H. Laboratory Testing Results of BH1 and BH2

H.1 Laboratory Testing Results of BH1

H.2 Laboratory Testing Results of BH2

Appendix H.1

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: MOTT MACDONALD HONG KONG LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 12
Contact	: THOMAS CHAN	Contact	: Richard Fung	Work Order	: HK1942798
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Telephone	: +852 2828 5933	Telephone	: +852 2610 1044		
Facsimile	: +852 2828 1823	Facsimile	: +852 2610 2021		
Project	: SOIL TESTING AT HONG KONG AIRPORT			Date Samples Received	: 04-Oct-2019
Order number	: ----	Quote number	: HKE/1861c/2018	Issue Date	: 16-Oct-2019
C-O-C number	: H037888			No. of samples received	: 4
Site	: CONTRACT NO. C3503 TERMINAL 2 FOUNDATION AND SUBSTRUCTURE WORKS			No. of samples analysed	: 4

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Anh Ngoc Huynh .	Senior Chemist	Organics_ENV
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 04-Oct-2019 to 15-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1942798

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: SOIL			Client sample ID	BH1-700MBS	BH1-1600MBS	BH1-UNDERS500	----	----
			Client sampling date / time	04-Oct-2019	04-Oct-2019	04-Oct-2019	----	----
Compound	CAS Number	LOR	Unit	HK1942798-001	HK1942798-002	HK1942798-003	-------	-------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	20.2	19.4	13.6	----	----
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	9	8	38	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)								
EP076HK: Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Dibenz(a.h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP076HK: Benzo(g.h.i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)								
EP070HK_SR: C6 - C8 Fraction	----	5	mg/kg	<5	<5	<5	----	----
EP071HK_SR: C9 - C16 Fraction	----	200	mg/kg	<200	<200	<200	----	----
EP071HK_SR: C17 - C35 Fraction	----	500	mg/kg	<500	<500	<500	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)								
EP074_SR: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
EP074_SR: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EP074_SR: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Sub-Matrix: SOIL			Client sample ID	BH1-700MBS	BH1-1600MBS	BH1-UNDERS500	----	----
			Client sampling date / time	04-Oct-2019	04-Oct-2019	04-Oct-2019	----	----
Compound	CAS Number	LOR	Unit	HK1942798-001	HK1942798-002	HK1942798-003	-------	-------
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) - Continued								
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0	----	----
EP074_SR: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EP074_SR: Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	<2.0	----	----
EP-074_SR-I: Methyl-tert-butyl Ether								
EP074_SR: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
EP076HK: 2-Fluorobiphenyl	321-60-8	0.1	%	79.6	83.7	88.5	----	----
EP076HK: 4-Terphenyl-d14	1718-51-0	0.1	%	90.1	89.9	87.5	----	----
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
EP070HK_SR: Dibromofluoromethane	1868-53-7	0.1	%	94.2	94.4	93.1	----	----
EP070HK_SR: Toluene-D8	2037-26-5	0.1	%	105	105	106	----	----
EP070HK_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	102	102	100	----	----
EP-074_SR-S: VOC Surrogates								
EP074_SR: Dibromofluoromethane	1868-53-7	0.1	%	94.2	94.4	93.1	----	----
EP074_SR: Toluene-D8	2037-26-5	0.1	%	105	105	106	----	----
EP074_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	102	102	100	----	----

Sub-Matrix: WATER			Client sample ID	Trip Blank	----	----	----	----
			Client sampling date / time	04-Oct-2019	----	----	----	----
Compound	CAS Number	LOR	Unit	HK1942798-004	-------	-------	-------	-------
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)								
EP070HK_SR: C6 - C8 Fraction	----	20	µg/L	<20	----	----	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)								
EP074_SR: Benzene	71-43-2	5.0	µg/L	<5.0	----	----	----	----
EP074_SR: Toluene	108-88-3	5.0	µg/L	<5.0	----	----	----	----
EP074_SR: Ethylbenzene	100-41-4	5.0	µg/L	<5.0	----	----	----	----
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	10	µg/L	<10	----	----	----	----
EP074_SR: ortho-Xylene	95-47-6	5.0	µg/L	<5.0	----	----	----	----
EP074_SR: Xylenes (Total)	----	20	µg/L	<20	----	----	----	----
EP-074_SR-I: Methyl-tert-butyl Ether								
EP074_SR: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	----	----	----	----
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
EP070HK_SR: Dibromofluoromethane	1868-53-7	0.1	%	107	----	----	----	----
EP070HK_SR: Toluene-D8	2037-26-5	0.1	%	108	----	----	----	----
EP070HK_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	101	----	----	----	----
EP-074_SR-S: VOC Surrogates								
EP074_SR: Dibromofluoromethane	1868-53-7	0.1	%	107	----	----	----	----
EP074_SR: Toluene-D8	2037-26-5	0.1	%	108	----	----	----	----
EP074_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	101	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2630253)								
HK1942798-001	BH1-700MBS	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	20.2	20.0	1.14
HK1943120-005	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	12.6	12.6	0.00
EG: Metals and Major Cations (QC Lot: 2631832)								
HK1942473-001	Anonymous	**EG020: Lead**	7439-92-1	1	mg/kg	57	52	9.04
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 2627021)								
HK1942736-001	Anonymous	**Naphthalene**	91-20-3	50	µg/kg	<50	<50	0.00
		Acenaphthylene	208-96-8	50	µg/kg	<50	<50	0.00
		Acenaphthene	83-32-9	50	µg/kg	<50	<50	0.00
		Fluorene	86-73-7	50	µg/kg	<50	<50	0.00
		Phenanthrene	85-01-8	50	µg/kg	<50	<50	0.00
		Anthracene	120-12-7	50	µg/kg	<50	<50	0.00
		Fluoranthene	206-44-0	50	µg/kg	<150	<150	0.00
		Pyrene	129-00-0	50	µg/kg	<150	<150	0.00
		Benz(a)anthracene	56-55-3	50	µg/kg	<150	<150	0.00
		Chrysene	218-01-9	50	µg/kg	<150	<150	0.00
		Benzo(b)fluoranthene	205-99-2	50	µg/kg	<150	<150	0.00
		Benzo(k)fluoranthene	207-08-9	50	µg/kg	<150	<150	0.00
		Benzo(a)pyrene	50-32-8	50	µg/kg	<150	<150	0.00
		Indeno(1.2.3.cd)pyrene	193-39-5	50	µg/kg	<150	<150	0.00
		Dibenz(a.h)anthracene	53-70-3	50	µg/kg	<150	<150	0.00
		Benzo(g.h.i)perylene	191-24-2	50	µg/kg	<150	<150	0.00
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2618554)								
HK1941870-001	Anonymous	**C6 - C8 Fraction**	----	5	mg/kg	<5	<5	0.00
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2627023)								
HK1942736-001	Anonymous	**C9 - C16 Fraction**	----	200	mg/kg	<200	<200	0.00
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.00
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2627026)								
HK1942798-001	BH1-700MBS	**EP074_SR: Benzene**	71-43-2	0.1	mg/kg	<0.2	<0.2	0.00
		EP074_SR: Toluene	108-88-3	0.2	mg/kg	<0.5	<0.5	0.00
		EP074_SR: Ethylbenzene	100-41-4	0.2	mg/kg	<0.5	<0.5	0.00

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
				Laboratory Duplicate (DUP) Report				
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2627026) - Continued								
HK1942798-001	BH1-700MBS	**EP074_SR: ortho-Xylene**	95-47-6	0.2	mg/kg	<0.5	<0.5	0.00
		EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<1.0	<1.0	0.00
		EP074_SR: Xylenes (Total)	----	1	mg/kg	<2.0	<2.0	0.00
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2627026)								
HK1942798-001	BH1-700MBS	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.2	mg/kg	<0.2	<0.2	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
		LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2631832)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	99.0	----	92.0	115	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 2627021)											
Naphthalene	91-20-3	50	µg/kg	<50	25 µg/kg	76.6	----	52.0	116	----	----
Acenaphthylene	208-96-8	50	µg/kg	<50	25 µg/kg	86.4	----	48.0	107	----	----
Acenaphthene	83-32-9	50	µg/kg	<50	25 µg/kg	79.6	----	55.0	109	----	----
Fluorene	86-73-7	50	µg/kg	<50	25 µg/kg	81.7	----	53.0	119	----	----
Phenanthrene	85-01-8	50	µg/kg	<50	25 µg/kg	80.6	----	70.0	106	----	----
Anthracene	120-12-7	50	µg/kg	<50	25 µg/kg	82.4	----	35.0	108	----	----
Fluoranthene	206-44-0	50	µg/kg	<50	25 µg/kg	84.4	----	60.0	125	----	----
Pyrene	129-00-0	50	µg/kg	<50	25 µg/kg	84.1	----	60.0	124	----	----
Benz(a)anthracene	56-55-3	50	µg/kg	<50	25 µg/kg	79.0	----	53.0	120	----	----
Chrysene	218-01-9	50	µg/kg	<50	25 µg/kg	79.6	----	56.0	133	----	----
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	25 µg/kg	81.0	----	56.0	130	----	----
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	25 µg/kg	78.6	----	64.0	128	----	----
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	25 µg/kg	77.7	----	24.0	119	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	50	µg/kg	<50	25 µg/kg	81.9	----	47.0	128	----	----
Dibenz(a.h)anthracene	53-70-3	50	µg/kg	<50	25 µg/kg	77.3	----	55.0	114	----	----
Benzo(g.h.i)perylene	191-24-2	50	µg/kg	<50	25 µg/kg	77.7	----	44.0	128	----	----

Matrix: **SOIL**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2618554)											
C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	103	----	78.0	131	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2627023)											
C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	104	----	70.0	118	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	81.0	----	50.0	111	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2627026)											
EP074_SR: Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	104	----	86.0	122	----	----
EP074_SR: Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	105	----	86.0	123	----	----
EP074_SR: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	103	----	87.0	121	----	----
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.5 mg/kg	94.8	----	83.0	118	----	----
EP074_SR: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	104	----	85.0	117	----	----
EP074_SR: Xylenes (Total)	----	1	mg/kg	<1.0	0.75 mg/kg	98.0	----	85.0	116	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2627026)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	90.3	----	77.0	104	----	----

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2627962)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	0.03 mg/L	87.0	----	74.0	120	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2627961)											
EP074_SR: Benzene	71-43-2	0.5	µg/L	<0.5	2 µg/L	117	----	80.0	127	----	----
EP074_SR: Toluene	108-88-3	0.5	µg/L	<0.5	2 µg/L	117	----	76.0	128	----	----
EP074_SR: Ethylbenzene	100-41-4	0.5	µg/L	<0.5	2 µg/L	118	----	74.0	121	----	----
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	1	µg/L	<1	4 µg/L	107	----	77.0	107	----	----
EP074_SR: ortho-Xylene	95-47-6	0.5	µg/L	<0.5	2 µg/L	118	----	82.0	124	----	----
EP074_SR: Xylenes (Total)	----	2	µg/L	<2	6 µg/L	110	----	82.0	113	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2627961)											

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2627961) - Continued											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	2 µg/L	107	----	61.0	120	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2631832)										
HK1941888-001	Anonymous	**EG020: Lead**	7439-92-1	5 mg/kg	84.6	----	75.0	125	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 2627021)										
HK1941888-001	Anonymous	**Naphthalene**	91-20-3	250 µg/kg	77.2	----	50.0	130	----	----
		Acenaphthylene	208-96-8	250 µg/kg	85.8	----	50.0	130	----	----
		Acenaphthene	83-32-9	250 µg/kg	79.0	----	50.0	130	----	----
		Fluorene	86-73-7	250 µg/kg	82.4	----	50.0	130	----	----
		Phenanthrene	85-01-8	250 µg/kg	81.4	----	50.0	130	----	----
		Anthracene	120-12-7	250 µg/kg	82.4	----	50.0	130	----	----
		Fluoranthene	206-44-0	250 µg/kg	84.2	----	50.0	130	----	----
		Pyrene	129-00-0	250 µg/kg	84.1	----	50.0	130	----	----
		Benz(a)anthracene	56-55-3	250 µg/kg	76.8	----	50.0	130	----	----
		Chrysene	218-01-9	250 µg/kg	77.1	----	50.0	130	----	----
		Benzo(b)fluoranthene	205-99-2	250 µg/kg	79.1	----	50.0	130	----	----
		Benzo(k)fluoranthene	207-08-9	250 µg/kg	75.1	----	50.0	130	----	----
		Benzo(a)pyrene	50-32-8	250 µg/kg	73.9	----	50.0	130	----	----
		Indeno(1.2.3.cd)pyrene	193-39-5	250 µg/kg	79.2	----	50.0	130	----	----
		Dibenz(a.h)anthracene	53-70-3	250 µg/kg	74.0	----	50.0	130	----	----
		Benzo(g.h.i)perylene	191-24-2	250 µg/kg	76.2	----	50.0	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2618554)										
HK1941871-001	Anonymous	**C6 - C8 Fraction**	----	4.5 mg/kg	100	----	50.0	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2627023)										
HK1942736-001	Anonymous	**C9 - C16 Fraction**	----	31.5 mg/kg	94.7	----	50.0	130	----	----
		C17 - C35 Fraction	----	67.5 mg/kg	64.1	----	50.0	130	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2627026)										
HK1942798-002	BH1-1600MBS	**EP074_SR: Benzene**	71-43-2	0.25 mg/kg	94.2	----	50.0	130	----	----
		EP074_SR: Toluene	108-88-3	0.25 mg/kg	102	----	50.0	130	----	----
		EP074_SR: Ethylbenzene	100-41-4	0.25 mg/kg	105	----	50.0	130	----	----

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report: Spike Concentration	Spike Recovery (%): MS	Spike Recovery (%): MSD	Recovery Limits (%): Low	Recovery Limits (%): High	RPD (%): Value	RPD (%): Control Limit
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2627026) - Continued										
HK1942798-002	BH1-1600MBS	**EP074_SR: meta- & para-Xylene**	108-38-3 106-42-3	0.5 mg/kg	96.7	----	50.0	130	----	----
		EP074_SR: ortho-Xylene	95-47-6	0.25 mg/kg	104	----	50.0	130	----	----
		EP074_SR: Xylenes (Total)	----	0.75 mg/kg	99.3	----	50.0	130	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2627026)										
HK1942798-002	BH1-1600MBS	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.25 mg/kg	78.8	----	50.0	130	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%): Low	Recovery Limits (%): High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%): Low	Recovery Limits (%): High
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-074_SR-S: VOC Surrogates			

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP-074_SR-S: VOC Surrogates - Continued			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115

Appendix H.2

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066 TEST

CERTIFICATE OF ANALYSIS

Client	: MOTT MACDONALD HONG KONG LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 12
Contact	: THOMAS CHAN	Contact	: Richard Fung	Work Order	: HK1947016
Address	: 3/F INTERNATIONAL TRADE TOWER, 348 KWUN TONG ROAD, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas.chan@mottmac.com	E-mail	: richard.fung@alsglobal.com		
Telephone	: +852 2828 5933	Telephone	: +852 2610 1044		
Facsimile	: +852 2828 1823	Facsimile	: +852 2610 2021		
Project	: SOIL TESTING AT HONG KONG AIRPORT			Date Samples Received	: 04-Nov-2019
Order number	: ----	Quote number	: HKE/1861c/2018	Issue Date	: 13-Nov-2019
C-O-C number	: H037995			No. of samples received	: 5
Site	: CONTRACT NO. C3503 TERMINAL 2 FOUNDATION AND SUBSTRUCTURE WORKS			No. of samples analysed	: 5

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Anh Ngoc Huynh .	Senior Chemist	Organics_ENV
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 04-Nov-2019 to 12-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1947016

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The result(s) of soil sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: SOIL			Client sample ID	NCTS1	BH2-S3	BH2-S1	BH2-S2	----
			Client sampling date / time	04-Nov-2019	04-Nov-2019	04-Nov-2019	04-Nov-2019	----
Compound	CAS Number	LOR	Unit	HK1947016-001	HK1947016-002	HK1947016-003	HK1947016-004	-------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	8.8	12.2	15.1	12.6	----
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	9	48	52	80	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)								
EP076HK: Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Dibenz(a.h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP076HK: Benzo(g.h.i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)								
EP070HK_SR: C6 - C8 Fraction	----	5	mg/kg	<5	<5	<5	<5	----
EP071HK_SR: C9 - C16 Fraction	----	200	mg/kg	<200	<200	<200	<200	----
EP071HK_SR: C17 - C35 Fraction	----	500	mg/kg	<500	<500	<500	<500	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)								
EP074_SR: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
EP074_SR: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
EP074_SR: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----

Sub-Matrix: SOIL			Client sample ID	NCTS1	BH2-S3	BH2-S1	BH2-S2	----
			Client sampling date / time	04-Nov-2019	04-Nov-2019	04-Nov-2019	04-Nov-2019	----
Compound	CAS Number	LOR	Unit	HK1947016-001	HK1947016-002	HK1947016-003	HK1947016-004	-------
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) - Continued								
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	----
EP074_SR: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
EP074_SR: Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	<2.0	<2.0	----
EP-074_SR-I: Methyl-tert-butyl Ether								
EP074_SR: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
EP076HK: 2-Fluorobiphenyl	321-60-8	0.1	%	90.6	96.6	80.4	79.0	----
EP076HK: 4-Terphenyl-d14	1718-51-0	0.1	%	89.2	94.6	77.1	75.9	----
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
EP070HK_SR: Dibromofluoromethane	1868-53-7	0.1	%	96.7	100	98.6	96.3	----
EP070HK_SR: Toluene-D8	2037-26-5	0.1	%	97.5	96.8	97.0	96.5	----
EP070HK_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	108	107	103	106	----
EP-074_SR-S: VOC Surrogates								
EP074_SR: Dibromofluoromethane	1868-53-7	0.1	%	96.7	100	98.6	96.3	----
EP074_SR: Toluene-D8	2037-26-5	0.1	%	97.5	96.8	97.0	96.5	----
EP074_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	108	107	103	106	----

Sub-Matrix: WATER			Client sample ID	Trip Blank	----	----	----	----
			Client sampling date / time	04-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	HK1947016-005	-------	-------	-------	-------
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)								
EP070HK_SR: C6 - C8 Fraction	----	20	µg/L	<20	----	----	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)								
EP074_SR: Benzene	71-43-2	5.0	µg/L	<5.0	----	----	----	----
EP074_SR: Toluene	108-88-3	5.0	µg/L	<5.0	----	----	----	----
EP074_SR: Ethylbenzene	100-41-4	5.0	µg/L	<5.0	----	----	----	----
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	10	µg/L	<10	----	----	----	----
EP074_SR: ortho-Xylene	95-47-6	5.0	µg/L	<5.0	----	----	----	----
EP074_SR: Xylenes (Total)	----	20	µg/L	<20	----	----	----	----
EP-074_SR-I: Methyl-tert-butyl Ether								
EP074_SR: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	----	----	----	----
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
EP070HK_SR: Dibromofluoromethane	1868-53-7	0.1	%	100	----	----	----	----
EP070HK_SR: Toluene-D8	2037-26-5	0.1	%	102	----	----	----	----
EP070HK_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	104	----	----	----	----
EP-074_SR-S: VOC Surrogates								
EP074_SR: Dibromofluoromethane	1868-53-7	0.1	%	100	----	----	----	----
EP074_SR: Toluene-D8	2037-26-5	0.1	%	102	----	----	----	----
EP074_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	104	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2688419)								
HK1947016-001	NCTS1	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	8.8	8.9	1.56
EG: Metals and Major Cations (QC Lot: 2682979)								
HK1946899-002	Anonymous	**EG020: Lead**	7439-92-1	1	mg/kg	64	71	11.0
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 2681400)								
HK1946725-001	Anonymous	**Naphthalene**	91-20-3	50	µg/kg	<50	<50	0.00
		Acenaphthylene	208-96-8	50	µg/kg	<50	<50	0.00
		Acenaphthene	83-32-9	50	µg/kg	<50	<50	0.00
		Fluorene	86-73-7	50	µg/kg	<50	<50	0.00
		Phenanthrene	85-01-8	50	µg/kg	104	94	10.6
		Anthracene	120-12-7	50	µg/kg	<50	<50	0.00
		Fluoranthene	206-44-0	50	µg/kg	<150	<150	0.00
		Pyrene	129-00-0	50	µg/kg	162	158	2.12
		Benz(a)anthracene	56-55-3	50	µg/kg	<150	<150	0.00
		Chrysene	218-01-9	50	µg/kg	<150	<150	0.00
		Benzo(b)fluoranthene	205-99-2	50	µg/kg	<150	<150	0.00
		Benzo(k)fluoranthene	207-08-9	50	µg/kg	<150	<150	0.00
		Benzo(a)pyrene	50-32-8	50	µg/kg	<150	<150	0.00
		Indeno(1.2.3.cd)pyrene	193-39-5	50	µg/kg	<150	<150	0.00
		Dibenz(a.h)anthracene	53-70-3	50	µg/kg	<150	<150	0.00
		Benzo(g.h.i)perylene	191-24-2	50	µg/kg	<150	<150	0.00
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2683067)								
HK1947016-001	NCTS1	**C9 - C16 Fraction**	----	200	mg/kg	<200	<200	0.00
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.00
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2683069)								
HK1947016-001	NCTS1	**C6 - C8 Fraction**	----	5	mg/kg	<5	<5	0.00
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2683070)								
HK1947016-001	NCTS1	**EP074_SR: Benzene**	71-43-2	0.1	mg/kg	<0.2	<0.2	0.00
		EP074_SR: Toluene	108-88-3	0.2	mg/kg	<0.5	<0.5	0.00
		EP074_SR: Ethylbenzene	100-41-4	0.2	mg/kg	<0.5	<0.5	0.00
		EP074_SR: ortho-Xylene	95-47-6	0.2	mg/kg	<0.5	<0.5	0.00

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
				Laboratory Duplicate (DUP) Report				
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2683070) - Continued								
HK1947016-001	NCTS1	**EP074_SR: meta- & para-Xylene**	108-38-3 106-42-3	0.4	mg/kg	<1.0	<1.0	0.00
		EP074_SR: Xylenes (Total)	----	1	mg/kg	<2.0	<2.0	0.00
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2683070)								
HK1947016-001	NCTS1	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.2	mg/kg	<0.2	<0.2	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
		LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2682979)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	96.6	----	92.0	115	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 2681400)											
Naphthalene	91-20-3	50	µg/kg	<50	25 µg/kg	95.9	----	68.0	119	----	----
Acenaphthylene	208-96-8	50	µg/kg	<50	25 µg/kg	86.9	----	59.0	123	----	----
Acenaphthene	83-32-9	50	µg/kg	<50	25 µg/kg	92.5	----	68.0	121	----	----
Fluorene	86-73-7	50	µg/kg	<50	25 µg/kg	97.2	----	70.0	128	----	----
Phenanthrene	85-01-8	50	µg/kg	<50	25 µg/kg	102	----	69.0	125	----	----
Anthracene	120-12-7	50	µg/kg	<50	25 µg/kg	71.4	----	35.0	131	----	----
Fluoranthene	206-44-0	50	µg/kg	<50	25 µg/kg	104	----	72.0	128	----	----
Pyrene	129-00-0	50	µg/kg	<50	25 µg/kg	102	----	70.0	128	----	----
Benz(a)anthracene	56-55-3	50	µg/kg	<50	25 µg/kg	90.7	----	46.0	142	----	----
Chrysene	218-01-9	50	µg/kg	<50	25 µg/kg	80.2	----	55.0	134	----	----
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	25 µg/kg	93.0	----	59.0	136	----	----
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	25 µg/kg	104	----	68.0	126	----	----
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	25 µg/kg	64.8	----	30.0	126	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	50	µg/kg	<50	25 µg/kg	94.1	----	55.0	133	----	----
Dibenz(a.h)anthracene	53-70-3	50	µg/kg	<50	25 µg/kg	94.0	----	52.0	134	----	----
Benzo(g.h.i)perylene	191-24-2	50	µg/kg	<50	25 µg/kg	101	----	45.0	144	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2683067)											

Matrix: **SOIL**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2683067) - Continued											
C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	104	----	70.0	118	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	82.4	----	50.0	111	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2683069)											
C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	108	----	78.0	131	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2683070)											
EP074_SR: Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	102	----	86.0	122	----	----
EP074_SR: Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	104	----	86.0	123	----	----
EP074_SR: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	115	----	87.0	121	----	----
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.5 mg/kg	100	----	83.0	118	----	----
EP074_SR: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	112	----	85.0	117	----	----
EP074_SR: Xylenes (Total)	----	1	mg/kg	<1.0	0.75 mg/kg	104	----	85.0	116	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2683070)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	87.4	----	77.0	104	----	----

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2688516)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	0.03 mg/L	89.8	----	74.0	120	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2688515)											
EP074_SR: Benzene	71-43-2	0.5	µg/L	<0.5	2 µg/L	95.4	----	80.0	127	----	----
EP074_SR: Toluene	108-88-3	0.5	µg/L	<0.5	2 µg/L	108	----	76.0	128	----	----
EP074_SR: Ethylbenzene	100-41-4	0.5	µg/L	<0.5	2 µg/L	109	----	74.0	121	----	----
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	1	µg/L	<1	4 µg/L	95.9	----	77.0	107	----	----
EP074_SR: ortho-Xylene	95-47-6	0.5	µg/L	<0.5	2 µg/L	106	----	82.0	124	----	----
EP074_SR: Xylenes (Total)	----	2	µg/L	<2	6 µg/L	99.4	----	82.0	113	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2688515)											

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2688515) - Continued											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	2 µg/L	85.8	----	61.0	120	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2682979)										
HK1946899-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	83.7	----	75.0	125	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 2681400)										
HK1946805-001	Anonymous	Naphthalene	91-20-3	250 µg/kg	80.0	----	50.0	130	----	----
		Acenaphthylene	208-96-8	250 µg/kg	84.9	----	50.0	130	----	----
		Acenaphthene	83-32-9	250 µg/kg	80.6	----	50.0	130	----	----
		Fluorene	86-73-7	250 µg/kg	80.8	----	50.0	130	----	----
		Phenanthrene	85-01-8	250 µg/kg	83.0	----	50.0	130	----	----
		Anthracene	120-12-7	250 µg/kg	83.0	----	50.0	130	----	----
		Fluoranthene	206-44-0	250 µg/kg	79.1	----	50.0	130	----	----
		Pyrene	129-00-0	250 µg/kg	79.3	----	50.0	130	----	----
		Benz(a)anthracene	56-55-3	250 µg/kg	75.1	----	50.0	130	----	----
		Chrysene	218-01-9	250 µg/kg	76.8	----	50.0	130	----	----
		Benzo(b)fluoranthene	205-99-2	250 µg/kg	67.4	----	50.0	130	----	----
		Benzo(k)fluoranthene	207-08-9	250 µg/kg	81.3	----	50.0	130	----	----
		Benzo(a)pyrene	50-32-8	250 µg/kg	72.9	----	50.0	130	----	----
		Indeno(1.2.3.cd)pyrene	193-39-5	250 µg/kg	79.6	----	50.0	130	----	----
		Dibenz(a.h)anthracene	53-70-3	250 µg/kg	77.2	----	50.0	130	----	----
		Benzo(g.h.i)perylene	191-24-2	250 µg/kg	75.4	----	50.0	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2683067)										
HK1947016-002	BH2-S3	C9 - C16 Fraction	----	31.5 mg/kg	82.4	----	50.0	130	----	----
		C17 - C35 Fraction	----	67.5 mg/kg	60.4	----	50.0	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2683069)										
HK1947016-002	BH2-S3	C6 - C8 Fraction	----	4.5 mg/kg	105	----	50.0	130	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2683070)										
HK1947016-003	BH2-S1	EP074_SR: Benzene	71-43-2	0.25 mg/kg	104	----	50.0	130	----	----
		EP074_SR: Toluene	108-88-3	0.25 mg/kg	106	----	50.0	130	----	----
		EP074_SR: Ethylbenzene	100-41-4	0.25 mg/kg	112	----	50.0	130	----	----

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report: Spike Concentration	Spike Recovery (%): MS	Spike Recovery (%): MSD	Recovery Limits (%): Low	Recovery Limits (%): High	RPD (%): Value	RPD (%): Control Limit
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2683070) - Continued										
HK1947016-003	BH2-S1	**EP074_SR: meta- & para-Xylene**	108-38-3 106-42-3	0.5 mg/kg	107	----	50.0	130	----	----
		EP074_SR: ortho-Xylene	95-47-6	0.25 mg/kg	118	----	50.0	130	----	----
		EP074_SR: Xylenes (Total)	----	0.75 mg/kg	111	----	50.0	130	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2683070)										
HK1947016-003	BH2-S1	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.25 mg/kg	85.2	----	50.0	130	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%): Low	Recovery Limits (%): High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%): Low	Recovery Limits (%): High
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-074_SR-S: VOC Surrogates			

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP-074_SR-S: VOC Surrogates - Continued			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066 TEST

CERTIFICATE OF ANALYSIS

Client	: MOTT MACDONALD HONG KONG LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 13
Contact	: THOMAS CHAN	Contact	: Richard Fung	Work Order	: HK1948580
Address	: 3/F INTERNATIONAL TRADE TOWER, 348 KWUN TONG ROAD, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas.chan@mottmac.com	E-mail	: richard.fung@alsglobal.com		
Telephone	: +852 2828 5933	Telephone	: +852 2610 1044		
Facsimile	: +852 2828 1823	Facsimile	: +852 2610 2021		
Project	: SOIL TESTING AT HONG KONG AIRPORT			Date Samples Received	: 14-Nov-2019
Order number	: ----	Quote number	: HKE/1861c/2018	Issue Date	: 25-Nov-2019
C-O-C number	: H037996			No. of samples received	: 5
Site	: CONTRACT NO. C3503 TERMINAL 2 FOUNDATION AND SUBSTRUCTURE WORKS			No. of samples analysed	: 5

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Anh Ngoc Huynh .	Senior Chemist	Organics_ENV
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 14-Nov-2019 to 25-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1948580

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The result(s) of soil sample(s) was / were reported on dry weight basis.

Water sample(s) were filtered prior to dissolved metal analysis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: SOIL			Client sample ID	BH2-S6	BH2-S6 (Duplicate)	----	----	----
			Client sampling date / time	14-Nov-2019	14-Nov-2019	----	----	----
Compound	CAS Number	LOR	Unit	HK1948580-001	HK1948580-005	-------	-------	-------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	10.3	10.2	----	----	----
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	41	47	----	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)								
EP076HK: Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Dibenz(a.h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	----	----	----
EP076HK: Benzo(g.h.i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	----	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)								
EP070HK_SR: C6 - C8 Fraction	----	5	mg/kg	<5	<5	----	----	----
EP071HK_SR: C9 - C16 Fraction	----	200	mg/kg	<200	<200	----	----	----
EP071HK_SR: C17 - C35 Fraction	----	500	mg/kg	<500	<500	----	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)								
EP074_SR: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
EP074_SR: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
EP074_SR: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----

Sub-Matrix: SOIL			Client sample ID	BH2-S6	BH2-S6 (Duplicate)	----	----	----
			Client sampling date / time	14-Nov-2019	14-Nov-2019	----	----	----
Compound	CAS Number	LOR	Unit	HK1948580-001	HK1948580-005	-------	-------	-------
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) - Continued								
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	----	----	----
EP074_SR: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
EP074_SR: Xylenes (Total)	----	2.0	mg/kg	<2.0	<2.0	----	----	----
EP-074_SR-I: Methyl-tert-butyl Ether								
EP074_SR: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	<0.2	----	----	----
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
EP076HK: 2-Fluorobiphenyl	321-60-8	0.1	%	98.2	90.8	----	----	----
EP076HK: 4-Terphenyl-d14	1718-51-0	0.1	%	97.0	90.4	----	----	----
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
EP070HK_SR: Dibromofluoromethane	1868-53-7	0.1	%	96.8	90.4	----	----	----
EP070HK_SR: Toluene-D8	2037-26-5	0.1	%	103	101	----	----	----
EP070HK_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	93.6	93.2	----	----	----
EP-074_SR-S: VOC Surrogates								
EP074_SR: Dibromofluoromethane	1868-53-7	0.1	%	96.8	90.4	----	----	----
EP074_SR: Toluene-D8	2037-26-5	0.1	%	103	101	----	----	----
EP074_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	93.6	93.2	----	----	----

Sub-Matrix: WATER			Client sample ID	Trip Blank	Equipment Blank	Field Blank	----	----
			Client sampling date / time	14-Nov-2019	14-Nov-2019	14-Nov-2019	----	----
Compound	CAS Number	LOR	Unit	HK1948580-002	HK1948580-003	HK1948580-004	-------	-------
EG: Metals and Major Cations - Filtered								
EG020: Lead	7439-92-1	1	µg/L	----	<1	<1	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)								
EP076HK: Naphthalene	91-20-3	2.0	µg/L	----	<2.0	<2.0	----	----
EP076HK: Acenaphthylene	208-96-8	2.0	µg/L	----	<2.0	<2.0	----	----
EP076HK: Acenaphthene	83-32-9	2.0	µg/L	----	<2.0	<2.0	----	----
EP076HK: Fluorene	86-73-7	2.0	µg/L	----	<2.0	<2.0	----	----
EP076HK: Phenanthrene	85-01-8	2.0	µg/L	----	<2.0	<2.0	----	----
EP076HK: Anthracene	120-12-7	2.0	µg/L	----	<2.0	<2.0	----	----
EP076HK: Fluoranthene	206-44-0	2.0	µg/L	----	<2.0	<2.0	----	----
EP076HK: Pyrene	129-00-0	2.0	µg/L	----	<2.0	<2.0	----	----
EP076HK: Benz(a)anthracene	56-55-3	2.0	µg/L	----	<2.0	<2.0	----	----
EP076HK: Chrysene	218-01-9	1.0	µg/L	----	<1.0	<1.0	----	----
EP076HK: Benzo(b)fluoranthene	205-99-2	1.0	µg/L	----	<1.0	<1.0	----	----
EP076HK: Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	<1.0	<1.0	----	----
EP076HK: Benzo(a)pyrene	50-32-8	2.0	µg/L	----	<2.0	<2.0	----	----
EP076HK: Indeno(1.2.3.cd)pyrene	193-39-5	2.0	µg/L	----	<2.0	<2.0	----	----
EP076HK: Dibenz(a.h)anthracene	53-70-3	2.0	µg/L	----	<2.0	<2.0	----	----
EP076HK: Benzo(g.h.i)perylene	191-24-2	2.0	µg/L	----	<2.0	<2.0	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)								
EP070HK_SR: C6 - C8 Fraction	----	20	µg/L	<20	<20	<20	----	----
EP071HK_SR: C9 - C16 Fraction	----	500	µg/L	----	<500	<500	----	----
EP071HK_SR: C17 - C35 Fraction	----	500	µg/L	----	<500	<500	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)								
EP074_SR: Benzene	71-43-2	5.0	µg/L	<5.0	<5.0	<5.0	----	----
EP074_SR: Toluene	108-88-3	5.0	µg/L	<5.0	<5.0	<5.0	----	----
EP074_SR: Ethylbenzene	100-41-4	5.0	µg/L	<5.0	<5.0	<5.0	----	----
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	10	µg/L	<10	<10	<10	----	----
EP074_SR: ortho-Xylene	95-47-6	5.0	µg/L	<5.0	<5.0	<5.0	----	----
EP074_SR: Xylenes (Total)	----	20	µg/L	<20	<20	<20	----	----

Sub-Matrix: WATER			Client sample ID	Trip Blank	Equipment Blank	Field Blank	----	----
			Client sampling date / time	14-Nov-2019	14-Nov-2019	14-Nov-2019	----	----
Compound	*CAS Number*	*LOR*	*Unit*	HK1948580-002	HK1948580-003	HK1948580-004	-------	-------
EP-074_SR-I: Methyl-tert-butyl Ether								
EP074_SR: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
EP076HK: 2-Fluorobiphenyl	321-60-8	0.1	%	----	74.4	86.5	----	----
EP076HK: 4-Terphenyl-d14	1718-51-0	0.1	%	----	110	127	----	----
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
EP070HK_SR: Dibromofluoromethane	1868-53-7	0.1	%	91.0	93.2	94.6	----	----
EP070HK_SR: Toluene-D8	2037-26-5	0.1	%	102	104	105	----	----
EP070HK_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	95.6	94.0	93.4	----	----
EP-074_SR-S: VOC Surrogates								
EP074_SR: Dibromofluoromethane	1868-53-7	0.1	%	91.0	93.2	94.6	----	----
EP074_SR: Toluene-D8	2037-26-5	0.1	%	102	104	105	----	----
EP074_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	95.6	94.0	93.4	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2711939)								
HK1948118-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	79.3	79.9	0.716
HK1948535-003	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	22.2	21.7	2.12
EG: Metals and Major Cations (QC Lot: 2707753)								
HK1948580-005	BH2-S6 (Duplicate)	**EG020: Lead**	7439-92-1	1	mg/kg	47	48	0.00
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 2696863)								
HK1947956-001	Anonymous	**Naphthalene**	91-20-3	50	µg/kg	<0.500 mg/kg	<500	0.00
		Acenaphthylene	208-96-8	50	µg/kg	<0.500 mg/kg	<500	0.00
		Acenaphthene	83-32-9	50	µg/kg	<0.500 mg/kg	<500	0.00
		Fluorene	86-73-7	50	µg/kg	<0.500 mg/kg	<500	0.00
		Phenanthrene	85-01-8	50	µg/kg	<0.500 mg/kg	<500	0.00
		Anthracene	120-12-7	50	µg/kg	<0.500 mg/kg	<500	0.00
		Fluoranthene	206-44-0	50	µg/kg	<0.500 mg/kg	<500	0.00
		Pyrene	129-00-0	50	µg/kg	<0.500 mg/kg	<500	0.00
		Benz(a)anthracene	56-55-3	50	µg/kg	<0.500 mg/kg	<500	0.00
		Chrysene	218-01-9	50	µg/kg	<0.500 mg/kg	<500	0.00
		Benzo(b)fluoranthene	205-99-2	50	µg/kg	<0.500 mg/kg	<500	0.00
		Benzo(k)fluoranthene	207-08-9	50	µg/kg	<0.500 mg/kg	<500	0.00
		Benzo(a)pyrene	50-32-8	50	µg/kg	<0.500 mg/kg	<500	0.00
		Indeno(1.2.3.cd)pyrene	193-39-5	50	µg/kg	<0.500 mg/kg	<500	0.00
		Dibenz(a.h)anthracene	53-70-3	50	µg/kg	<0.500 mg/kg	<500	0.00
		Benzo(g.h.i)perylene	191-24-2	50	µg/kg	<0.500 mg/kg	<500	0.00
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2696862)								
HK1947956-001	Anonymous	**C9 - C16 Fraction**	----	200	mg/kg	<200	<200	0.00
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.00
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2696866)								
HK1947956-001	Anonymous	**C6 - C8 Fraction**	----	5	mg/kg	<5	<5	0.00
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2696865)								
HK1947956-001	Anonymous	**EP074_SR: Benzene**	71-43-2	0.1	mg/kg	<0.2	<0.2	0.00
		EP074_SR: Toluene	108-88-3	0.2	mg/kg	<0.5	<0.5	0.00
		EP074_SR: Ethylbenzene	100-41-4	0.2	mg/kg	<0.5	<0.5	0.00

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report: LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2696865) - Continued								
HK1947956-001	Anonymous	EP074_SR: ortho-Xylene	95-47-6	0.2	mg/kg	<0.5	<0.5	0.00
		EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<1.0	<1.0	0.00
		EP074_SR: Xylenes (Total)	----	1	mg/kg	<2.0	<2.0	0.00
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2696865)								
HK1947956-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.5	<0.5	0.00

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report: LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations - Filtered (QC Lot: 2707740)								
HK1948580-004	Field Blank	EG020: Lead	7439-92-1	1	µg/L	<1	<1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

Method: Compound	CAS Number	Method Blank (MB) Report: LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report: Spike Concentration	Spike Recovery (%): LCS	DCS	Recovery Limits(%): Low	High	RPD (%): Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2707753)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	96.8	----	92.0	115	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 2696863)											
Naphthalene	91-20-3	50	µg/kg	<50	25 µg/kg	95.6	----	68.0	119	----	----
Acenaphthylene	208-96-8	50	µg/kg	<50	25 µg/kg	71.6	----	59.0	123	----	----
Acenaphthene	83-32-9	50	µg/kg	<50	25 µg/kg	86.8	----	68.0	121	----	----
Fluorene	86-73-7	50	µg/kg	<50	25 µg/kg	101	----	70.0	128	----	----
Phenanthrene	85-01-8	50	µg/kg	<50	25 µg/kg	100	----	69.0	125	----	----
Anthracene	120-12-7	50	µg/kg	<50	25 µg/kg	57.2	----	35.0	131	----	----
Fluoranthene	206-44-0	50	µg/kg	<50	25 µg/kg	107	----	72.0	128	----	----
Pyrene	129-00-0	50	µg/kg	<50	25 µg/kg	96.1	----	70.0	128	----	----
Benz(a)anthracene	56-55-3	50	µg/kg	<50	25 µg/kg	57.1	----	46.0	142	----	----
Chrysene	218-01-9	50	µg/kg	<50	25 µg/kg	98.2	----	55.0	134	----	----
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	25 µg/kg	91.4	----	59.0	136	----	----

Matrix: **SOIL**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 2696863) - Continued											
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	25 µg/kg	97.8	----	68.0	126	----	----
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	25 µg/kg	52.5	----	30.0	126	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	50	µg/kg	<50	25 µg/kg	112	----	55.0	133	----	----
Dibenz(a.h)anthracene	53-70-3	50	µg/kg	<50	25 µg/kg	118	----	52.0	134	----	----
Benzo(g.h.i)perylene	191-24-2	50	µg/kg	<50	25 µg/kg	110	----	45.0	144	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2696862)											
C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	92.6	----	70.0	118	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	94.2	----	50.0	111	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2696866)											
C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	96.7	----	78.0	131	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2696865)											
EP074_SR: Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	103	----	86.0	122	----	----
EP074_SR: Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	106	----	86.0	123	----	----
EP074_SR: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	104	----	87.0	121	----	----
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.5 mg/kg	99.9	----	83.0	118	----	----
EP074_SR: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	106	----	85.0	117	----	----
EP074_SR: Xylenes (Total)	----	1	mg/kg	<1.0	0.75 mg/kg	102	----	85.0	116	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2696865)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	85.0	----	77.0	104	----	----

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations - Filtered (QC Lot: 2707740)											
EG020: Lead	7439-92-1	1	µg/L	<1	100 µg/L	96.2	----	85.0	113	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 2713644)											
Naphthalene	91-20-3	0.2	µg/L	<0.2	0.5 µg/L	92.0	----	19.0	144	----	----
Acenaphthylene	208-96-8	0.2	µg/L	<0.2	0.5 µg/L	97.7	----	32.0	140	----	----

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 2713644) - Continued											
Acenaphthene	83-32-9	0.2	µg/L	<0.2	0.5 µg/L	85.7	----	13.0	153	----	----
Fluorene	86-73-7	0.2	µg/L	<0.2	0.5 µg/L	93.2	----	35.0	151	----	----
Phenanthrene	85-01-8	0.2	µg/L	<0.2	0.5 µg/L	87.3	----	49.0	128	----	----
Anthracene	120-12-7	0.2	µg/L	<0.2	0.5 µg/L	79.7	----	60.0	103	----	----
Fluoranthene	206-44-0	0.2	µg/L	<0.2	0.5 µg/L	87.6	----	65.0	131	----	----
Pyrene	129-00-0	0.2	µg/L	<0.2	0.5 µg/L	86.5	----	64.0	131	----	----
Benz(a)anthracene	56-55-3	0.2	µg/L	<0.2	0.5 µg/L	91.1	----	66.0	142	----	----
Chrysene	218-01-9	0.2	µg/L	<0.2	0.5 µg/L	80.2	----	78.0	144	----	----
Benzo(b)fluoranthene	205-99-2	0.2	µg/L	<0.2	0.5 µg/L	90.8	----	67.0	144	----	----
Benzo(k)fluoranthene	207-08-9	0.2	µg/L	<0.2	0.5 µg/L	93.7	----	73.0	139	----	----
Benzo(a)pyrene	50-32-8	0.2	µg/L	<0.2	0.5 µg/L	78.4	----	64.0	127	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	<0.2	0.5 µg/L	77.8	----	62.0	141	----	----
Dibenz(a.h)anthracene	53-70-3	0.2	µg/L	<0.2	0.5 µg/L	81.6	----	59.0	136	----	----
Benzo(g.h.i)perylene	191-24-2	0.2	µg/L	<0.2	0.5 µg/L	85.2	----	56.0	147	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2709235)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	0.03 mg/L	94.5	----	74.0	120	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2713645)											
C9 - C16 Fraction	----	0.5	mg/L	<0.5	0.21 mg/L	103	----	59.0	124	----	----
C17 - C35 Fraction	----	0.5	mg/L	<0.5	0.45 mg/L	94.1	----	58.0	116	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2702526)											
EP074_SR: Benzene	71-43-2	0.5	µg/L	<0.5	2 µg/L	108	----	80.0	127	----	----
EP074_SR: Toluene	108-88-3	0.5	µg/L	<0.5	2 µg/L	109	----	76.0	128	----	----
EP074_SR: Ethylbenzene	100-41-4	0.5	µg/L	<0.5	2 µg/L	113	----	74.0	121	----	----
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	1	µg/L	<1	4 µg/L	102	----	77.0	107	----	----
EP074_SR: ortho-Xylene	95-47-6	0.5	µg/L	<0.5	2 µg/L	111	----	82.0	124	----	----
EP074_SR: Xylenes (Total)	----	2	µg/L	<2	6 µg/L	105	----	82.0	113	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2702526)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	2 µg/L	91.4	----	61.0	120	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2707753)										
HK1948580-001	BH2-S6	**EG020: Lead**	7439-92-1	5 mg/kg	# Not Determined	----	75.0	125	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 2696863)										
HK1947961-001	Anonymous	**Naphthalene**	91-20-3	250 µg/kg	85.0	----	50.0	130	----	----
		Acenaphthylene	208-96-8	250 µg/kg	89.3	----	50.0	130	----	----
		Acenaphthene	83-32-9	250 µg/kg	87.8	----	50.0	130	----	----
		Fluorene	86-73-7	250 µg/kg	87.9	----	50.0	130	----	----
		Phenanthrene	85-01-8	250 µg/kg	90.2	----	50.0	130	----	----
		Anthracene	120-12-7	250 µg/kg	90.9	----	50.0	130	----	----
		Fluoranthene	206-44-0	250 µg/kg	94.8	----	50.0	130	----	----
		Pyrene	129-00-0	250 µg/kg	93.9	----	50.0	130	----	----
		Benz(a)anthracene	56-55-3	250 µg/kg	84.8	----	50.0	130	----	----
		Chrysene	218-01-9	250 µg/kg	88.1	----	50.0	130	----	----
		Benzo(b)fluoranthene	205-99-2	250 µg/kg	82.4	----	50.0	130	----	----
		Benzo(k)fluoranthene	207-08-9	250 µg/kg	85.6	----	50.0	130	----	----
		Benzo(a)pyrene	50-32-8	250 µg/kg	81.0	----	50.0	130	----	----
		Indeno(1.2.3.cd)pyrene	193-39-5	250 µg/kg	83.2	----	50.0	130	----	----
		Dibenz(a.h)anthracene	53-70-3	250 µg/kg	81.7	----	50.0	130	----	----
		Benzo(g.h.i)perylene	191-24-2	250 µg/kg	91.4	----	50.0	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2696862)										
HK1947956-002	Anonymous	**C9 - C16 Fraction**	----	31.5 mg/kg	94.2	----	50.0	130	----	----
		C17 - C35 Fraction	----	67.5 mg/kg	94.9	----	50.0	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 2696866)										
HK1947956-002	Anonymous	**C6 - C8 Fraction**	----	4.5 mg/kg	115	----	50.0	130	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2696865)										
HK1947961-001	Anonymous	**EP074_SR: Benzene**	71-43-2	0.25 mg/kg	107	----	50.0	130	----	----
		EP074_SR: Toluene	108-88-3	0.25 mg/kg	105	----	50.0	130	----	----
		EP074_SR: Ethylbenzene	100-41-4	0.25 mg/kg	105	----	50.0	130	----	----

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report: Spike Concentration	Spike Recovery (%): MS	Spike Recovery (%): MSD	Recovery Limits (%): Low	Recovery Limits (%): High	RPD (%): Value	RPD (%): Control Limit
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 2696865) - Continued										
HK1947961-001	Anonymous	**EP074_SR: meta- & para-Xylene**	108-38-3 106-42-3	0.5 mg/kg	101	----	50.0	130	----	----
		EP074_SR: ortho-Xylene	95-47-6	0.25 mg/kg	111	----	50.0	130	----	----
		EP074_SR: Xylenes (Total)	----	0.75 mg/kg	104	----	50.0	130	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 2696865)										
HK1947961-001	Anonymous	**Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.25 mg/kg	89.5	----	50.0	130	----	----

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report: Spike Concentration	Spike Recovery (%): MS	Spike Recovery (%): MSD	Recovery Limits (%): Low	Recovery Limits (%): High	RPD (%): Value	RPD (%): Control Limit
EG: Metals and Major Cations - Filtered (QC Lot: 2707740)										
HK1948580-003	Equipment Blank	**EG020: Lead**	7439-92-1	100 µg/L	95.6	----	75.0	125	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%): Low	Recovery Limits (%): High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: **WATER**

		Recovery Limits (%)

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115