






### CERTIFICATE OF ANALYSIS

Client	: MOTT MACDONALD HONG KONG LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 14
Contact	: THOMAS CHAN	Contact	: Richard Fung	Work Order	: HK2035296
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E-mail	: thomas.chan@mottmac.com	E-mail	: richard.fung@alsglobal.com		
Telephone	: +852 2828 5933	Telephone	: +852 2610 1044	Date Samples Received	: 15-Sep-2020
Facsimile	: +852 2828 1823	Facsimile	: +852 2610 2021	Issue Date	: 24-Sep-2020
Project	: SOIL TESTING AT HONG KONG AIRPORT			No. of samples received	: 7
Order number	: ---	Quote	: HKE/1861c/2018_V2	No. of samples analysed	: 7
C-O-C number	: H030968	number			
Site	: CONTRACT NO. C3503 TERMINAL 2 FOUNDATION AND SUBSTRUCTURE WORKS				

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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
 Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics



### **General Comments**

This report supersedes any previous report(s) with this reference. 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 15-Sep-2020 to 23-Sep-2020.

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: HK2035296**

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.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

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

EP070 is the numeric code for internal use. Test method for C6-C9 Fraction of TPH is EP071.

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

Client sampling date / time

				HS3-S1	HS3-S3	HS3-S3 (Duplicate)	HS3-S7	---
				15-Sep-2020	15-Sep-2020	15-Sep-2020	15-Sep-2020	----
Compound	CAS Number	LOR	Unit	HK2035296-004	HK2035296-005	HK2035296-006	HK2035296-007	-----
<b>EA/ED: Physical and Aggregate Properties</b>								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.2	16.5	17.0	16.4	---
<b>EG: Metals and Major Cations</b>								
EG020: Lead	7439-92-1	1	mg/kg	59	57	56	50	---
<b>EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)</b>								
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	---
<b>EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)</b>								
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	---
<b>EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)</b>								
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	HS3-S1	HS3-S3	HS3-S3 (Duplicate)	HS3-S7	---
Client sampling date / time					15-Sep-2020	15-Sep-2020	15-Sep-2020	15-Sep-2020	----
Compound	CAS Number	LOR	Unit	HK2035296-004	HK2035296-005	HK2035296-006	HK2035296-007	-----	
<b>EP-074 SR-A: Monocyclic Aromatic Hydrocarbons (MAH) - Continued</b>									
EP074_SR: meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	---	
	106-42-3								
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	---	
<b>EP-074_SR-I: Methyl-tert-butyl Ether</b>									
EP074_SR: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	---	
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>									
EP076HK: 2-Fluorobiphenyl	321-60-8	0.1	%	90.7	95.3	90.7	94.2	---	
EP076HK: 4-Terphenyl-d14	1718-51-0	0.1	%	105	111	104	105	---	
<b>EP-080_SRS: TPH(Volatile)/BTEX Surrogate</b>									
EP070HK_SR: Dibromofluoromethane	1868-53-7	0.1	%	101	98.4	94.0	95.2	---	
EP070HK_SR: Toluene-D8	2037-26-5	0.1	%	98.4	99.0	98.2	98.7	---	
EP070HK_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	96.0	98.7	93.6	94.7	---	
<b>EP-074_SR-S: VOC Surrogates</b>									
EP074_SR: Dibromofluoromethane	1868-53-7	0.1	%	101	98.4	94.0	95.2	---	
EP074_SR: Toluene-D8	2037-26-5	0.1	%	98.4	99.0	98.2	98.7	---	
EP074_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	96.0	98.7	93.6	94.7	---	



Sub-Matrix: WATER				Client sample ID	Trip Blank	Equipment Blank	Field Blank	---	---
Client sampling date / time				15-Sep-2020	15-Sep-2020	15-Sep-2020	---	---	
Compound	CAS Number	LOR	Unit	HK2035296-001	HK2035296-002	HK2035296-003	---	---	
<b>EG: Metals and Major Cations - Filtered</b>									
EG020: Lead	7439-92-1	1	µg/L	---	<1	<1	---	---	
<b>EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs)</b>									
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	2.0	µg/L	---	<2.0	<2.0	---	---	
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	---	---	
<b>EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)</b>									
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	---	---	
<b>EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)</b>									
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	15-Sep-2020	15-Sep-2020	15-Sep-2020	---	---
Compound	CAS Number	LOR	Unit	HK2035296-001	HK2035296-002	HK2035296-003	---	---	
<b>EP-074_SR-I: Methyl-tert-butyl Ether</b>									
EP074_SR: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	<0.5	<0.5	---	---	
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>									
EP076HK: 2-Fluorobiphenyl	321-60-8	0.1	%	---	90.0	96.2	---	---	
EP076HK: 4-Terphenyl-d14	1718-51-0	0.1	%	---	101	104	---	---	
<b>EP-080_SRS: TPH(Volatile)/BTEX Surrogate</b>									
EP070HK_SR: Dibromofluoromethane	1868-53-7	0.1	%	92.9	102	98.3	---	---	
EP070HK_SR: Toluene-D8	2037-26-5	0.1	%	104	104	106	---	---	
EP070HK_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	95.5	98.5	96.3	---	---	
<b>EP-074_SR-S: VOC Surrogates</b>									
EP074_SR: Dibromofluoromethane	1868-53-7	0.1	%	92.9	102	98.3	---	---	
EP074_SR: Toluene-D8	2037-26-5	0.1	%	104	104	106	---	---	
EP074_SR: 4-Bromofluorobenzene	460-00-4	0.1	%	95.5	98.5	96.3	---	---	



### Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 3261635)</b>								
HK2035012-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	9.7	9.6	1.79
HK2035296-004	HS3-S1	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.2	15.9	1.60
<b>EG: Metals and Major Cations (QC Lot: 3258872)</b>								
HK2035252-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	89	90	1.82
<b>EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3257378)</b>								
HK2035054-001	Anonymous	EP076HK: Naphthalene	91-20-3	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Acenaphthylene	208-96-8	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Acenaphthene	83-32-9	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Fluorene	86-73-7	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Phenanthrene	85-01-8	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Anthracene	120-12-7	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Fluoranthene	206-44-0	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Pyrene	129-00-0	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Benz(a)anthracene	56-55-3	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Chrysene	218-01-9	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Benzo(b)fluoranthene	205-99-2	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Benzo(k)fluoranthene	207-08-9	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Benzo(a)pyrene	50-32-8	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Indeno(1.2.3.cd)pyrene	193-39-5	50	µg/kg	<0.500 mg/kg	<500	0.00
EP076HK: Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<0.500 mg/kg	<500	0.00		
EP076HK: Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<0.500 mg/kg	<500	0.00		
<b>EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3259205)</b>								
HK2035296-006	HS3-S3 (Duplicate)	EP076HK: Naphthalene	91-20-3	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Acenaphthylene	208-96-8	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Acenaphthene	83-32-9	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Fluorene	86-73-7	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Phenanthrene	85-01-8	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Anthracene	120-12-7	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Fluoranthene	206-44-0	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Pyrene	129-00-0	50	µg/kg	<0.500 mg/kg	<500	0.00



Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3259205) - Continued</b>								
HK2035296-006	HS3-S3 (Duplicate)	EP076HK: Benz(a)anthracene	56-55-3	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Chrysene	218-01-9	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Benzo(b)fluoranthene	205-99-2	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Benzo(k)fluoranthene	207-08-9	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Benzo(a)pyrene	50-32-8	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Indeno(1.2.3.cd)pyrene	193-39-5	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<0.500 mg/kg	<500	0.00
		EP076HK: Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<0.500 mg/kg	<500	0.00
<b>EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3259204)</b>								
HK2035296-006	HS3-S3 (Duplicate)	EP071HK_SR: C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.00
		EP071HK_SR: C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.00
<b>EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3261546)</b>								
HK2035262-001	Anonymous	EP070HK_SR: C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.00
<b>EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3261547)</b>								
HK2035262-001	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
		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	0.4	mg/kg	<1.0	<1.0	0.00
		EP074_SR: Xylenes (Total)	106-42-3	----	1	mg/kg	<2.0	<2.0
<b>EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3261547)</b>								
HK2035262-001	Anonymous	EP074_SR: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.5	<0.5	0.00
Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EG: Metals and Major Cations - Filtered (QC Lot: 3261362)</b>								
HK2035296-003	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 Blank (MB) Report	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report
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Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations (QC Lot: 3258872)</b>											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	99.2	----	90.0	110	----	----
<b>EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3257378)</b>											
EP076HK: Naphthalene	91-20-3	50	µg/kg	<50	25 µg/kg	86.4	----	68.0	140	----	----
EP076HK: Acenaphthylene	208-96-8	50	µg/kg	<50	25 µg/kg	90.2	----	70.0	139	----	----
EP076HK: Acenaphthene	83-32-9	50	µg/kg	<50	25 µg/kg	79.8	----	65.0	138	----	----
EP076HK: Fluorene	86-73-7	50	µg/kg	<50	25 µg/kg	80.6	----	67.0	139	----	----
EP076HK: Phenanthrene	85-01-8	50	µg/kg	<50	25 µg/kg	83.9	----	70.0	143	----	----
EP076HK: Anthracene	120-12-7	50	µg/kg	<50	25 µg/kg	83.6	----	69.0	142	----	----
EP076HK: Fluoranthene	206-44-0	50	µg/kg	<50	25 µg/kg	84.9	----	70.0	140	----	----
EP076HK: Pyrene	129-00-0	50	µg/kg	<50	25 µg/kg	83.7	----	69.0	137	----	----
EP076HK: Benz(a)anthracene	56-55-3	50	µg/kg	<50	25 µg/kg	80.6	----	64.0	135	----	----
EP076HK: Chrysene	218-01-9	50	µg/kg	<50	25 µg/kg	78.9	----	68.0	139	----	----
EP076HK: Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	25 µg/kg	85.2	----	59.0	133	----	----
EP076HK: Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	25 µg/kg	79.0	----	57.0	141	----	----
EP076HK: Benzo(a)pyrene	50-32-8	50	µg/kg	<50	25 µg/kg	80.8	----	54.0	131	----	----
EP076HK: Indeno(1.2.3.cd)pyrene	193-39-5	50	µg/kg	<50	25 µg/kg	79.9	----	40.0	121	----	----
EP076HK: Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	25 µg/kg	76.8	----	40.0	125	----	----
EP076HK: Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	25 µg/kg	76.7	----	36.0	134	----	----
<b>EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3259205)</b>											
EP076HK: Naphthalene	91-20-3	50	µg/kg	<50	25 µg/kg	118	----	68.0	140	----	----
EP076HK: Acenaphthylene	208-96-8	50	µg/kg	<50	25 µg/kg	124	----	70.0	139	----	----
EP076HK: Acenaphthene	83-32-9	50	µg/kg	<50	25 µg/kg	108	----	65.0	138	----	----
EP076HK: Fluorene	86-73-7	50	µg/kg	<50	25 µg/kg	109	----	67.0	139	----	----
EP076HK: Phenanthrene	85-01-8	50	µg/kg	<50	25 µg/kg	113	----	70.0	143	----	----
EP076HK: Anthracene	120-12-7	50	µg/kg	<50	25 µg/kg	111	----	69.0	142	----	----
EP076HK: Fluoranthene	206-44-0	50	µg/kg	<50	25 µg/kg	115	----	70.0	140	----	----
EP076HK: Pyrene	129-00-0	50	µg/kg	<50	25 µg/kg	112	----	69.0	137	----	----
EP076HK: Benz(a)anthracene	56-55-3	50	µg/kg	<50	25 µg/kg	110	----	64.0	135	----	----
EP076HK: Chrysene	218-01-9	50	µg/kg	<50	25 µg/kg	103	----	68.0	139	----	----
EP076HK: Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	25 µg/kg	117	----	59.0	133	----	----



Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
<b>EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3259205) - Continued</b>											
EP076HK: Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	25 µg/kg	106	----	57.0	141	----	----
EP076HK: Benzo(a)pyrene	50-32-8	50	µg/kg	<50	25 µg/kg	110	----	54.0	131	----	----
EP076HK: Indeno(1.2.3.cd)pyrene	193-39-5	50	µg/kg	<50	25 µg/kg	112	----	40.0	121	----	----
EP076HK: Dibenz(a.h)anthracene	53-70-3	50	µg/kg	<50	25 µg/kg	105	----	40.0	125	----	----
EP076HK: Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	25 µg/kg	102	----	36.0	134	----	----
<b>EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3259204)</b>											
EP071HK_SR: C9 - C16 Fraction	----	200	mg/kg	<200	31.5 mg/kg	97.5	----	83.0	108	----	----
EP071HK_SR: C17 - C35 Fraction	----	500	mg/kg	<500	67.5 mg/kg	84.8	----	59.0	106	----	----
<b>EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3261546)</b>											
EP070HK_SR: C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	101	----	77.0	124	----	----
<b>EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3261547)</b>											
EP074_SR: Benzene	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	89.6	----	80.0	123	----	----
EP074_SR: Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	89.4	----	83.0	126	----	----
EP074_SR: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	87.5	----	80.0	125	----	----
EP074_SR: meta- & para-Xylene	108-38-3	0.4	mg/kg	<0.4	0.5 mg/kg	90.1	----	82.0	124	----	----
	106-42-3										
EP074_SR: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	88.2	----	79.0	128	----	----
EP074_SR: Xylenes (Total)	----	1	mg/kg	<1.0	0.75 mg/kg	89.5	----	82.0	124	----	----
<b>EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3261547)</b>											
EP074_SR: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	107	----	78.0	126	----	----
Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations - Filtered (QC Lot: 3261362)</b>											
EG020: Lead	7439-92-1	1	µg/L	<1	50 µg/L	90.0	----	85.0	113	----	----
<b>EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3257640)</b>											
EP076HK: Naphthalene	91-20-3	0.1	µg/L	<0.1	0.25 µg/L	98.7	----	66.0	135	----	----
EP076HK: Acenaphthylene	208-96-8	0.1	µg/L	<0.1	0.25 µg/L	96.4	----	60.0	136	----	----



Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
		Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
								LCS	DCS	Low	High	Value	Control Limit
<b>EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3257640) - Continued</b>													
EP076HK: Acenaphthene	83-32-9	0.1	µg/L	<0.1	0.25 µg/L	99.5	----	63.0	132	----	----		
EP076HK: Fluorene	86-73-7	0.1	µg/L	<0.1	0.25 µg/L	98.0	----	64.0	135	----	----		
EP076HK: Phenanthrene	85-01-8	0.1	µg/L	<0.1	0.25 µg/L	95.6	----	61.0	132	----	----		
EP076HK: Anthracene	120-12-7	0.1	µg/L	<0.1	0.25 µg/L	93.1	----	61.0	121	----	----		
EP076HK: Fluoranthene	206-44-0	0.1	µg/L	<0.1	0.25 µg/L	97.0	----	65.0	135	----	----		
EP076HK: Pyrene	129-00-0	0.1	µg/L	<0.1	0.25 µg/L	95.0	----	61.0	136	----	----		
EP076HK: Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	0.25 µg/L	91.7	----	64.0	124	----	----		
EP076HK: Chrysene	218-01-9	0.1	µg/L	<0.1	0.25 µg/L	98.4	----	49.0	140	----	----		
EP076HK: Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	0.25 µg/L	83.6	----	53.0	135	----	----		
EP076HK: Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	0.25 µg/L	76.8	----	66.0	128	----	----		
EP076HK: Benzo(a)pyrene	50-32-8	0.1	µg/L	<0.1	0.25 µg/L	67.5	----	45.0	126	----	----		
EP076HK: Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	0.25 µg/L	66.8	----	45.0	129	----	----		
EP076HK: Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	0.25 µg/L	71.6	----	47.0	130	----	----		
EP076HK: Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	0.25 µg/L	60.0	----	42.0	140	----	----		
<b>EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3259175)</b>													
EP071HK_SR: C9 - C16 Fraction	----	0.5	mg/L	<0.5	0.21 mg/L	101	----	65.0	123	----	----		
EP071HK_SR: C17 - C35 Fraction	----	0.5	mg/L	<0.5	0.45 mg/L	80.9	----	59.0	113	----	----		
<b>EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3262259)</b>													
EP070HK_SR: C6 - C8 Fraction	----	0.02	mg/L	<0.02	0.03 mg/L	86.4	----	77.0	120	----	----		
<b>EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3255359)</b>													
EP074_SR: Benzene	71-43-2	0.5	µg/L	<0.5	2 µg/L	105	----	76.0	125	----	----		
EP074_SR: Toluene	108-88-3	0.5	µg/L	<0.5	2 µg/L	95.1	----	78.0	126	----	----		
EP074_SR: Ethylbenzene	100-41-4	0.5	µg/L	<0.5	2 µg/L	89.8	----	81.0	120	----	----		
EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	1	µg/L	<1	4 µg/L	91.4	----	77.0	125	----	----		
EP074_SR: ortho-Xylene	95-47-6	0.5	µg/L	<0.5	2 µg/L	91.2	----	77.0	125	----	----		
EP074_SR: Xylenes (Total)	----	2	µg/L	<2	6 µg/L	91.4	----	79.0	123	----	----		
<b>EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3255359)</b>													
EP074_SR: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	2 µg/L	113	----	78.0	128	----	----		



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

Matrix: SOIL

					<b>Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report</b>					
<b>Laboratory sample ID</b>	<b>Client sample ID</b>	<b>Method: Compound</b>	<b>CAS Number</b>	<b>Spike Concentration</b>	<b>Spike Recovery (%)</b>		<b>Recovery Limits (%)</b>		<b>RPD (%)</b>	
					<b>MS</b>	<b>MSD</b>	<b>Low</b>	<b>High</b>	<b>Value</b>	<b>Control Limit</b>
<b>EG: Metals and Major Cations (QC Lot: 3258872)</b>										
HK2035245-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75.0	125	----	----
<b>EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3257378)</b>										
HK2035056-001	Anonymous	EP076HK: Naphthalene	91-20-3	250 µg/kg	85.0	----	50.0	130	----	----
		EP076HK: Acenaphthylene	208-96-8	250 µg/kg	90.6	----	50.0	130	----	----
		EP076HK: Acenaphthene	83-32-9	250 µg/kg	80.6	----	50.0	130	----	----
		EP076HK: Fluorene	86-73-7	250 µg/kg	81.6	----	50.0	130	----	----
		EP076HK: Phenanthrene	85-01-8	250 µg/kg	84.9	----	50.0	130	----	----
		EP076HK: Anthracene	120-12-7	250 µg/kg	81.7	----	50.0	130	----	----
		EP076HK: Fluoranthene	206-44-0	250 µg/kg	87.7	----	50.0	130	----	----
		EP076HK: Pyrene	129-00-0	250 µg/kg	85.6	----	50.0	130	----	----
		EP076HK: Benz(a)anthracene	56-55-3	250 µg/kg	78.0	----	50.0	130	----	----
		EP076HK: Chrysene	218-01-9	250 µg/kg	76.6	----	50.0	130	----	----
		EP076HK: Benzo(b)fluoranthene	205-99-2	250 µg/kg	85.7	----	50.0	130	----	----
		EP076HK: Benzo(k)fluoranthene	207-08-9	250 µg/kg	78.1	----	50.0	130	----	----
		EP076HK: Benzo(a)pyrene	50-32-8	250 µg/kg	78.2	----	50.0	130	----	----
		EP076HK: Indeno(1.2.3.cd)pyrene	193-39-5	250 µg/kg	81.6	----	50.0	130	----	----
EP076HK: Dibenz(a,h)anthracene	53-70-3	250 µg/kg	76.8	----	50.0	130	----	----		
EP076HK: Benzo(g,h,i)perylene	191-24-2	250 µg/kg	76.8	----	50.0	130	----	----		
<b>EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3259205)</b>										
HK2035296-007	HS3-S7	EP076HK: Naphthalene	91-20-3	250 µg/kg	82.4	----	50.0	130	----	----
		EP076HK: Acenaphthylene	208-96-8	250 µg/kg	89.1	----	50.0	130	----	----
		EP076HK: Acenaphthene	83-32-9	250 µg/kg	78.5	----	50.0	130	----	----
		EP076HK: Fluorene	86-73-7	250 µg/kg	81.9	----	50.0	130	----	----
		EP076HK: Phenanthrene	85-01-8	250 µg/kg	83.5	----	50.0	130	----	----
		EP076HK: Anthracene	120-12-7	250 µg/kg	80.9	----	50.0	130	----	----
		EP076HK: Fluoranthene	206-44-0	250 µg/kg	86.8	----	50.0	130	----	----
		EP076HK: Pyrene	129-00-0	250 µg/kg	84.2	----	50.0	130	----	----





Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike Concentration	MS Spike Recovery (%)	MSD Spike Recovery (%)	Recovery Limits (High)	Value RPD (%)	Control Limit	
EG: Metals and Major Cations - Filtered (QC Lot: 3261362)										
HK2035296-002	Equipment Blank	EG020: Lead	7439-92-1	50 µg/L	89.5	----	75.0	125	----	----

**Surrogate Control Limits**

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
<b>EP-080_SRS: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-074_SR-S: VOC Surrogates</b>			
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	High
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
<b>EP-080_SRS: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-074_SR-S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115