	10	10	100	100	0
	B	10	10	100		
	C	10	10	100		
	D	10	10	100		
	E	10	10	100		

Notes: \*Unknown number of initial organisms seeded. Replicate excluded from statistical analysis.

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## ECOTOXICOLOGY

Chironomid Survival and Growth Test  
Dry Weights of Larvae

Maxxam

BBY2FCD-00231/3

Page \_\_\_\_ of \_\_\_\_

Client # &amp; Name: #4918 Maxxam Analytique

Start Date and Time: 2016 Dec 06 @15:37

Balance ID: BBY2-0260

End Date: 2016 Dec 16

Job # B5A5291

Weighing Dates: 2016 Dec 13, 2016 Dec 21

Drying Temperature (°C): 60

Drying Time (h) &gt; 24 hours

Analyst(s): N.Blassnitz, G. Matharu

Boat #	Sample ID	Replicate	# Worms	Boat Wt. (g)	Boat & Worms Wt. (g)	Worm Wt. (mg)	Mean Wt. /Worm (mg)	Mean Wt. /Sample (mg)	SD
676	Control	A	9	1.11917	1.13664	17.47	1.94	1.83	0.21
677		B	10	1.12958	1.14865	19.07	1.91		
678		C	10	1.14435	1.16424	19.89	1.99		
679		D	10	1.11959	1.13800	18.41	1.84		
680		E	8	1.12332	1.13500	11.68	1.46		
681	SED-23-1	A	10	1.11930	1.13830	19.00	1.90	1.88	0.11
682		B	9	1.12241	1.13993	17.52	1.95		
683		C	9	1.13285	1.15097	18.12	2.01		
684		D	10	1.10229	1.11998	17.69	1.77		
685		E	9	1.12770	1.14349	15.79	1.75		
686	SED-07-7BIS	A	10	1.12223	1.14120	18.97	1.90	1.95	0.10
687		B	9	1.12557	1.14442	18.85	2.09		
688		C	10	1.12257	1.14173	19.16	1.92		
689		D*	15	1.11760	1.13864	-	-		
690		E	8	1.11067	1.12581	15.14	1.89		
691	SED-12-1	A	10	1.11299	1.13251	19.52	1.95	1.97	0.15
692		B	10	1.12295	1.14264	19.69	1.97		
693		C	10	1.11189	1.13314	21.25	2.13		
694		D	10	1.12182	1.13929	17.47	1.75		
695		E	10	1.13379	1.15456	20.77	2.08		
696		QA/QC		1.12971	1.12959	-	-	-	-
697		QA/QC		1.12586	1.12577	-	-	-	-
676		O-A	9	1.11928	1.13668	17.40	-	-	-
		Analyst:		NB	GS				

The average dry weight for the replicate controls must be &gt;0.6 mg, for the test to be valid.

Notes: \*Unknown initial number of organisms seeded. Replicate excluded from statistical analysis.

## ECOTOXICOLOGY

## CHIRONOMUS DILUTUS SURVIVAL AND GROWTH TEST - TEST INFORMATION

Client # & Name	#4918 Maxxam Analytique
Project Number	2-11-16041
Test Initiation Date & Time	2016 Dec 06 @ 15:37
Test Completion Date	2016 Dec 16
Statistics File #	CT-4918-0216
Analyst(s)	M. Thompson, M. O'Toole, T. W. Huelo, N. Lassnitz S. Rostrum
Control Water Batch	2016 Nov 24
Control Sediment #1	Yaquina Bay beach sand
Control Sediment #2	<del>MT 2016 Dec 06</del>
Organism Lot	AB161206 WENB 2017 Jan 06
Age at Start of Test	2nd instar 3rd instar
Feeding Regime	3.75 mL Tetrafin slurry per replicate 3x weekly
Food Preparation Date:	2016 Nov 30, 2016 Dec 07
Job #	B6A5291
List of Sample ID/#	SED-23-1 (DI2098) / QC6614 SED-07-7BIS (DI2157) / QC6615 SED-12-1 (DI2158) / QC6616
	<del>MT 2016 Dec 06</del>

## ECOTOXICOLOGY

## CHIRONOMID SURVIVAL AND GROWTH TEST - AERATION CHECKS

Maxxam

BBY2FCD-00137/2

Page 1 of 1

Client # &amp; Name: #4918 Maxxam Analytique

Start Date &amp; Time: 2016 Dec 06 @ 15:37

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

	Day -1	Day 0	1	2	3	4	5	6	7	8	9	10
Date	2016 Dec 05	2016 Dec 06	2016 Dec 07	2016 Dec 08	2016 Dec 09	2016 Dec 10	2016 Dec 11	2016 Dec 12	2016 Dec 13	2016 Dec 14	2016 Dec 15	2016 Dec 16
Early AM	mt	mo	mt	mt	mt	mo	DMC	Tw	Tw	Tw	NB	Tw
Mid-day	mt	mo	mt	mt	mt	y	DMC	Tw	Tw	Tw	NB	N/A
Late PM	mt	mt	mt	mt	mt	mo	DMC	Tw	Tw	Tw	NB	N/A

Comments:

2016 Dec 05 - Aeration Started @ 14:07 -mt

N/A NB 2016 Dec 29

## ECOTOXICOLOGY

## CHIRONOMUS DILUTUS TEST DATA SHEET

Sample ID: Control  
 Sample Date: N/A  
 Sample Received: N/A

Start Date: 2016 Dec 06  
 End Date: 2016 Dec 16  
 Job/Sample #: N/A

Measurements						Samples Taken			
pH		Hardness (mg/L CaCO <sub>3</sub> )		Conductance (μS/cm)		Alkalinity (mg/L CaCO <sub>3</sub> )		Ammonia (mg/L)	
Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
8.2	8.3	100	112	345	467	56.5	109	0.063	7.4

Initial overlying WQ measurements:  
 Analyst MT Date 2016 Dec 06

Final overlying WQ measurements:  
 Analyst S. Rostema Date 2016 Dec 16

Day	Tuesday Day 0	Friday Day 3	Sunday Day 5	Tuesday Day 7	Friday Day 10
Temp. (°C)	22.8	22.3	22.5	23.5	23.0
D.O. (mg/L)	8.7	8.6	8.6	8.3	8.7
Feeding	✓	✓	✓	✓	
Analyst	MT	MT	DMC	TW	SR

Replicate	A	B	C	D	E
# Surviving	9	10	10	10	8
Analyst	SR	SR	SR	SR	SR

Date	Replicate	Comments	Analyst
2016 Dec 16	A	One is pupating and in the cucur larvae like dead	SR
2016 Dec 16	E	One found looks like a dead. These dead <sup>were not</sup> included <sup>in the</sup> the weighboats and <sup>and</sup> <sup>were not</sup> counted as a survived numbers	SR
<div style="transform: rotate(-30deg);">           016 MB 2016 Dec 29         </div>			

(A) L.F SR 2017 Jan 04

ECOTOXICOLOGY  
CHIRONOMUS DILUTUS TEST DATA SHEET

Maxxam  
BBY2FCD-00140/3  
Page 1 of 1

Sample ID: SED-23-1  
Sample Date: 2016 Nov 18  
Sample Received: 2016 Nov 23

Start Date: 2016 Dec 06  
End Date: 2016 Dec 16  
Job/Sample #: B6A5291 / QC6614

Measurements						Samples Taken			
pH		Hardness (mg/L CaCO <sub>3</sub> )		Conductance (µS/cm)		Alkalinity (mg/L CaCO <sub>3</sub> )		Ammonia (mg/L)	
Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
8.1	8.3	120	176	375	574	66.8	✓99.4	2.4	✓9.2

Initial overlying WQ measurements:

Analyst MT Date 2016 Dec 06

Final overlying WQ measurements:

Analyst SR Date 2016 Dec 16

Day	Tuesday Day 0	Friday Day 3	Sunday Day 5	Tuesday Day 7	Friday Day 10
Temp. (°C)	22.8	22.2	22.4	23.3	22.8
D.O. (mg/L)	8.6	8.5	7.7	8.4	8.7
Feeding	✓	✓	✓	✓	
Analyst	MT	MT	DML	TW	SR

Replicate	A	B	C	D	E
# Surviving	①810	①209	9107	10	①89
Analyst	SR	SR	SR	SR	SR

Date	Replicate	Comments	Analyst
2016 Dec 6	B	One is pupating in cocoon and looks like dead	SR
2016 Dec 16	A	One is pupating and looks like a dead	SR
N/A MB 2016 Dec 29			

① WESR 2016 Dec 16

CHIRONOMUS DILUTUS TEST DATA SHEET

Page 1 of 1

Sample Received: 2016 Nov 23

Job/Sample #: 86A5291 / QC6515

[illegible]



## ECOTOXICOLOGY

## CHIRONOMUS DILUTUS TEST DATA SHEET

Page 1 of 1

Sample ID: SED-12-1

Sample Date: 2016 Nov 18

Sample Received: 2016 Nov 23

Start Date: 2016 Dec 06  
End Date: 2016 Dec 16  
b/Sample #: B6A5291 / QC6616

Measurements						Samples Taken			
pH		Hardness (mg/L CaCO <sub>3</sub> )		Conductance (μS/cm)		Alkalinity (mg/L CaCO <sub>3</sub> )		Ammonia (mg/L)	
Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
8.1	8.3	100	176	376	549	62.3	✓63.7	1.7	✓5.1

Initial overlying WQ measurements:	
Analyst <i>mt</i>	Date <i>2016 Dec 06</i>

Final overlying WQ measurements:	
Analyst <u>SR</u>	Date <u>2016 DEC 16</u>

Day	Tuesday	Friday	Sunday	Tuesday	Friday
	Day 0	Day 3	Day 5	Day 7	Day 10
Temp. (°C)	22.8	22.3	22.3	23.2	23.1
D.O. (mg/L)	8.6	8.1	8.6	8.5	8.6
Feeding	✓	✓	✓	✓	
Analyst	mt	mt	DML	TW	SR

Replicate	A	B	C	D	E
# Surviving	10	10	10	10	10
Analyst	SR	SR	SR	SR	SR

Date	Replicate	Comments	Analyst
N/A M3 2016 Dec 29			

① WESR 2016 Dec 15

Client # &amp; Name: #4918 Maxxam Analytique

Start Date and Time: 2016 Dec 06 @ 15:37

End Date: 2016 Dec 16

Organism Lot #: AB161206

## Head Widths at Beginning of Test

Chironomid #	Head Width (mm)
1	0.390
2	0.340
3	0.320
4	0.390
5	0.550
6	0.580
7	0.450
8	0.400
9	0.370
10	0.360
11	0.440
12	0.380
13	0.360
14	0.400
15	0.390
16	0.300
17	0.430
18	0.400
19	0.450
20	0.350
Average	0.40
SD	0.07
Analyst	M.O.

Average must be 0.33-0.45 mm (Environment Canada 1998)  
1 mm=40 units on micrometer

## ECOTOXICOLOGY

Chironomus dilutus (Formerly C. tentans)  
Measurements of Head Capsule Widths

Maxxam

BBY2FCD-00247/1

Page 1 of 1

Client # &amp; Name: #4918 Maxxam Analytique

Start Date and Time: 2016 Dec 06 @ 15:37

End Date: 2016 Dec 16

Organism Lot #: AB161206

## Head Widths at Beginning of Test

Chironomid #	Head Width (mm)
1	0.39
2	0.34
3	0.32
4	0.39
5	0.55
6	0.58
7	0.45
8	0.40
9	0.37
10	0.36
11	0.44
12	0.38
13	0.36
14	0.40
15	0.39
16	0.30
17	0.43
18	0.40
19	0.45
20	0.35
Average	#DIV/0!
SD	#DIV/0!
Analyst	MM

Average must be 0.33-0.45 mm (Environment Canada 1998)

1 mm=40 units on micrometer

BATCH ID: 2016 Nov 24  
(Date Hardened)

*Chironomus dilutus* H<sub>2</sub>O Hardness Adjustment (Environment Canada 1997)  
(For water hardness 90 - 100 mg/L)

Chemical Weights	CaCl <sub>2</sub> ·2H <sub>2</sub> O	MgSO <sub>4</sub> (g)	CaSO <sub>4</sub> (g)	NaHCO <sub>3</sub> (g)	KCl (g)
Brand	Fisher	Fisher	SIGMA ALDRICH	Fisher	Fisher
Lot #	148902	1163022	MKEM 9429V	162879	149363
Calculated	3.97	1.80	3.00	5.76	0.24
Actual	3.9700	1.8007	3.0001	5.7600	0.2400

Balance ID: BA42-0260

Analyst: N. Shergill Add to Type 3 DI (L): 60

Water Use: 112356 DI Machine ID: BA42-0160

Date: 2016 Nov 24

Water Quality:

Temp: 22.7 pH: 8.1 Hardness: 96 mg/L CaCO<sub>3</sub>

Cond.: 327 DO: 8.5 Alkalinity: 119

Analyst: M. Thompson / N. Shergill Date: 2016 Nov 28

Comments:

CaCl<sub>2</sub> × 2H<sub>2</sub>O (Calcium Chloride - dihydrous)

MgSO<sub>4</sub> (Magnesium Sulphate - anhydrous)

CaSO<sub>4</sub> (g) (Calcium Sulphate- anhydrous)

NaHCO<sub>3</sub> (Sodium Bicarbonate)

KCl (Potassium Chloride)

Recipe: 0.45mM CaCl<sub>2</sub>: 0.37mM CaSO<sub>4</sub>: 0.25mM MgSO<sub>4</sub>: 1.14mM NaHCO<sub>3</sub>: 0.05mM KCl

## ECOTOXICOLOGY

ORGANISMS -  
ACCLIMATION AND HOLDING CONDITIONS

Maxxam

BBY2FCD-00070/3

Page 1 of 1

Client #'s: 4918Date & Time of Arrival: 2016 Dec 06 @ 14:20Organism Lot #: AB161206Age upon Arrival: 3<sup>rd</sup> @ 2<sup>nd</sup> instarWater (L) per Shipping Bag: ~1Organism: Chironomus dilutusNumber of Shipping Bags: @ 34# of Organisms Ordered: 550 + 55

## Arrival Conditions

Bag ID	# Dead	% Dead	Cond ( $\mu$ S/cm)/ Salinity (ppt)	Temp (°C)	DO (mg/L)	pH	Feeding	Analyst
#1	1	0.0017%	494	20.6	22.0	7.1	n/a	mt
#2	0	0	501	20.6	13.8	7.0	n/a	mt
#3	1	0.0017%	501	20.0	22.0	7.1	n/a	mt
#4	0	0	499	20.3	21.4	7.1	n/a	mt
<del>mt 2017 Jan 03</del>								

## Daily Conditions During Holding/Acclimation

Daily Conditions During Rearing/Acclimation								
	Mortalities		Cond ( $\mu$ S/cm)/ Salinity (ppt)	Water Quality				
Date	# Dead	% Dead		Temp (°C)	DO (mg/L)	pH	Feeding	Analyst
<del>mt 2016 Dec 06</del>								
Total Mortalities	2	0.00336	0.33					

Total Mortalities 2 ~~0.0033%~~ 0.33

Comments (e.g. feeding times and quantities; fish behaviour, acclimation conditions):

Analyst

2016 Dec 06 - Used upon arrival (Chironomids appear healthy) mtn/a MB 2016 Dec 29@ WE mt 2016 Dec 06 @ WE mt 2017 Jan 06 % Dead = 0.17% @ WE LE mt 2017 Jan 06

1300 Blue Spruce Drive, Suite C  
Fort Collins, Colorado 80524



AB161206

Toll Free: 800/331-5916  
Tel: 970/484-5091 Fax: 970/484-2514

Rec'd 2016 Dec 06  
@ 14:20  
MT

### ORGANISM HISTORY

DATE: 12/5/2016

SPECIES: *Chironomus dilutus* (formerly *C. tentans*)

AGE: Deposited 11/24/2016

LIFE STAGE: Second Instar 12/5/2016

HATCH DATE: Emergent date 12/18/2016

BEGAN FEEDING: Immediately

FOOD: *Raphidocelis subcapitata*\*, Flake slurry

### Water Chemistry Record:

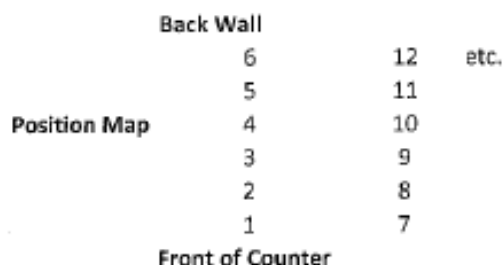
	Current	Range
TEMPERATURE:	<u>24°C</u>	<u>21-25°C</u>
SALINITY/CONDUCTIVITY:	<u>--</u>	<u>--</u>
TOTAL HARDNESS (as CaCO <sub>3</sub> ):	<u>148 mg/l</u>	<u>100-182 mg/l</u>
TOTAL ALKALINITY (as CaCO <sub>3</sub> ):	<u>100 mg/l</u>	<u>50-100 mg/l</u>
pH:	<u>8.21</u>	<u>7.65-8.21</u>

Comments: \* Formerly known as *Pseudokirchneriella subcapitata* and *Selenastrum capricornutum*

  
\_\_\_\_\_  
Facility Supervisor

Maxxam

# Randomization Chart for Chironomid Tests



Client: 4918

Date: 2016 Nov 29

Position #	Colour	Treatment	Replicate
2	Red	Control	A
8	Red	Control	B
23	Red	Control	C
10	Red	Control	D
16	Red	Control	E
11	Red	Control	Measure
3	Fl. Green	SED-23-1	A
21	Fl. Green		B
17	Fl. Green		C
9	Fl. Green		D
4	Fl. Green		E
15	Fl. Green		Measure
13	Purple	SED-01-7BIS	A
24	Purple		B
6	Purple		C
14	Purple		D
12	Purple		E
1	Purple		Measure
20	Teal Green	SED-12-1	A
22	Teal Green		B
18	Teal Green		C
7	Teal Green		D
19	Teal Green		E
5	Teal Green		Measure

Maxxam Job #: 86A9329  
Report Date: 2016/12/08

Maxxam Analytics (TOX Internal)  
Client Project #: ECOTOX

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QF1414		QF1415	QF1416	QF1417	
Sampling Date		2016/12/06 09:50		2016/12/06 09:50	2016/12/06 09:50	2016/12/06 09:50	
COC Number		G119950		G119950	G119950	G119950	
	UNITS	CONTROL OVERLY DAY 0 CH	RDL	SED-07-7BIS OVERLY DAY 0 CH	SED-23-1 OVERLY DAY 0 CH	SED-12-1 OVERLY DAY 0 CH	RDL
<b>Misc. Inorganics</b>							
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	56.5	0.50	79.5	66.8	62.3	0.50
Alkalinity (PP as CaCO <sub>3</sub> )	mg/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50
Bicarbonate (HCO <sub>3</sub> )	mg/L	69.0	0.50	96.9	81.5	76.0	0.50
Carbonate (CO <sub>3</sub> )	mg/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50
<b>Nutrients</b>							
Total Ammonia (N)	mg/L	0.063	0.0050	1.6 (1)	2.4 (1)	1.7 (1)	0.050
RDL = Reportable Detection Limit							
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.							



Maxxam Job #: 8682472  
Report Date: 2016/12/20

Maxxam Analytics (TOX Internal)  
Client Project #: 2-11-16041  
Site Location: ECOTOX  
Sampler Initials: SR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QG8295	QG8296	QG8297	QG8298	
Sampling Date		2016/12/16	2016/12/16	2016/12/16	2016/12/16	
COC Number		G120128	G120128	G120128	G120128	
	UNITS	CONTROL OVERLY DAY 10 CH	SED-23-1 OVERLY DAY 10 CH	SED-12-1 OVERLY DAY 10 CH	SED-07-7BIS OVERLY DAY 10 CH	RDL
<b>Misc. Inorganics</b>						
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	109	99.4	93.7	120	0.50
Alkalinity (PP as CaCO <sub>3</sub> )	mg/L	<0.50	<0.50	<0.50	<0.50	0.50
Bicarbonate (HCO <sub>3</sub> )	mg/L	133	121	114	146	0.50
Carbonate (CO <sub>3</sub> )	mg/L	<0.50	<0.50	<0.50	<0.50	0.50
Hydroxide (OH)	mg/L	<0.50	<0.50	<0.50	<0.50	0.50
<b>Nutrients</b>						
Total Ammonia (N)	mg/L	7.4 (1)	9.2 (1)	7.1 (1)	7.9 (1)	0.050
RDL = Reportable Detection Limit						
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.						

## APPENDIX

### C 14-DAY HYALELLA AZTECA GROWTH AND SURVIVAL TEST

# CETIS Analytical Report

Report Date: 29 Dec-16 11:33 (p 1 of 1)  
Test Code: HA-4916-0216 | 03-8886-2893

## Hyalella 14-d Survival and Growth Sediment Test

Maxxam Analytics

Analysis ID: 15-9989-2991	Endpoint: Survival Rate	CETIS Version: CETISv1.9.2
Analyzed: 29 Dec-16 11:33	Analysis: STP 2xK Contingency Tables	Official Results: Yes
Batch ID: 15-8508-8751	Test Type: Survival-Growth	Analyst:
Start Date: 01 Dec-16 16:55	Protocol: EC/EPS 1/RM/33	Diluent: Reconstituted Water
Ending Date: 15 Dec-16	Species: Hyalella azteca	Brine: Not Applicable
Duration: 13d 7h	Source: Aquatic Biosystems, CO	Age:

## Fisher Exact/Bonferroni-Holm Test

Sample I	vs	Sample II	Test Stat	P-Type	P-Value	Decision( $\alpha$ :5%)
Control		SED-23-1	0.5000	Exact	1.0000	Non-Significant Effect
		SED-07-7BIS	1.0000	Exact	1.0000	Non-Significant Effect
		SED-12-1	0.5000	Exact	1.0000	Non-Significant Effect

## Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :5%)
Extreme Value	Grubbs Extreme Value Test	1.918	2.708	0.9135	No Outliers Detected

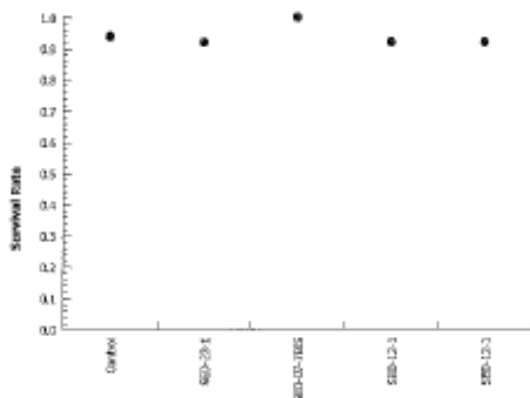
## Data Summary

Sample	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
Control		47	3	50	0.94	0.06	0.0%
SED-23-1		46	4	50	0.92	0.08	2.13%
SED-07-7BIS		52	0	52	1	0	-8.38%
SED-12-1		46	4	50	0.92	0.08	2.13%

## Survival Rate Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control		0.9000	1.0000	0.9000	0.9000	1.0000
SED-23-1		1.0000	0.9000	0.9000	1.0000	0.9000
SED-07-7BIS		1.0000	1.0000	1.0000	1.0000	1.0000
SED-12-1		0.9000	1.0000	0.9000	1.0000	0.9000

## Graphics



# CETIS Analytical Report

Report Date: 29 Dec-16 11:33 (p 1 of 2)  
Test Code: HA-4918-0216 | 03-8868-2893

## Hyalella 14-d Survival and Growth Sediment Test

Maxxam Analytics

Analysis ID:	18-1125-3787	Endpoint:	Mean Dry Weight-mg	CETIS Version:	CETISv1.9.2
Analyzed:	29 Dec-16 11:33	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes
Batch ID:	15-6508-8751	Test Type:	Survival-Growth	Analyst:	
Start Date:	01 Dec-16 16:55	Protocol:	EC/EPS 1/RM/33	Diluent:	Reconstituted Water
Ending Date:	15 Dec-16	Species:	Hyalella azteca	Brine:	Not Applicable
Duration:	13d 7h	Source:	Aquatic Biosystems, CO	Age:	

Data Transform	Alt Hyp	Comparison Result	PMSD
Untransformed	C > T	SED-23-1 passed mean dry weight-mg	30.90%
		SED-07-7BIS passed mean dry weight-mg	30.90%
		SED-12-1 passed mean dry weight-mg	30.90%

## Dunnnett Multiple Comparison Test

Sample I	vs	Sample II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Control		SED-23-1	-0.1923	2.227	3E-05	8	CDF	0.8135	Non-Significant Effect
		SED-07-7BIS	-0.6822	2.227	3E-05	8	CDF	0.9242	Non-Significant Effect
		SED-12-1	-1.595	2.227	3E-05	8	CDF	0.8912	Non-Significant Effect

## Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	2.35	2.708	0.2285	No Outliers Detected

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.684E-09	5.613E-10	3	1.014	0.4124	Non-Significant Effect
Error	8.857E-09	5.536E-10	16			
Total	1.054E-08		19			

## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance Test	6.683	11.34	0.0827	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9548	0.866	0.4453	Normal Distribution

## Mean Dry Weight-mg Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
Control		5	0.0001073	6.571E-05	0.0001488	8.889E-05	8.222E-05	0.000158	1.497E-05	31.20%	0.00%
SED-23-1		5	0.0001101	9.639E-05	0.0001239	0.000115	0.000098	0.0001222	4.946E-06	10.04%	-2.67%
SED-07-7BIS		5	0.0001174	8.136E-05	0.0001535	0.000133	0.000067	0.0001355	1.298E-05	24.73%	-9.48%
SED-12-1		5	0.000131	0.0001169	0.0001451	0.000135	0.0001122	0.00014	5.068E-06	8.66%	-22.12%

## Mean Dry Weight-mg Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control		8.222E-05	0.000158	8.889E-05	8.222E-05	0.000125
SED-23-1		0.000115	0.0001167	0.0001222	0.000098	9.875E-05
SED-07-7BIS		0.0001338	0.000067	0.000118	0.0001355	0.000133
SED-12-1		0.0001387	0.000135	0.0001122	0.000129	0.00014

# CETIS Analytical Report

Report Date: 29 Dec-16 11:33 (p 2 of 2)  
Test Code: HA-4918-0216 | 03-8868-2893

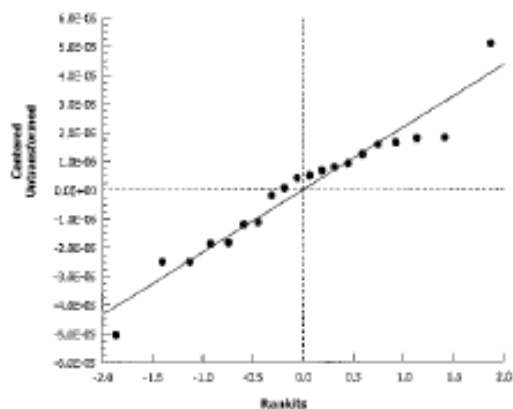
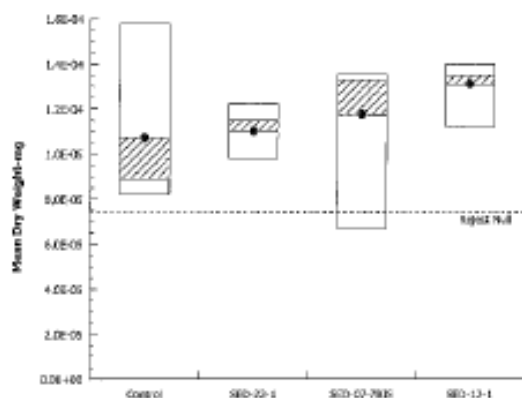
Hyalella 14-d Survival and Growth Sediment Test

Maxxim Analytics

Analysis ID: 18-1125-3787  
Analyzed: 29 Dec-16 11:33  
Endpoint: Mean Dry Weight-mg  
Analysis: Parametric-Control vs Treatments

CETIS Version: CETISv1.9.2  
Official Results: Yes

## Graphics



2016  
Dec 29  
DM

2017  
Jan 03  
NB

Client # &amp; Name: 4918 Maxxam Analytique

Start Date and Time: 2016 Dec 01 @ 16:55

Sample Date: 2016 Nov 18

End Date: 2016 Dec 15

Job # B6A5291

Stats File ID: AA-4918-0216

Organism Lot #: AB161130HA

Analysts: N.Blassnitz, M.Thompson, M.O'Toole

Sample	Rep	Initial # Hyalella	Final # Hyalella	% Survived	Survival	
					Mean %	SD %
Control	A	10	9	90	94	5.48
	B	10	10	100		
	C	10	9	90		
	D	10	9	90		
	E	10	10	100		
SED-23-1	A	10	10	100	92	8.37
	B	10	9	90		
	C	10	9	90		
	D	10	10	100		
	E	10	8	80		
SED-07-7BIS	A	11	11	100	100	0.00
	B	10	10	100		
	C	10	10	100		
	D	11	11	100		
	E	10	10	100		
SED-12-1	A	10	8	80	92	8.37
	B	10	10	100		
	C	10	9	90		
	D	10	10	100		
	E	10	9	90		

Prosted  
DML  
2016  
2017 Jan 04

Client # &amp; Name: 4918 Maxxam Analytique

Start Date and Time: 2016 Dec 01 @16:55

Job/Sample #: B6A5291/ various

End Date: 2016 Dec 15

Organism Lot #: AB161130HA

Drying Temperature (°C): 60

Weighing Dates: 2016 Dec 21

Drying Time (h): &gt;24h

Analysts: N.Blassnitz

Stats File ID: HA-4918-0216

Boat #	Sample	Rep	# <i>Hyalella</i>	<i>Hyalella</i> Wt.(g)	<i>Hyalella</i> Wt. (mg)	Mean Wt./ <i>Hyalella</i> (mg)	Mean Wt./Sample (mg)	SD
654	Control	A	9	0.00074	0.74	0.08	0.11	0.03
655		B	10	0.00158	1.58	0.16		
656		C	9	0.00080	0.80	0.09		
657		D	9	0.00074	0.74	0.08		
658		E	10	0.00125	1.25	0.13		
659	SED-23-1	A	10	0.00115	1.15	0.12	0.11	0.01
660		B	9	0.00105	1.05	0.12		
661		C	9	0.00110	1.10	0.12		
662		D	10	0.00098	0.98	0.10		
663		E	8	0.00079	0.79	0.10		
664	SED-07-7BIS	A	11	0.00147	1.47	0.13	0.12	0.03
665		B	10	0.00067	0.67	0.07		
666		C	10	0.00118	1.18	0.12		
667		D	11	0.00149	1.49	0.14		
668		E	10	0.00133	1.33	0.13		
669	SED-12-1	A	8	0.00111	1.11	0.14	0.13	0.01
670		B	10	0.00135	1.35	0.14		
671		C	9	0.00101	1.01	0.11		
672		D	10	0.00129	1.29	0.13		
673		E	9	0.00126	1.26	0.14		
665		QA/QC	10	0.00068	0.68	0.07	-	-
654		O - A	9	0.00075	0.75	0.08	-	-
Analyst:			NB					

The average dry weight for the replicate controls must be  $\geq 0.1$  mg, for the test to be valid.

Notes:

## ECOTOXICOLOGY

## HYALELLA AZTECA SURVIVAL AND GROWTH TEST - TEST INFORMATION

Page 1 of 1

Client # & Name: #4918 Maxxam Analytique  
Project Number: 2-11-0591 16041 @  
Test Initiation Date & Time: 2016 Dec 01 @ 16:55  
Test Completion Date: 2016 Dec 15  
Room #: 103  
Statistics File #: HA-4918-0216  
Analyst(s): T. Wollers, M. Thompson, W. Bassil, M. O'Toole  
DLar, M. Grossitz  
Control Water Batch: 2016 Nov 24  
Control Sediment: Yaquina Bay Beach Sand  
Organism Lot: AB 161130 Ha  
Age at Start of Test: 7-9 days  
Feeding Regime: 1.75mL YCT & 800µL Tetramin slurry (4g/L) per replicate 3x weekly  
YCT Batch Number: 2016 Nov 29, 2016 Dec 06  
Tetramin Preparation Date: 2016 Nov 30, 2016 Dec 07  
Equipment IDs: BBY2-0408,  
Job #: B6A5291  
List of Sample ID/#: QC6614/SED-23-1(DI2098)  
QC6615/SED-07-7BIS(DI2157)  
QC6616/SED-12-1(DI2158)

All AB 2016 Dec 29

Additional Comments: @ WE mt 2016 Dec 09



## ECOTOXICOLOGY

## HYALELLA AZTECA SURVIVAL AND GROWTH TEST - AERATION CHECKS

Page 1 of 1

Client # & Name: 4918, Maxxam Analytique Start Date: 2016 Dec 01 @ 16:55

Initial when aeration is checked. If air is off record DO and note which replicate(s) in comments section.

	Day -1	Day 0	1	2	3	4	5	6
Date	2016 Nov 30	2016 Dec 01	<del>2016 Dec 02</del>	2016 Dec 03	2016 Dec 04	2016 Dec 05	2016 Dec 06	2016 Dec 07
Early AM	N/A	TW	<del>SR</del>	MT	UB	SR	MO	MT
Mid-day	N/A	TW	<del>2016 Dec 29</del>	MT	UB	MT	MO	MT
Late PM	TW	TW	<del>2016 Dec 29</del>	MT	UB	MT	MO	MT

	Day 7	8	9	10	11	12	13	14
Date	2016 Dec 08	2016 Dec 09	2016 Dec 10	2016 Dec 11	2016 Dec 12	2016 Dec 13	2016 Dec 14	2016 Dec 15
Early AM	MT	MT	MO	UB	TW	TW	TW	NB
Mid-day	MT	MT	<del>y</del>	UB	TW	TW	TW	N/A
Late PM	MT	MT	MO	OMC	TW	TW	TW	N/A

## Comments:

Aeration started @ 13:10 on 2016 Nov 30 TW

Ⓐ L.E. SR aeration check was done in early 2016  
A.m but forgot to record - SR 2017 Jan 04

N/A NB 2016 Dec 29

ECOTOXICOLOGY

BBY2FCD-00143/4

HYALELLA AZTECA SURVIVAL AND GROWTH TEST - DATA SHEET

Page 1: Sample

Sample ID: Control

Start Date: December 1, 2016

Job #/Sample #: N/A

End Date: December 15, 2016

Measurements						Samples Taken			
pH		Hardness (mg/L CaCO <sub>3</sub> )		Conductance (µS/cm)		Alkalinity (mg/L CaCO <sub>3</sub> )		Ammonia (mg/L)	
Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
8.1	8.3	120	128	392	512	154	107 ✓	10.6	5.8 ✓

Initial overlying WQ measurements:

Analyst T. Wollers

Date 2016 Dec 01

Final overlying WQ measurements:

Analyst NB

Date 2016 Dec 15

Day	Thursday Day 0	Sunday Day 3	Tuesday Day 5	Thursday Day 7	Sunday Day 10	Tuesday Day 12	Thursday Day 14
Temp. (°C)	22.2	22.9	23.2	23.1	22.7	23.7	23.5
D.O. (mg/L)	8.7	8.3	8.4	8.4	8.6	8.4	8.5
Subsampled for ammonia (✓)	✓						✓
Feeding	✓	✓	✓	✓	✓	✓	N/A
Analyst	TW	NB	mo	mt	DML	TW	NB

Replicate	A	B	C	D	E
# Surviving	9	10	9	9	10
Analyst	mt	mt	mt	mt	NB

Date	Replicate	Comments	Analyst
N/A NB 2016 Dec 29			

## HYALELLA AZTECA SURVIVAL AND GROWTH TEST - DATA SHEET

End Date: December 15, 2016

## ECOTOXICOLOGY

## HYALELLA AZTECA SURVIVAL AND GROWTH TEST - DATA SHEET

Sample ID: SED - 07Start Date: December 1, 2016Job #/Sample #: B6ASS91/QC665End Date: December 15, 2016

Measurements						Samples Taken			
pH		Hardness (mg/L CaCO <sub>3</sub> )		Conductance (μS/cm)		Alkalinity (mg/L CaCO <sub>3</sub> )		Ammonia (mg/L)	
Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
8.1	8.5	168	260	492	727	✓ 193	154 ✓	✓ 1.7	68 ✓

Initial overlying WQ measurements:

Analyst T. Wollert Date 2016 Dec 01

Final overlying WQ measurements:

Analyst NB Date 2016 Dec 15

Day	Thursday Day 0	Sunday Day 3	Tuesday Day 5	Thursday Day 7	Sunday Day 10	Tuesday Day 12	Thursday Day 14
Temp. (°C)	22.2	23.0	23.2	23.1	22.5	23.7	23.6
D.O. (mg/L)	8.5	8.3	8.3	8.3	8.3	8.4	8.4
Subsampled for ammonia (✓)	✓						✓
Feeding	✓	✓	✓	✓	✓	✓	n/a
Analyst	TW	NB	mo	mt	DMC	TW	NB

Replicate	A	B	C	D	E
# Surviving	11	10	10	11	10
Analyst	NB	NB	NB	NB	NB

Date	Replicate	Comments	Analyst
n/a NB 2016 Dec 29			

ECOTOXICOLOGY

HYALELLA AZTECA SURVIVAL AND GROWTH TEST - DATA SHEET

Sample ID: SED-12

Start Date: December 1, 2016

Job #/Sample #: B6A5291/QC6616

End Date: December 15, 2016

Measurements						Samples Taken			
pH		Hardness (mg/L CaCO <sub>3</sub> )		Conductance (μS/cm)		Alkalinity (mg/L CaCO <sub>3</sub> )		Ammonia (mg/L)	
Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
8.0	8.4	140	212	434	626	✓ 59.6	130 ✓	✓ 4.7	60 ✓

Initial overlying WQ measurements:	
Analyst <u>T. Wollido</u>	Date <u>2016 Dec 01</u>

Final overlying WQ measurements:	
Analyst <u>NB</u>	Date <u>2016 Dec 15</u>

Day	Thursday Day 0	Sunday Day 3	Tuesday Day 5	Thursday Day 7	Sunday Day 10	Tuesday Day 12	Thursday Day 14
Temp. (°C)	22.1	23.0	23.1	23.1	22.9	23.8	23.6
D.O. (mg/L)	8.5	8.3	8.2	8.3	8.2	8.3	8.3
Subsampled for ammonia (V)	✓						✓
Feeding	✓	✓	✓	✓	✓	✓	n/a
Analyst	TW	NB	mo	mt	Dmc	TW	NB

Replicate	A	B	C	D	E
# Surviving	8	10	9	10	9
Analyst	mt	NB	NB	mt	mt

Date	Replicate	Comments	Analyst
n/a NB 2016 Dec 29			

# Maxxam

## Randomization Chart for Hyalella

	Back Wall		
	6	12	etc.
	5	11	
Position Map	4	10	
	3	9	
	2	8	
	1	7	
	Front of Counter		

Client: #4918 Date: 2016 Dec 01

Position #	Colour	Treatment	Replicate
10	Red	Control	A
22	Red		B
12	Red		C
6	Red		D
3	Red		E
1	Red		Measure
7	Fl. Green	SED-23-1	A
13	Fl. Green		B
21	Fl. Green		C
18	Fl. Green		D
5	Fl. Green		E
4	Fl. Green		Measure
19	Purple	SED-07-7BIS	A
11	Purple		B
14	Purple		C
23	Purple		D
17	Purple		E
16	Purple		Measure
8	Teal Green	SED-12-1	A
9	Teal Green		B
24	Teal Green		C
2	Teal Green		D
20	Teal Green		E
15	Teal Green		Measure

BATCH ID : 2016 Nov 24  
(Date Hardened)

**SAM-5S Reconstituted Water Recipe for *Hyaella azteca***  
**as per Borgmann 1996 (For water hardness ~125 mg/L)**

Chemical Weights	CaCl <sub>2</sub> ·2H <sub>2</sub> O	MgSO <sub>4</sub> (g)	NaBr (g)	NaHCO <sub>3</sub> (g)	KCl (g)
Brand	Fisher	Fisher	Fisher	Fisher	Fisher
Lot #	148902	163022	124514 Fisher @	162809	149363
Calculated	8.82	1.81	0.06	5.04	0.22
Actual	8.8203	1.8103	0.0600	5.0400	0.2200

Balance ID: GBN2-0260 @ 2016 Nov 24

Analyst: N. Shergill Add to Type 3 DI (L): 60

Water Use: 12356 DI Machine ID: GBN2-0160

Date: 2016 Nov 24

**Water Quality:**

Temp (°C): 22.6      pH: 8.3      Hardness (mg/L): 136

Cond (µS/cm): 404      DO (mg/L): 8.7      Alkalinity (mg/L): N/A

Analyst: T. W. O'Neil      Date: 2016 Nov 30

Comments:

NaHCO<sub>3</sub> (Sodium Bicarbonate)

NaBr (Sodium Bromide)

CaCl<sub>2</sub> × 2H<sub>2</sub>O (Calcium Chloride - dihydrous)

MgSO<sub>4</sub> (Magnesium Sulfate - anhydrous)

KCl (Potassium Chloride)

SAM-5S Recipe = 1 mM CaCl<sub>2</sub>, 1 mM NaHCO<sub>3</sub>, 0.01 mM NaBr, 0.05 mM KCl, and 0.25 mM MgSO<sub>4</sub>

Borgmann, U. 1996. Systematic analysis of aqueous ion requirements of *Hyaella azteca*: A standard artificial medium including the essential bromide ion. *Archives of Environmental Contamination and Toxicology*. 30: 356-363.

## ECOTOXICOLOGY

ORGANISMS -  
ACCLIMATION AND HOLDING CONDITIONS

Maxxam

BBY2FCD-00070/3

Page 1 of 1

Client #'s: 4918, 4288, 1235 Date & Time of Arrival: 2016 Nov 30Organism Lot #: AB161130 HA Age upon Arrival: 6-8 days WE LE mt 2017 Jan 04Water (L) per Shipping Bag: 1 Organism: HyalellaNumber of Shipping Bags: 3 # of Organisms Ordered: 1110

## Arrival Conditions

Bag ID	# Dead	% Dead	Cond (µS/cm)/ Salinity (ppt)	Temp (°C)	DO (mg/L)	pH	Feeding	Analyst
A	0	0	1614	22.5	7.4	7.4	5x5	DM
B	0	0	1578	21.9	7.7	7.4	5x5	DM
C	0	0	1549	21.7	7.7	7.5	5x5	DM
KT 2016 Dec 13								

## Daily Conditions During Holding/Acclimation

Date	Mortalities		Water Quality					
	# Dead	% Dead	Cond (µS/cm)/ Salinity (ppt)	Temp (°C)	DO (mg/L)	pH	Feeding	Analyst
2016 Dec 01 (A, B, C)	0	0	1436	21.8	8.3	7.8	✓	TW/MT
2016 Dec 01 (A, B, C)	0	0	1394	21.8	8.3	7.8	✓	TW/MT
2016 Dec 02 A	0	0	1045	21.5	8.4	7.9		MO
2016 Dec 02 B	0	0	1124	21.2	8.3	7.9		MO
KT 2016 Dec 13								
Total Mortalities	0	0						

Comments (e.g. feeding times and quantities; fish behaviour, acclimation conditions):

Analyst

2016 Nov 30: Received Hyalella. Did initial wt on each container.  
 pooled A+B into one dish and fed with YCT + 10mc  
 TetraMin. placed container C into separate container +  
 fed 5ml YCT + 5mc TetraMin. Topped each container with  
 control water. DM

2016 Dec 01 - Conducted a 50% water change, topped up with Hyalella water (batch  
 2016 Nov 29) and fed each pan 5 mL YCT (batch 2016 Nov 29) and 5 mL of 4 g/L  
 TetraMin slurry (batch 2016 Nov 30). MT  
 (A) WETW 2016 Dec 01 MT



1300 Blue Spruce Drive, Suite C  
Fort Collins, Colorado 80524



rec'd  
2016 Nov 30

Toll Free: 800/331-5916  
Tel: 970/484-5091 Fax: 970/484-2514

### ORGANISM HISTORY

DATE: 11/29/2016

SPECIES: *Hyalophylla azteca*

AGE: 5-7 day

LIFE STAGE: Juvenile

HATCH DATE: Variable

BEGAN FEEDING: Immediately

FOOD: Flake slurry

### Water Chemistry Record:

	Current	Range
TEMPERATURE:	<u>25°C</u>	<u>23-26°C</u>
SALINITY/CONDUCTIVITY:	<u>--</u>	<u>--</u>
TOTAL HARDNESS (as CaCO <sub>3</sub> ):	<u>184 mg/l</u>	<u>100-200 mg/l</u>
TOTAL ALKALINITY (as CaCO <sub>3</sub> ):	<u>80 mg/l</u>	<u>50-95 mg/l</u>
pH:	<u>7.78</u>	<u>7.27-8.20</u>

Comments:

  
\_\_\_\_\_  
Facility Supervisor

Aquatic BioSystems, Inc • Quality Research Organisms

Maxxam Job #: B6A8072  
Report Date: 2016/12/06

Maxxam Analytics (TOX Internal)  
Client Project #: 2-11-0691  
Site Location: ECOTOX  
Sampler Initials: TW

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QE2655		QE2656	QE2657	QE2658	
Sampling Date		2016/12/01		2016/12/01	2016/12/01	2016/12/01	
COC Number		G119933		G119933	G119933	G119933	
	UNITS	CONTROL OVERLY DAY 0 HY	RDL	SED-23-1	SED-07-7BIS	SED-12-1	RDL
<b>Misc. Inorganics</b>							
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	54.4	0.50	65.6	79.3	59.6	0.50
Alkalinity (PP as CaCO <sub>3</sub> )	mg/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50
Bicarbonate (HCO <sub>3</sub> )	mg/L	66.3	0.50	80.0	96.8	72.7	0.50
Carbonate (CO <sub>3</sub> )	mg/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50
<b>Nutrients</b>							
Total Ammonia (N)	mg/L	0.61	0.0050	2.6 (1)	1.7 (1)	1.7 (1)	0.050
RDL = Reportable Detection Limit							
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.							

Maxxam Job #: 8682072  
Report Date: 2016/12/20

Maxxam Analytics (TOX Internal)  
Client Project #: 2-11-16041  
Site Location: ECOTOX  
Sampler Initials: NB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QG6408	QG6409	QG6410	QG6411	
Sampling Date		2016/12/15 09:15	2016/12/15 09:15	2016/12/15 09:15	2016/12/15 09:15	
COC Number		G120126	G120126	G120126	G120126	
	UNITS	CONTROL OVERLY DAY 14 HY	SED-23-1 OVERLY DAY 14 HY	SED-07-7BIS OVERLY DAY 14 HY	SED-12-1 OVERLY DAY 14 HY	RDL
<b>Misc. Inorganics</b>						
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	107	164	154	130	0.50
Alkalinity (PP as CaCO <sub>3</sub> )	mg/L	<0.50	<0.50	<0.50	<0.50	0.50
Bicarbonate (HCO <sub>3</sub> )	mg/L	130	200	188	158	0.50
Carbonate (CO <sub>3</sub> )	mg/L	<0.50	<0.50	<0.50	<0.50	0.50
Hydroxide (OH)	mg/L	<0.50	<0.50	<0.50	<0.50	0.50
<b>Nutrients</b>						
Total Ammonia (N)	mg/L	5.8 (1)	8.1 (1)	6.8 (1)	6.0 (1)	0.050
RDL = Reportable Detection Limit						
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.						

DRET

Your P.O. #: 24541  
Your project #: DMO  
Your waybill #: N/A

Attention: Bruno Vallée  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2017/01/04  
Report #: R2235609  
Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B683874  
Received: 2016/11/29, 8:47 AM

Matrix: WATER  
Samples received: 10

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Reference</b>
Suspended Solids*	6	2016/12/09	2016/12/09	STL SOP-00015	MA104 – S.S. 2.0 m
Dissolved Metals by ICP-MS*	4	N/A	2016/12/09	STL SOP-00006	MA200-Mét 1.2 R5 m
Total extractable metals by ICP*	6	2016/12/09	2016/12/09	STL SOP-00006	MA200-Mét 1.2 R5 m
Total extractable metals (low limit)*	6	2016/12/09	2016/12/09	STL SOP-00006	MA200-Mét 1.2 R5 m
Dissolved metals by ICP-MS (low limit)*	4	N/A	2016/12/09	STL SOP-00006	MA200-Mét 1.2 R5 m
Polycyclic aromatic hydrocarbons*	10	2016/12/09	2016/12/09	STL SOP-00177	MA400-HAP 1.1 R5 m
Total PCBs*	10	2016/12/09	2016/12/09	STL SOP-00132	MA400-BPC 1.0 R5 m
Dioxins & Furans per CGSM HR*	2	2016/12/19	2016/12/20	STL SOP-00249	MA400-D.F. 1.1 R1 m
Dioxins & Furans per CGSM HR*	3	2016/12/22	2017/01/04	STL SOP-00249	MA400-D.F. 1.1 R1 m

#### **Notes:**

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.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

Note: RPDs calculated using raw data (% of relative variation). The rounding of final results may result in the apparent difference.

Your P.O. #: 24541  
Your project #: DRET  
Your waybill #: N/A

Attention: Bruno Vallée  
Englobe Corp.  
Division of Englobe Corp.  
1453 St-Timothée  
Montreal, QC  
Canada H2L 3N7

Report Date: 2017/01/04  
Report #: R2235609  
Version: 1 – Final

### **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: B683874  
Received: 2016/11/29, 8:47 AM

\* Maxxam is accredited for this analysis under the MDDELCC program.

Encryption key

Please direct all questions regarding this Certificate of Analysis to your Project Manager  
Rodrigo Caffarengo,  
E-mail: [RCaffarengo@maxxam.ca](mailto:RCaffarengo@maxxam.ca)  
Telephone: 514-448-9001 Ext: 6336

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

Maxxam Job #: B683874  
Report Date: 2017/01/04

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### PAH BY GCMS (WATER)

Maxxam Job				DJ3792		DJ3799		DK0741			
Sampling date				2016/11/29		2016/11/29		2016/11/29			
Waybill #				N/A		N/A		N/A			
	Units	A	B	CAR-08-1 / TOTAL	CR	CAR-08-1 / DISSOLVED	CR	CAR-10-2 / TOTAL	CR	RDL	QC batch
<b>PAHs</b>											
Acenaphthene	ug/L	-	100	0.03	<B	0.03	<B	<0.03		0.03	1704253
Anthracene	ug/L	-	-	<0.03		<0.03		0.05		0.03	1704253
Benzo(a)anthracene	ug/L	-	-	0.17		0.07		0.23		0.03	1704253
Benzo(b)fluoranthene	ug/L	-	-	0.22		0.06		0.33		0.06	1704253
Benzo(j)fluoranthene	ug/L	-	-	0.07		0.06		0.10		0.06	1704253
Benzo(k)fluoranthene	ug/L	-	-	0.08		0.06		0.13		0.06	1704253
Benzo(a)pyrene	ug/L	0.01	-	0.14	>A	0.025	>A	0.20	>A	0.008	1704253
Chrysene	ug/L	-	-	0.28		0.11		0.51		0.03	1704253
Dibenzo(a,h)anthracene	ug/L	-	-	<0.03		<0.03		<0.03		0.03	1704253
Fluoranthene	ug/L	-	14	0.38	<B	0.27	<B	0.38	<B	0.03	1704253
Fluorene	ug/L	-	110	<0.03		<0.03		<0.03		0.03	1704253
Ideno(1,2,3-cd)pyrene	ug/L	-	-	0.10		<0.03		0.11		0.03	1704253
Naphthalene	ug/L	100	100	0.03	<A	<0.03		<0.03		0.03	1704253
Phenanthrene	ug/L	-	4.7	0.06	<B	0.05	<B	0.15	<B	0.03	1704253
Pyrene	ug/L	-	-	0.31		0.23		0.29		0.03	1704253
Total PAHs (RES)	ug/L	-	1.8	1.1	<B	0.20	<B	1.6	<B	0.06	1704253
<b>Surrogate Recovery (%)</b>											
D10-Anthracene	%	-	-	80		82		80			1704253
D12-Benzo(a)pyrene	%	-	-	92		92		92			1704253
D14-Terphenyl	%	-	-	81		80		82			1704253
D8-Acenaphthylene	%	-	-	76		75		77			1704253
D8-Naphtalene	%	-	-	83		80		84			1704253
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job #: B683874  
Report Date: 2017/01/04

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### PAH BY GCMS (WATER)

Maxxam Job				DK0742		DK0743		DK0745			
Sampling date				2016/11/29		2016/11/29		2016/11/29			
Waybill #				N/A		N/A		N/A			
	Units	A	B	AR-10-2 / DISSOLVED	CR	10-2 DUP / TOTAL	CR	D-05-01 / TOTAL	CR	RDL	QC batch
<b>PAHs</b>											
Acenaphthene	ug/L	-	100	<0.03		<0.03		<0.03		0.03	1704253
Anthracene	ug/L	-	-	<0.03		0.05		<0.03		0.03	1704253
Benzo(a)anthracene	ug/L	-	-	0.08		0.32		<0.03		0.03	1704253
Benzo(b)fluoranthene	ug/L	-	-	0.06		0.50		0.06		0.06	1704253
Benzo(j)fluoranthene	ug/L	-	-	0.06		0.14		0.06		0.06	1704253
Benzo(k)fluoranthene	ug/L	-	-	0.06		0.15		0.06		0.06	1704253
Benzo(a)pyrene	ug/L	0.01	-	0.025	>A	0.29	>A	<0.008		0.008	1704253
Chrysene	ug/L	-	-	0.15		0.68		<0.03		0.03	1704253
Dibenzo(a,h)anthracene	ug/L	-	-	<0.03		0.04		<0.03		0.03	1704253
Fluoranthene	ug/L	-	14	0.25	<B	0.48	<B	<0.03		0.03	1704253
Fluorene	ug/L	-	110	<0.03		<0.03		<0.03		0.03	1704253
Ideno(1,2,3-cd)pyrene	ug/L	-	-	<0.03		0.16		<0.03		0.03	1704253
Naphthalene	ug/L	100	100	<0.03		<0.03		<0.03		0.03	1704253
Phenanthrene	ug/L	-	4.7	0.10	<B	0.18	<B	<0.03		0.03	1704253
Pyrene	ug/L	-	-	0.20		0.37		<0.03		0.03	1704253
Total PAHs (RES)	ug/L	-	1.8	0.31	<B	2.2	>B	0.06		0.06	1704253
<b>Surrogate Recovery (%)</b>											
D10-Anthracene	%	-	-	83		75		80			1704253
D12-Benzo(a)pyrene	%	-	-	93		90		92			1704253
D14-Terphenyl	%	-	-	79		79		80			1704253
D8-Acenaphthylene	%	-	-	78		74		77			1704253
D8-Naphtalene	%	-	-	82		79		81			1704253
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											



Maxxam Job #: B683874  
Report Date: 2017/01/04

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### PAH BY GCMS (WATER)

Maxxam Job				DK0746		DK0748		DK0752			
Sampling date				2016/11/29		2016/11/29		2016/11/29			
Waybill #				N/A		N/A		N/A			
	Units	A	B	SED-05-01 / DISSOLVED	CR	SED-11 / TOTAL	CR	SED-11 / DISSOLVED	CR	RDL	QC batch
<b>PAHs</b>											
Acenaphthene	ug/L	-	100	<0.03		<0.03		<0.03		0.03	1704253
Anthracene	ug/L	-	-	<0.03		<0.03		<0.03		0.03	1704253
Benzo(a)anthracene	ug/L	-	-	<0.03		<0.03		<0.03		0.03	1704253
Benzo(b)fluoranthene	ug/L	-	-	0.06		0.06		0.06		0.06	1704253
Benzo(j)fluoranthene	ug/L	-	-	0.06		0.06		0.06		0.06	1704253
Benzo(k)fluoranthene	ug/L	-	-	0.06		0.06		0.06		0.06	1704253
Benzo(a)pyrene	ug/L	0.01	-	<0.008		<0.008		<0.008		0.008	1704253
Chrysene	ug/L	-	-	<0.03		<0.03		<0.03		0.03	1704253
Dibenzo(a,h)anthracene	ug/L	-	-	<0.03		<0.03		<0.03		0.03	1704253
Fluoranthene	ug/L	-	14	<0.03		<0.03		<0.03		0.03	1704253
Fluorene	ug/L	-	110	<0.03		<0.03		<0.03		0.03	1704253
Ideno(1,2,3-cd)pyrene	ug/L	-	-	<0.03		<0.03		<0.03		0.03	1704253
Naphthalene	ug/L	100	100	<0.03		0.03	<A	0.03	<A	0.03	1704253
Phenanthrene	ug/L	-	4.7	<0.03		<0.03		<0.03		0.03	1704253
Pyrene	ug/L	-	-	<0.03		<0.03		<0.03		0.03	1704253
Total PAHs (RES)	ug/L	-	1.8	0.06		0.06		0.06		0.06	1704253
<b>Surrogate Recovery (%)</b>											
D10-Anthracene	%	-	-	84		81		84			1704253
D12-Benzo(a)pyrene	%	-	-	94		92		94			1704253
D14-Terphenyl	%	-	-	81		80		80			1704253
D8-Acenaphthylene	%	-	-	78		78		77			1704253
D8-Naphtalene	%	-	-	83		82		82			1704253
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job #: B683874  
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Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### PAH BY GCMS (WATER)

Maxxam Job				DK5926			
Sampling date				2016/11/29			
Waybill #				N/A			
	Units	A	B	BLANK	CR	RDL	QC batch
<b>PAHs</b>							
Acenaphthene	ug/L	-	100	<0.03		0.03	1704253
Anthracene	ug/L	-	-	<0.03		0.03	1704253
Benzo(a)anthracene	ug/L	-	-	<0.03		0.03	1704253
Benzo(b)fluoranthene	ug/L	-	-	0.06		0.06	1704253
Benzo(j)fluoranthene	ug/L	-	-	0.06		0.06	1704253
Benzo(k)fluoranthene	ug/L	-	-	0.06		0.06	1704253
Benzo(a)pyrene	ug/L	0.01	-	<0.008		0.008	1704253
Chrysene	ug/L	-	-	<0.03		0.03	1704253
Dibenzo(a,h)anthracene	ug/L	-	-	<0.03		0.03	1704253
Fluoranthene	ug/L	-	14	<0.03		0.03	1704253
Fluorene	ug/L	-	110	<0.03		0.03	1704253
Ideno(1,2,3-cd)pyrene	ug/L	-	-	<0.03		0.03	1704253
Naphthalene	ug/L	100	100	<0.03		0.03	1704253
Phenanthrene	ug/L	-	4.7	<0.03		0.03	1704253
Pyrene	ug/L	-	-	<0.03		0.03	1704253
Total PAHs (RES)	ug/L	-	1.8	0.06		0.06	1704253
<b>Surrogate Recovery (%)</b>							
D10-Anthracene	%	-	-	82			1704253
D12-Benzo(a)pyrene	%	-	-	94			1704253
D14-Terphenyl	%	-	-	79			1704253
D8-Acenaphthylene	%	-	-	76			1704253
D8-Naphtalene	%	-	-	81			1704253
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

Maxxam Job #: B683874  
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Englobe Corp.  
Your project #: DRET  
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### DISSOLVED METALS (WATER)

Maxxam Job				DJ3799		DK0742			
Sampling date				2016/11/29		2016/11/29			
Waybill #				N/A		N/A			
	Units	A	B	CAR-08-1 / DISSOLVED	CR	CAR-10-2 / DISSOLVED	CR	RDL	QC batch
<b>METALS</b>									
Sulphur (S)	m2	-	-	6.8		6.9		0.1	1704321
<b>METALS ICP-MS</b>									
Silver (Ag)	ug/L	100	0.62	<0.10		<0.10		0.10	1704625
Arsenic (As)	ug/L	0.3	340	0.90	A-B	0.84	A-B	0.30	1704625
Barium (Ba)	ug/L	1000	600	36	<A	41	<A	2.0	1704625
Cadmium (Cd)	ug/L	5	1.1	<0.20		<0.20		0.20	1704625
Chromium (Cr)	ug/L	50	-	<0.50		<0.50		0.50	1704625
Cobalt (Co)	ug/L	-	370	<0.50		<0.50		0.50	1704625
Copper (Cu)	ug/L	1000	7.3	<0.50		<0.50		0.50	1704625
Tin (Sn)	ug/L	-	-	<1.0		<1.0		1.0	1704625
Manganese (Mn)	ug/L	50	2300	85	A-B	140	A-B	0.40	1704625
Molybdenum (Mo)	ug/L	70	29000	1.1	<A	1.2	<A	0.50	1704625
Mercury (Hg)	ug/L	1	0.0013	<0.10		0.12	>B	0.10	1704625
Nickel (Ni)	ug/L	70	260	<1.0		<1.0		1.0	1704625
Lead (Pb)	ug/L	10	34	0.13	<A	<0.10		0.10	1704625
Selenium (Se)	ug/L	10	62	<1.0		<1.0		1.0	1704625
Zinc (Zn)	ug/L	5000	67	<5.0		<5.0		5.0	1704625
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam Job #: B683874  
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Englobe Corp.  
Your project #: DRET  
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### DISSOLVED METALS (WATER)

Maxxam Job				DK0746		DK0752			
Sampling date				2016/11/29		2016/11/29			
Waybill #				N/A		N/A			
	Units	A	B	SED-05-01 / DISSOLVED	CR	SED-11 / DISSOLVED	CR	RDL	QC batch
<b>METALS</b>									
Sulphur (S)	m2	-	-	6.7		6.8		0.1	1704321
<b>METALS ICP-MS</b>									
Silver (Ag)	ug/L	100	0.62	<0.10		<0.10		0.10	1704625
Arsenic (As)	ug/L	0.3	340	0.65	A-B	0.66	A-B	0.30	1704625
Barium (Ba)	ug/L	1000	600	30	<A	31	<A	2.0	1704625
Cadmium (Cd)	ug/L	5	1.1	<0.20		<0.20		0.20	1704625
Chromium (Cr)	ug/L	50	-	<0.50		<0.50		0.50	1704625
Cobalt (Co)	ug/L	-	370	<0.50		<0.50		0.50	1704625
Copper (Cu)	ug/L	1000	7.3	<0.50		<0.50		0.50	1704625
Tin (Sn)	ug/L	-	-	<1.0		<1.0		1.0	1704625
Manganese (Mn)	ug/L	50	2300	10	<A	27	<A	0.40	1704625
Molybdenum (Mo)	ug/L	70	29000	1.1	<A	1.0	<A	0.50	1704625
Mercury (Hg)	ug/L	1	0.0013	<0.10		<0.10		0.10	1704625
Nickel (Ni)	ug/L	70	260	<1.0		<1.0		1.0	1704625
Lead (Pb)	ug/L	10	34	<0.10		<0.10		0.10	1704625
Selenium (Se)	ug/L	10	62	<1.0		<1.0		1.0	1704625
Zinc (Zn)	ug/L	5000	67	<5.0		<5.0		5.0	1704625
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

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Englobe Corp.  
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Your P.O. #: 24541

### TOTAL EXTRACTABLE METALS (WATER)

Maxxam Job				DJ3792		DK0741		DK0743			
Sampling date				2016/11/29		2016/11/29		2016/11/29			
Waybill #				N/A		N/A		N/A			
	Units	A	B	CAR-08-1 / TOTAL	CR	CAR-10-2 / TOTAL	CR	CAR-10-2 DUP / TOTAL	CR	RDL	QC batch
<b>METALS</b>											
Sulphur (S)	m2	-	-	8.0		8.2		7.9		0.05	1704356
<b>METALS ICP-MS</b>											
Silver (Ag)	ug/L	100	0.62	<1.0		<1.0		<1.0		1.0	1704356
Arsenic (As)	ug/L	0.3	340	2.2	A-B	2.7	A-B	3.4	A-B	1.0	1704356
Barium (Ba)	ug/L	1000	600	120	<A	73	<A	76	<A	2.0	1704356
Cadmium (Cd)	ug/L	5	1.1	0.62	<A	1.5	>B	1.9	>B	0.20	1704356
Chromium (Cr)	ug/L	50	-	<5.0		<5.0		<5.0		5.0	1704356
Cobalt (Co)	ug/L	-	370	1.0	<B	1.7	<B	2.2	<B	1.0	1704356
Copper (Cu)	ug/L	1000	7.3	5.2	<A	3.1	<A	4.4	<A	1.0	1704356
Tin (Sn)	ug/L	-	-	2.3		<2.0		<2.0		2.0	1704356
Manganese (Mn)	ug/L	50	2300	350	A-B	1200	A-B	1500	A-B	1.0	1704356
Molybdenum (Mo)	ug/L	70	29000	1.1	<A	1.2	<A	1.3	<A	1.0	1704356
Mercury (Hg)	ug/L	1	0.0013	0.50	>B	0.35	>B	0.20	>B	0.10	1704356
Nickel (Ni)	ug/L	70	260	2.9	<A	2.6	<A	3.6	<A	2.0	1704356
Lead (Pb)	ug/L	10	34	8.9	<A	9.0	<A	12	A-B	0.50	1704356
Selenium (Se)	ug/L	10	62	<3.0		<3.0		<3.0		3.0	1704356
Zinc (Zn)	ug/L	5000	67	47	<A	71	>B	92	>B	7.0	1704356
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job #: B683874  
Report Date: 2017/01/04

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### TOTAL EXTRACTABLE METALS (WATER)

Maxxam Job				DK0745		DK0748		DK5926			
Sampling date				2016/11/29		2016/11/29		2016/11/29			
Waybill #				N/A		N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>SED-05-01 / TOTAL</b>	<b>CR</b>	<b>SED-11 / TOTAL</b>	<b>CR</b>	<b>BLANK</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
<b>METALS</b>											
Sulphur (S)	m2	-	-	8.1		7.8		<0.05		0.05	1704355
<b>METALS ICP-MS</b>											
Silver (Ag)	ug/L	100	0.62	<1.0		<1.0		<1.0		1.0	1704356
Arsenic (As)	ug/L	0.3	340	<1.0		<1.0		<1.0		1.0	1704356
Barium (Ba)	ug/L	1000	600	38	<A	40	<A	<2.0		2.0	1704356
Cadmium (Cd)	ug/L	5	1.1	<0.20		<0.20		<0.20		0.20	1704356
Chromium (Cr)	ug/L	50	-	<5.0		<5.0		<5.0		5.0	1704356
Cobalt (Co)	ug/L	-	370	<1.0		<1.0		<1.0		1.0	1704356
Copper (Cu)	ug/L	1000	7.3	1.5	<A	1.8	<A	<1.0		1.0	1704356
Tin (Sn)	ug/L	-	-	<2.0		<2.0		<2.0		2.0	1704356
Manganese (Mn)	ug/L	50	2300	54	A-B	58	A-B	<1.0		1.0	1704356
Molybdenum (Mo)	ug/L	70	29000	1.2	<A	1.1	<A	<1.0		1.0	1704356
Mercury (Hg)	ug/L	1	0.0013	<0.10		<0.10		<0.10		0.10	1704356
Nickel (Ni)	ug/L	70	260	<2.0		2.4	<A	2.2	<A	2.0	1704356
Lead (Pb)	ug/L	10	34	0.98	<A	1.4	<A	<0.50		0.50	1704356
Selenium (Se)	ug/L	10	62	<3.0		<3.0		<3.0		3.0	1704356
Zinc (Zn)	ug/L	5000	67	9.6	<A	11	<A	<7.0		7.0	1704356
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job #: B683874  
 Report Date: 2017/01/04

Englobe Corp.  
 Your project #: DRET  
 Your P.O. #: 24541

### CONVENTIONAL PARAMETERS (WATER)

Maxxam Job		DJ3792	DK0741	DK0743	DK0745		
Sampling date		2016/11/29	2016/11/29	2016/11/29	2016/11/29		
Waybill #		N/A	N/A	N/A	N/A		
	<b>Units</b>	<b>CAR-08-1 / TOTAL</b>	<b>CAR-10-2 / TOTAL</b>	<b>CAR-10-2 DUP / TOTAL</b>	<b>SED-05-01 / TOTAL</b>	<b>RDL</b>	<b>QC batch</b>
<b>CONVENTIONAL</b>							
Suspended solids (SS)	m2	51	46	63	29	2	1704290
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

Maxxam Job		DK0748	DK0748	DK5926		
Sampling date		2016/11/29	2016/11/29	2016/11/29		
Waybill #		N/A	N/A	N/A		
	<b>Units</b>	<b>SED-11 / TOTALS</b>	<b>SED-11 / TOTALS Dup. Lab.</b>	<b>BLANK</b>	<b>RDL</b>	<b>QC batch</b>
<b>CONVENTIONAL</b>						
Suspended solids (SS)	m2	28	33	<2	2	1704290
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
Laboratory duplicate						

Maxxam Job #: B683874  
Report Date: 2017/01/04

Englobe Corp.  
Your project #: DRET  
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### PCB CONGENERS (WATER)

Maxxam Job				DJ3792		DJ3799		DK0741			
Sampling date				2016/11/29		2016/11/29		2016/11/29			
Waybill #				N/A		N/A		N/A			
	Units	A	B	CAR-08-1 / TOTAL	CR	CAR-08-1 / DISSOLVED	CR	CAR-10-2 / TOTAL	CR	RDL	QC batch
<b>PCBs</b>											
Total PCBs	ug/L	0.5	0.000064	0.32	>B	0.097	>B	0.21	>B	0.010	1704227
<b>Surrogate Recovery (%)</b>											
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	96		98		107			1704227
2',3,5-Trichlorobiphenyl	%	-	-	89		89		93			1704227
22'33'44'566'-Nonachlorobiphenyl	%	-	-	106		105		107			1704227
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job				DK0742		DK0743					
Sampling date				2016/11/29		2016/11/29					
Waybill #				N/A		N/A					
	Units	A	B	CAR-10-2 / DISSOLVED	CR	CAR-10-2 DUP / TOTAL	CR	RDL		QC batch	
<b>PCBs</b>											
Total PCBs	ug/L	0.5	0.000064	0.14	>B	0.32	>B	0.010		1704227	
<b>Surrogate Recovery (%)</b>											
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	96		92				1704227	
2',3,5-Trichlorobiphenyl	%	-	-	76		82				1704227	
22'33'44'566'-Nonachlorobiphenyl	%	-	-	108		99				1704227	
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											

Maxxam Job				DK0745		DK0746		DK0748			
Sampling date				2016/11/29		2016/11/29		2016/11/29			
Waybill #				N/A		N/A		N/A			
	Units	A	B	SED-05-01 / TOTAL	CR	SED-05-01 / DISSOLVED	CR	SED-11 / TOTAL	CR	RDL	QC batch
<b>PCBs</b>											
Total PCBs	ug/L	0.5	0.000064	<0.010		<0.010		<0.010		0.010	1704227
<b>Surrogate Recovery (%)</b>											
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	93		107		106			1704227
2',3,5-Trichlorobiphenyl	%	-	-	75		76		72			1704227
22'33'44'566'-Nonachlorobiphenyl	%	-	-	107		108		104			1704227
RDL = Reportable Detection Limit											
QC Batch = Quality Control Batch											



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Englobe Corp.  
 Your project #: DRET  
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### PCB CONGENERS (WATER)

Maxxam Job				DK0752		DK5926			
Sampling date				2016/11/29		2016/11/29			
Waybill #				N/A		N/A			
	<b>Units</b>	<b>A</b>	<b>B</b>	<b>SED-11 / DISSOLVED</b>	<b>CR</b>	<b>BLANK</b>	<b>CR</b>	<b>RDL</b>	<b>QC batch</b>
<b>PCBs</b>									
Total PCBs	ug/L	0.5	0.000064	<0.010		<0.010		0.010	1704227
<b>Surrogate Recovery (%)</b>									
2,3,3',4,6-Pentachlorobiphenyl	%	-	-	111		115			1704227
2',3,5-Trichlorobiphenyl	%	-	-	71		71			1704227
22'33'44'566'-Nonachlorobiphenyl	%	-	-	104		107			1704227
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### DIOXINS AND FURANS BY HIGH RESOLUTION (WATER)

Maxxam Job				DJ3792						
Sampling date				2016/11/29						
Waybill #				N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	CAR-08-1 / TOTAL	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
<b>DIOXINS</b>										
2,3,7,8-Tetra CDD *	pg/L	-	-	<1.2		1.2	1.0	0		1708097
1,2,3,7,8-Penta CDD *	pg/L	-	-	<2.0		2.0	0.50	0		1708097
1,2,3,4,7,8-Hexa CDD *	pg/L	-	-	<0.74		0.74	0.10	0		1708097
1,2,3,6,7,8-Hexa CDD *	pg/L	-	-	1.2		0.76	0.10	0.12		1708097
1,2,3,7,8,9-Hexa CDD *	pg/L	-	-	<0.69		0.69	0.10	0		1708097
1,2,3,4,6,7,8-Hepta CDD *	pg/L	-	-	13		0.83	0.010	0.13		1708097
Octachlorodibenzo-p-dioxin	pg/L	-	-	97		0.89	0.0010	0.097	1	1708097
Total tetrachlorodibenzo-p-dioxins	pg/L	-	-	<1.2		1.2			0	1708097
Total pentachlorodibenzo-p-dioxins	pg/L	-	-	<2.0		2.0			0	1708097
Total hexachlorodibenzo-p-dioxins	pg/L	-	-	8.1		0.73			3	1708097
Total heptachlorodibenzo-p-dioxins	pg/L	-	-	27		0.83			2	1708097
Total chlorodibenzo-p-dioxins	pg/L	-	-	130		N/A			6	1708097
2,3,7,8-Tetra CDF **	pg/L	-	-	7.5		1.1	0.10	0.75		1708097
1,2,3,7,8-Penta CDF **	pg/L	-	-	5.7		0.61	0.050	0.29		1708097
2,3,4,7,8-Penta CDF **	pg/L	-	-	2.7		0.63	0.50	1.4		1708097
1,2,3,4,7,8-Hexa CDF **	pg/L	-	-	9.6		0.46	0.10	0.96		1708097
1,2,3,6,7,8-Hexa CDF **	pg/L	-	-	3.1		0.42	0.10	0.31		1708097
2,3,4,6,7,8-Hexa CDF **	pg/L	-	-	0.70		0.51	0.10	0.070		1708097
1,2,3,7,8,9-Hexa CDF **	pg/L	-	-	<0.49		0.49	0.10	0		1708097
1,2,3,4,6,7,8-Hepta CDF **	pg/L	-	-	7.3		0.43	0.010	0.073		1708097
1,2,3,4,7,8,9-Hepta CDF **	pg/L	-	-	2.8		0.50	0.010	0.028		1708097
Octachlorodibenzofuran	pg/L	-	-	13		1.1	0.0010	0.013	1	1708097
Total tetrachlorodibenzofurans	pg/L	-	-	30		1.1			8	1708097
Total pentachlorodibenzofurans	pg/L	-	-	13		0.62			4	1708097
Total hexachlorodibenzofurans	pg/L	-	-	20		0.47			5	1708097
Total heptachlorodibenzofurans	pg/L	-	-	17		0.46			3	1708097
Total chlorodibenzofurans	pg/L	-	-	94		N/A			21	1708097

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.

Maxxam Job #: B683874  
Report Date: 2017/01/04

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### DIOXINS AND FURANS BY HIGH RESOLUTION (WATER)

Maxxam Job				DJ3792						
Sampling date				2016/11/29						
Waybill #				N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	CAR-08-1 / TOTAL	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
TOTAL TOXIC EQUIVALENCY	pg/L	15	0.0031					4.2		
<b>Surrogate Recovery (%)</b>										
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	83						1708097
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	82						1708097
C13-1,2,3,6,7,8-H6CDD *	%	-	-	84						1708097
C13-1,2,3,6,7,8-H6CDF **	%	-	-	84						1708097
C13-1,2,3,7,8-P5CDD *	%	-	-	97						1708097
C13-1,2,3,7,8-PCDF **	%	-	-	99						1708097
C13-2,3,7,8-TCDD *	%	-	-	70						1708097
C13-2,3,7,8-TCDF **	%	-	-	86						1708097
C13-OCTA-CDD *	%	-	-	71						1708097
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.										

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### DIOXINS AND FURANS BY HIGH RESOLUTION (WATER)

Maxxam Job				DJ3799						
Sampling date				2016/11/29						
Waybill #				N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	CAR-08-1 / DISSOLVED	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
<b>DIOXINS</b>										
2,3,7,8-Tetra CDD *	pg/L	-	-	<0.58		0.58	1.0	0		1709747
1,2,3,7,8-Penta CDD *	pg/L	-	-	<0.39		0.39	0.50	0		1709747
1,2,3,4,7,8-Hexa CDD *	pg/L	-	-	<0.27		0.27	0.10	0		1709747
1,2,3,6,7,8-Hexa CDD *	pg/L	-	-	<0.55		0.55	0.10	0		1709747
1,2,3,7,8,9-Hexa CDD *	pg/L	-	-	<0.23		0.23	0.10	0		1709747
1,2,3,4,6,7,8-Hepta CDD *	pg/L	-	-	7.6		0.43	0.010	0.076		1709747
Octachlorodibenzo-p-dioxin	pg/L	-	-	49		0.62	0.0010	0.049	1	1709747
Total tetrachlorodibenzo-p-dioxins	pg/L	-	-	<0.58		0.58			0	1709747
Total pentachlorodibenzo-p-dioxins	pg/L	-	-	<0.39		0.39			0	1709747
Total hexachlorodibenzo-p-dioxins	pg/L	-	-	3.4		0.25			2	1709747
Total heptachlorodibenzo-p-dioxins	pg/L	-	-	15		0.43			2	1709747
Total chlorodibenzo-p-dioxins	pg/L	-	-	67		N/A			5	1709747
2,3,7,8-Tetra CDF **	pg/L	-	-	2.8		0.21	0.10	0.28		1709747
1,2,3,7,8-Penta CDF **	pg/L	-	-	2.3		0.35	0.050	0.12		1709747
2,3,4,7,8-Penta CDF **	pg/L	-	-	1.2		0.36	0.50	0.60		1709747
1,2,3,4,7,8,-Hexa CDF **	pg/L	-	-	4.3		0.22	0.10	0.43		1709747
1,2,3,6,7,8-Hexa CDF **	pg/L	-	-	1.2		0.21	0.10	0.12		1709747
2,3,4,6,7,8-Hexa CDF **	pg/L	-	-	<0.26		0.26	0.10	0		1709747
1,2,3,7,8,9-Hexa CDF **	pg/L	-	-	<0.28		0.28	0.10	0		1709747
1,2,3,4,6,7,8-Hepta CDF **	pg/L	-	-	3.0		0.28	0.010	0.030		1709747
1,2,3,4,7,8,9-Hepta CDF **	pg/L	-	-	1.2		0.36	0.010	0.012		1709747
Octachlorodibenzofuran	pg/L	-	-	5.4		0.63	0.0010	0.0054	1	1709747
Total tetrachlorodibenzofurans	pg/L	-	-	11		0.21			9	1709747
Total pentachlorodibenzofurans	pg/L	-	-	9.9		0.35			6	1709747
Total hexachlorodibenzofurans	pg/L	-	-	8.9		0.24			5	1709747
Total heptachlorodibenzofurans	pg/L	-	-	7.2		0.32			3	1709747
Total chlorodibenzofurans	pg/L	-	-	42		N/A			24	1709747
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.										

Maxxam Job #: B683874  
Report Date: 2017/01/04

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### DIOXINS AND FURANS BY HIGH RESOLUTION (WATER)

Maxxam Job				DJ3799						
Sampling date				2016/11/29						
Waybill #				N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	CAR-08-1 / DISSOLVED	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
TOTAL TOXIC EQUIVALENCY	pg/L	15	0.0031					1.7		
<b>Surrogate Recovery (%)</b>										
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	81						1709747
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	83						1709747
C13-1,2,3,6,7,8-H6CDD *	%	-	-	74						1709747
C13-1,2,3,6,7,8-H6CDF **	%	-	-	77						1709747
C13-1,2,3,7,8-P5CDD *	%	-	-	75						1709747
C13-1,2,3,7,8-PCDF **	%	-	-	85						1709747
C13-2,3,7,8-TCDD *	%	-	-	49						1709747
C13-2,3,7,8-TCDF **	%	-	-	74						1709747
C13-OCTA-CDD *	%	-	-	72						1709747
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.										

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### DIOXINS AND FURANS BY HIGH RESOLUTION (WATER)

Maxxam Job				DK0748						
Sampling date				2016/11/29						
Waybill #				N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	SED-11 / TOTAL	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
<b>DIOXINS</b>										
2,3,7,8-Tetra CDD *	pg/L	-	-	<0.94		0.94	1.0	0		1708097
1,2,3,7,8-Penta CDD *	pg/L	-	-	<1.5		1.5	0.50	0		1708097
1,2,3,4,7,8-Hexa CDD *	pg/L	-	-	<0.80		0.80	0.10	0		1708097
1,2,3,6,7,8-Hexa CDD *	pg/L	-	-	<0.82		0.82	0.10	0		1708097
1,2,3,7,8,9-Hexa CDD *	pg/L	-	-	<0.74		0.74	0.10	0		1708097
1,2,3,4,6,7,8-Hepta CDD *	pg/L	-	-	2.3		0.89	0.010	0.023		1708097
Octachlorodibenzo-p-dioxin	pg/L	-	-	15		0.93	0.0010	0.015	1	1708097
Total tetrachlorodibenzo-p-dioxins	pg/L	-	-	<0.94		0.94			0	1708097
Total pentachlorodibenzo-p-dioxins	pg/L	-	-	<1.5		1.5			0	1708097
Total hexachlorodibenzo-p-dioxins	pg/L	-	-	<0.79		0.79			0	1708097
Total heptachlorodibenzo-p-dioxins	pg/L	-	-	2.3		0.89			1	1708097
Total chlorodibenzo-p-dioxins	pg/L	-	-	17		N/A			2	1708097
2,3,7,8-Tetra CDF **	pg/L	-	-	<1.4		1.4	0.10	0		1708097
1,2,3,7,8-Penta CDF **	pg/L	-	-	<0.64		0.64	0.050	0		1708097
2,3,4,7,8-Penta CDF **	pg/L	-	-	<0.66		0.66	0.50	0		1708097
1,2,3,4,7,8-Hexa CDF **	pg/L	-	-	<0.62		0.62	0.10	0		1708097
1,2,3,6,7,8-Hexa CDF **	pg/L	-	-	<0.56		0.56	0.10	0		1708097
2,3,4,6,7,8-Hexa CDF **	pg/L	-	-	<0.68		0.68	0.10	0		1708097
1,2,3,7,8,9-Hexa CDF **	pg/L	-	-	<0.66		0.66	0.10	0		1708097
1,2,3,4,6,7,8-Hepta CDF **	pg/L	-	-	<0.78		0.78	0.010	0		1708097
1,2,3,4,7,8,9-Hepta CDF **	pg/L	-	-	<0.52		0.52	0.010	0		1708097
Octachlorodibenzofuran	pg/L	-	-	1.6		0.84	0.0010	0.0016	1	1708097
Total tetrachlorodibenzofurans	pg/L	-	-	1.6		0.90			1	1708097
Total pentachlorodibenzofurans	pg/L	-	-	<0.65		0.65			0	1708097
Total hexachlorodibenzofurans	pg/L	-	-	<0.63		0.63			0	1708097
Total heptachlorodibenzofurans	pg/L	-	-	<0.48		0.48			0	1708097
Total chlorodibenzofurans	pg/L	-	-	3.2		N/A			2	1708097
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.										

Maxxam Job #: B683874  
Report Date: 2017/01/04

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### DIOXINS AND FURANS BY HIGH RESOLUTION (WATER)

Maxxam Job				DK0748						
Sampling date				2016/11/29						
Waybill #				N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	SED-11 / TOTAL	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
TOTAL TOXIC EQUIVALENCY	pg/L	15	0.0031					0.040		
<b>Surrogate Recovery (%)</b>										
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	81						1708097
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	82						1708097
C13-1,2,3,6,7,8-H6CDD *	%	-	-	81						1708097
C13-1,2,3,6,7,8-H6CDF **	%	-	-	83						1708097
C13-1,2,3,7,8-P5CDD *	%	-	-	100						1708097
C13-1,2,3,7,8-PCDF **	%	-	-	99						1708097
C13-2,3,7,8-TCDD *	%	-	-	77						1708097
C13-2,3,7,8-TCDF **	%	-	-	86						1708097
C13-OCTA-CDD *	%	-	-	67						1708097
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.										

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### DIOXINS AND FURANS BY HIGH RESOLUTION (WATER)

Maxxam Job				DK0752						
Sampling date				2016/11/29						
Waybill #				N/A			TOXIC EQUIVALENCY	#		
	Units	A	B	SED-11 / DISSOLVED	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
<b>DIOXINS</b>										
2,3,7,8-Tetra CDD *	pg/L	-	-	<0.39		0.39	1.0	0		1709747
1,2,3,7,8-Penta CDD *	pg/L	-	-	<0.41		0.41	0.50	0		1709747
1,2,3,4,7,8-Hexa CDD *	pg/L	-	-	<0.49		0.49	0.10	0		1709747
1,2,3,6,7,8-Hexa CDD *	pg/L	-	-	<0.50		0.50	0.10	0		1709747
1,2,3,7,8,9-Hexa CDD *	pg/L	-	-	<0.42		0.42	0.10	0		1709747
1,2,3,4,6,7,8-Hepta CDD *	pg/L	-	-	0.39		0.26	0.010	0.0039		1709747
Octachlorodibenzo-p-dioxin	pg/L	-	-	2.1		0.42	0.0010	0.0021	1	1709747
Total tetrachlorodibenzo-p-dioxins	pg/L	-	-	<0.39		0.39			0	1709747
Total pentachlorodibenzo-p-dioxins	pg/L	-	-	<0.41		0.41			0	1709747
Total hexachlorodibenzo-p-dioxins	pg/L	-	-	<0.47		0.47			0	1709747
Total heptachlorodibenzo-p-dioxins	pg/L	-	-	0.39		0.26			1	1709747
Total chlorodibenzo-p-dioxins	pg/L	-	-	2.5		N/A			2	1709747
2,3,7,8-Tetra CDF **	pg/L	-	-	<0.36		0.36	0.10	0		1709747
1,2,3,7,8-Penta CDF **	pg/L	-	-	<0.22		0.22	0.050	0		1709747
2,3,4,7,8-Penta CDF **	pg/L	-	-	<0.22		0.22	0.50	0		1709747
1,2,3,4,7,8-Hexa CDF **	pg/L	-	-	<0.24		0.24	0.10	0		1709747
1,2,3,6,7,8-Hexa CDF **	pg/L	-	-	<0.22		0.22	0.10	0		1709747
2,3,4,6,7,8-Hexa CDF **	pg/L	-	-	<0.28		0.28	0.10	0		1709747
1,2,3,7,8,9-Hexa CDF **	pg/L	-	-	<0.30		0.30	0.10	0		1709747
1,2,3,4,6,7,8-Hepta CDF **	pg/L	-	-	<0.24		0.24	0.010	0		1709747
1,2,3,4,7,8,9-Hepta CDF **	pg/L	-	-	<0.30		0.30	0.010	0		1709747
Octachlorodibenzofuran	pg/L	-	-	<0.38		0.38	0.0010	0	0	1709747
Total tetrachlorodibenzofurans	pg/L	-	-	<0.20		0.20			0	1709747
Total pentachlorodibenzofurans	pg/L	-	-	<0.22		0.22			0	1709747
Total hexachlorodibenzofurans	pg/L	-	-	<0.26		0.26			0	1709747
Total heptachlorodibenzofurans	pg/L	-	-	<0.27		0.27			0	1709747

EDL = Estimated Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency

The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners.

NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF)

QC Batch = Quality Control Batch

\* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

\*\* CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.



Englobe Corp.  
Your project #: DRET  
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### DIOXINS AND FURANS BY HIGH RESOLUTION (WATER)

Maxxam Job				DK0752						
Sampling date				2016/11/29						
Waybill #				N/A			TOXIC EQUIVALENCY	#		
	Units	A	B	SED-11 / DISSOLVED	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
Total chlorodibenzofurans	pg/L	-	-	ND		N/A			0	1709747
TOTAL TOXIC EQUIVALENCY	pg/L	15	0.0031					0.0060		
<b>Surrogate Recovery (%)</b>										
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	79						1709747
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	81						1709747
C13-1,2,3,6,7,8-H6CDD *	%	-	-	68						1709747
C13-1,2,3,6,7,8-H6CDF **	%	-	-	72						1709747
C13-1,2,3,7,8-P5CDD *	%	-	-	79						1709747
C13-1,2,3,7,8-PCDF **	%	-	-	91						1709747
C13-2,3,7,8-TCDD *	%	-	-	55						1709747
C13-2,3,7,8-TCDF **	%	-	-	76						1709747
C13-OCTA-CDD *	%	-	-	70						1709747
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch ND = below the reported detection limit N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.										

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### DIOXINS AND FURANS BY HIGH RESOLUTION (WATER)

Maxxam Job				DK5926						
Sampling date				2016/11/29						
Waybill #				N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	BLANK	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
<b>DIOXINS</b>										
2,3,7,8-Tetra CDD *	pg/L	-	-	<0.40		0.40	1.0	0		1709747
1,2,3,7,8-Penta CDD *	pg/L	-	-	<0.47		0.47	0.50	0		1709747
1,2,3,4,7,8-Hexa CDD *	pg/L	-	-	<0.27		0.27	0.10	0		1709747
1,2,3,6,7,8-Hexa CDD *	pg/L	-	-	<0.27		0.27	0.10	0		1709747
1,2,3,7,8,9-Hexa CDD *	pg/L	-	-	<0.22		0.22	0.10	0		1709747
1,2,3,4,6,7,8-Hepta CDD *	pg/L	-	-	<0.40		0.40	0.010	0		1709747
Octachlorodibenzo-p-dioxin	pg/L	-	-	<1.1		1.1	0.0010	0	0	1709747
Total tetrachlorodibenzo-p-dioxins	pg/L	-	-	<0.40		0.40			0	1709747
Total pentachlorodibenzo-p-dioxins	pg/L	-	-	<0.47		0.47			0	1709747
Total hexachlorodibenzo-p-dioxins	pg/L	-	-	<0.25		0.25			0	1709747
Total heptachlorodibenzo-p-dioxins	pg/L	-	-	0.58		0.40			1	1709747
Total chlorodibenzo-p-dioxins	pg/L	-	-	0.58		N/A			1	1709747
2,3,7,8-Tetra CDF **	pg/L	-	-	<0.24		0.24	0.10	0		1709747
1,2,3,7,8-Penta CDF **	pg/L	-	-	<0.25		0.25	0.050	0		1709747
2,3,4,7,8-Penta CDF **	pg/L	-	-	<0.26		0.26	0.50	0		1709747
1,2,3,4,7,8-Hexa CDF **	pg/L	-	-	<0.23		0.23	0.10	0		1709747
1,2,3,6,7,8-Hexa CDF **	pg/L	-	-	<0.22		0.22	0.10	0		1709747
2,3,4,6,7,8-Hexa CDF **	pg/L	-	-	<0.28		0.28	0.10	0		1709747
1,2,3,7,8,9-Hexa CDF **	pg/L	-	-	<0.30		0.30	0.10	0		1709747
1,2,3,4,6,7,8-Hepta CDF **	pg/L	-	-	<0.27		0.27	0.010	0		1709747
1,2,3,4,7,8,9-Hepta CDF **	pg/L	-	-	<0.35		0.35	0.010	0		1709747
Octachlorodibenzofuran	pg/L	-	-	<0.47		0.47	0.0010	0	0	1709747
Total tetrachlorodibenzofurans	pg/L	-	-	0.37		0.18			1	1709747
Total pentachlorodibenzofurans	pg/L	-	-	<0.25		0.25			0	1709747
Total hexachlorodibenzofurans	pg/L	-	-	<0.25		0.25			0	1709747
Total heptachlorodibenzofurans	pg/L	-	-	<0.30		0.30			0	1709747
Total chlorodibenzofurans	pg/L	-	-	0.37		N/A			1	1709747
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.										

Maxxam Job #: B683874  
Report Date: 2017/01/04

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### DIOXINS AND FURANS BY HIGH RESOLUTION (WATER)

Maxxam Job				DK5926						
Sampling date				2016/11/29						
Waybill #				N/A			TOXIC EQUIVALENCY		#	
	Units	A	B	BLANK	CR	EDL	TEF (NATO)	TEQ(OLD)	Isomers	QC batch
TOTAL TOXIC EQUIVALENCY	pg/L	15	0.0031					0		
<b>Surrogate Recovery (%)</b>										
C13-1,2,3,4,6,7,8-H7CDD *	%	-	-	87						1709747
C13-1,2,3,4,6,7,8-H7CDF **	%	-	-	88						1709747
C13-1,2,3,6,7,8-H6CDD *	%	-	-	79						1709747
C13-1,2,3,6,7,8-H6CDF **	%	-	-	82						1709747
C13-1,2,3,7,8-P5CDD *	%	-	-	79						1709747
C13-1,2,3,7,8-PCDF **	%	-	-	90						1709747
C13-2,3,7,8-TCDD *	%	-	-	52						1709747
C13-2,3,7,8-TCDF **	%	-	-	76						1709747
C13-OCTA-CDD *	%	-	-	75						1709747
EDL = Estimated Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency The total reported toxic equivalency value is the sum of toxic equivalency quotients for all examined congeners. NATO (1989) North Atlantic Treaty Organization/Committee on the Challenges of Modern Society (NATO/CCMS) International Toxic Equivalency Factors (I-TEF) QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan. The result for 2,3,7,8-Tetra CDF represents the maximum possible quantity, as this isomer may elute with other isomers.										

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## GENERAL COMMENTS

Condition of samples upon arrival: GOOD

Note: Please refer to the attached protocol for sample preparation.

A,B,CR: Soil criteria taken from Appendix 2 of the "Intervention Guide-Soil Protection and Rehabilitation of Contaminated Sites. MDDELCC, 2016." entitled "Generic Soil Evaluation Criteria". For analyses of metals (and metalloids) in the soil, Criteria A designated the "Substantive Content - St. Lawrence Lowlands".

Criteria A and B for groundwater are taken from Appendix 7, "Groundwater Quality Evaluation Criteria" of the aforementioned Intervention Guide. A=Drinking water; B=Seepage into surface water

These references are reported for information purposes only and must not be interpreted in any other context.

- = This compound is not part of the Regulations.

### PAH BY GCMS (WATER)

Please note that the results have not been corrected for quality control sample recovery (spiked blank and method blank) or for surrogates.

The result for total PAH (RES) represents the sum of the following 8 substances: benzo(a)anthracene, benzo(b)fluoranthene, benzo(j)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene.

The raw, unrounded results are used to calculate total PAH (RES). This total result is then rounded to two significant digits.

### DISSOLVED METALS (WATER)

Please note that the results have not been corrected for quality control sample recovery or for method blank values. Samples DJ3799, DK0742, DK0746, and DK0752 were filtered in the laboratory before metal analysis.

### TOTAL EXTRACTABLE METALS (WATER)

Please note that the results have not been corrected for quality control sample recovery or for method blank values.

### CONVENTIONAL PARAMETERS (WATER)

Please note that the results have not been corrected for quality control sample recovery or for method blank values.

### PCB CONGENERS (WATER)

Please note that the results have not been corrected for quality control sample recovery (spiked blank ) or for the blank. The sample results have been corrected for surrogate recovery percentage.

### DIOXINS AND FURANS BY HIGH RESOLUTION (WATER)

Please note that the above results have not been corrected for quality control samples recovery (spiked blank) or for method blank values. Please note that the above results have been corrected for surrogate recovery percentage.

**The results refer only to the samples submitted for analysis.**

Englobe Corp.  
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### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1704227	CB5	Spiked blank	2,3,3',4,6-Pentachlorobiphenyl	2016/12/10		94	%
			2',3,5-Trichlorobiphenyl	2016/12/10		95	%
			22'33'44'566'-Nonachlorobiphenyl	2016/12/10		102	%
			Total PCBs	2016/12/10		98	%
1704227	CB5	Spiked blank DUP	2,3,3',4,6-Pentachlorobiphenyl	2016/12/10		99	%
			2',3,5-Trichlorobiphenyl	2016/12/10		99	%
			22'33'44'566'-Nonachlorobiphenyl	2016/12/10		107	%
			Total PCBs	2016/12/10		98	%
1704227	CB5	Method blank	2,3,3',4,6-Pentachlorobiphenyl	2016/12/10		96	%
			2',3,5-Trichlorobiphenyl	2016/12/10		80	%
			22'33'44'566'-Nonachlorobiphenyl	2016/12/10		103	%
			Total PCBs	2016/12/10	<0.010		ug/L
1704253	MA1	Spiked blank	D10-Anthracene	2016/12/09		80	%
			D12-Benzo(a)pyrene	2016/12/09		90	%
			D14-Terphenyl	2016/12/09		80	%
			D8-Acenaphthylene	2016/12/09		75	%
			D8-Naphtalene	2016/12/09		81	%
			Acenaphthene	2016/12/09		86	%
			Anthracene	2016/12/09		85	%
			Benzo(a)anthracene	2016/12/09		97	%
			Benzo(b)fluoranthene	2016/12/09		90	%
			Benzo(j)fluoranthene	2016/12/09		92	%
			Benzo(k)fluoranthene	2016/12/09		96	%
			Benzo(a)pyrene	2016/12/09		84	%
			Chrysene	2016/12/09		96	%
			Dibenzo(a,h)anthracene	2016/12/09		92	%
			Fluoranthene	2016/12/09		84	%
			Fluorene	2016/12/09		81	%
			Ideno(1,2,3-cd)pyrene	2016/12/09		92	%
			Naphthalene	2016/12/09		81	%
			Phenanthrene	2016/12/09		83	%
			Pyrene	2016/12/09		85	%
1704253	MA1	Spiked blank DUP	D10-Anthracene	2016/12/09		80	%
			D12-Benzo(a)pyrene	2016/12/09		90	%
			D14-Terphenyl	2016/12/09		81	%
			D8-Acenaphthylene	2016/12/09		74	%
			D8-Naphtalene	2016/12/09		80	%
			Acenaphthene	2016/12/09		85	%
			Anthracene	2016/12/09		83	%
			Benzo(a)anthracene	2016/12/09		96	%
			Benzo(b)fluoranthene	2016/12/09		88	%
			Benzo(j)fluoranthene	2016/12/09		92	%
			Benzo(k)fluoranthene	2016/12/09		97	%
			Benzo(a)pyrene	2016/12/09		83	%
			Chrysene	2016/12/09		96	%
			Dibenzo(a,h)anthracene	2016/12/09		93	%
			Fluoranthene	2016/12/09		84	%
			Fluorene	2016/12/09		81	%
			Ideno(1,2,3-cd)pyrene	2016/12/09		93	%
			Naphthalene	2016/12/09		81	%
			Phenanthrene	2016/12/09		83	%
			Pyrene	2016/12/09		84	%

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### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1704253	MA1	Spiked blank DUP 2	D10-Anthracene	2016/12/09		79	%
			D12-Benzo(a)pyrene	2016/12/09		91	%
			D14-Terphenyl	2016/12/09		80	%
			D8-Acenaphthylene	2016/12/09		74	%
			D8-Naphtalene	2016/12/09		79	%
			Acenaphthene	2016/12/09		86	%
			Anthracene	2016/12/09		86	%
			Benzo(a)anthracene	2016/12/09		98	%
			Benzo(b)fluoranthene	2016/12/09		91	%
			Benzo(j)fluoranthene	2016/12/09		94	%
			Benzo(k)fluoranthene	2016/12/09		99	%
			Benzo(a)pyrene	2016/12/09		87	%
			Chrysene	2016/12/09		98	%
			Dibenzo(a,h)anthracene	2016/12/09		95	%
			Fluoranthene	2016/12/09		86	%
			Fluorene	2016/12/09		81	%
			Ideno(1,2,3-cd)pyrene	2016/12/09		96	%
			Naphthalene	2016/12/09		81	%
			Phenanthrene	2016/12/09		82	%
			Pyrene	2016/12/09		87	%
1704253	MA1	Method blank	D10-Anthracene	2016/12/09		83	%
			D12-Benzo(a)pyrene	2016/12/09		93	%
			D14-Terphenyl	2016/12/09		79	%
			D8-Acenaphthylene	2016/12/09		77	%
			D8-Naphtalene	2016/12/09		83	%
			Acenaphthene	2016/12/09	<0.03		ug/L
			Anthracene	2016/12/09	<0.03		ug/L
			Benzo(a)anthracene	2016/12/09	<0.03		ug/L
			Benzo(b)fluoranthene	2016/12/09	0.06		ug/L
			Benzo(j)fluoranthene	2016/12/09	0.06		ug/L
			Benzo(k)fluoranthene	2016/12/09	0.06		ug/L
			Benzo(a)pyrene	2016/12/09	<0.008		ug/L
			Chrysene	2016/12/09	<0.03		ug/L
			Dibenzo(a,h)anthracene	2016/12/09	<0.03		ug/L
			Fluoranthene	2016/12/09	<0.03		ug/L
			Fluorene	2016/12/09	<0.03		ug/L
			Ideno(1,2,3-cd)pyrene	2016/12/09	<0.03		ug/L
			Naphthalene	2016/12/09	<0.03		ug/L
			Phenanthrene	2016/12/09	<0.03		ug/L
			Pyrene	2016/12/09	<0.03		ug/L
			Total PAHs (RES)	2016/12/09	0.06		ug/L
1704290	ISF	Spiked blank	Suspended solids (SS)	2016/12/09		97	%
1704290	ISF	Method blank	Suspended solids (SS)	2016/12/09	<2		m2
1704321	KV1	Spiked blank	Sulphur (S)	2016/12/09		95	%
1704321	KV1	Method blank	Sulphur (S)	2016/12/09	<0.1		m2
1704355	KK	Spiked blank	Sulphur (S)	2016/12/09		106	%
1704355	KK	Method blank	Sulphur (S)	2016/12/09	0.26, RDL=0.05		m2
1704356	KV1	RCN	Silver (Ag)	2016/12/09		97	%
			Arsenic (As)	2016/12/09		93	%
			Barium (Ba)	2016/12/09		95	%
			Cadmium (Cd)	2016/12/09		93	%

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### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1704356	KV1	Spiked blank	Chromium (Cr)	2016/12/09		92	%
			Cobalt (Co)	2016/12/09		96	%
			Copper (Cu)	2016/12/09		90	%
			Manganese (Mn)	2016/12/09		93	%
			Molybdenum (Mo)	2016/12/09		91	%
			Nickel (Ni)	2016/12/09		88	%
			Lead (Pb)	2016/12/09		94	%
			Selenium (Se)	2016/12/09		89	%
			Zinc (Zn)	2016/12/09		90	%
			Silver (Ag)	2016/12/09		92	%
			Arsenic (As)	2016/12/09		90	%
			Barium (Ba)	2016/12/09		93	%
			Cadmium (Cd)	2016/12/09		91	%
			Chromium (Cr)	2016/12/09		85	%
			Cobalt (Co)	2016/12/09		85	%
			Copper (Cu)	2016/12/09		88	%
			Tin (Sn)	2016/12/09		96	%
			Manganese (Mn)	2016/12/09		93	%
			Molybdenum (Mo)	2016/12/09		92	%
			Mercury (Hg)	2016/12/09		88	%
1704356	KV1	Method blank	Nickel (Ni)	2016/12/09		86	%
			Lead (Pb)	2016/12/09		92	%
			Selenium (Se)	2016/12/09		83	%
			Zinc (Zn)	2016/12/09		85	%
			Silver (Ag)	2016/12/09	<1.0		ug/L
			Arsenic (As)	2016/12/09	<1.0		ug/L
			Barium (Ba)	2016/12/09	<2.0		ug/L
			Cadmium (Cd)	2016/12/09	<0.20		ug/L
			Chromium (Cr)	2016/12/09	<5.0		ug/L
			Cobalt (Co)	2016/12/09	<1.0		ug/L
			Copper (Cu)	2016/12/09	<1.0		ug/L
			Tin (Sn)	2016/12/09	<2.0		ug/L
1704625	ACM	Spiked blank	Manganese (Mn)	2016/12/09	<1.0		ug/L
			Molybdenum (Mo)	2016/12/09	<1.0		ug/L
			Mercury (Hg)	2016/12/09	<0.10		ug/L
			Nickel (Ni)	2016/12/09	<2.0		ug/L
			Lead (Pb)	2016/12/09	<0.50		ug/L
			Selenium (Se)	2016/12/09	<3.0		ug/L
			Zinc (Zn)	2016/12/09	<7.0		ug/L
			Silver (Ag)	2016/12/09		92	%
			Arsenic (As)	2016/12/09		93	%
			Barium (Ba)	2016/12/09		92	%
			Cadmium (Cd)	2016/12/09		92	%
			Chromium (Cr)	2016/12/09		88	%
			Cobalt (Co)	2016/12/09		89	%
			Copper (Cu)	2016/12/09		87	%
			Tin (Sn)	2016/12/09		96	%
			Manganese (Mn)	2016/12/09		94	%
			Molybdenum (Mo)	2016/12/09		92	%
			Mercury (Hg)	2016/12/09		84	%
			Nickel (Ni)	2016/12/09		88	%
			Lead (Pb)	2016/12/09		91	%

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### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
1704625	ACM	Method blank	Selenium (Se)	2016/12/09		89	%
			Zinc (Zn)	2016/12/09		89	%
			Silver (Ag)	2016/12/09	<0.10		ug/L
			Arsenic (As)	2016/12/09	<0.30		ug/L
			Barium (Ba)	2016/12/09	<2.0		ug/L
			Cadmium (Cd)	2016/12/09	<0.20		ug/L
			Chromium (Cr)	2016/12/09	<0.50		ug/L
			Cobalt (Co)	2016/12/09	<0.50		ug/L
			Copper (Cu)	2016/12/09	<0.50		ug/L
			Tin (Sn)	2016/12/09	<1.0		ug/L
			Manganese (Mn)	2016/12/09	<0.40		ug/L
			Molybdenum (Mo)	2016/12/09	<0.50		ug/L
			Mercury (Hg)	2016/12/09	<0.10		ug/L
			Nickel (Ni)	2016/12/09	<1.0		ug/L
			Lead (Pb)	2016/12/09	<0.10		ug/L
1708097	AS2	Spiked blank	Selenium (Se)	2016/12/09	<1.0		ug/L
			Zinc (Zn)	2016/12/09	<5.0		ug/L
			C13-1,2,3,4,6,7,8-H7CDD	2016/12/20		80	%
			C13-1,2,3,4,6,7,8-H7CDF	2016/12/20		85	%
			C13-1,2,3,6,7,8-H6CDD	2016/12/20		87	%
			C13-1,2,3,6,7,8-H6CDF	2016/12/20		89	%
			C13-1,2,3,7,8-P5CDD	2016/12/20		100	%
			C13-1,2,3,7,8-PCDF	2016/12/20		101	%
			C13-2,3,7,8-TCDD	2016/12/20		80	%
			C13-2,3,7,8-TCDF	2016/12/20		85	%
			C13-OCTA-CDD	2016/12/20		64	%
			2,3,7,8-Tetra CDD	2016/12/20		94	%
			1,2,3,7,8-Penta CDD	2016/12/20		102	%
			1,2,3,4,7,8-Hexa CDD	2016/12/20		94	%
			1,2,3,6,7,8-Hexa CDD	2016/12/20		129	%
			1,2,3,7,8,9-Hexa CDD	2016/12/20		106	%
			1,2,3,4,6,7,8-Hepta CDD	2016/12/20		103	%
			Octachlorodibenzo-p-dioxin	2016/12/20		111	%
			2,3,7,8-Tetra CDF	2016/12/20		107	%
			1,2,3,7,8-Penta CDF	2016/12/20		106	%
			2,3,4,7,8-Penta CDF	2016/12/20		91	%
			1,2,3,4,7,8,-Hexa CDF	2016/12/20		83	%
			1,2,3,6,7,8-Hexa CDF	2016/12/20		110	%
			2,3,4,6,7,8-Hexa CDF	2016/12/20		114	%
			1,2,3,7,8,9-Hexa CDF	2016/12/20		95	%
			1,2,3,4,6,7,8-Hepta CDF	2016/12/20		104	%
			1,2,3,4,7,8,9-Hepta CDF	2016/12/20		91	%
			Octachlorodibenzofuran	2016/12/20		99	%
			C13-1,2,3,4,6,7,8-H7CDD	2016/12/20		82	%
			C13-1,2,3,4,6,7,8-H7CDF	2016/12/20		87	%
			C13-1,2,3,6,7,8-H6CDD	2016/12/20		83	%
			C13-1,2,3,6,7,8-H6CDF	2016/12/20		88	%
			C13-1,2,3,7,8-P5CDD	2016/12/20		99	%
			C13-1,2,3,7,8-PCDF	2016/12/20		108	%
			C13-2,3,7,8-TCDD	2016/12/20		75	%
			C13-2,3,7,8-TCDF	2016/12/20		85	%
			C13-OCTA-CDD	2016/12/20		66	%



Englobe Corp.  
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### QUALITY ASSURANCE REPORT (CONTINUED)

Batch QA/QC	Init	QC Type	Parameter	Date Analyzed	Value	RecovUnits ery
			2,3,7,8-Tetra CDD	2016/12/20	<0.42, EDL=0.42	pg/L
			1,2,3,7,8-Penta CDD	2016/12/20	<0.73, EDL=0.73	pg/L
			1,2,3,4,7,8-Hexa CDD	2016/12/20	<0.29, EDL=0.29	pg/L
			1,2,3,6,7,8-Hexa CDD	2016/12/20	<0.29, EDL=0.29	pg/L
			1,2,3,7,8,9-Hexa CDD	2016/12/20	<0.27, EDL=0.27	pg/L
			1,2,3,4,6,7,8-Hepta CDD	2016/12/20	<0.34, EDL=0.34	pg/L
			Octachlorodibenzo-p-dioxin	2016/12/20	<1.1, EDL=1.1	pg/L
			Total tetrachlorodibenzo-p-dioxins	2016/12/20	<0.42, EDL=0.42	pg/L
			Total pentachlorodibenzo-p-dioxins	2016/12/20	<0.73, EDL=0.73	pg/L
			Total hexachlorodibenzo-p-dioxins	2016/12/20	<0.28, EDL=0.28	pg/L
			Total heptachlorodibenzo-p-dioxins	2016/12/20	<0.34, EDL=0.34	pg/L
			Total chlorodibenzo-p-dioxins	2016/12/20	ND	pg/L
			2,3,7,8-Tetra CDF	2016/12/20	<0.42, EDL=0.42	pg/L
			1,2,3,7,8-Penta CDF	2016/12/20	<0.21, EDL=0.21	pg/L
			2,3,4,7,8-Penta CDF	2016/12/20	<0.22, EDL=0.22	pg/L
			1,2,3,4,7,8,-Hexa CDF	2016/12/20	<0.17, EDL=0.17	pg/L
			1,2,3,6,7,8-Hexa CDF	2016/12/20	<0.15, EDL=0.15	pg/L
			2,3,4,6,7,8-Hexa CDF	2016/12/20	<0.18, EDL=0.18	pg/L
			1,2,3,7,8,9-Hexa CDF	2016/12/20	<0.18, EDL=0.18	pg/L
			1,2,3,4,6,7,8-Hepta CDF	2016/12/20	<0.16, EDL=0.16	pg/L
			1,2,3,4,7,8,9-Hepta CDF	2016/12/20	<0.19, EDL=0.19	pg/L
			Octachlorodibenzofuran	2016/12/20	<0.48, EDL=0.48	pg/L
			Total tetrachlorodibenzofurans	2016/12/20	<0.42, EDL=0.42	pg/L
			Total pentachlorodibenzofurans	2016/12/20	<0.21, EDL=0.21	pg/L
			Total hexachlorodibenzofurans	2016/12/20	<0.17, EDL=0.17	pg/L

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Rec	Units
			Total heptachlorodibenzofurans	2016/12/20	<0.17, EDL=0.17		pg/L
			Total chlorodibenzofurans	2016/12/20	ND		pg/L
1709747	FF	Spiked blank	C13-1,2,3,4,6,7,8-H7CDD	2017/01/03		85	%
			C13-1,2,3,4,6,7,8-H7CDF	2017/01/03		86	%
			C13-1,2,3,6,7,8-H6CDD	2017/01/03		75	%
			C13-1,2,3,6,7,8-H6CDF	2017/01/03		81	%
			C13-1,2,3,7,8-P5CDD	2017/01/03		78	%
			C13-1,2,3,7,8-PCDF	2017/01/03		88	%
			C13-2,3,7,8-TCDD	2017/01/03		60	%
			C13-2,3,7,8-TCDF	2017/01/03		74	%
			C13-OCTA-CDD	2017/01/03		70	%
			2,3,7,8-Tetra CDD	2017/01/03		97	%
			1,2,3,7,8-Penta CDD	2017/01/03		101	%
			1,2,3,4,7,8-Hexa CDD	2017/01/03		101	%
			1,2,3,6,7,8-Hexa CDD	2017/01/03		112	%
			1,2,3,7,8,9-Hexa CDD	2017/01/03		111	%
			1,2,3,4,6,7,8-Hepta CDD	2017/01/03		104	%
			Octachlorodibenzo-p-dioxin	2017/01/03		108	%
			2,3,7,8-Tetra CDF	2017/01/03		111	%
			1,2,3,7,8-Penta CDF	2017/01/03		108	%
			2,3,4,7,8-Penta CDF	2017/01/03		88	%
			1,2,3,4,7,8,-Hexa CDF	2017/01/03		90	%
			1,2,3,6,7,8-Hexa CDF	2017/01/03		107	%
			2,3,4,6,7,8-Hexa CDF	2017/01/03		112	%
			1,2,3,7,8,9-Hexa CDF	2017/01/03		106	%
			1,2,3,4,6,7,8-Hepta CDF	2017/01/03		109	%
			1,2,3,4,7,8,9-Hepta CDF	2017/01/03		86	%
1709747	FF	Method blank	Octachlorodibenzofuran	2017/01/03		93	%
			C13-1,2,3,4,6,7,8-H7CDD	2017/01/03		94	%
			C13-1,2,3,4,6,7,8-H7CDF	2017/01/03		112	%
			C13-1,2,3,6,7,8-H6CDD	2017/01/03		76	%
			C13-1,2,3,6,7,8-H6CDF	2017/01/03		79	%
			C13-1,2,3,7,8-P5CDD	2017/01/03		84	%
			C13-1,2,3,7,8-PCDF	2017/01/03		94	%
			C13-2,3,7,8-TCDD	2017/01/03		59	%
			C13-2,3,7,8-TCDF	2017/01/03		79	%
			C13-OCTA-CDD	2017/01/03		79	%
			2,3,7,8-Tetra CDD	2017/01/03	<0.39, EDL=0.39		pg/L
			1,2,3,7,8-Penta CDD	2017/01/03	<0.33, EDL=0.33		pg/L
			1,2,3,4,7,8-Hexa CDD	2017/01/03	<0.29, EDL=0.29		pg/L
			1,2,3,6,7,8-Hexa CDD	2017/01/03	<0.29, EDL=0.29		pg/L
			1,2,3,7,8,9-Hexa CDD	2017/01/03	<0.24, EDL=0.24		pg/L
			1,2,3,4,6,7,8-Hepta CDD	2017/01/03	<0.31, EDL=0.31		pg/L

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### QUALITY ASSURANCE REPORT (CONTINUED)

Batch QA/QC	Init	QC Type	Parameter	Date Analyzed	Value	Recovery Units ry
			Octachlorodibenzo-p-dioxin	2017/01/03	<0.93, EDL=0.93	pg/L
			Total tetrachlorodibenzo-p-dioxins	2017/01/03	<0.39, EDL=0.39	pg/L
			Total pentachlorodibenzo-p-dioxins	2017/01/03	<0.33, EDL=0.33	pg/L
			Total hexachlorodibenzo-p-dioxins	2017/01/03	<0.27, EDL=0.27	pg/L
			Total heptachlorodibenzo-p-dioxins	2017/01/03	<0.31, EDL=0.31	pg/L
			Total chlorodibenzo-p-dioxins	2017/01/03	ND	pg/L
			2,3,7,8-Tetra CDF	2017/01/03	<0.23, EDL=0.23	pg/L
			1,2,3,7,8-Penta CDF	2017/01/03	<0.19, EDL=0.19	pg/L
			2,3,4,7,8-Penta CDF	2017/01/03	<0.19, EDL=0.19	pg/L
			1,2,3,4,7,8,-Hexa CDF	2017/01/03	<0.23, EDL=0.23	pg/L
			1,2,3,6,7,8-Hexa CDF	2017/01/03	<0.22, EDL=0.22	pg/L
			2,3,4,6,7,8-Hexa CDF	2017/01/03	<0.27, EDL=0.27	pg/L
			1,2,3,7,8,9-Hexa CDF	2017/01/03	<0.29, EDL=0.29	pg/L
			1,2,3,4,6,7,8-Hepta CDF	2017/01/03	<0.17, EDL=0.17	pg/L
			1,2,3,4,7,8,9-Hepta CDF	2017/01/03	<0.22, EDL=0.22	pg/L
			Octachlorodibenzofuran	2017/01/03	<0.30, EDL=0.30	pg/L
			Total tetrachlorodibenzofurans	2017/01/03	<0.21, EDL=0.21	pg/L
			Total pentachlorodibenzofurans	2017/01/03	<0.19, EDL=0.19	pg/L
			Total hexachlorodibenzofurans	2017/01/03	<0.25, EDL=0.25	pg/L
			Total heptachlorodibenzofurans	2017/01/03	<0.19, EDL=0.19	pg/L

Maxxam Job #: B683874  
Report Date: 2017/01/04

Englobe Corp.  
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Your P.O. #: 24541

### QUALITY ASSURANCE REPORT (CONTINUED)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery Units
			Total chlorodibenzofurans	2017/01/03	ND	pg/L
RDL = Reportable Detection Limit						
RCN: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.						
Spiked blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.						
Method blank: An aliquot portion of pure matrix that is submitted to the same analytical process as the samples, from pre-treatment to assaying. Used to identify laboratory contamination.						
Surrogate: Compound of similar composition to the compounds analyzed and added to the pre-analysis sample. Used to evaluate the quality of the extraction.						
EDL = Estimated Detection Limit						
Rec = Recovery						

Maxxam Job #: B683874  
Report Date: 2017/01/04

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### **VALIDATION SIGNATURE PAGE**

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

Aomar Kaidi, B.Sc., Chemist

Caroline Bougie, B.Sc. Chemist

Frederic Arnau, B.Sc., Chemist

Jean Frederic Lamy, B.Sc., Chemist

Karyn Vaucher

Miryam Assayag, B.Sc. Chemist

Maria Chrifi Alaoui, B.Sc., Chemist

Maxxam Job #: B683874  
Report Date: 2017/01/04

Englobe Corp.  
Your project #: DRET  
Your P.O. #: 24541

### **VALIDATION SIGNATURE PAGE (CONTINUED)**

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

Olga Zlatov Polevoi

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.

## **DRET Protocol**

### **Materials**

- Mechanical agitator equipped with a steel rod.
- 4L graduated cylinders.
- Plastic containers (for metal analysis)
- Glass bottles (for organic compound analysis)
- Glass pipette to extract and handle the sample.
- Compressed air source with demineralized water trap.
- Plastic tubes to bubble and extract the sample.
- 0.45  $\mu$ m diameter syringes and filters to filter dissolved metals
- Various appropriate containers to collect pre-analysis samples.

### **Glassware rinsing protocol:**

- Glassware must be carefully cleaned before use. Wash all glassware with detergent, rinse five times with tapwater, fill with a 15% HCl solution for a minimum of 4 hours, rinse five times with tap water, then rinse three times with distilled water. Using a pH strip, verify that the water flowing from the cylinder is between 5 and 6 pH units.

### **DRET protocol:**

**Step 1** – Homogenize the supplied water solution for several minutes using the mechanical mixer (see photo 1)



*Photo 1*

**Step 2** – Use a plastic tube and a rubber suction bulb to siphon a volume of 3.75 L from the water mixture into a 4L graduated cylinder (see photo 2 and 3). After use, rinse the tube and the mixer rod thoroughly with deionized water.



Photo 2



Photo 3

**Step 3-** Add a quantity of pre-weighed sediment to the cylinder containing the water solution to obtain a "sediment/water" mix in a concentration of **1g/3.75L** by dry weight, after determining the water content of each sample. Sediments are weighed in 40 ml vials (see photo 4).

To ensure that the entire sediment quantity is recovered, rinse the vial with 5 to 10 ml of water from the 4L cylinder (see photo 5 and 6), shake the vial well, then transfer the contents to the 4L cylinder. Repeat these steps until the vial is clean.

The table below summarizes the quantities used for each sample as well as the % of moisture (see Table 1):

Table 1

Sample ID	Water content (%)	Moist sediment weight (g)	Equivalent dry weight (g)
CAR-08-1	67	3.223	1.063
CAR-10-2	65.7	3.013	1.033



CAR-10-2 DUP	65.7	3.227	1.106
SED-05-01	76.5	4.427	1.040
SED-11	73.5	3.924	1.039



Photo 4



Photo 5



Photo 6

If the sediment is not dispersed in the solution and contains agglomerates, the suspension must be mixed with the mechanical mixer for 5 minutes.

**Step 4-** Bubble the prepared suspension (see photo 7). Bubble aeration is used to shake the sample. A plastic tube is attached to the 4L cylinder. Compressed air passes through an ionized water trap (see photo 8), by way of a plastic tube to bubble the suspension (see photo 9). The flow is adjusted to 20 Psi in order to vigorously shake the mixture for 1 hour.



Photo 7



Photo 8



Photo 9

**Step 5-** Let the suspension settle for 1 hour after removing the plastic tube (see photo 10).



Photo 10

**Step 6** – Extract the sample after the settling period.

Using a pipette attached to a plastic tube, siphon the supernatant water from the cylinder into a point located at least 2 inches above the surface containing the sediment (see photo 11).



Photo 11

**Step 7** - The extracted solution is placed in appropriate containers depending on which analyses have been requested (see photo 12):

- Metals (total / dissolved)
- Dioxin (total / dissolved)
- PCB (total / dissolved)
- PAH (total / dissolved)
- Suspended solids (SS)



Photo 12

Dissolved metals are identified after filtration using a 0.45  $\mu\text{m}$  filter.  
Dissolved organic compounds are identified after centrifugation at 3000 rpm for 10 minutes.

**Appendix 4 Location and Results of Seismic Surveys**

Mr. Alain Zubrzycki  
December 5, 2016

December 5, 2016

Sent by e-mail: [az@thermoroc.com](mailto:az@thermoroc.com)  
Our ref.: M-16370

Mr. Alain Zubrzycki, M.Sc.  
President  
THERMOROC INC.  
367 rue Victoria  
Quebec City, Quebec J6T 1B5

Re: Seismic refraction survey at Beauharnois

Dear Sir,

## INTRODUCTION

The services of Geophysics GPR International Inc. were retained on November 22, 2016 to carry out seismic refraction surveys around the vessel grounded at Beauharnois. The surveys were carried out over 3 lines, 2 of which were perpendicular, on the shore near the future embankment that will be used to place the vessel in dry dock (cf. Site Map).

The goal of the surveys was to trace the topography of the bedrock and assess its quality, as far as possible. The lines also took into account 2 exploratory boreholes carried out by Thermoroc in the area.

The on-site surveys began on November 24 and ended on November 26, 2016.

## PERSONNEL AND EQUIPMENT

The surveys were carried out using an ABEM MK-6 24-channel seismic instrument, as well as a cable with 24 floating hydrophone, allowing for hydrophones 3 metres apart to be placed at a depth of 0.75 m. The energy source used, "Air Gun"-type compressed air (2000 psi), had a 40 ft<sup>3</sup> chamber. The equipment also included all accessories inherently associated with this type of survey.

Personnel were:

- Richard Reid, Eng., Geoph.;
- Christian Chatel, Positioning Specialist;
- Benoît Maillé, "Air gun" Specialist;
- Patrick Therrien, Eng., MK-6 Operator.



SITE MAP



Lines SL-1 and SL-2 (perpendicular to the shore) were detected in stationary mode with the MK-6 installed on the shore, while line SL-3 (parallel to the shore) was detected continuously with shots every 40 metres, using 4 passes, 2 with inner shots (5 m in both directions) and 2 with outer shots (50 m in both directions).

In total, 50 shots were sufficient to obtain data.

## RESULTS

Geologically speaking, the site is located in the "Châteauguay" formation. This is POTSDAM sandstone, and there is no major fault line listed. We expected to measure bedrock speeds of greater than 4500 m/sec.

The results are presented below as a true-scale seismic section.

The area under investigation is approximately 90 m x 200 m. The depth of the bedrock varies from semi-outcropping up to 15 metres, to shallower (SL-1) toward the south-west, to deeper (SL-2 and SL-3) toward the north-east.

The measured bedrock speeds vary from 3600 to 4300 m/sec., with the 3600 m/sec speed corresponding to the fractured or altered bedrock detected in TF-1.

A seismic wave propagation speed of 1500/m sec was measured above the bedrock. This matches the propagation speed in the water and in the underwater sediment.

The till layer detected in the boreholes, 4 m thick in TF-1 and 1 m in TF-2, is too thin to be detected, considering the depth and the presumed low-contrast speed; consequently, a propagation speed of 1500 m/sec was used to calculate the depth of the bedrock. Therefore, it is possible that the depth of the bedrock is slightly deeper.

A rather interesting phenomenon was observed, which is clear from these surveys: the quality of the recordings (signal recorded by the hydrophones) varied from excellent to mediocre. The presence of gas in the sediments, caused by the decomposition of organic matter, causes the signal to be diffracted in the gas bubbles rather than refracted upon contact with the layers. At SL-3, from west to east, the signal passes systematically from sediment with no organic matter to sediment with decomposing organic matter and a transition zone 40 to 50 metres in width.

Also, the accuracy of the interpretation is estimated to be  $\pm 1$  m for depths below 10 metres, and 10% for deeper depths, where the data quality is excellent. Accuracy of 20% is expected where the quality of the recordings is weaker, i.e. in the north-east sector and at SL-3.

There is every reason to believe that this decomposing organic matter comes from, or could have been attracted by, the water intake of the factory that used to operate on this site.

## CONCLUSION

We believe that these results will be very useful in planning the future construction work.

If additional geophysical surveys are required to obtain more details or more precise information, a more powerful energy source should be used for seismic refraction, such as the 120 in<sup>3</sup> or even 240 in<sup>3</sup> "Air gun".

It would even be possible to use a complementary electromagnetic geophysical method, such as georadar, which would allow the signal to pass through the gas bubbles, penetrate the sediments and reflect off of the

Mr. Alain Zubrzycki  
December 5, 2016

underlying layers. This method would also help differentiate between soft and till contact sediment, considering their different dielectric properties; the limitation is due to the thickness of the water vs. its conductivity.

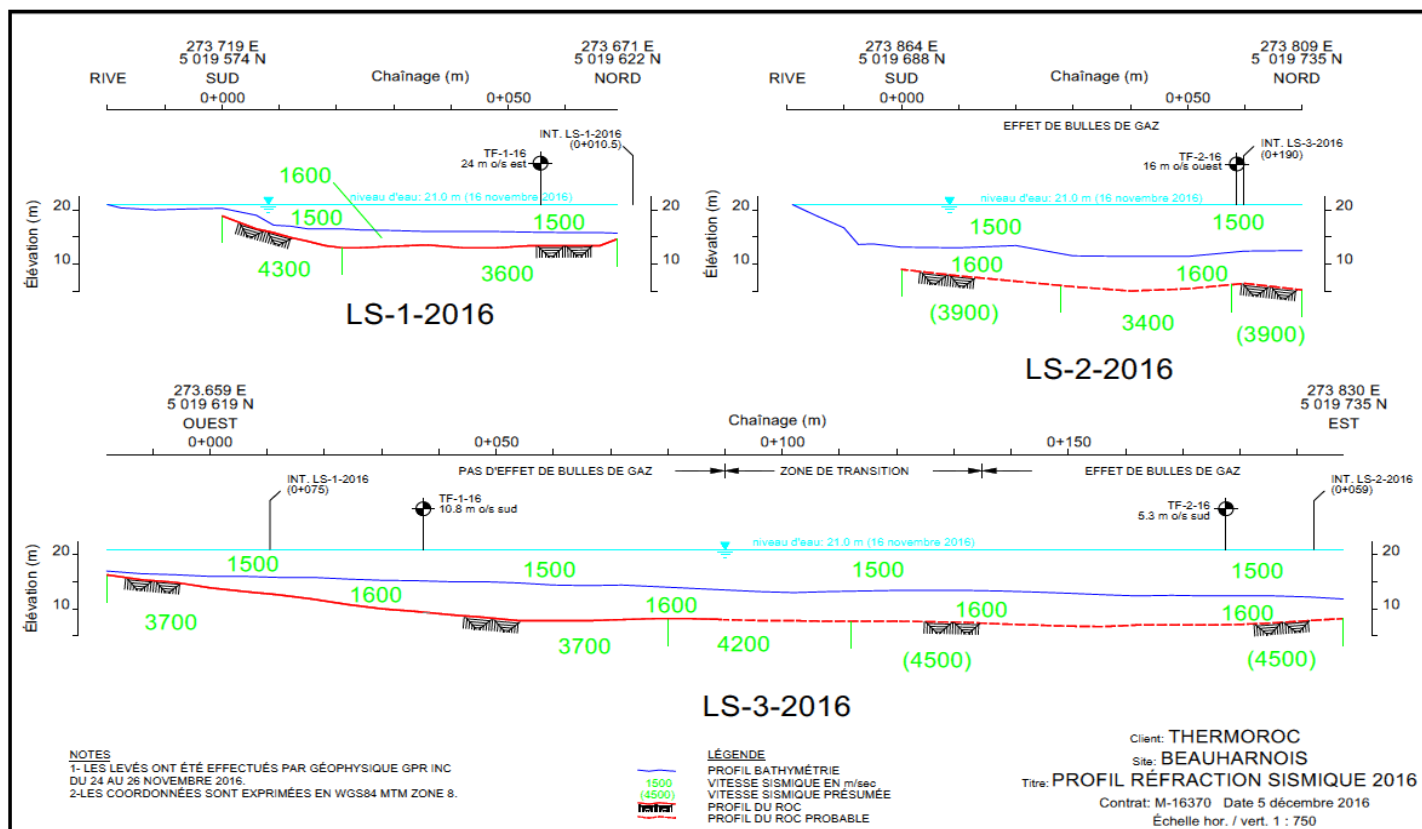
We would like to thank all stakeholders for their close collaboration.

Richard Reid, Eng., Geoph.

c.c. David Thibeault (david.thibeault@englobeco.rcpom)

RR/vsg

encl.



RIVE	SHORE
SUD	SOUTH
Chainage (m)	Chainage (m)
NORD	NORTH
EFFET DE BULLES DE GAZ	EFFECT OF GAS BUBBLES
Élévation (m)	Elevation (m)
niveau d'eau : 21,0 m (16 novembre 2016)	water level: 21.0 m (November 16, 2016)
16 m o/s ouest	16 m w/s west
OUEST	WEST
EST	EAST
PAS D'EFFET DE BULLES DE GAZ	NO EFFECT FROM GAS BUBBLES
ZONE DE TRANSITION	TRANSITION AREA
NOTES	NOTES
1. LES LEVÉS ONT ÉTÉ EFFECTUÉS PAR GÉOPHYSIQUE GPR INC DU 24 AU 26 NOVEMBRE 2016.	1. THE SURVEYS WERE CARRIED OUT BY GEOPHYSICS GPR INC FROM NOVEMBER 24 TO 26, 2016
2. LES COORDONNÉES SONT EXPRIMÉES EN WGS84 MTM ZONE 8.	2. COORDINATES ARE EXPRESSED IN WGS84 MTM ZONE 8.
LÉGENDE	LEGEND
PROFIL BATHYMÉTRIE	BATHYMETRY PROFILE
VITESSE SISMIQUE EN m/sec	SEISMIC SPEED IN m/sec
VITESSE SISMIQUE PRÉSUMÉE	PRESUMED SEISMIC SPEED
PROFIL DU ROC	BEDROCK PROFILE
PROFIL DU ROC PROBABLE	LIKELY BEDROCK PROFILE
Client : THERMOROC	Customer: THERMOROC
Site : BEAUHARNOIS	Location: BEAUHARNOIS
Titre : PROFIL RÉFRACTION SISMIQUE 2016	Title: 2016 SEISMIC REFRACTION PROFILE
Contrat : M-16370	Contract: M-16370
Date 5 décembre 2016	Date December 5, 2016
Échelle hor. / vert. 1 : 750	Hor. / vert. scale 1: 750

**Appendix 5 Usual Limitations**

## **SCOPE AND LIMITATIONS**

### **1. CHARACTERISTICS OF SOIL AND BEDROCK**

The soil and bedrock characteristics described in this report originate from boreholes and/or surveys conducted within a given period and correspond to the nature of the terrain only at the specific locations where these boreholes and surveys were carried out. These characteristics may vary significantly between the borehole and survey points.

Soil and bedrock formations have natural variations. The limits between the different formations presented in the reports must therefore be considered as transitions between the formations rather than set boundaries. The precision of these limits depends on the type and number of surveys, the survey methods used, as well as sampling frequency and methods.

The descriptions of the samples taken are based on recognized identification and classification methods used in geotechnics. They can call into play the judgement and interpretation of the personnel who carried out the examination of the materials. They can be presumed to be accurate and correct in keeping with current best practices in the field of geotechnics. Finally, if tests were carried out, the results of these tests apply solely to the samples tested, as described in this report.

The properties of the soil and bedrock can undergo significant modifications in the wake of construction activities such as excavation, blasting, pile driving or drainage activities, carried out on the site under study or an adjacent site. They can also be indirectly modified if the soil or bedrock is frozen or exposed to inclement weather.

### **2. GROUNDWATER**

The groundwater conditions presented in this report apply only to the site under study. The accuracy and representation of these conditions must be interpreted based on the type of instrumentation used, as well as the period, duration and number of observations carried out. These conditions may vary, depending on precipitation, the season and, ultimately, the tides. They can also vary as a result of construction activities or the modification of physical elements on the site under study or in its vicinity. The problem of ferrous ochre and its effects is not covered in this report.

### **3. USING THE REPORT**

The comments and recommendations contained in this report are intended primarily for the project's design team. The number of boreholes or surveys required to identify all of the underground conditions that could impact construction costs, techniques, the choice of equipment and planning of operations could be greater than the number of boreholes or surveys required for design purposes. All contractors bidding on or carrying out the work must undertake their own interpretation of the results of the boreholes and surveys and, if need be, carry out their own investigations to determine how site conditions could influence their operations or work methods.

Any modifications to the design, position and elevation of the works must be quickly communicated to Englobe, allowing the validity of the recommendations presented to be verified. Complementary site or laboratory work could ultimately be required.

The report must not be reproduced, except in full, without the approval of Englobe.

### **4. PROJECT FOLLOW-UP**

The interpretation of the on-site and laboratory results obtained, as well as the recommendations presented in this report, apply solely to the site under study and to the information available about the project at the time this report was drafted.

Information available concerning the site and groundwater conditions increases as construction work progresses. As site conditions were interpreted and correlated between borehole and survey points, Englobe should be allowed to verify these conditions, during site visits conducted as work progresses, in order to confirm the information provided by the boreholes and surveys. If it is not possible for us to conduct these verifications, Englobe shall assume no responsibility for

geotechnical interpretations by third parties concerning recommendations contained in this report, particularly if the design has been modified or if site conditions differ from those described in this report are encountered. The identification of such changes requires experience, and must be carried out by an experienced geotechnical engineer.

## 5. ENVIRONMENT

This report, and the data to which it refers, is intended for the exclusive use of Client and must be used only for the purposes for which it was intended. In all cases, this report must be used by the Client in its entirety. Englobe Corp. (Englobe) accepts no responsibility for the use of extracts of this report or non-compliant use of this report by the Client.

Without limiting the generality of the foregoing, and subject to the limits specified in the report, this report reflects the opinion of Englobe on the condition of the sites observed during the execution of the mandate and/or on the dates indicated in this report, and is also based on the information available at the time. The report covers only the site described herein and is based on visual observations made at the site, on underground research at specific sites and depths and on the specific analysis of precise chemical and material parameters during a prescribed period of time, as described in the report. The soil conditions presented in this report, as well as the physical and chemical conditions of sediments and groundwater, may vary between surveys, depending on the season and the measuring equipment used during the work. Unless otherwise indicated, the conclusions of this report cannot be extrapolated to cover the previous or subsequent condition of the site, parts of the site that were not available for direct investigation, or chemical, material, or analysis parameters that were not examined. Substances other than those that were investigated in this report may exist on the site, substances investigated in this report may exist in areas of the site that were not part of the investigation, and concentrations of substances investigated in this report that are different from those indicated in the report may exist in areas of the site other than those where samples were taken. The objective of this report is not to identify soils from a geotechnical point of view, and under no circumstances should the report be used to design and/or carry out construction work, unless this intention is specifically indicated.

If the condition of the site or the applicable standards change or additional information becomes available after this report is transmitted, the report may then be modified after an additional mandate is awarded.

In the event that no policies, regulations, or criteria are available to permit the interpretation of data, the comments, recommendations and conclusions expressed in this report are based on generally recognized regulations and practices.

Use of this report and its contents by a third party is formally prohibited without the prior express written approval of Englobe and the Client. Any third party using this report and its contents assumes full responsibility; to this end, Englobe makes no guarantee and assumes no obligation toward third parties, nor any responsibility whatsoever for any losses, fees, damages, fines, penalties, and other direct or indirect claims made by third parties due to the use of this report and its content.

Nothing in this report should be construed as a legal opinion or legal advice.