MOTT MACDONALD

Expansion of Hong Kong International Airport into a Three-Runway System

Contamination Assessment Report for Terminal 2 Emergency Power Supply Systems No.4

October 2020

Airport Authority Hong Kong

Mott MacDonald
3/F International Trade Tower
348 Kwun Tong Road
Kwun Tong
Kowloon
Hong Kong

T +852 2828 5757
F +852 2827 1823
mottmac.hk

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October 2020

Mott MacDonald Hong Kong Limited
registered in Hong Kong no. 236497

This Contamination Assessment Report for
Terminal 2 Emergency Power Supply System No.4
has been reviewed and certified by
the Environmental Team Leader (ETL)
In accordance with EP Condition 1.9 of the
Environmental Permit
No. EP-489/2014 and Section 7 of
Supplementary Contamination Assessment Plan (August 2018)

Certified by: 

Terence Kong
Environmental Team Leader (ETL)
Mott MacDonald Hong Kong Limited

Date 30 October 2020

AECOM
8/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, Hong Kong
香港新界沙田鄉事會路 138 號新城市中央廣場第 2 座 8 樓
www.aecom.com

+852 3922 9000 tel
+852 2317 7609 fax

Our Ref : 60440482/C/JCHL201030

By Email

Airport Authority Hong Kong
HKIA Tower, 1 Sky Plaza Road
Hong Kong International Airport
Lantau, Hong Kong

Attn: Mr. Lawrence Tsui, Principal Manager, Environmental Compliance

30 October 2020

Dear Sir,

Contract No. 3102
3RS Independent Environmental Checker Consultancy Services

Contamination Assessment Report for Terminal 2 Emergency Power Supply Systems No.4

Reference is made to the ET's submission of Contamination Assessment Report for Terminal 2 Emergency Power Supply Systems No.4 under Section 7 of Supplementary Contamination Assessment Plan and Condition 2.32 (iv) of the Environmental Permit No. EP-489/2014. The subject report was certified by the ET Leader on 30 October 2020.

We would like to inform you that we have no adverse comment on the captioned submission and verify the captioned submission in accordance with the requirement stipulated in Condition 1.9 of EP-489/2014.

Should you have any query, please feel free to contact the undersigned at 3922 9376.

Yours faithfully,
AECOM Asia Co. Ltd.

Jackel Law
Independent Environmental Checker

Contents

1 Introduction

1.1 Background

The Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-185/2014) prepared for the "Expansion of Hong Kong International Airport into a Three-Runway System" (the project) has been approved by the Director of Environmental Protection, and an Environmental Permit (EP) (Permit No.: EP-489/2014) has been issued for the project under the Environmental Impact Assessment Ordinance. As part of the EIA study, a Contamination Assessment Plan (CAP) (hereafter referred to as the Approved CAP) was prepared and presented as Appendix 11.1 of the approved EIA Report. In accordance with Section 8.1.1.1 of the Updated Environmental Monitoring and Audit (EM&A) Manual, which was submitted under Condition 3.1 of the EP, and Section 11.10.1.2 of the EIA Report, six areas (i.e. fuel tank room within Terminal 2 (T2) building, fuel tank room to the west of Civil Aviation Department (CAD) antenna farm, seawater pump house, switching station, pumping station and fire training facility), were inaccessible for site reconnaissance at the time of preparing the EIA Report.

According to Sections 11.5.4.14 and 11.5.4.37 of the EIA Report, it is anticipated that any potential land contamination concern related to possible leakage/ spillage of fuel in the fuel tank room within T2 building and fuel tank room to the west of CAD antenna farm will not cause any insurmountable impact. Furthermore, as mentioned in Sections 11.5.4.38, 11.5.4.47 and 11.5.4.50 of the EIA Report, the seawater pump house, switching station, pumping station and fire training facility are not identified as potential contaminative land use types as given in Table 2.3 of the Practice Guide for Investigation and Remediation of Contaminated Land, hence no potential land contamination along these areas are anticipated.

As part of the ongoing detailed design of the project, relocation of the switching station is no longer required for the modification of existing North Runway. Hence site appraisal process for land contamination potential at the switching station is considered not necessary. Further site reconnaissance was conducted at the remaining five assessment areas (i.e. the fuel tank room within T2 building, fuel tank room to the west of CAD antenna farm, seawater pump house, pumping station and fire training facility) in third quarter of 2016 and May 2017.

Further review on the as-built drawings when taking into account the latest design details of T2 Expansion project and planned site investigation (SI), as well as follow-up site reconnaissance at T2 building have been undertaken in January 2018 and February 2018 (i.e. fuel tanks and generators within the building). Findings and consideration of assessment results after EIA stage have been summarized in the Supplementary Contamination Assessment Plan (SCAP) being approved in August 2018.

Based on the latest construction programme, decommissioning/ demolition of the Emergency Power Supply Systems No.4 (hereafter referred as EPSS4) of T2 building is scheduled to commence in 2nd Quarter of 2020.

Mott MacDonald Hong Kong Limited (MMHK), as the project's Environmental Team, was appointed by Airport Authority Hong Kong (AAHK) to prepare the Contamination Assessment Report (CAR) for Terminal 2 EPSS4, to fulfil part of the SCAP's recommendation as this CAR only covers one concerned system. The updated Implementation Schedule of Land Contamination – Construction Phase is provided in **Appendix A**.

1.2 Scope of this CAR

T2 building of the Hong Kong International Airport comprises northern and southern sections, where each section consists of a number of Emergency Generator Rooms and Fuel Tank Rooms.

The EPSS4 was located at southern section of T2 Building. The system comprises underground and above-ground section. The locations of the captioned emergency power supply systems are shown in **Appendix B.** The identified potential land contamination sources are listed in **Table 1.1** below,

Table 1.1: Identified Potential Land Contamination Source of Emergency Power Supply System

Emergency Power Supply System	Potential Land Contamination Source Reference ID	Descriptions	Location
Southern Section			
Emergency Power Supply System No.4	**Underground Section**		Please refer to **Appendix C**
	HS3	44 m-in-length underground fuel pipelines connecting the 1,500 L above-ground fuel tank (i.e. BH10) and the emergency generator (i.e. HS2)	
	Above-ground Section		
	BH10	A 1,500 L above-ground fuel tank at Fuel Tank Room	
	HS2	An emergency generator at Emergency Generator Room, connected to 1,500 L above-ground fuel tank (BH10)	

Layout plans of respective emergency power supply systems included in this CAR are presented in **Appendix C**.

1.3 Objective

According to the approved SCAP, for the above-ground sections including BH10 and HS2, final inspection and record checking shall be conducted right before decommissioning/ demolition. While for the underground section including HS3, enhanced SI programme shall be conducted along with decommissioning/demolition to confirm no potential land contamination taken place.

For the above-ground sections, decommissioning/ demolition works were scheduled in the 2nd Quarter of 2020. Final site inspections and record checking were conducted for the Emergency Power Supply System. Photo records and findings have been included in this CAR. For underground sections, enhanced SI programme for HS3 was carried out in September 2020.

This CAR has been prepared to present the findings of final inspections and record checking of the above-ground sections (i.e. BH10 and HS2), as well as the sampling procedures and laboratory testing of enhanced SI for the underground sections (HS3) as described in **Section 1.2**. Testing results have been interpreted based on the Guidance Manual for Use of Risk Based Remediation Goals (RBRGs) for Contaminated Land Management (Guidance Manual) and detailed in **Section 4**.

2 Summary of Sampling and Testing Strategy

2.1 Proposed Sampling Method in the SCAP

2.1.1 Proposed Sampling Method of HS3

According to the SCAP, grab sampling was proposed for the concerned underground facilities of T2 Building, including HS3. The proposed sampling and testing plan including the parameters to be tested, sampling locations and sampling depths are presented in **Table 2.1**. Sand and soil samples should be grabbed manually during the decommissioning/demolition process of concerned underground pipeline trench (i.e. HS3). The whole sampling process should be under the supervision of on-site contamination specialist.

Sampling Selection of Underground Fuel Pipeline (i.e. HS3)

Sand and soil samples should be collected as follows:

- Sand samples should be taken at every curvature of pipeline inside the concrete trench;
- Additional sampling points inside the concrete trench are set depending on length of pipeline segment (from curvature/connection to curvature):
    - If pipeline segment is ≤10 m, additional sample is considered not required;
    - If pipeline segment is >10 m and ≤20 m, one sample shall be taken at segment mid-point;
    - If pipeline segment is >20 m and ≤30 m, samples shall be collected at 2 points which are evenly spaced with each other and segment ends.
- Soil samples should be taken right underneath concrete trench at every curvature.

Sampling point annotation and indicative sampling point locations of HS3 extracted from the SCAP are presented in **Table 2.2** and **Appendix D** .

Table 2.1: Enhanced Sampling and Testing Plan for HS3 of Emergency Power Supply System No.4 in T2 Building

Proposed Sampling Locations	Sample Matrix		Sampling Point Annotation	Parameters to be Tested[1 & 2]				Rationale of Sampling
				Heavy Metals	PCRs[3]	VOCs[3]	SVOCs[3]	
HS3[4]	Sand[5]	At the level of fuel pipelines	HS3-S1 to HS3-S7	Lead only	✓	BTEX[7] and MTBE[8]	PAHs[9]	Confirm no diesel leakage from underground fuel pipelines
	Soil	Right underneath concrete/brick trench	HS3-S1, HS3-S3, HS3-S4 and HS3-S7	Lead only	✓	BTEX[7] and MTBE[8]	PAHs[9]	Confirm no leaked diesel (if any) penetrate the concrete /brick trench

Remarks:

[1] ✓ = testing proposed.

[2] Having reviewed the potentially polluting activities of the site (use of diesel fuel) and S2.4.3 of Practice Guide, it is recommended to analyse the key COCs (i.e. Lead, PCRs, BTEX, MTBE and PAHs) of "Petrol Filling Station" which is the most relevant land use type for the case of T2. The concerned diesel tanks and pipelines are used for storage and transfer of diesel fuel only and only diesel fuel is used for the generator. It is noted BTEX, MTBE and Lead present in gasoline but unlikely to be found in diesel fuel.

[3] PCRs = Petroleum Carbon Ranges; VOCs = Volatile Organic Chemicals; SVOCs = Semi-volatile Organic Chemicals;

[4] Exact sampling locations will be identified on site during the removal of sand/soil during fuel tank and pipelines decommissioning/ demolition.

[5] All sand samples will be collected within the concrete chamber or concrete/brick trench.

[6] bgs = Below Ground Surface.

[7] BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes.

[8] MTBE = Methyl Tert-Butyl Ether.

[9] Polyaromatic hydrocarbons (PAHs) in the RBRGs include, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene and pyrene.

Table 2.2: Sampling Point Annotation of Underground Fuel Pipeline HS3

Sampling Locations	Sampling Point	Type of Sampling Point (Curvature/ Additional)	Figure No.
HS3	HS3-S1	Curvature	**Appendix D**
	HS3-S2	Additional	
	HS3-S3	Curvature	
	HS3-S4	Curvature	
	HS3-S5	Additional	
	HS3-S6	Additional	
	HS3-S7	Curvature	

2.2 Assessment Criteria

The chemicals of concern (COCs) listed in EPD's Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management were referred to when proposing the analytical parameters listed in **Table 2.1**. According to Section 5.3 of the SCAP, categories of Industrial were adopted for evaluating the contamination level of T2 building.

3 Site Investigation

3.1 Soil Sampling

3.1.1 Underground Fuel Pipeline HS3

Site investigation works of HS3 segments was carried out by land contamination specialist on 15 September 2020. Soil samples were collected at sampling points HS3-S1, HS3-S3 and HS3-S7. Deviation with the as-built drawings in underground fuel pipeline layout was observed, there was only one curvature (i.e. HS3-S3) between segment HS3-S1 and HS3-S7, hence sampling point HS3-S4 (as identified in SCAP) is not applicable. The actual sampling points and on-site length measurement of the segments of underground pipeline HS3 are illustrated in **Appendix E**.

Sampling Point HS3-S1, HS3-S3 and HS3-S7

Based on site observation, it was found that the concrete trench was filled with concrete rather than sand, which previously shown in the as-built drawings, and no sand samples could be collected inside the concrete trench. Therefore, soil samples were collected at the following sampling points at the depth right underneath the concrete trench, where the curvature of the pipelines located,

- HS3-S1 (Same sampling point proposed in SCAP);
- HS3-S3 (Same sampling point proposed in SCAP); and
- HS3-S7 (Same sampling point proposed in SCAP)

No ground water was observed during soil sampling of HS3-S1, HS3-S3 and HS3-S7.

HS3 segment between HS3-S1 and HS3-S3

For the segment between HS3-S1 and HS3-S3, as no sand samples could be collected at sampling point HS3-S2 at the level of fuel pipelines, the condition of the concrete trench was examined on-site and the observations are presented in **Appendix E.** No cracks on the concrete-trench nor oil stains were found in the vicinity of this sampling point**.** However, due to the safety concerns of excavation at the time of on-site inspection, site photos at the sides and bottom of HS3-S2 could not be taken on 15 September 2020. With the consideration of the site observations as presented in **Appendix E** and the laboratory testing results of HS3-S1 and HS3-S3, which are at the same segment and near in location, it is confirmed that no diesel leakage from the underground fuel pipelines laid in concrete trench.

To err on a conservative side, additional site photo records at HS3-S2 will be provided to EPD after the pipeline at HS3-S2 was removed.

HS3 segment between HS3-S3 and HS3-S7

For the segment between HS3-S3 and HS3-S7, as no sand samples could be collected at sampling points HS3-S5 and HS3-S6 at the level of fuel pipelines, the condition of the concrete trench was examined on-site and the observations are presented in **Appendix E.** No cracks on the concrete-trench nor oil stains were found in the vicinity of these sampling points**.** However, due to the safety concerns of excavation at the time of on-site inspection, site photos at the sides and bottom of HS3-S5 and HS3-S6 could not be taken on 15 September 2020. With the consideration of the site observations as presented in **Appendix E** and the laboratory testing results of HS3-S3 and HS3-S7, which are at the same segment and near in location, it is confirmed that no diesel leakage from the underground fuel pipelines laid in concrete trench.

To err on a conservative side, additional site photo records at HS3-S5 and HS3-S6 will be provided to EPD after the pipeline at HS3-S5 and HS3-S6 was removed.

The actual sampling points and on-site length measurement of the particular segment of underground pipeline HS3 are summarized in **Table 3.1** and illustrated in **Appendix E**. All soil samples were analyzed in accordance with the analysis schedules detailed in **Table 2.1**.

Table 3.1: Summary of Sampling Point of HS3

Sampling Locations	Sampling Point	Type of Sampling Point (Curvature/ Additional)	Sampling Date
HS3	HS3-S1	Curvature	15 September 2020
	HS3-S3	Curvature	15 September 2020
	HS3-S7	Curvature	15 September 2020

3.1.2 Additional Photo Record Upon Demolition Works

To err on a conservative side, additional site photo records at the sides and bottom of HS3-S2, HS3-S5 and HS3-S6 will be submitted to EPD upon the demolition work at these locations to reaffirm the conclusion drawn in **Section 3.1.1** that there was no diesel leakage from the underground fuel pipe.

In case that sign of diesel leakage is spotted during the demolition works, agreement from EPD shall be sought for sampling strategy and subsequent SI shall be arranged in accordance with the agreed sampling plan. A CAR should be submitted to EPD and if remediation is required, a Remediation Action Plan and Remediation Report will also be prepared.

3.2 Decontamination Procedures

Before excavation/ sampling, all equipment in contact with the ground were thoroughly decontaminated between each excavation and sampling event to minimise the potential for cross contamination. The equipment should be decontaminated by steam cleaning or high-pressure hot water jet, then washed by phosphate-free detergent and finally rinsed by distilled water. During decontamination procedures and sampling, disposable latex gloves were worn to prevent the transfer of contaminants from other sources.

3.3 Quality Assurance (QA) / Quality Control (QC) Procedure

3.3.1 QA/QC Procedure

The soil samples taken were placed in sample containers provided by the HOKLAS laboratory. Sufficient sample size was collected for the laboratory analysis. Samples were marked with sampling date, sampling identification number and sampling depth with appropriate chain-of-custody form. Collected samples were then stored in a cool box at a temperature between 0^{o}C and 4^{o}C and transported to the laboratory immediately after completion of the sampling.

The chain-of-custody records are given in **Appendix F**.

3.3.2 QA/QC Analysis

In this enhanced SI programme, QA/QC samples were collected in accordance with the frequency proposed in the SCAP as follows, with a Chain of Custody protocol adopted:

- One equipment blank per 20 samples for full suite analysis*;
- One field blank per 20 samples for full suite analysis*;
- One duplicate sample per 20 samples for full suite analysis*; and
- One trip blank per trip for the analysis of volatile parameters#.

Note:

* For the purposes of this enhanced SI programme, the following parameters were tested in a ‘full suite analysis’ –

- Heavy Metals: Lead only.
- PCRs: C6-C8; C9-C16; C17-C35.
- VOCs: Benzene, Toluene, Ethylbenzene, Xylenes and Methyl Tert-Butyl Ether.
- SVOCs: acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene and pyrene.

[#] For the purposes of this Project, the following parameters were tested in the analysis of 'volatile parameters' – Benzene, Toluene, Ethylbenzene, Xylenes, Methyl Tert-Butyl Ether and C6-C8.

The duplicate, equipment blank and field blank samples were collected on 15 September 2020 during the sampling for HS3.

The laboratory results for QA/QC samples are presented in **Appendix G**.

All testing parameters were not detected (below the limit of reporting) in all blank samples obtained. QA/QC procedures for sample collection and preparation are considered acceptable.

4 Interpretation of Laboratory Testing Results

4.1 Soil Contamination

4.1.1 Underground Fuel Pipeline HS3

A total of 3 soil samples were collected at HS3 for laboratory testing. The testing results are summarised in **Table 4.1** and the testing reports are presented in **Appendix G**. The testing results of all parameters indicated that all soil samples from HS3 were below the value of RBRGs for Industrial.

Table 4.1: Laboratory Testing Results of Soil Samples at HS3

Compound	Concentration (mg/kg)			
	HS3-S1	HS3-S3	HS3-S7	RBRGs for Industrial
Heavy Metals				
Lead	59	57	50	2290
PCRs				
C6 - C8	<5	<5	<5	C6 - C8: 10,000
C9 - C16	<200	<200	<200	C9 - C16: 10,000
C17 - C35	<500	<500	<500	C17 - C35: 10,000
VOCs				
Benzene	<0.2	<0.2	<0.2	9.21
Toluene	<0.5	<0.5	<0.5	10,000
Ethylbenzene	<0.5	<0.5	<0.5	8,240
Xylenes (Total)	<2.0	<2.0	<2.0	1,230
Methyl tert-Butyl Ether	<0.2	<0.2	<0.2	70.1
SVOCs				
Naphthalene	<0.500	<0.500	<0.500	453
Acenaphthylene	<0.500	<0.500	<0.500	10,000
Acenaphthene	<0.500	<0.500	<0.500	10,000
Fluorene	<0.500	<0.500	<0.500	10,000
Phenanthrene	<0.500	<0.500	<0.500	10,000
Anthracene	<0.500	<0.500	<0.500	10,000
Fluoranthene	<0.500	<0.500	<0.500	10,000
Pyrene	<0.500	<0.500	<0.500	10,000
Benz(a)anthracene	<0.500	<0.500	<0.500	91.8
Chrysene	<0.500	<0.500	<0.500	1140
Benzo(b)fluoranthene	<0.500	<0.500	<0.500	17.8
Benzo(k)fluoranthene	<0.500	<0.500	<0.500	918
Benzo(a)pyrene	<0.500	<0.500	<0.500	9.18
Indeno(1.2.3.cd)pyrene	<0.500	<0.500	<0.500	91.8
Dibenz(a.h)anthracene	<0.500	<0.500	<0.500	9.18
Benzo(g.h.i)perylene	<0.500	<0.500	<0.500	10,000

5 Final Inspection and Record Checking Findings

5.1 General

According to Section 3.2.5 of the SCAP, it is recommended that final inspection and record checking should be conducted right before decommissioning/ demolition of the concerned above-ground fuel tank and the above-ground emergency generator for respective Emergency Power Supply System to ensure no contaminative activities during the period from the time of preparation of SCAP till the decommissioning. Summary of final inspection and record checking are given in ensuing paragraphs. Photo records of final inspections are presented in **Appendix H**.

5.1.1 Final Inspection and Record Checking Findings

5.1.1.1 Emergency Power Supply System No.4

Final Inspection

The above-ground fuel tank (i.e. BH10) and emergency generator (i.e. HS2) of EPSS4 were disconnected in late-May 2020, and the fuel inside the system was removed in mid-June. Final inspection of the BH10 and HS2 was conducted on 18 June 2020. During our final inspection, BH10 and HS2 were at the same locations as for the time of preparation of SCAP in 2018. Both facilities were mounted on intact concrete floor with no oil stain observed, and no oil stain was observed inside the drip tray of the above-ground fuel tank (BH10). In addition, curb by builder was provided in the fuel tank room. Photo records of final inspections are presented in **Appendix H**.

Record Checking

Available monthly maintenance records of the BH10 and HS2 from the time of SCAP preparation (i.e. March 2018) to February 2020 (month of last maintenance) were checked. No abnormality on fuel re-filling record was observed and no fuel tank leakage was recorded. It is concluded that there was no fuel leakage for the above-ground facilities BH10 and HS2 from the time of SCAP preparation till decommissioning/ demolition.

6 Conclusion

Enhanced SI programme have been conducted for the underground sections, HS3, in September 2020. During the enhanced SI programme, a total of 3 soil samples were collected and testing of CoCs was undertaken. The testing results indicated that all the samples at HS3 were below the RBRGs standard for industrial. Based on the sample testing results, it is considered that there are no land contamination issues at the HS3, including the segment running from HS3-S1 to HS3-S3 and from HS3-S3 to HS3-37, as per the site photo record taken at HS3-S2, HS3-S5 and HS3-S6. To sum up, it is considered that there are no land contamination issues at HS3, therefore remediation works are not required.

To err on a conservative side, additional site photo records at the sides and bottom of HS3-S2, HS3-S5 and HS3-S6 will be submitted to EPD upon the demolition at these three specific sampling points to reaffirm the conclusion drawn in **Section 3.1.1** that there was no diesel leakage from the underground fuel pipes. In case that sign of diesel leakage is spotted during the demolition works, agreement from EPD shall be sought for sampling strategy and subsequent SI shall be arranged in accordance with the agreed sampling plan. A CAR should be submitted for the subsequent SI work and if remediation is required, a Remediation Action Plan and Remediation Report will also be prepared for submission to EPD.

Final inspection and record checking were conducted right before decommissioning/ demolition of the above-ground section of EPSS4 (i.e. BH10 and HS2). According to the inspection and record checking results, it is concluded that there was no contaminative activities during the period from the preparation of SCAP till decommissioning/demolition of the above-ground facilities.

Appendices

A. Updated Implementation Schedule of Land Contamination – Construction Phase

Updated Appendix C Table 1 of EM&A Manual: Implementation Schedule

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?*
Land Contamination – Construction Phase					
11.10.1.2 to 11.10.1.3	8.1	2.32	For areas inaccessible during site reconnaissance survey ▪ Further site reconnaissance would be conducted once the areas are accessible in order to identify any land contamination concern for the areas.	Fuel Tank Room to the West of CAD Antenna Farm[(1)] / May 2017	I
				Fuel Tank Room within T2 Building[(1)] / May 2017, Jan and Feb 2018	I
				Seawater Pump House[(1)] / Sep 2016	I (no contaminative land use types were identified and no further site investigation was required.)
				Switching Station[(1)] / Sep 2016	I (relocation of switching station was not required. No site appraisal process for land contamination potential was required)
				Pumping Station[(1)] / Dec 2016	I (no contaminative land use types were identified and no further site investigation was required.)
				Fire Training Facility[(1)] / May 2017	I
			▪ Subject to further site reconnaissance findings, a supplementary Contamination Assessment Plan (CAP) for additional site investigation (SI) (if necessary) may be prepared and submitted to EPD for endorsement prior to the commencement of SI at these areas.	Fuel Tank Room to the West of CAD Antenna Farm[(2)(3)] / Aug 2018	I (Supplementary CAP was approved in August 2018)
				Fuel Tank Room within T2 Building[(2)(3)] / Aug 2018	
				Fire Training Facility[(2)(3)] / Aug 2018	
				Airside Petrol Filling Station[(3)] / Aug 2018	

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?*
			▪ After completion of SI, the Contamination Assessment Report (CAR) will be prepared and submitted to EPD for approval prior to start of the proposed construction works at the golf course, the underground and above-ground fuel storage tank areas, emergency power generation units, airside petrol filling station and fuel tank room.	Fuel Tank Room to the West of CAD Antenna Farm(3) / No development programme for this area at this stage	N/A
				Fuel Tank Rooms within T2 Building(3)	I (CAR for T2 EPSS No.1 Volumes 1 and 2 was approved on 2 March 2020 and 7 May 2020) (CAR for T2 EPSS Nos.2,.3 and 5 has been submitted to EPD) (CAR for T2 EPSS No.4 has been submitted to EPD)
				Fire Training Facility(3) / No development programme for this area at this stage	N/A
				Airside Petrol Filling Station(3) / No development programme for this area at this stage	N/A
				SkyCity Golf Course(4)	I (CAR for golf course was approved on 6 April 2016)
			▪ Should remediation be required, Remediation Action Plan (RAP) and Remediation Report (RR) will be prepared for EPD's approval prior to commencement of the proposed remediation and any construction works respectively.	Project Site Area where remediation is required	N/A (No remediation is required so far)
11.8.1.2	8.1	-	If contaminated soil is identified, the following mitigation measures are for the excavation and transportation of contaminated materials (if any): ▪ To minimize the incidents of construction workers coming in contact with any contaminated materials, bulk earth-moving excavation equipment should be employed; ▪ Contact with contaminated materials can be minimised by wearing appropriate clothing and personal protective equipment such as gloves and masks (especially when working directly with contaminated material), provision of washing facilities and prohibition of smoking and eating on site; ▪ Stockpiling of contaminated excavated materials on site should be avoided as far as possible; ▪ The use of any contaminated soil for landscaping purpose should be avoided unless pre-treatment was carried out;	Project Site Area where contaminated soil is identified	N/A (No contaminated soil has been found so far)

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?*
			▪ Vehicles containing any excavated materials should be suitably covered to reduce dust emissions and/or release of contaminated wastewater; ▪ Truck bodies and tailgates should be sealed to prevent any discharge; ▪ Only licensed waste haulers should be used to collect and transport contaminated material to treatment/disposal site and should be equipped with tracking system to avoid fly tipping; ▪ Speed control for trucks carrying contaminated materials should be exercised. 8km/h is the recommended speed limit; ▪ Strictly observe all relevant regulations in relation to waste handling, such as Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354) and obtain all necessary permits where required; and ▪ Maintain records of waste generation and disposal quantities and disposal arrangements.		

***Notes:**

I= implemented where applicable;

N/A= not applicable

Remarks:

(1) Project Site Area inaccessible during site reconnaissance in EIA stage according to Section 1.10.1.2. of the EIA Report.

(2) Project Site Area where the need for Further Site Investigation was evaluated as stipulated in Table 3.2 of the Supplementary Contamination Assessment Plan (SCAP) approved in August 2018.

(3) Project Site Area where Site Investigation was recommended in Table 3.4 of the SCAP approved in August 2018.

(4) Project Site Area where Site Investigation to be carried out by Airport Management Services according to Section 11.6.1 of the EIA Report.

B. Location of Emergency Power Supply Systems of T2 Building

B.1 Location of Emergency Power Supply Systems of T2 Building (Overview)

B.2 Location of Emergency Power Supply System No.4 of T2 Building (Zoom-in View of Southern Section of T2 Building)

Appendix B.1 Location of Emergency Power Supply Systems of T2 Building (Overview)

820000 N

819500 N

811500 E

812000 E

BH3 BH4 BH1 BH2 BH9 HS1

*Please refer to Zoom-in View of Northern Section of T2 Building

HS2 HS3 BH10 HS4 HS5 BH6 BH7 BH5 BH8

*Please refer to Zoom-in View of Southern Section of T2 Building in Appendix B.2

LEGEND:

- UNDERGROUND FUEL TANK
- ABOVE-GROUND FUEL TANK
- EMERGENCY GENERATOR ROOM
- EMERGENCY POWER GENERATION UNIT
- DEMOLISHED AREA WITHIN T2
- INDICATIVE T2 EXPANSION AREA
- PROPOSED SAMPLING LOCATIONS IN EIA

MARK-UP IN JUL 2018:

- HS1 TWO EMERGENCY GENERATORS AT EMERGENCY GENERATOR ROOM
- HS2 AN EMERGENCY GENERATOR AT EMERGENCY GENERATOR ROOM
- HS3 44 M-IN-LENGTH UNDERGROUND FUEL PIPELINES
- HS4 A 1,500 L ABOVE-GROUND FUEL TANK AT FUEL TANK ROOM
- HS5 AN EMERGENCY GENERATOR AT EMERGENCY GENERATOR ROOM

Rev.	Date	Description	Checked
A	23OCT13	FIRST ISSUE	EC
B	21NOV13	GENERAL REVISION	AM
C	17DEC13	GENERAL REVISION	AM

香港國際機場 HONG KONG INTERNATIONAL AIRPORT

Mott MacDonald in association with ARUP, Atkins China Limited, Clymene Enterprises, Deltares, Ecosystems Limited, SDA Marine Limited, Urbis Limited, URS Limited

Title: PROPOSED SAMPLING LOCATIONS FOR EXPANSION OF T2 BUILDING

Consultant's Signatures for Approval		Date
Design	AM	23OCT13
Checkers	AM	23OCT13
Design Supervisor	EC	21MAR14
Authorised Representative	AFK	21MAR14

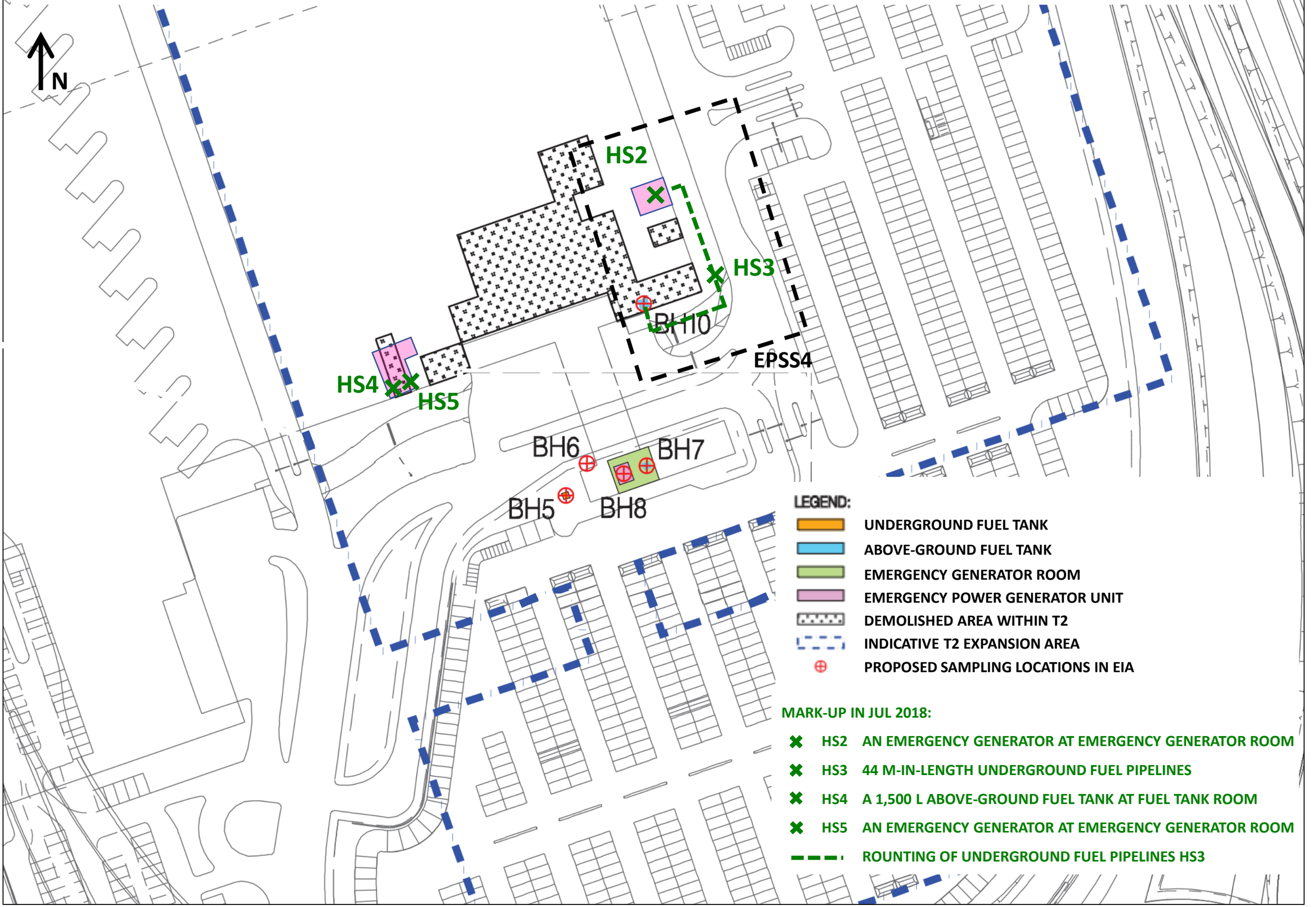
EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM

Drawing No. MCL / P132 / EIA / 11–014

Scale at A3 1 : 2500

Rev. C

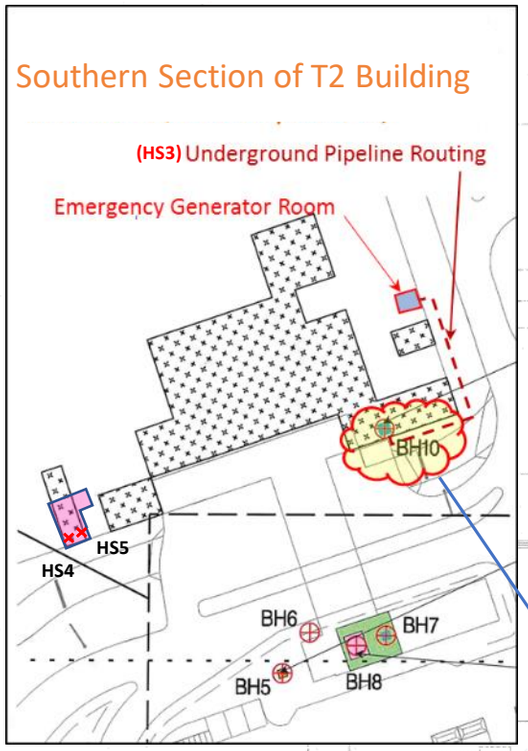
Appendix B.2 Location of Emergency Power Supply System No.4 of T2 Building (Zoom-in View of Southern Section of T2 Building)



C. Identified Potential Land Contaminated Source of Emergency Power Supply System 4 in SCAP

Appendix C Identified Potential Land Contaminated Source of Emergency Power Supply System No.4 (EPSS4) in SCAP

Reference ID	Description
BH10	A 1,500 L **above-ground** fuel tank at Fuel Tank Room
HS2	An emergency generator at Emergency Generator Room (**above-ground**)
HS3	44 m-in-length **underground** fuel pipelines connecting the 1,500 L above-ground fuel tank (i.e. BH10) and the emergency generator (i.e. HS2)



BH10 1,500L Above-ground Fuel Tank

HS2 Emergency Generator (Mounted on **200mm-thick concrete plinth**)

HS3
1m (D) Trench (filled below ground level)
Total Length: Approx. 44 m

CONTRACT P350 – SKYPLAZA BUILDING WORKS AS-CONSTRUCTED DRAWING

I hereby certify that the information contained on these "as-constructed" drawings is a true record of the Works as constructed

Signed by : Date : 16/4/2008
For and on behalf of Chun Wo – Fujita Joint Venture

MAIN CONTRACTOR : FUJITA CWF JOINT-VENTURE

E & M CONTRACTOR : CHUN WO E & M ENGINEERING LIMITED

SOM Aedas JV in association with ARUP Mott Connell

Hong Kong International Airport. "AS-FITTED"

SKYPLAZA BUILDING WORKS
1800kVA NON FSI GENSET RM
LAYOUT & FUEL TANK RM
LAYOUT AT LEVEL 3 ZONE 64

Scale 1:50 (IN A0) | Location 64 | Drawing No. CWF / P350 / E / 09462 | C

D. Indicative Sampling Point Selection of Underground Pipeline Trench of EPSS4 in SCAP (i.e. HS3)

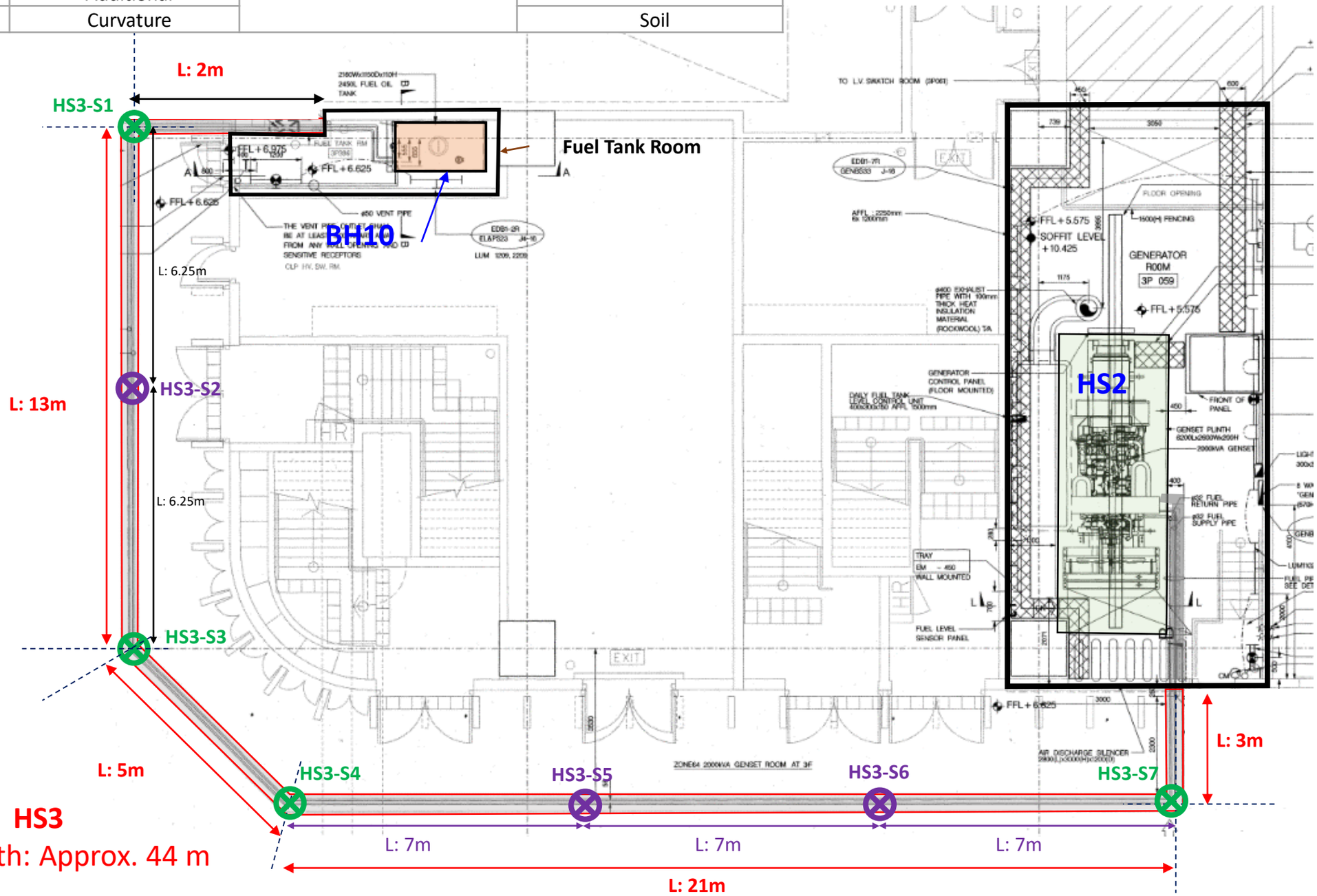
Appendix D Indicative Sampling Point Selection of Underground Pipeline Trench of EPSS4 in SCAP (i.e. **HS3**)

Annotation of Sampling Point	*Type of Sampling Point (Curvature/ Additional)*	*Sample*	
		At the level of fuel pipelines (Within Concrete Trench)	*Right underneath concrete trench*
HS3-S1	Curvature	Sand	Soil
HS3-S2	Additional		-
HS3-S3	Curvature		Soil
HS3-S4	Curvature		Soil
HS3-S5	Additional		-
HS3-S6	Additional		-
HS3-S7	Curvature		Soil

LEGEND:

Curvature Sampling Point

Additional Sampling Point



Indicative Sampling Point Selection of Underground Pipeline Trench of EPSS4 (i.e. **HS3**)

E. Actual Sampling Point of the Underground Pipeline Trench of EPSS4 (i.e. HS3-S1, HS3-S3, HS3-S7)

E.1 Actual Sampling Point of the Underground Pipeline Trench of EPPS4 (i.e. HS3)

E.2 Site Photo Record of Underground Pipeline Trench of EPSS4 at HS3 (Photo Record)

Appendix E.1 Actual Sampling Point of the Underground Pipeline Trench of EPSS4 (i.e. HS3-S1,HS3-S3, HS3-S7)

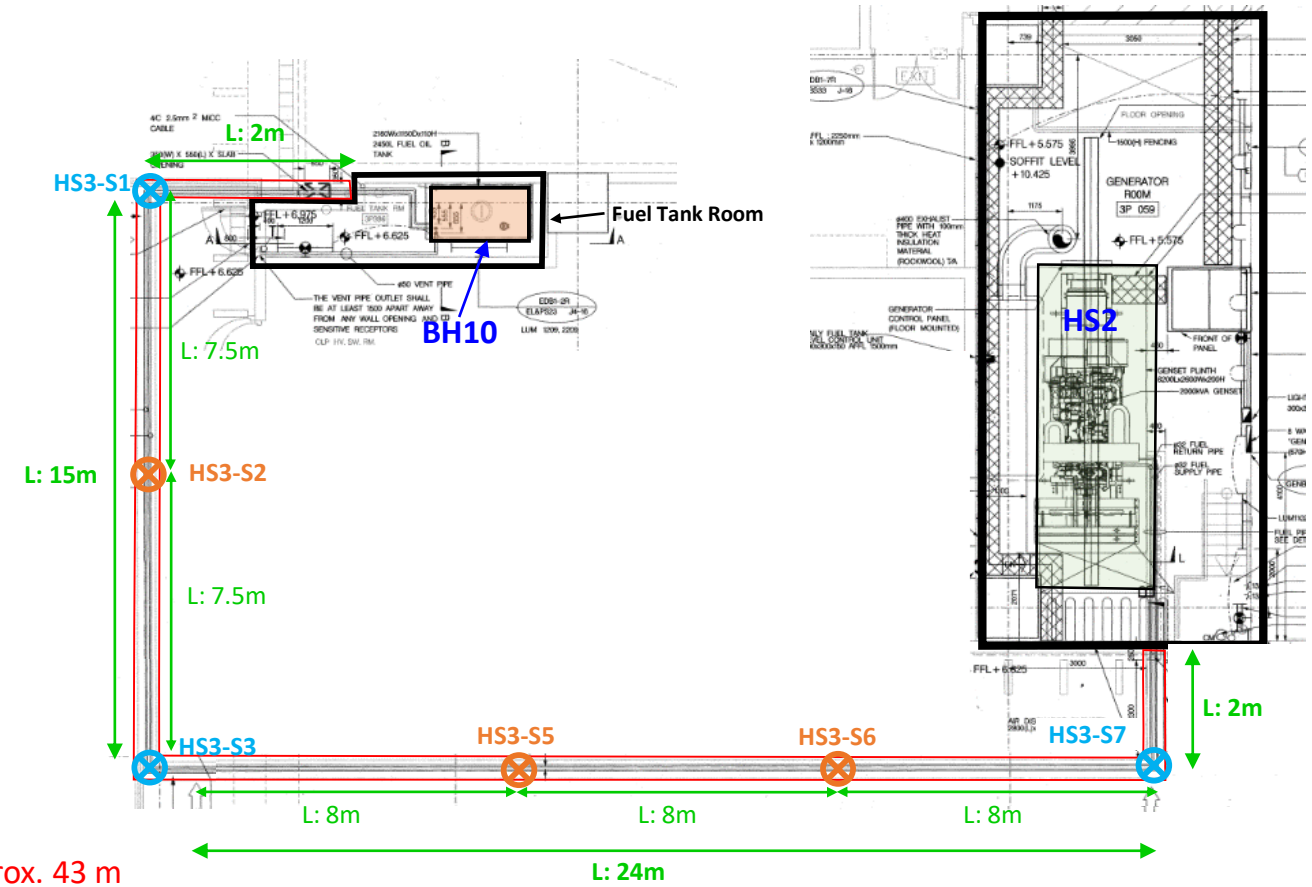
Annotation of Sampling Point	*Type of Sampling Point*	*Sampling Elevation*	*Type of Sample*	*Remarks*
HS3-S1	Curvature	Right underneath concrete trench corner	Soil	Same sampling point selection in SCAP
HS3-S3	Curvature			
HS3-S7	Curvature			

LEGEND:

Sampling Point proposed in SCAP with photo record taken on 15 Sep 2020

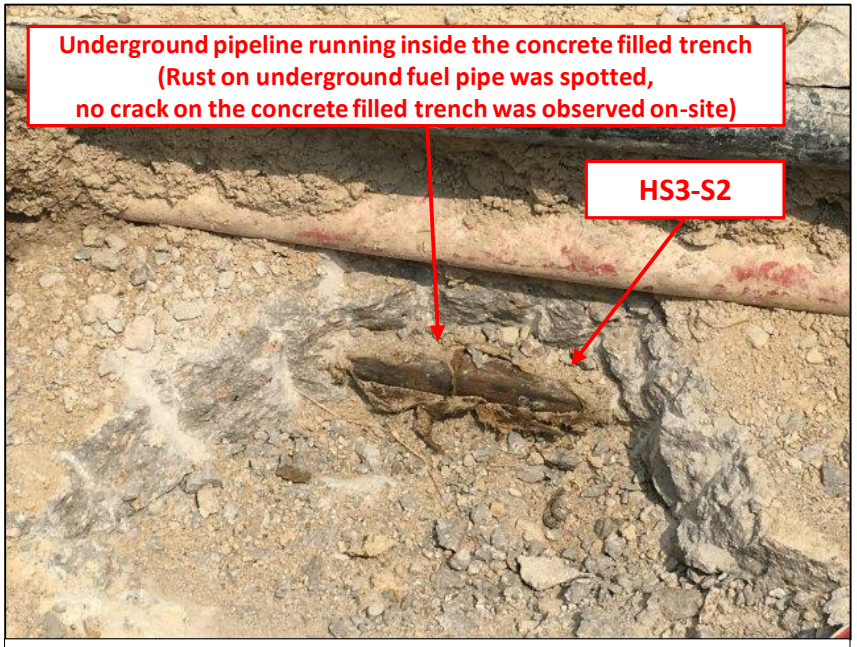
Actual Sampling Point

TEXT On-site Measurement of Underground Pipeline/ Concrete Trench

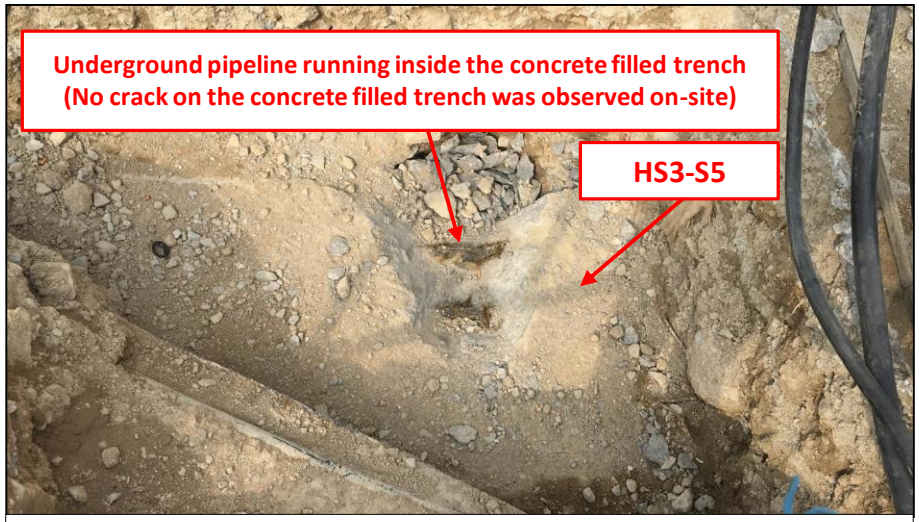


Actual Sampling Point of Underground Pipeline Trench of Emergency Power Supply System No.4 (i.e. **HS3**)

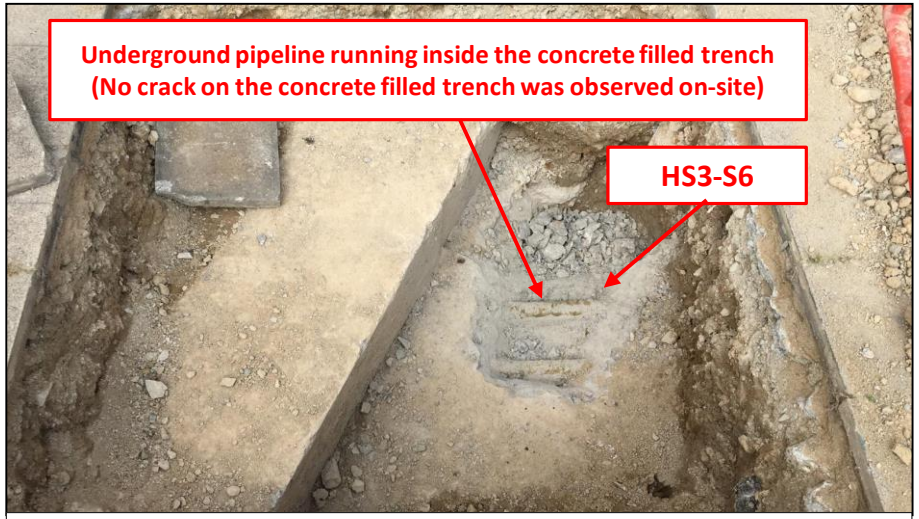
Appendix E.2 Site Photo Record of Underground Pipeline Trench of EPSS4 at HS3-S2, HS3-S5 and HS3-S6 (Photo Record)



HS3-S2



HS3-S5



HS3-S6

F. Chain-of-Custody Record

CHAIN OF CUSTODY DOCUMENTATION

H 030968

ALS Laboratory Group

CLIENT: Mott MacDonald HK Limited	SAMPLER: 9878 HJT (Henry Ho) / 9307 9680 (Liz Ho)
ADDRESS / OFFICE: 3/F, International Trade Tower, 348 Kwun Tong Road, KL, HK.	MOBILE: 2585 8145 / 2828 5751
PROJECT MANAGER (PM): Thomas Chan	PHONE
PROJECT ID: 5071 Testing at Hong Kong Airport	EMAIL REPORT TO:
SITE: Contract No. 3503 T2 Foundation & Sd P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (Date): QUOTE NO.: HKE/1861c/2018	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY

COOLER SEAL (circle appropriate)

Intact: Yes No (N/A)

SAMPLE TEMPERATURE

CHILLED: (Yes) No

COMMENTS / SPECIAL HANDLING / STORAGE OR DIPOSAL:

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected"
Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		Lead	TPH	BTEX	MTBE	PAH	C6-C8							
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
1	Trip Blank	W	15/9/20		Vials	2			✓	✓		✓							
2	Equipment Blank	W	15/9/20		1x Amber, 2x Vials, 2x plastic		✓	✓	✓	✓	✓								
3	Field Blank	W	15/9/20		1x Amber, 2x Vials, 2x plastic		✓	✓	✓	✓	✓								
4	HS3-S1	S	15/9/20		Glass Jar	1	✓	✓	✓	✓	✓								
5	HS3-S3	S	15/9/20		Glass Jar	1	✓	✓	✓	✓	✓								
6	HS3-S3 (Duplicate)	S	15/9/20		Glass Jar	1	✓	✓	✓	✓	✓								
7	HS3-S7	S	15/9/20		Glass Jar	1	✓	✓	✓	✓	✓								

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name: Thomas Chan	Date: 15 Sept 2020	Name:	Date: 15/9/20	Con' Note No:
Of: Mott MacDonald	Time:	Of: ALS (HK)	Time: 16:20	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soil; B = Unpreserved Bag.

G. Laboratory Testing Results of HS3

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
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	: 15-Sep-2020
Order number	: ----	Quote number	: HKE/1861c/2018_V2	Issue Date	: 24-Sep-2020
C-O-C number	: H030968			No. of samples received	: 7
Site	: CONTRACT NO. C3503 TERMINAL 2 FOUNDATION AND SUBSTRUCTURE WORKS			No. of samples analysed	: 7

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
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	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	-------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.2	16.5	17.0	16.4	----
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	59	57	56	50	----
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	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	-------
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	%	90.7	95.3	90.7	94.2	----
EP076HK: 4-Terphenyl-d14	1718-51-0	0.1	%	105	111	104	105	----
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
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	----
EP-074_SR-S: VOC Surrogates								
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	-------	-------
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	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	----	----
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	15-Sep-2020	15-Sep-2020	15-Sep-2020	----	----
Compound	CAS Number	LOR	Unit	HK2035296-001	HK2035296-002	HK2035296-003	-------	-------
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	%	----	90.0	96.2	----	----
EP076HK: 4-Terphenyl-d14	1718-51-0	0.1	%	----	101	104	----	----
EP-080_SRS: TPH(Volatile)/BTEX Surrogate								
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	----	----
EP-074_SR-S: VOC Surrogates								
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 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: 3261635)								
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
EG: Metals and Major Cations (QC Lot: 3258872)								
HK2035252-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	89	90	1.82
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3257378)								
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
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3259205)								
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 sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report: LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3259205) - Continued								
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
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3259204)								
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
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3261546)								
HK2035262-001	Anonymous	**EP070HK_SR: C6 - C8 Fraction**	----	5	mg/kg	<5	<5	0.00
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3261547)								
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	108-38-3 106-42-3	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: 3261547)								
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 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: 3261362)								
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

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
EG: Metals and Major Cations (QC Lot: 3258872)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	99.2	----	90.0	110	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3257378)											
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	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3259205)											
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: 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: 3259205) - Continued											
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	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3259204)											
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	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3261546)											
EP070HK_SR: C6 - C8 Fraction	----	5	mg/kg	<5	4.5 mg/kg	101	----	77.0	124	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3261547)											
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	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.5 mg/kg	90.1	----	82.0	124	----	----
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	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3261547)											
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: 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: 3261362)											
EG020: Lead	7439-92-1	1	µg/L	<1	50 µg/L	90.0	----	85.0	113	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3257640)											
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: 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: 3257640) - Continued											
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	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3259175)											
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	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3262259)											
EP070HK_SR: C6 - C8 Fraction	----	0.02	mg/L	<0.02	0.03 mg/L	86.4	----	77.0	120	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3255359)											
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	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3255359)											
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**

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: 3258872)										
HK2035245-001	Anonymous	**EG020: Lead**	7439-92-1	5 mg/kg	# Not Determined	----	75.0	125	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3257378)										
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	----	----
EP-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3259205)										
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: **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-076HK: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3259205) - Continued										
HK2035296-007	HS3-S7	**EP076HK: Benz(a)anthracene**	56-55-3	250 µg/kg	81.1	----	50.0	130	----	----
		EP076HK: Chrysene	218-01-9	250 µg/kg	74.1	----	50.0	130	----	----
		EP076HK: Benzo(b)fluoranthene	205-99-2	250 µg/kg	86.0	----	50.0	130	----	----
		EP076HK: Benzo(k)fluoranthene	207-08-9	250 µg/kg	77.6	----	50.0	130	----	----
		EP076HK: Benzo(a)pyrene	50-32-8	250 µg/kg	80.2	----	50.0	130	----	----
		EP076HK: Indeno(1.2.3.cd)pyrene	193-39-5	250 µg/kg	79.9	----	50.0	130	----	----
		EP076HK: Dibenz(a.h)anthracene	53-70-3	250 µg/kg	74.9	----	50.0	130	----	----
		EP076HK: Benzo(g.h.i)perylene	191-24-2	250 µg/kg	73.9	----	50.0	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3259204)										
HK2035225-047	Anonymous	**EP071HK_SR: C9 - C16 Fraction**	----	31.5 mg/kg	# Not Determined	----	50.0	130	----	----
		EP071HK_SR: C17 - C35 Fraction	----	67.5 mg/kg	# Not Determined	----	50.0	130	----	----
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3261546)										
HK2035245-001	Anonymous	**EP070HK_SR: C6 - C8 Fraction**	----	4.5 mg/kg	98.8	----	50.0	130	----	----
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3261547)										
HK2035252-001	Anonymous	**EP074_SR: Benzene**	71-43-2	0.25 mg/kg	97.1	----	50.0	130	----	----
		EP074_SR: Toluene	108-88-3	0.25 mg/kg	93.9	----	50.0	130	----	----
		EP074_SR: Ethylbenzene	100-41-4	0.25 mg/kg	98.1	----	50.0	130	----	----
		EP074_SR: meta- & para-Xylene	108-38-3 106-42-3	0.5 mg/kg	104	----	50.0	130	----	----
		EP074_SR: ortho-Xylene	95-47-6	0.25 mg/kg	97.7	----	50.0	130	----	----
		EP074_SR: Xylenes (Total)	----	0.75 mg/kg	102	----	50.0	130	----	----
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3261547)										
HK2035252-001	Anonymous	**EP074_SR: Methyl tert-Butyl Ether (MTBE)**	1634-04-4	0.25 mg/kg	104	----	50.0	130	----	----

Matrix: **WATER**

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	RPD (%)

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	MS Spike Recovery (%)	MSD	Recovery Limits (%) Low	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
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**

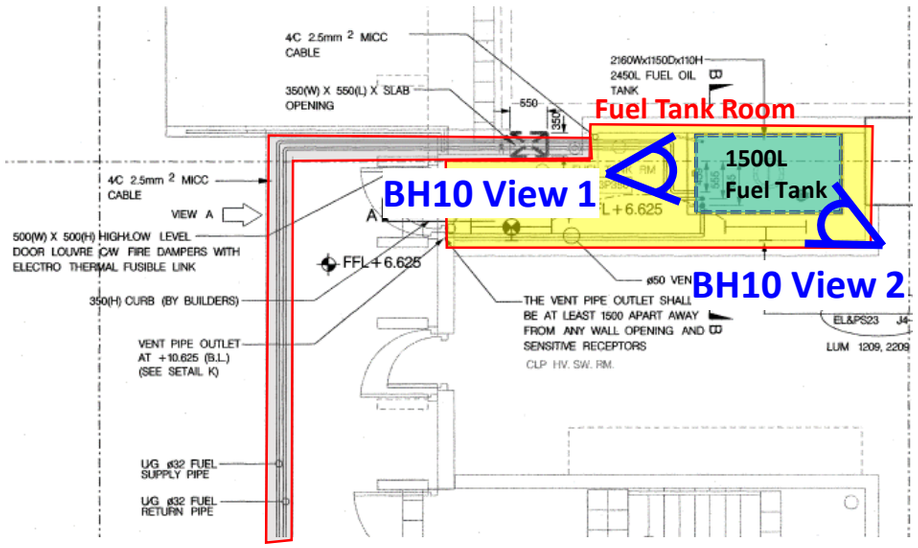
Compound	CAS Number	Recovery Limits (%) Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene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

H. Site Photo Record of Final Inspection

H.1 Site Photo Record of Final Inspection for EPSS4 BH10 (1,500L Above-ground Fuel Tank)

H.2 Site Photo Record of Final Inspection for EPSS4 HS2 (Emergency Generator connected to 1,500L Above-ground Fuel Tank (BH10))

Appendix H.1 Site Photo Record of Final Inspection for EPSS4 **BH10** (1,500L **Above-ground** Fuel Tank)

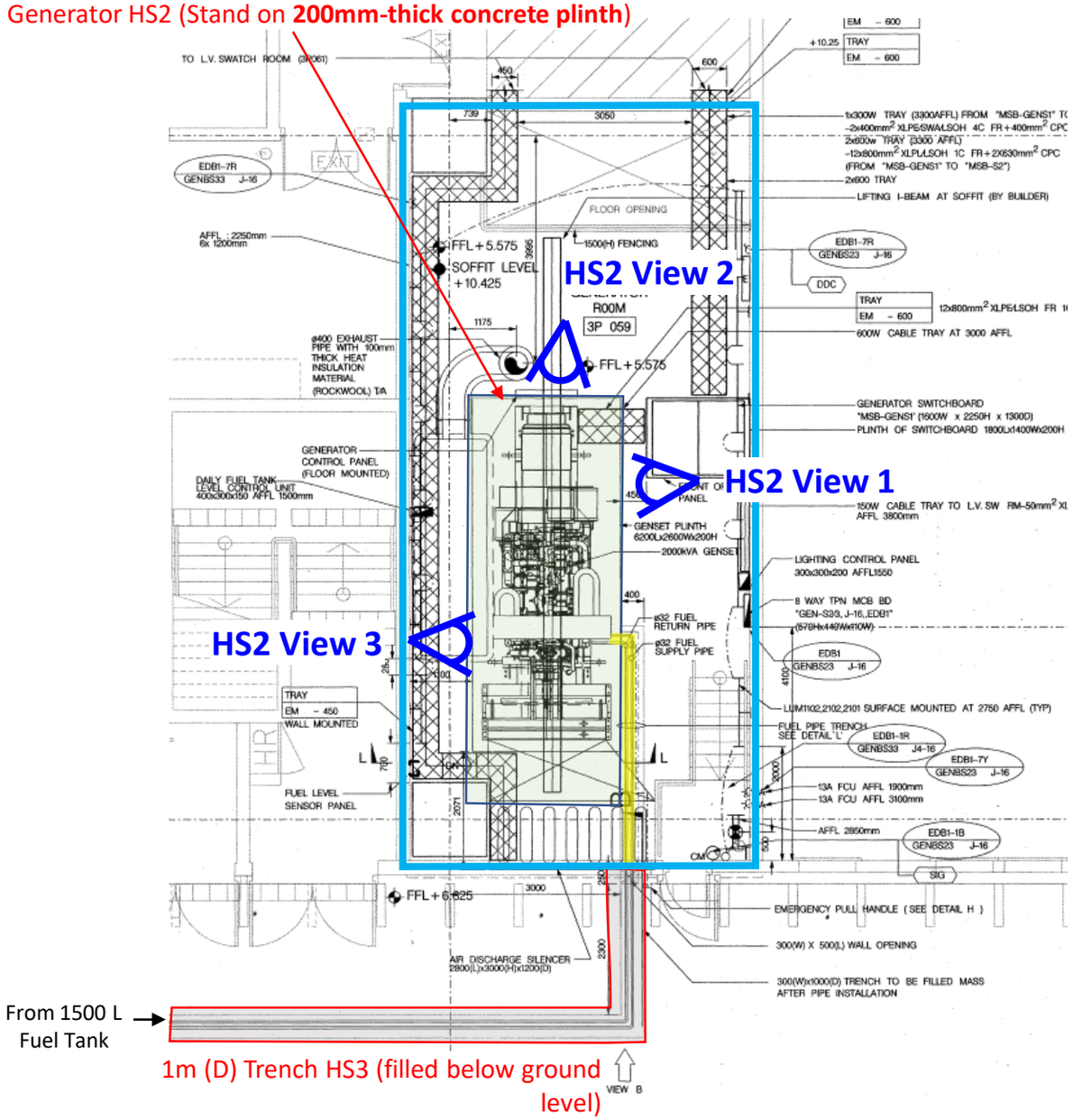


BH10 View 1 – concrete floor condition underneath 1,500L Above-ground Fuel Tank

BH10 View 2 - drip tray condition of the1,500L Above-ground Fuel Tank

Appendix H.2 Site Photo Record of Final Inspection for EPSS4 **HS2** (Emergency Generator connected to 1,500L **Above-ground** Fuel Tank (**BH10**))

Generator HS2 (Stand on **200mm-thick concrete plinth**)



From 1500 L Fuel Tank →

1m (D) Trench HS3 (filled below ground level)

HS2 View 1 - concrete floor condition underneath emergency generator

HS2 View 2 - concrete floor condition underneath emergency generator

HS2 View 3 - concrete floor condition underneath emergency generator