

MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU –
SHENZHEN – HONG KONG EXPRESS RAIL LINK
(No. EP-349/2009)

Supplementary Contamination Assessment Report
for Nam Cheong Barging Point

Verified by:



Position:

Independent Environmental Checker

Date:

8 September 2010

MTR Corporation Limited

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Position:

Date:

Glenn Frommer
Environmental Team Leader
7 SEP 2010

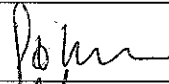
Dragages – Bouygues Joint Venture

**MTRC Express Rail Link Contract 820
Mei Lai Road to Hoi Ting Road Tunnels**

**Land Contamination Assessment at
Nam Cheong Barging Point**

**Supplementary Contamination Assessment
Report for Nam Cheong Barging Point (Site J)**

September 2010

	Name	Signature
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Version: 1 Date: 7 September 2010

Disclaimer

This report is prepared for Dragages – Bouygues Joint Venture and is given for its sole benefit in relation to and pursuant to MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels Land Contamination Assessment at Nam Cheong Barging Point and may not be disclosed to, quoted to or relied upon by any person other than Dragages – Bouygues Joint Venture and MTRC without our prior written consent. No person (other than Dragages – Bouygues Joint Venture into whose possession a copy of this report comes may rely on this report without our express written consent and Dragages – Bouygues Joint Venture may not rely on it for any purpose other than as described above.

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1 INTRODUCTION

1.1 Background

- 1.1.1 The Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL) will be a 26-km long underground rail line on a dedicated track that runs from the terminus located in West Kowloon to the boundary at Huanggang. The project is a designated project under Items A.2, A.4, A.7 and Q.1 of Part 1, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO).
- 1.1.2 In accordance with the EIAO, an Environmental Impact Assessment (EIA) for the Hong Kong Section of XRL was conducted and approved on 28 September 2009 (Register No. AEIAR-143/2009) and an Environmental Permit (EP) No. EP-349/2009 was granted by the Director of Environmental Protection (DEP) on 16 October 2009.
- 1.1.3 During the time of the EIA study, Site J, located at Nam Cheong Barging Point (NCB) was identified as an area with potential land contamination concerns which require further assessment, however, access to the site was not granted during the course of EIA study. The location of Site J is shown in **Figure XRL820/M57/001**. Pursuant to EP Condition 2.21, a revised contamination assessment plan (CAP) with an updated sampling and testing schedule based on current and historical site conditions of Site J; together with supplementary contamination assessment reports (CARs) and if contamination found, a supplementary remediation action plan (RAP) should be submitted to the Environmental Protection Department (EPD) for approval prior to the commencement of construction works at Site J.
- 1.1.4 The revised CAP (rCAP), which details proposed sampling locations and the proposed testing schedule for site investigation within Site J, was approved by Environmental Protection Department (EPD) in July 2010. The approved (rCAP) proposed a total of 9 locations within Site J for soil and groundwater sampling and testing.
- 1.1.5 AECOM Asia Company Limited (AECOM) was commissioned by Dragages-Bouygues Joint Venture (Dragages) as the environmental consultant to undertake the supplementary land contamination assessment at Site J.
- 1.1.6 Site investigation works for Site J were commenced on 13 July 2010 and completed on 26 July 2010. The site investigation, comprising rotary drilling of boreholes, excavation of trial pits, logging of ground materials, installation of groundwater monitoring wells and reinstatement of excavations was conducted by Shun Bong Drilling Engineering (Hong Kong) Limited (Shun Bong) under the supervision of AECOM. Laboratory analyses were carried out by ALS Technichem (HK) Pty Limited (ALS). AECOM collated investigation and laboratory derived information for the preparation of this supplementary Contamination Assessment Report.

1.2 Objectives

- 1.2.1 This supplementary CAR (supp. CAR) is prepared to summarize findings of the SI (including fieldworks and laboratory analyses) and determine the nature and extent of contamination based on the findings of the SI works conducted in Site J(**Section 3**).
- 1.2.2 This supp.CAR is submitted for endorsement by DEP in accordance with Condition 2.21 of the EP.

2 FINDINGS OF CONTAMINATION ASSESSMENT PLAN

- 2.1.1 According to the approved rCAP/EIA, the potential land contaminative activities identified at Site J are summarized in **Table 2.1**.

Table 2.1 Potential Contaminative Land uses within Site J

Potential Contaminative Area	Potential Contamination Impact
Vehicle Repair Workshop	- A vehicle repair area located in the eastern corner of Site J; minor staining was observed on the ground surfacing during site visit in April 2010. - Potential land contamination concern due to vehicle repairing activities.
Oil Drum Storage Area	
Fuelling Area	
Locations of suspected mobile generators	

- 2.1.2 Based upon historical operation at the site, observation of stains/ground discolouration and area where potentially contaminative activities may have been undertaken, a total of 5 sampling locations were proposed. In addition 4 sampling locations were also proposed at locations surrounding Site J to assess the soil condition in general. The rationale for selecting sampling locations in the approved rCAP is provided in **Appendix A**.

3 CONTAMINATION ASSESSMENT REPORT

3.1 Assessment Methodology

Soil Boring and Sampling

- 3.1.1 The SI works at Site J was carried out from 13 to 26 July 2010. A total of 9 boreholes were constructed within the site.
- 3.1.2 During SI, minor alterations were made to the generic plan outlined in the CAP based upon actual site conditions encountered. Minor staining was observed on the asphalt surface in the vehicle repair area; therefore J-09 was relocated approximately 10m to the east of the proposed location. J-09 was further relocated during soil boring due to the presence of concrete obstructions encountered within upper 2m of the soil profile. The relocated position is considered to be representative with reference to the original locations for assessment of potential land contamination concern due to vehicle repairing activities. The locations of the boreholes established are shown in **Figure XRL820/M57/001**.
- 3.1.3 Soil samples were generally collected at approximately 0.5m, 1.5m, 3m, 4.5m and 6m below base of concrete (BBC) for all boreholes. Where an inspection pit was excavated, disturbed samples were collected at 0.5m and 1.5m BBC and undisturbed samples were collected from all other depths. A total of 47 soil samples (including 2 duplicates) were collected for laboratory analysis. The SI process was carried out by Shun Bong and supervised by a land contamination specialist of AECOM.
- 3.1.4 At each sampling location prior to drilling/trial pit construction, sampling tools and all equipment in contact with the ground was thoroughly decontaminated using laboratory-grade detergent and a high-pressure water jet.
- 3.1.5 Soil samples were appropriately labelled and stored in cool boxes at approximately 4°C until delivery to ALS for laboratory analysis. All soil samples collected during the SI were analyzed in accordance with the analysis schedules detailed in the approved rCAP.

Strata Logging

- 3.1.6 Strata logging for boreholes was undertaken during the course of drilling and sampling by a qualified geologist. The logs included the general stratigraphic descriptions, depth of soil sampling, sample notation and level of groundwater (if encountered). The presence of rocks/boulders/cobbles and foreign materials such as metals, wood and plastics was also recorded. Soil boring logs are provided in **Appendix B**.

Groundwater Sampling

- 3.1.7 Groundwater was encountered in all boreholes. After completion of soil sampling, groundwater monitoring wells were installed in the 9 boreholes established. Details of groundwater monitoring well construction are provided in **Appendix C**. Following installation, well development (approximately 5 well volumes) was carried out to remove silt and drilling fluid (if any) residues from the wells. Stabilized groundwater levels were gauged in each well prior to well purging and collection of groundwater samples. Monitoring wells were purged of at least 3 well volumes to enable collection of representative groundwater samples.
- 3.1.8 No measurable light non-aqueous phase liquids (LNAPLs) were encountered during the groundwater sampling exercise at all sampling locations.
- 3.1.9 Immediately after collection, groundwater samples were transferred to clean, laboratory-prepared, "amber glass" type sample containers. Groundwater samples were placed in the glass jars with zero headspace and promptly sealed with a septum-lined cap.

All samples were clearly labelled and stored in cool box at approximately 4°C until delivery to analytical laboratory on the same day. All groundwater samples were analyzed in accordance with the analysis schedules detailed in the approved rCAP (**Appendix A**).

3.2 Assessment Criteria

Criteria for Soil and Groundwater Contamination

- 3.2.1 The assessment methodology adopted is in accordance with the *Guidance Note for Contaminated Land Assessment and Remediation* (Guidance Note 1), *Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management* (Guidance Manual) and *Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards, and Car Repair/Dismantling Workshops* (Guidance Note 2) issued by the EPD.
- 3.2.2 Interpretation of results has made reference to those Risk-Based Remediation Goals (RBRGs) presented in Table 2.1 and Table 2.2 as stipulated in the Guidance Manual.
- 3.2.3 The RBRGs are developed based on a risk assessment approach to suit the local environmental conditions and community needs in Hong Kong. Decisions on contaminated soil and groundwater remediation are based on the nature and extent of the potential risks that are posed to human receptors as a result of exposure to chemicals in the soil and/or groundwater. RBRGs are developed for four different land use scenarios reflecting the typical physical settings in Hong Kong under which people could be exposed to contaminated soil and groundwater. A description of each land use scenario is as follows:
- Urban residential – Sites located in an urban area where main activities involve habitation by individuals. The typical physical setting is a high rise residential building situated in a housing estate that has amenity facilities such as landscaped yards and children's playgrounds. The receptors are residents who stay indoors most of the time except for a short period each day, during which they are outdoors and have the chance of being in direct contact with soil at landscaping or play areas within the estate.
 - Rural residential – Sites located in a rural area where the main activities involve habitation by individuals. These sites typically have village-type houses or low rise residential blocks surrounded by open space. The receptors are rural residents who stay at home and spend some time each day outdoors on activities such as gardening or light sports. The degree of contact with the soil under the rural setting is more than that under the urban setting both in terms of the intensity and frequency of contact.
 - Industrial – Any site where activities involve manufacturing, chemical or petrochemical processing, storage of raw materials, transport operations, energy production or transmission, etc. Receptors include those at sites where part of the operation is carried out directly on land and the workers are more likely to be exposed to soil than those working in multi-storey factory buildings.
 - Public parks – Receptors include individuals and families who frequent parks and play areas where there is contact with soil present in lawns, walkways, gardens and play areas. Parks are considered to be predominantly hard covered with limited areas of predominantly landscaped soil. Furthermore, public parks are not considered to have buildings present on them.
- 3.2.4 In addition to the RBRGs, screening criteria (soil saturation limits, Csat, developed for Non-aqueous Phase Liquid [NAPL] in soil and water solubility limits for NAPL in groundwater) for the more mobile organic chemicals must be considered to determine whether a site requires further action.
- 3.2.5 As reviewed in the approved rCAP, Site J will be occupied for railway facilities. According to the Guidance Manual, the corresponding RBRG land use for railway related facilities would be

“Industrial”. Relevant soil and groundwater RBRGs level for this land contamination assessment including soil saturation limit and solubility limit are presented in **Table 3.1**

Table 3.1 Relevant RBRGs for Soil and Groundwater - Industrial

Chemical	Soil (mg/kg)		Groundwater (µg/L)	
	RBRGs for Industrial	Soil Saturation Limits	RBRGs for Industrial	Solubility Limits
VOCs				
Acetone	10,000	***	10,000,000	***
Benzene	9.21	336	54,000	1,750,000
Bromodichloromethane	2.85	1,030	26,200	6,740,000
2-Butanone	10,000	***	10,000,000	***
Chloroform	1.54	1,100	11,300	7,920,000
Ethylbenzene	8,240	138	10,000,000	169,000
Methyl tert-Butyl Ether	70.1	2,380	1,810,000	***
Methylene Chloride	13.9	921	224,000	***
Tetrachloroethene	0.777	97.1	2,950	200,000
Toluene	10,000	235	10,000,000	526,000
Trichloroethene	5.68	488	14,200	1,100,000
Xylenes (Total)	1,230	150	1,570,000	175,000
SVOCs				
Acenaphthene	10,000	60.2	10,000,000	4,240
Acenaphthylene	10,000	19.8	10,000,000	3,930
Anthracene	10,000	2.56	10,000,000	43.4
Benzo(a)anthracene	91.8	NA	NA	NA
Benzo(a)pyrene	9.18	NA	NA	NA
Benzo(b)fluoranthene	17.8	NA	7,530	1.5
Benzo(g,h,i)perylene	10,000	NA	NA	NA
Benzo(k)fluoranthene	918	NA	NA	NA
Chrysene	1,140	NA	812,000	1.6
Dibenzo(a,h)anthracene	9.18	NA	NA	NA
Fluoranthene	10,000	NA	10,000,000	206
Fluorene	10,000	54.7	10,000,000	1,980
Indeno(1,2,3-cd)pyrene	91.8	NA	NA	NA
Naphthalene	453	125	862,000	31,000
Phenanthrene	10,000	28	10,000,000	1000
Phenol	10,000	7,260	NA	NA

Chemical	Soil (mg/kg)		Groundwater (µg/L)	
	RBRGs for Industrial	Soil Saturation Limits	RBRGs for Industrial	Solubility Limits
Pyrene	10,000	NA	10,000,000	135
Metals				
Chromium III	10,000	NA	NA	NA
Chromium VI	1,960	NA	NA	NA
Copper	10,000	NA	NA	NA
Lead	2,290	NA	NA	NA
Zinc	10,000	NA	NA	NA
Petroleum Carbon Ranges				
C6 - C8	10,000	1000	1,150,000	5,230
C9 - C16	10,000	3000	9,980,000	2,800
C17 - C35	10,000	5000	178,000	2,800

Note: NA - Not Available

*** indicates that the Csat value/ solubility limit exceeds the 'ceiling limit' therefore the RBRG applies

3.3 Analytical Results and Interpretation

Field Records

- 3.3.1 Except for minor adjustment discussed in **Section 3.1.2**, the SI works were undertaken generally in accordance with the sampling plan detailed in the CAP. Soil boring logs are presented in **Appendix B**. No soil or groundwater samples recovered during the ground investigation works exhibited unnatural colouration or otherwise notable odours that may imply contaminant impact. No measureable Light Non Aqueous Phase Liquid (LNAPL) was found at any sampling location during the SI.

Laboratory Analytical Results

Results of Soil Analysis

- 3.3.2 A total of 47 soil samples (including 2 duplicate samples) were collected during the SI for laboratory analysis. A summary table of laboratory testing results with laboratory reports and standard forms adopted from Guidance Manual for assessing the soil samples is presented in **Appendix D**.
- 3.3.3 All detected soil concentrations do not exceed the appropriate industrial land use RBRGs/ saturation limit and as site observations did not indicate the presence of LNAPL; remediation works are not required.

Results of Groundwater Analysis

- 3.3.4 During SI, groundwater was encountered at all sampling locations and a total of 10 groundwater samples (including a duplicate) were collected. The corresponding groundwater levels and termination depth of each groundwater monitoring well are shown in **Table 3.2** with details of groundwater monitoring well construction provided in **Appendix C**. A summary table of laboratory testing results with laboratory reports and standard forms adopted from Guidance Manual for assessing the water samples is presented in **Appendix D**.

Table 3.2 Summary of Groundwater Level

Sample I.D.	Groundwater Level		Termination Depth of Well (m below ground)
	Depth of Groundwater Level (m below ground)	mPD	
J-01	3.66	2.06	7.3
J-02	3.52	2.66	7.1
J-03	3.68	2.49	7.1
J-04	3.67	2.17	7.3
J-05	3.76	1.95	7.1
J-06	3.64	1.62	7.15
J-07	3.69	2.31	7.3
J-08	3.58	1.29	7.1
J-09	3.52	1.87	7.1

- 3.3.5 All detected groundwater concentrations do not exceed the appropriate industrial land use RBRGs/solubility limit and as site observations did not indicate the presence of LNAPL; remediation works are not required.

Results of QA/QC Analysis

- 3.3.6 QA/QC is the practice of ensuring that sample collection and analytical techniques provide precise and accurate information. This process is undertaken to validate that levels of contamination measured in the environmental samples reflect the actual environmental levels and are not due to accidental contamination of the sample or sample container. In this land contamination assessment, a total of 3 sets of duplicate samples, field blank and equipment blank were sampled and analyzed including:

- Duplicate samples – two soil and one groundwater duplicate samples (identified as QC-01 and QC-05 for soil samples collected at 0.5m BBC at J-04 and 2.7-3.2m BBC at J-06)
- Equipment blanks – three equipment blank samples (identified as QC-02, QC-06 and QC-10) were collected during soil and groundwater sampling
- Field blanks – three equipment blank samples (identified as QC-03, QC-07 and QC-11) were collected during soil and groundwater sampling
- Trip blanks – nine trip blank samples (identified as QC-04, QC-08, QC14 to QC 17, QC20 to QC21 and QC26) were collected for every trip delivering samples to laboratory.

- 3.3.7 The laboratory results for QA/QC samples are presented in **Appendix D**.
- 3.3.8 Based on the findings of laboratory analysis, the QA/QC procedures for sample collection and preparation are considered to be acceptable as all equipment blank and field blank samples recorded parameter concentrations below the respective method detection limits.
- 3.3.9 In order to assess the sampling and laboratory reproducibility and precision, the relative percent difference (RPD) of the duplicate samples were determined. The calculations, as presented in **Appendix D**, show that for the majority of soil sample parameters, RPDs were not calculated as the primary or duplicate (or both) sample concentrations detected were below the limit of reporting. Lead RPDs for lead in sample QC01 (representing J-04 at 0.5m) and QC05 (representing J-07 at 2.7-3.2m) were 28.6% and 57.1% respectively. The RPD for QC01 is considered acceptable as it is within range of 0-50% for soil whereas RPD value for

QC07 is considered slightly elevated. Given that lead was not detected in equipment blanks and field blanks and the quality control performed by laboratory were within recovery limit, this RPD is likely due to the heterogeneous nature of the soil and very localized occurrence of metals. The duplicate results are therefore not judged to significantly affect data quality. In respect of groundwater samples, RPDs were not calculated as the concentration of at least one of sample parameters was below detection limit.

3.4 Conclusion

- 3.4.1 Site investigation works involving sampling and testing of soil and groundwater was conducted between 13 and 26 July 2010 at Site J with reference to the approved rCAP/EIA.
- 3.4.2 A total of 47 soil samples and 10 groundwater samples (including duplicates) were collected at the proposed sampling locations at Site J. Land contamination assessment was performed by comparison of the analytical results returned against the Industrial RBRGs for soil and groundwater. The comparison indicates that detected concentrations for all soil and groundwater samples do not exceed the appropriate post restorative land use (industrial) RBRGs.
- 3.4.3 As concentrations of analyzed Chemicals Of Concern (COCs) for all soil and groundwater samples do not exceed the relevant RBRG limits and saturation / solubility limit, remediation works are not required within Site J.

FIGURE

APPENDICES

APPENDIX A

**SAMPLING AND TESTING SCHEDULE PROPOSED IN THE
APPROVED rCAP**

Table 4.1 Sampling and Testing Plan for Site J

Proposed Sampling Location	Sampling Method	Sample Matrix ^{2,3}	Parameters to be Tested ^{4,5,6,7,8}					Rationale
			Petroleum Carbon Ranges	Halogenated Solvent	Non-Halogenated Solvent	BTEX	PAH	
J01-J08	Borehole	Soil 0.5m BBC	X	--	--	X	--	Based on the findings of approved CAP and former potentially contaminative operations/locations identified (including oil drums storage, a re-fuelling area and storage of mobile generators), site investigation is proposed at these areas to assess site conditions where there may be potential for land contamination, although the previous potential contamination hotspots were not identified in the latest site visit. Sampling locations are also proposed around the site to assess the site condition in general.
		Soil 1.5m BBC	X	--	--	X	--	
		Soil 3.0m BBC	X	--	--	X	--	
		Soil 4.5m BBC	X	--	--	X	--	
		Soil 6.0m BBC	X	--	--	X	--	
J09	Borehole	GW If present [^]	X	--	--	X	--	To assess the potential contamination impacts due to the vehicle repairing activities.
		Soil 0.5m BBC	X	X	X	X	X	
		Soil 1.5m BBC	X	X	X	X	X	
		Soil 3.0m BBC	X	X	X	X	X	
		Soil 4.5m BBC	X	X	X	X	X	
		Soil 6.0m BBC	X	X	X	X	X	
		GW If present [^]	X	X	X	X	X	

Remarks:

1. Locations are shown in **Figures C8016/C/XRL/ENS/M57/021**.

2. BBC= below base of concrete slab; GW=groundwater

3. Exact sampling depth shall be determined on site and subject to fine adjustment due to site specific conditions (e.g. hard rocks or groundwater encountered (if any)).

4. X = testing proposed

5. Since RBRG value of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, bis-(2-Ethylhexyl)phthalate, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene and Phenol were not available for groundwater, the captioned chemicals parameters would not be tested in groundwater sample.

6. Halogenated solvent = Bromodichloromethane, Chloroform, Methylene Chloride, Tetrachloroethene, Trichloroethene

7. Non-halogenated solvent= Acetone, 2-Butanone, Ethylbenzene, Methyl Tert-Butyl Ether, Phenol

8. BTEX= Benzene, Toluene, Ethylbenzene, Xylenes

9. PAH= 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, Fluorene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene and Pyrene

[^] Samples will only be collected if groundwater is encountered during SI works.

APPENDIX B

SITE BORING LOG

Shun Bong Drilling Engineering (HK) Ltd.										JOB NO. -	
										HOLE NO. J01	
DRILLHOLE LOG										SHEET 1 of 1	
										DATE from 14/7/2010 to 16/7/2010	
PROJECT MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels Land Contamination Assessment at Nam Cheong Barging Point											
METHOD ROTARY				CO-ORDINATES N 820930.160 E 833295.830				ROCK CORE BIT			
Rig & No. SB05								HOLE DIA. HX			
FLUSHING MEDIUM DRY				ORIENTATION VERTICAL				GROUND LEVEL +5.720 mPD			

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
14.07.10	HX	NIL at 08:00								+5.720	0.000			Ground Surface (Asphalt)
										+5.320	0.400			Loose, greyish brown, silty, fine to coarse SAND with some gravel of rock fragments and shell pieces (FILL)
14.07.10		NIL at 18:00												
15.07.10		NIL at 08:00												
				100				31 bls	1	+2.620	3.100			
										+2.170	3.550			
										+2.060	3.660			
										+1.120	4.600			
15.07.10		4m at 18:00		100				65 bls	3	+0.670	5.050			
16.07.10		4.15m at 08:00												
										-0.380	6.100			
				100				66 bls	5	-0.830	6.550			
16.07.10	7.30 HX	4.2m at 18:00								-1.580	7.300			End of drillhole at 7.30m

• Small Disturbed Sample
 Large Disturbed Sample
 SPT Liner Sample
 U76 Undisturbed Sample
 U100 Undisturbed Sample
 Mazier Sample (70mm)
 Piston Sample

▲ Water Sample
 ▼ Water Level
 | Standard Penetration Test
 + Permeability Test
 ▲ Piezometer Tip
 □ Standpipe
 < In-situ Vane Shear Test

LOGGED H.C.Yeung
 DATE 24/7/2010
 CHECKED W.T.Chan
 DATE 26/7/2010

REMARKS

Inspection pit was excavated to 2.4m depth by hand tools

1 no. of ground water sample was taken from the well on 26/7/2010. The water level in the well prior to sampling was 3.66m below ground level

Standpipe was installed to 7.30m

Shun Bong Drilling Engineering (HK) Ltd.										JOB NO. -	
										HOLE NO. J02	
DRILLHOLE LOG										SHEET 1 of 1	
										DATE from 14/7/2010 to 17/7/2010	
PROJECT MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels Land Contamination Assessment at Nam Cheong Barging Point											
METHOD ROTARY				CO-ORDINATES				ROCK CORE BIT			
Rig & No. SB05				N 820950.000 E 833329.070				HOLE DIA. HX			
FLUSHING MEDIUM DRY				ORIENTATION VERTICAL				GROUND LEVEL +6.180 mPD			

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
14.07.10	HX	NIL at 08:00								+6.180	0.000			Ground Surface (Asphalt)
		NIL at 18:00							Inspection Pit	+5.880	0.300			Loose, yellowish brown, silty, fine to coarse SAND with some gravel of rock fragments and shell pieces (FILL)
14.07.10		NIL at 08:00												
15.07.10		NIL at 18:00												
15.07.10		NIL at 08:00								+3.880	2.300			
15.07.10		NIL at 18:00						60 bls	1	+3.180	3.000			
16.07.10		NIL at 08:00		100					2	+2.730	3.450			
		3.95m at 18:00								+2.660	3.520			
16.07.10		4.1m at 08:00						59 bls	3	+1.680	4.500			
17.07.10		4.15m at 18:00							4	+1.230	4.950			
				100						+0.180	6.000			
								65 bls	5	-0.270	6.450			
17.07.10	7.10 HX								6	-0.920	7.100			End of drillhole at 7.10m

- Small Disturbed Sample - Large Disturbed Sample - SPT Liner Sample - U76 Undisturbed Sample - U100 Undisturbed Sample - Mazier Sample (70mm) - Piston Sample	- Water Sample - Water Level - Standard Penetration Test - Permeability Test - Piezometer Tip - Standpipe - In-situ Vane Shear Test	LOGGED H.C.Yeung DATE 24/7/2010 CHECKED W.T.Chan DATE 26/7/2010	REMARKS Inspection pit was excavated to 2.3m depth by hand tools 1 no. of ground water sample was taken from the well on 26/7/2010. The water level in the well prior to sampling was 3.52m below ground level Standpipe was installed to 7.10m
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Shun Bong Drilling Engineering (HK) Ltd.										JOB NO. -	
										HOLE NO. J03	
DRILLHOLE LOG										SHEET 1 of 1	
										DATE from 15/7/2010 to 19/7/2010	
PROJECT MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels Land Contamination Assessment at Nam Cheong Barging Point											
METHOD ROTARY					CO-ORDINATES N 820928.050 E 833366.990				ROCK CORE BIT		
Rig & No. CS11									HOLE DIA. HX		
FLUSHING MEDIUM DRY					ORIENTATION VERTICAL				GROUND LEVEL +6.170 mPD		

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description	
15.07.10	HX	NIL at 08:00								+6.170	0.000			Ground Surface (Asphalt)	
										+5.770	0.400				Loose, brown, silty, fine to coarse SAND with some gravel of rock fragments and shell pieces (FILL)
15.07.10		NIL at 18:00													
17.07.10		NIL at 08:00													
				100				55 bls	1	+3.070	3.100				
										+2.620	3.550				
										+2.490	3.680				
				50				52 bls	3	+1.570	4.600				
										+1.120	5.050				
17.07.10		3.83m at 18:00													
19.07.10		4.02m at 08:00		100				71 bls	5	+0.070	6.100				
		4.1m at 18:00								-0.380	6.550				
19.07.10	7.10 HX									-0.930	7.100			End of drillhole at 7.10m	

• Small Disturbed Sample
 Large Disturbed Sample
 SPT Liner Sample
 U76 Undisturbed Sample
 U100 Undisturbed Sample
 Mazier Sample (70mm)
 Piston Sample

▲ Water Sample
 ▼ Water Level
 | Standard Penetration Test
 + Permeability Test
 ▲ Piezometer Tip
 □ Standpipe
 < In-situ Vane Shear Test

LOGGED H.C.Yeung
 DATE 24/7/2010
 CHECKED W.T.Chan
 DATE 26/7/2010

REMARKS

Inspection pit was excavated to 2.4m depth by hand tools

1 no. of ground water sample was taken from the well on 26/7/2010. The water level in the well prior to sampling was 3.68m below ground level

Standpipe was installed to 7.10m

Shun Bong Drilling Engineering (HK) Ltd.										JOB NO. - HOLE NO. J04 SHEET 1 of 1 DATE from 19/7/2010 to 20/7/2010	
DRILLHOLE LOG											
PROJECT MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels Land Contamination Assessment at Nam Cheong Barging Point											
METHOD ROTARY				CO-ORDINATES N 820878.010 E 833408.040				ROCK CORE BIT HOLE DIA. HX			
Rig & No. CS11											
FLUSHING MEDIUM DRY				ORIENTATION VERTICAL				GROUND LEVEL +5.840 mPD			

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
19.07.10	HX	NIL at 08:00								+5.840	0.000			Ground Surface (Asphalt)
										+5.440	0.400			Loose, yellowish brown and greyish brown, silty, fine to coarse SAND with some gravel of rock, shell and plastic pieces (FILL)
19.07.10		NIL at 18:00												
20.07.10		NIL at 08:00												
				100				54 bls	1	+2.740	3.100			
										+2.290	3.550			
										+2.170	3.670			
				100				60 bls	3	+1.240	4.600			
										+0.790	5.050			
				100				65 bls	5	-0.260	6.100			
										-0.710	6.550			
20.07.10	7.30 HX	4m at 18:00								-1.460	7.300			End of drillhole at 7.30m

Legend:

- Small Disturbed Sample
- Large Disturbed Sample
- ▬ SPT Liner Sample
- ▬ U76 Undisturbed Sample
- ▬ U100 Undisturbed Sample
- ▬ Mazier Sample (70mm)
- ▬ Piston Sample
- ▲ Water Sample
- ▼ Water Level
- Standard Penetration Test
- ⊕ Permeability Test
- ▲ Piezometer Tip
- Standpipe
- ∨ In-situ Vane Shear Test

LOGGED H.C.Yeung

DATE 24/7/2010

CHECKED W.T.Chan

DATE 26/7/2010

REMARKS

Inspection pit was excavated to 2.4m depth by hand tools

1 no. of ground water sample was taken from the well on 26/7/2010. The water level in the well prior to sampling was 3.67m below ground level

Standpipe was installed to 7.30m

Shun Bong Drilling Engineering (HK) Ltd.										JOB NO. -	
										HOLE NO. J06	
DRILLHOLE LOG										SHEET 1 of 1	
										DATE from 15/7/2010 to 19/7/2010	
PROJECT MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels Land Contamination Assessment at Nam Cheong Barging Point											
METHOD ROTARY				CO-ORDINATES				ROCK CORE BIT			
Rig & No. SB05				N 820871.100 E 833360.090				HOLE DIA. HX			
FLUSHING MEDIUM DRY				ORIENTATION VERTICAL				GROUND LEVEL +5.260 mPD			

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
15.07.10	HX	NIL at 08:00								+5.260	0.000			Ground Surface (Asphalt)
									Inspection Pit	+4.860	0.400			Loose, brown and greyish brown, silty, fine to coarse SAND with some gravel of rock fragments and shell pieces (FILL)
									A					
									B					
									C					
15.07.10		NIL at 18:00							D	+2.860	2.400			
19.07.10		NIL at 08:00												
				100				63 bls	1	+2.160	3.100			
									2	+1.710	3.550			
										+1.620	3.640			
				100				55 bls	3	+0.660	4.600			
									4	+0.210	5.050			
				100				64 bls	5	-0.840	6.100			
									6	-1.290	6.550			
19.07.10	7.15 HX	4m at 18:00						(s)		-1.890	7.150			End of drillhole at 7.15m

- Small Disturbed Sample - Large Disturbed Sample - SPT Liner Sample - U76 Undisturbed Sample - U100 Undisturbed Sample - Mazier Sample (70mm) - Piston Sample	- Water Sample - Water Level - Standard Penetration Test - Permeability Test - Piezometer Tip - Standpipe - In-situ Vane Shear Test	LOGGED H.C.Yeung DATE 24/7/2010 CHECKED W.T.Chan DATE 26/7/2010	REMARKS Inspection pit was excavated to 2.4m depth by hand tools 1 no. of ground water sample was taken from the well on 26/7/2010. The water level in the well prior to sampling was 3.64m below ground level Standpipe was installed to 7.15m
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Shun Bong Drilling Engineering (HK) Ltd.						JOB NO. -	
						HOLE NO. J07	
DRILLHOLE LOG						SHEET 1 of 1	
						DATE from 21/7/2010 to 22/7/2010	
PROJECT MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels Land Contamination Assessment at Nam Cheong Barging Point							
METHOD ROTARY			CO-ORDINATES N 820986.050 E 833252.040			ROCK CORE BIT	
Rig & No. SB05						HOLE DIA. HX	
FLUSHING MEDIUM DRY			ORIENTATION VERTICAL			GROUND LEVEL +6.000 mPD	

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description	
21.07.10	HX	NIL at 08:00								+6.000	0.000			Ground Surface (Asphalt)	
										+5.500	0.500				Loose, yellowish brown and brown, silty, fine to coarse SAND with some gravel of rock fragments and shell pieces (FILL)
21.07.10		NIL at 18:00													
22.07.10		NIL at 08:00													
				100				47 bls	1	+2.800	3.200				
										+2.350	3.650				
										+2.310	3.690				
										+1.300	4.700				
				100				62 bls	3	+0.850	5.150				
										-0.200	6.200				
										-0.650	6.650				
				100				55 bls	5						
22.07.10	7.30 HX	4m at 18:00								-1.300	7.300			End of drillhole at 7.30m	

● Small Disturbed Sample
 ■ Large Disturbed Sample
 ▬ SPT Liner Sample
 ■ U76 Undisturbed Sample
 ■ U100 Undisturbed Sample
 ▬ Mazier Sample (70mm)
 ▬ Piston Sample

▲ Water Sample
 ▼ Water Level
 ▬ Standard Penetration Test
 ▬ Permeability Test
 ▲ Piezometer Tip
 □ Standpipe
 < In-situ Vane Shear Test

LOGGED H.C.Yeung
 DATE 24/7/2010
 CHECKED W.T.Chan
 DATE 26/7/2010

REMARKS
 Inspection pit was excavated to 2.5m depth by hand tools
 1 no. of ground water sample was taken from the well on 26/7/2010. The water level in the well prior to sampling was 3.69m below ground level
 Standpipe was installed to 7.30m

Shun Bong Drilling Engineering (HK) Ltd.						JOB NO. - HOLE NO. J08 SHEET 1 of 1 DATE from 21/7/2010 to 22/7/2010	
						DRILLHOLE LOG	
PROJECT MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels Land Contamination Assessment at Nam Cheong Barging Point							
METHOD ROTARY			CO-ORDINATES N 821002.180 E 833146.850			ROCK CORE BIT	
Rig & No. SB05						HOLE DIA. HX	
FLUSHING MEDIUM DRY			ORIENTATION VERTICAL			GROUND LEVEL +4.870 mPD	

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
21.07.10	HX	NIL at 08:00								+4.870	0.000			Ground Surface (Asphalt)
										+4.470	0.400			Loose, yellowish brown, slightly silty, fine to coarse SAND with some shell pieces (FILL)
21.07.10		NIL at 18:00												
22.07.10		NIL at 08:00												
				100				54 bls	1	+1.770	3.100			
										+1.320	3.550			
										+1.290	3.580			
				100				48 bls	3	+0.270	4.600			
										-0.180	5.050			
										-1.230	6.100			
				100				60 bls	5	-1.680	6.550			
22.07.10	7.10 HX	4m at 18:00								-2.230	7.100			End of drillhole at 7.10m

• Small Disturbed Sample ▲ Water Sample
 ■ Large Disturbed Sample ▼ Water Level
 ▬ SPT Liner Sample | Standard Penetration Test
 ■ U76 Undisturbed Sample + Permeability Test
 ■ U100 Undisturbed Sample ▲ Piezometer Tip
 ▬ Mazier Sample (70mm) □ Standpipe
 ▬ Piston Sample < In-situ Vane Shear Test

LOGGED H.C.Yeung
DATE 24/7/2010
CHECKED W.T.Chan
DATE 26/7/2010

REMARKS
 Inspection pit was excavated to 2.4m depth by hand tools
 1 no. of ground water sample was taken from the well on 26/7/2010. The water level in the well prior to sampling was 3.58m below ground level
 Standpipe was installed to 7.10m

Shun Bong Drilling Engineering (HK) Ltd.						JOB NO.	-							
						HOLE NO.	J09							
DRILLHOLE LOG						SHEET	1 of 1							
						DATE from	20/7/2010 to 21/7/2010							
PROJECT MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels Land Contamination Assessment at Nam Cheong Barging Point														
METHOD ROTARY			CO-ORDINATES			ROCK CORE BIT								
Rig & No. CS11			N 820859.870 E 833475.010			HOLE DIA. HX								
FLUSHING MEDIUM DRY			ORIENTATION VERTICAL			GROUND LEVEL +5.390 mPD								
Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
20.07.10	HX	NIL at 08:00								+5.390	0.000			Ground Surface (Asphalt)
									Inspection Pit					
									A	+4.790	0.600			
									B					
									C					
20.07.10		NIL at 18:00							D	+2.790	2.600			
21.07.10		NIL at 08:00												
				100				57 bls	1	+2.090	3.300			
									2	+1.870	3.520			
										+1.640	3.750			
				100				58 bls	3	+0.590	4.800			
									4	+0.140	5.250			
				100				62 bls	5	-0.910	6.300			
									6	-1.360	6.750			
21.07.10	7.10 HX	4.2m at 18:00						(s)		-1.710	7.100			End of drillhole at 7.10m
Small Disturbed Sample Large Disturbed Sample SPT Liner Sample U76 Undisturbed Sample U100 Undisturbed Sample Mazier Sample (70mm) Piston Sample Water Sample Water Level Standard Penetration Test Permeability Test Piezometer Tip Standpipe In-situ Vane Shear Test LOGGED H.C.Yeung DATE 24/7/2010 CHECKED W.T.Chan DATE 26/7/2010 REMARKS Inspection pit was excavated to 2.6m depth by hand tools 1 no. of ground water sample was taken from the well on 26/7/2010. The water level in the well prior to sampling was 3.52m below ground level Standpipe was installed to 7.10m														

APPENDIX C

GROUNDWATER MONITORING WELL DIAGRAM

Groundwater Monitoring Well Diagram

Project : MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels
Land Contamination Assessment at Nam Cheong Barging Point

Boring Log No. : J-01

Date : 14/07/2010 to 16/07/2010

Ground Level: +5.720 mPD

SI Location : Nam Cheong Barging Point

Driller : SHUN BONG

Drilling Process	Soil Sample I.D.	Depth Below Ground Surface (m bgs)	Depth Below Base of Concrete (m bbc)	Sample	Method	Description of Material	Well Diagram
14-07-2010	J-01 0.5	0.5	0.0		Hand Dig	Ground Surface (Asphalt)	Flush-Mounted Cover Top of Bentonite <u>0.5 m bgs</u> Top of Sand <u>1.0 m bgs</u> Screen Length <u>4.5 m</u> Inside Diameter (ID) <u>0.05 m</u> Slot Size <u>0.001 m</u> Type of Material <u>uPVC</u> Standing Water Level <u>3.66 m bgs</u> Water first noticed <u>4.1 m bgs</u> Bottom of screen <u>7.3m bgs</u> End Cap <u>7.3m bgs</u>
	J-01 1.5	1.0	0.5		Hand Dig	Loose, greyish brown, silty, fine to coarse SAND with some gravel of rock fragments and shell pieces (FILL)	
		1.5	1.0		Hand Dig		
	J-01 2.7-3.2	2.0	1.5		Hand Dig		
		2.5	2.0		Hand Dig		
15-07-2010		3.0	2.5		Hand Dig		
	J-01 2.7-3.2	3.5	3.0		Hand Dig		
		4.0	3.5		Hand Dig		
	J-01 4.2-4.7	4.5	4.0		Hand Dig		
		5.0	4.5		Hand Dig		
16-07-2010	J-01 5.7-6.2	5.5	5.0		Rotary Drilling		End of soil bore = 7.3 m bgs / 6.9m bbc
		6.0	5.5		Rotary Drilling		
		6.5	6.0		Rotary Drilling		
		7.0	6.5		Rotary Drilling		
		7.3	6.8		Rotary Drilling		
Remarks :						<u>Boring Details</u> Soil bore Diameter : <u>0.15 m</u> Total Depth : <u>7.3 m bgs</u> Dry Auger: <u>0.0 to 7.3 m bgs</u> Wet Auger: - Water First Noticed: <u>4.1 m bgs</u>	<u>Well Installation Details</u> Well Diameter: <u>0.05 m</u> Total Depth: <u>7.3 m bgs</u> Screen: <u>2.8 to 7.3 m bgs</u> Sand Pack: <u>1.0 to 7.3 m bgs</u> Bentonite Seal: <u>0.5 to 1.0 m bgs</u> Grout: <u>0.0 to 0.5 m bgs</u> Ground Completion : <u>Flush</u>

Groundwater Monitoring Well Diagram

Project : MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels
Land Contamination Assessment at Nam Cheong Barging Point

Boring Log No. : J-02

Date : 14/07/2010 to 17/07/2010

Ground Level: +6.180 mPD

SI Location : Nam Cheong Barging Point

Driller : SHUN BONG

Drilling Process	Soil Sample I.D.	Depth Below Ground Surface (m bgs)	Depth Below Base of Concrete (m bbc)	Sample	Method	Description of Material	Well Diagram	
14-07-2010	J-02 0.5		0.0		Hand Dig	Ground Surface (Asphalt)	Flush-Mounted Cover Top of Bentonite Top of Sand	
		0.5				0.5 m bgs 1.0 m bgs		
15-07-2010		1.0	0.5					
	J-02 1.5	1.5	1.0			Loose, yellowish brown, silty, fine to coarse SAND with some gravel of rock fragments and shell pieces (FILL)		
		2.0	1.5					
		2.5	2.0					
16-07-2010	J-02 2.7-3.2	3.0	2.5		Rotary Drilling		Screen Length Inside Diameter (ID) Slot Size Type of Material Standing Water Level Water first noticed	
		3.5	3.0					4.5 m 0.05 m 0.001 m uPVC 3.52 m bgs 4.0 m bgs
		4.0	3.5					
		4.5	4.0					
		5.0	4.5					
17-07-2010	J-02 4.2-4.7	5.5	5.0					
		6.0	5.5					
		6.5	6.0					
	J-02 5.7-6.2	7.0	6.5					
						End of soil bore = 7.1 m bgs / 6.8m bbc	Bottom of screen End Cap 7.1m bgs 7.1m bgs	
Remarks :						Boring Details Soil bore Diameter : 0.15 m Total Depth : 7.1 m bgs Dry Auger: 0.0 to 7.1 m bgs Wet Auger: - Water First Noticed: 4.0 m bgs	Well Installation Details Well Diameter: 0.05 m Total Depth: 7.1 m bgs Screen: 2.6 to 7.1 m bgs Sand Pack: 1.0 to 7.1 m bgs Bentonite Seal: 0.5 to 1.0 m bgs Grout: 0.0 to 0.5 m bgs Ground Completion : Flush	

Groundwater Monitoring Well Diagram										
Project : <u>MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels</u> Land Contamination Assessment at Nam Cheong Barging Point				Boring Log No. : J-03 Date : <u>15/07/2010 to 19/07/2010</u> Driller : <u>SHUN BONG</u>						
Ground Level: <u>+6.170 mPD</u>		SI Location : <u>Nam Cheong Barging Point</u>								
Drilling Process	Soil Sample I.D.	Depth Below Ground Surface (m bgs)	Depth Below Base of Concrete (m bbc)	Sample	Method	Description of Material	Well Diagram			
15-07-2010	J-03 0.5				Hand Dig	Ground Surface (Asphalt)	Flush-Mounted Cover Top of Bentonite <u>0.5 m bgs</u> Top of Sand <u>1.0 m bgs</u>			
		0.5	0.0			Loose, brown, silty, fine to coarse SAND with some gravel of rock fragments and shell pieces (FILL)				
		1.0	0.5							
		1.5	1.0							
		2.0	1.5							
	J-03 1.5	2.5	2.0		Rotary Drilling		Screen Length <u>4.5 m</u> Inside Diameter (ID) <u>0.05 m</u> Slot Size <u>0.001 m</u> Type of Material <u>uPVC</u> Standing Water Level <u>3.68 m bgs</u> Water first noticed <u>4.05 m bgs</u>			
		3.0	2.5							
17-07-2010	J-03 2.7-3.2	3.5	3.0							
		4.0	3.5							
		4.5	4.0							
		5.0	4.5							
	J-03 4.2-4.7	5.5	5.0							
		6.0	5.5							
		6.5	6.0							
		7.0	6.5							
19-07-2010	J-03 5.7-6.2									
						End of soil bore = 7.1 m bgs / 6.7m bbc				
Remarks :						Boring Details Soil bore Diameter : <u>0.15 m</u> Total Depth : <u>7.1 m bgs</u> Dry Auger: <u>0.0 to 7.1 m bgs</u> Wet Auger: - Water First Noticed: <u>4.05 m bgs</u>	Well Installation Details Well Diameter: <u>0.05 m</u> Total Depth: <u>7.1 m bgs</u> Screen: <u>2.6 to 7.1 m bgs</u> Sand Pack: <u>1.0 to 7.1 m bgs</u> Bentonite Seal: <u>0.5 to 1.0 m bgs</u> Grout: <u>0.0 to 0.5 m bgs</u> Ground Completion : <u>Flush</u>			

Groundwater Monitoring Well Diagram

Project : MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels
Land Contamination Assessment at Nam Cheong Barging Point

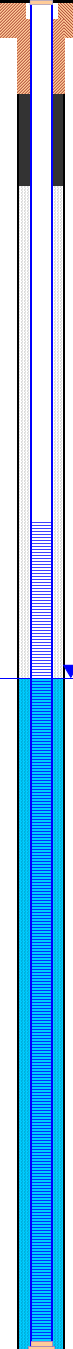
Boring Log No. : J-04

Date : 19/07/2010 to 20/07/2010

Ground Level: +5.840 mPD

SI Location : Nam Cheong Barging Point

Driller : SHUN BONG

Drilling Process	Soil Sample I.D.	Depth Below Ground Surface (m bgs)	Depth Below Base of Concrete (m bbc)	Sample	Method	Description of Material	Well Diagram
19-07-2010	J-04 0.5	0.5	0.0		Hand Dig	Ground Surface (Asphalt)	 Flush-Mounted Cover Top of Bentonite <u>0.5 m bgs</u> Top of Sand <u>1.0 m bgs</u>
						Loose, yellowish brown and greyish brown, silty, fine to coarse SAND with some gravel of rock, shell and plastic pieces (FILL)	
	J-04 1.5	1.0	0.5		Rotary Drilling		Screen Length <u>4.5 m</u> Inside Diameter (ID) <u>0.05 m</u> Slot Size <u>0.001 m</u> Type of Material <u>uPVC</u> Standing Water Level <u>3.67 m bgs</u> Water first noticed <u>4.0 m bgs</u> Bottom of screen <u>7.3m bgs</u> End Cap <u>7.3m bgs</u>
		1.5	1.0				
		2.0	1.5				
		2.5	2.0				
		3.0	2.5				
		3.5	3.0				
		4.0	3.5				
		4.5	4.0				
		5.0	4.5				
		5.5	5.0				
		6.0	5.5				
		6.5	6.0				
		7.0	6.5				
						End of soil bore = 7.3 m bgs / 6.9m bbc	
Remarks :						Boring Details Soil bore Diameter : <u>0.15 m</u> Total Depth : <u>7.3 m bgs</u> Dry Auger: <u>0.0 to 7.3 m bgs</u> Wet Auger: : Water First Noticed: <u>4.0 m bgs</u>	Well Installation Details Well Diameter: <u>0.05 m</u> Total Depth: <u>7.3 m bgs</u> Screen: <u>2.8 to 7.3 m bgs</u> Sand Pack: <u>1.0 to 7.3 m bgs</u> Bentonite Seal: <u>0.5 to 1.0 m bgs</u> Grout: <u>0.0 to 0.5 m bgs</u> Ground Completion : <u>Flush</u>

Groundwater Monitoring Well Diagram

Project : MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels
Land Contamination Assessment at Nam Cheong Barging Point

Boring Log No. : J-05

Date : 20/07/2010

Driller : SHUN BONG

Ground Level: +5.710 mPD

SI Location : Nam Cheong Barging Point

Drilling Process	Soil Sample I.D.	Depth Below Ground Surface (m bgs)	Depth Below Base of Concrete (m bbc)	Sample	Method	Description of Material	Well Diagram
20-07-2010						Ground Surface (Asphalt)	Flush-Mounted Cover Top of Bentonite <u>0.5 m bgs</u> Top of Sand <u>1.0 m bgs</u> Screen Length <u>4.5 m</u> Inside Diameter (ID) <u>0.05 m</u> Slot Size <u>0.001 m</u> Type of Material <u>uPVC</u> Standing Water Level <u>3.76 m bgs</u> Water first noticed <u>4.0 m bgs</u> Bottom of screen <u>7.1m bgs</u> End Cap <u>7.1m bgs</u>
	J-05 0.5	0.5	0.0		Hand Dig	Loose, yellowish brown, silty, fine to coarse SAND with some gravel of rock fragments and shell pieces (FILL)	
		1.0	0.5				
	J-05 1.5	1.5	1.0				
		2.0	1.5				
	J-05 2.7-3.2	2.5	2.0				
		3.0	2.5				
		3.5	3.0				
		4.0	3.5				
	J-05 4.2-4.7	4.5	4.0		Rotary Drilling		
		5.0	4.5				
		5.5	5.0				
		6.0	5.5				
	J-05 5.7-6.2	6.5	6.0				
		7.0	6.5				
						End of soil bore = 7.1 m bgs / 6.7m bbc	
Remarks :						Boring Details Soil bore Diameter : <u>0.15 m</u> Total Depth : <u>7.1 m bgs</u> Dry Auger: <u>0.0 to 7.1 m bgs</u> Wet Auger: - Water First Noticed: <u>4.0 m bgs</u>	Well Installation Details Well Diameter: <u>0.05 m</u> Total Depth: <u>7.1 m bgs</u> Screen: <u>2.6 to 7.1 m bgs</u> Sand Pack: <u>1.0 to 7.1 m bgs</u> Bentonite Seal: <u>0.5 to 1.0 m bgs</u> Grout: <u>0.0 to 0.5 m bgs</u> Ground Completion : <u>Flush</u>

Drilling Process	Soil Sample I.D.	Depth Below Ground Surface (m bgs)	Depth Below Base of Concrete (m bbc)	Sample	Method	Description of Material	Well Diagram
15-07-2010	J-06 0.5		0.0		Hand Dig	Ground Surface (Asphalt)	Flush-Mounted Cover Top of Bentonite Top of Sand 0.5 m bgs 1.0 m bgs
		0.5				Loose, brown and greyish brown, silty, fine to coarse SAND with some gravel of rock fragments and shell pieces (FILL)	
		1.0	0.5				
		1.5	1.0				
		2.0	1.5				
		2.5	2.0				
		3.0	2.5				
		3.5	3.0				
		4.0	3.5				
		4.5	4.0				
19-07-2010	J-06 2.7-3.2				Rotary Drilling		Screen Length Inside Diameter (ID) Slot Size Type of Material 4.5 m 0.05 m 0.001 m uPVC Standing Water Level Water first noticed 3.64 m bgs 4.0 m bgs
		0.5					
		1.0					
		1.5					
		2.0					
		2.5					
		3.0					
		3.5					
		4.0					
		4.5					
	J-06 4.2-4.7				Rotary Drilling		Screen Length Inside Diameter (ID) Slot Size Type of Material 4.5 m 0.05 m 0.001 m uPVC Standing Water Level Water first noticed 3.64 m bgs 4.0 m bgs
		0.5					
		1.0					
		1.5					
		2.0					
		2.5					
		3.0					
		3.5					
		4.0					
		4.5					
	J-06 5.7-6.2				Rotary Drilling		Screen Length Inside Diameter (ID) Slot Size Type of Material 4.5 m 0.05 m 0.001 m uPVC Standing Water Level Water first noticed 3.64 m bgs 4.0 m bgs
		0.5					
		1.0					
		1.5					
		2.0					
		2.5					
		3.0					
		3.5					
		4.0					
		4.5					
						End of soil bore = 7.15 m bgs / 6.75m bbc	
Remarks :						Boring Details Soil bore Diameter : 0.15 m Total Depth : 7.15 m bgs Dry Auger: 0.0 to 7.15 m bgs Wet Auger: : Water First Noticed: 4.0 m bgs	Well Installation Details Well Diameter: 0.05 m Total Depth: 7.15 m bgs Screen: 2.65 to 7.15 m bgs Sand Pack: 1.0 to 7.15 m bgs Bentonite Seal: 0.5 to 1.0 m bgs Grout: 0.0 to 0.5 m bgs Ground Completion : Flush

Groundwater Monitoring Well Diagram

Project : MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels
 Land Contamination Assessment at Nam Cheong Barging Point

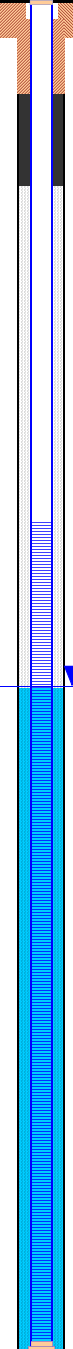
Boring Log No. : J-07

Date : 21/07/2010 to 22/07/2010

Ground Level: +6.000 mPD

SI Location : Nam Cheong Barging Point

Driller : SHUN BONG

Drilling Process	Soil Sample I.D.	Depth Below Ground Surface (m bgs)	Depth Below Base of Concrete (m bbc)	Sample	Method	Description of Material	Well Diagram
21-07-2010						Ground Surface (Asphalt)	 Flush-Mounted Cover Top of Bentonite <u>0.5 m bgs</u> Top of Sand <u>1.0 m bgs</u> Screen Length <u>4.5 m</u> Inside Diameter (ID) <u>0.05 m</u> Slot Size <u>0.001 m</u> Type of Material <u>uPVC</u> Standing Water Level <u>3.69 m bgs</u> Water first noticed <u>4.05 m bgs</u> Bottom of screen <u>7.3m bgs</u> End Cap <u>7.3m bgs</u>
		0.5	0.0				
	J-07 0.5	1.0	0.5		Hand Dig	Loose, yellowish brown and brown, silty, fine to coarse SAND with some gravel of rock fragments and shell pieces (FILL)	
		1.5	1.0				
	J-07 1.5	2.0	1.5				
		2.5	2.0				
22-07-2010		3.0	2.5				
	J-07 2.7-3.2	3.5	3.0				
		4.0	3.5				
		4.5	4.0				
	J-07 4.2-4.7	5.0	4.5		Rotary Drilling		
		5.5	5.0				
		6.0	5.5				
	J-07 5.7-6.2	6.5	6.0				
		7.0	6.5				
						End of soil bore = 7.3 m bgs / 6.8m bbc	
Remarks :						Boring Details Soil bore Diameter : <u>0.15 m</u> Total Depth : <u>7.3 m bgs</u> Dry Auger: <u>0.0 to 7.3 m bgs</u> Wet Auger: : Water First Noticed: <u>4.05 m bgs</u>	Well Installation Details Well Diameter: <u>0.05 m</u> Total Depth: <u>7.3 m bgs</u> Screen: <u>2.8 to 7.3 m bgs</u> Sand Pack: <u>1.0 to 7.3 m bgs</u> Bentonite Seal: <u>0.5 to 1.0 m bgs</u> Grout: <u>0.0 to 0.5 m bgs</u> Ground Completion : <u>Flush</u>

Groundwater Monitoring Well Diagram

Project : MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels
Land Contamination Assessment at Nam Cheong Barging Point

Boring Log No. : J-08

Date : 21/07/2010 to 22/07/2010

Ground Level: +4.870 mPD

SI Location : Nam Cheong Barging Point

Driller : SHUN BONG

Drilling Process	Soil Sample I.D.	Depth Below Ground Surface (m bgs)	Depth Below Base of Concrete (m bbc)	Sample	Method	Description of Material	Well Diagram
21-07-2010						Ground Surface (Asphalt)	
	J-08 0.5	0.5	0.0		Hand Dig	Loose, yellowish brown, slightly silty, fine to coarse SAND with some shell pieces (FILL)	
		1.0	0.5				
	J-08 1.5	1.5	1.0				
		2.0	1.5				
		2.5	2.0				
22-07-2010	J-08 2.7-3.2	3.0	2.5				
		3.5	3.0				
		4.0	3.5				
	J-08 4.2-4.7	4.5	4.0				
		5.0	4.5				
		5.5	5.0				
		6.0	5.5				
	J-08 5.7-6.2	6.5	6.0				
		7.0	6.5				
					Rotary Drilling		
						End of soil bore = 7.1 m bgs / 6.7m bbc	
Remarks :						Boring Details Soil bore Diameter : 0.15 m Total Depth : 7.1 m bgs Dry Auger: 0.0 to 7.1 m bgs Wet Auger: - Water First Noticed: 4.0 m bgs	Well Installation Details Well Diameter: 0.05 m Total Depth: 7.1 m bgs Screen: 2.6 to 7.1 m bgs Sand Pack: 1.0 to 7.1 m bgs Bentonite Seal: 0.5 to 1.0 m bgs Grout: 0.0 to 0.5 m bgs Ground Completion : Flush

Groundwater Monitoring Well Diagram

Project : MTRC Express Rail Link Contract 820 Mei Lai Road to Hoi Ting Road Tunnels
Land Contamination Assessment at Nam Cheong Barging Point

Boring Log No. : J-09

Date : 20/07/2010 to 21/07/2010

Ground Level: +5.390 mPD

SI Location : Nam Cheong Barging Point

Driller : SHUN BONG

Drilling Process	Soil Sample I.D.	Depth Below Ground Surface (m bgs)	Depth Below Base of Concrete (m bbc)	Sample	Method	Description of Material	Well Diagram
20-07-2010						Ground Surface (Asphalt)	Flush-Mounted Cover Top of Bentonite <u>0.5 m bgs</u> Top of Sand <u>1.0 m bgs</u> Screen Length <u>4.5 m</u> Inside Diameter (ID) <u>0.05 m</u> Slot Size <u>0.001 m</u> Type of Material <u>uPVC</u> Standing Water Level <u>3.52 m bgs</u> Water first noticed <u>4.0 m bgs</u> Bottom of screen <u>7.1m bgs</u> End Cap <u>7.1m bgs</u>
	J-09 0.5	0.5	0.0		Hand Dig	Loose, brown, very silty, fine to coarse SAND with some gravel of rock fragments and shell pieces (FILL)	
		1.0	0.5				
		1.5	1.0				
	J-09 1.5	2.0	1.5				
		2.5	2.0				
21-07-2010		3.0	2.5				
	J-09 2.7-3.2	3.5	3.0				
		4.0	3.5				
		4.5	4.0				
	J-09 4.2-4.7	5.0	4.5		Rotary Drilling		
		5.5	5.0				
		6.0	5.5				
	J-09 5.7-6.2	6.5	6.0				
		7.0	6.5				
						End of soil bore = 7.1 m bgs / 6.5m bbc	
Remarks :						Boring Details Soil bore Diameter : <u>0.15 m</u> Total Depth : <u>7.1 m bgs</u> Dry Auger: <u>0.0 to 7.1 m bgs</u> Wet Auger: - Water First Noticed: <u>4.0 m bgs</u>	Well Installation Details Well Diameter: <u>0.05 m</u> Total Depth: <u>7.1 m bgs</u> Screen: <u>2.6 to 7.1 m bgs</u> Sand Pack: <u>1.0 to 7.1 m bgs</u> Bentonite Seal: <u>0.5 to 1.0 m bgs</u> Grout: <u>0.0 to 0.5 m bgs</u> Ground Completion : <u>Flush</u>

APPENDIX D

LABORATORY RESULTS AND STANDARD FORMS 3.2-3.5 – SOIL/GROUNDWATER DATA SUMMARY AND COMPARISON TO RBRGS AND C_{SAT} /SOLUBILITY LIMIT

Summary of Laboratory Analysis

Soil Tesing Result Table

Parameters			BTEx						Halogenated Solvent					Non Halogenated Solvent				PAHs															Metals					Petroleum Carbon Ranges					
			Benzene	Ethylbenzene	Toluene	meta- & para-Xylene	ortho-Xylene	Xylenes (Total)	Bromodichloromethane	Chloroform	Methylene Chloride	Tetrachloroethene	Trichloroethene	Acetone	2-Butanone	Methyl tert-Butyl Ether	Phenol	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b) & Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	Lead	Trivalent Chromium	Hexavalent Chromium	Zinc	Copper	C6 - C8 Fraction	C9 - C16 Fraction	C17 - C35 Fraction			
Unit			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR			0.2	0.5	0.5	1.0	0.5	1.5	0.04	0.04	5	0.04	0.04	50	5.0	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1	5	200	500			
RBRGs of Industrial			9.21	8240	10000*	--	--	1230	2.85	1.54	13.9	0.777	5.68	10000*	10000*	70.1	10000*	10000*	10000*	91.8	9.18	17.8	10000*	1140	9.18	10000*	10000*	91.8	453	10000*	10000*	2290	10000*	1960	10000*	10000*	10000*	10000*	10000*	10000*	10000*		
Saturation Limit			336	138	235	--	--	150	1030	1100	921	97.1	488	***	***	2380	7260	60.2	19.8	2.56	--	--	--	--	--	--	54.7	--	125	28	--	--	--	--	--	--	1000	3000	5000				
Sample Location	Sampling Depth (m BBC)	Date of Sampling	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-01	0.5	14-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-01	1.5	14-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-01	2.7-3.2	15-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-01	4.2-4.7	15-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-01	5.7-6.2	16-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-02	0.5	14-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-02	1.5	15-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-02	2.7-3.2	16-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-02	4.2-4.7	17-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-02	5.7-6.2	17-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-03	0.5	15-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-03	1.5	15-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-03	2.7-3.2	17-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-03	4.2-4.7	17-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-03	5.7-6.2	19-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-04	0.5	19-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
QC01	J-04 (0.5) (Duplicate)	19-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-04	1.5	19-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-04	2.7-3.2	20-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-04	4.2-4.7	20-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-04	5.7-6.2	20-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-05	0.5	20-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-05	1.5	20-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-05	2.7-3.2	20-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-05	4.2-4.7	20-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-05	5.7-6.2	20-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-06	0.5	15-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-06	1.5	15-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			
J-06	2.7-3.2	19-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5																																			

Groundwater Testing Result Table

		BTEX						Halogenated Solvent					Non-halogenated Solvent			PAHs										Petroleum Carbon Ranges			
Parameters		Benzene	Ethylbenzene	Toluene	meta- & para-Xylene	ortho-Xylene	Xylenes (Total)	Bromodichloromethane	Chloroform	Methylene Chloride	Tetrachloroethene	Trichloroethene	Acetone	2-Butanone	Methyl Tert-Butyl Ether	Acenaphthene	Acenaphthylene	Anthracene	Benzo(b) & Benzo(k)fluoranthene	Chrysene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	C6 - C8 Fraction	C9 - C16 Fraction	C17 - C35 Fraction	
Unit		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
LOR		5	5	5	10	5	15	5	5	50	5	5	500	50	5	2	2	2	1	1	2	2	2	2	2	2	20	500	500
RBRGs of Industrial		54000	10000000*	10000000*	--	--	1570000	26200	11300	224000	2950	14200	10000000*	10000000*	1810000	10000000*	10000000*	10000000*	7530	812000	10000000*	10000000*	862000	10000000*	10000000*	1150000	9980000	178000	
Saturation Limit		1750000	169000	526000	--	--	175000	6740000	7920000	***	200000	1100000	***	***	***	4240	3930	43.4	1.5	1.6	206	1980	31000	1000	135	5230	2800	2800	
Sample Location	Date of Sampling																												
J-01	26-Jul-2010	<5	<5	<5	<10	<5	<15																			<20	<500	<500	
J-02	26-Jul-2010	<5	<5	<5	<10	<5	<15																			<20	<500	<500	
J-03	26-Jul-2010	<5	<5	<5	<10	<5	<15																			<20	<500	<500	
J-04	26-Jul-2010	<5	<5	<5	<10	<5	<15																			<20	<500	<500	
J-05	26-Jul-2010	<5	<5	<5	<10	<5	<15																			<20	<500	<500	
J-06	26-Jul-2010	<5	<5	<5	<10	<5	<15																			<20	<500	<500	
J-07	26-Jul-2010	<5	<5	<5	<10	<5	<15																			<20	<500	<500	
QC09 (Duplicate of J-07)	26-Jul-2010	<5	<5	<5	<10	<5	<15																			<20	<500	1300	
J-08	26-Jul-2010	<5	<5	<5	<10	<5	<15																			<20	<500	<500	
J-09	26-Jul-2010	<5	<5	<5	<10	<5	<15	<5.0	<5.0	<50	<5.0	<5.0	<500	<50	<5	<2.0	<2.0	<2.0	<1.00	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<20	<500	<500	

Note:

BBC= Below Base of Existing Concrete

LOR= Level of Reporting

Shaded square indicates exceedance of RBRG Level

Square in bolded line indicates exceedance of soil saturation limit

Full analytical results should be referred to laboratory report

QA/QC sample

Parameters			BTEX						Halogenated Solvent					Non Halogenated Solvent				PAHs														Metals					Petroleum Carbon Ranges						
			Benzene	Ethylbenzene	Toluene	meta- & para-Xylene	ortho-Xylene	Xylenes(Total)	Bromodichloromethane	Chloroform	Methylene Chloride	Tetrachloroethene	Trichloroethene	Acetone	2-Butanone	Methyl tert-Butyl Ether	Phenol	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b) & Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	Lead	Trivalent Chromium	Hexavalent Chromium	Zinc	Copper	C6 - C8 Fraction	C9 - C16 Fraction	C17 - C35 Fraction			
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
			LOR	5	5	5	10	5	15	5.0	5.0	50	5	5	500	50	5	2.0	2.0	2.0	2.0	2.0	2.00	1.00	2.00	1.0	2.0	2.0	2.0	2.00	2.0	2.0	2.0	2.0	1	20	20	10	1	20	500	500	
Sample Location			Date of Sampling																																								
For Soil Samples																																											
QC02	Equipment Blank	19-Jul-2010	<5	<5	<5	<10	<5	<15	<5.0	<5.0	<50	<5.0	<500	<50	<5	<2.0	<2.0	<2.0	<2.0	<2.00	<1.00	<2.00	<1.0	<2.0	<2.0	<2.0	<2.00	<2.0	<2.0	<2.0	<2.0	<2.0	<1	<20	<20	<10	<1	<20	<500	<500			
QC03	Field Blank	19-Jul-2010	<5	<5	<5	<10	<5	<15	<5.0	<5.0	<50	<5.0	<500	<50	<5	<2.0	<2.0	<2.0	<2.0	<2.00	<1.00	<2.00	<1.0	<2.0	<2.0	<2.0	<2.00	<2.0	<2.0	<2.0	<2.0	<2.0	<1	<20	<20	<10	<1	<20	<500	<500			
QC06	Equipment Blank	22-Jul-2010	<5	<5	<5	<10	<5	<15	<5.0	<5.0	<50	<5.0	<500	<50	<5	<2.0	<2.0	<2.0	<2.0	<2.00	<1.00	<2.00	<1.0	<2.0	<2.0	<2.0	<2.00	<2.0	<2.0	<2.0	<2.0	<2.0	<1	<20	<20	<10	<1	<20	<500	<500			
QC07	Field Blank	22-Jul-2010	<5	<5	<5	<10	<5	<15	<5.0	<5.0	<50	<5.0	<500	<50	<5	<2.0	<2.0	<2.0	<2.0	<2.00	<1.00	<2.00	<1.0	<2.0	<2.0	<2.0	<2.00	<2.0	<2.0	<2.0	<2.0	<2.0	<1	<20	<20	<10	<1	<20	<500	<500			
For Groundwater Samples																																											
QC10	Equipment Blank	26-Jul-2010	<5	<5	<5	<10	<5	<15	<5.0	<5.0	<50	<5.0	<500	<50	<5		<2.0	<2.0	<2.0			<1.00		<1.0		<2.0	<2.0		<2.0	<2.0	<2.0								<20	<500	<500		
QC11	Field Blank	26-Jul-2010	<5	<5	<5	<10	<5	<15	<5.0	<5.0	<50	<5.0	<500	<50	<5		<2.0	<2.0	<2.0			<1.00		<1.0		<2.0	<2.0		<2.0	<2.0	<2.0								<20	<500	<500		
Every Trip to Laboratory																																											
QC14	Trip Blank	14-Jul-2010	<5	<5	<5	<10	<5	<15																																	<20		
QC15	Trip Blank	15-Jul-2010	<5	<5	<5	<10	<5	<15																																<20			
QC16	Trip Blank	16-Jul-2010	<5	<5	<5	<10	<5	<15																																<20			
QC17	Trip Blank	17-Jul-2010	<5	<5	<5	<10	<5	<15																																<20			
QC04	Trip Blank	19-Jul-2010	<5	<5	<5	<10	<5	<15																																<20			
QC20	Trip Blank	20-Jul-2010	<5	<5	<5	<10	<5	<15																																<20			
QC21	Trip Blank	21-Jul-2010	<5	<5	<5	<10	<5	<15																																<20			
QC08	Trip Blank	22-Jul-2010	<5	<5	<5	<10	<5	<15																																<20			
QC26	Trip Blank	26-Jul-2010	<5	<5	<5	<10	<5	<15																																<20			

Note:

BBC= Below Base of Existing Concrete

LOR= Level of Reporting

Shaded square indicates exceedance of RBRG Level

Square in bolded line indicates exceedance of soil saturation limit

Full analytical results should be referred to laboratory report

Relative Percentage Difference

Parameters			BTEX						Metals	Petroleum Carbon Ranges		
			Benzene	Ethylbenzene	Toluene	meta- & para-Xylene	ortho-Xylene	Xylenes(Total)	Lead	C6 - C8 Fraction	C9 - C16 Fraction	C17 - C35 Fraction
Unit			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR for Soil (mg/kg)			0.2	0.5	0.5	1.0	0.5	1.5	1	5	200	500
LOR for Groundwater (µg/L)			5	5	5	10	5	15	NA	20	500	500
Sample Location	Sampling Depth (m BBC)	Date of Sampling										
For Soil Samples												
J-04	0.5	19-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5	3	<5	<200	<500
J-04 (Duplicate Sample)	0.5	19-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5	4	<5	<200	<500
RPD = [(Primary-Duplicate)]/Mean of Results*100%			NC	NC	NC	NC	NC	NC	28.6%	NC	NC	NC
J-07	2.7-3.2	22-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5	5	<5	<200	<500
J-07 (Duplicate Sample)	2.7-3.2	22-Jul-2010	<0.2	<0.5	<0.5	<1.0	<0.5	<1.5	9	<5	<200	<500
RPD = [(Primary-Duplicate)]/Mean of Results*100%			NC	NC	NC	NC	NC	NC	57.1%	NC	NC	NC
For Groundwater Samples												
J-07	NA	26-Jul-2010	<5	<5	<5	<10	<5	<15		<20	<500	<500
J-07 (Duplicate Sample)	NA	26-Jul-2010	<5	<5	<5	<10	<5	<15		<20	<500	1300
RPD = [(Primary-Duplicate)]/Mean of Results*100%			NC	NC	NC	NC	NC	NC		NC	NC	NC

Note:

BBC= Below Base of Existing Concrete

NC= Not calculated, at least one result was ND

LOR= Level of Reporting

BOLD indicates detection

Standard Forms 3.2-3.5 Adopted From Guidance Manual

Chemical	Frequency of detection (x/y)	Range of Detected Concentration	Range of Method Reporting Limit	Analytical Reference Method	Relevant Land Use Categories	Lowest RBRG(s) (mg/kg)	Csat (mg/kg)	Maximum Detected Concentration Exceeds (check if applicable)	
								RBRG	Csat
BTEX									
Benzene	0/47	ND	0.2	USEPA 8260B	RBRGs of Industrial	9.21	336	NA	NA
Ethylbenzene	0/47	ND	0.5			8240	138	NA	NA
Toluene	0/47	ND	0.5			10000*	235	NA	NA
Xylenes (Total)	0/47	ND	1.5			1230	150	NA	NA
Halogenated Solvent									
Bromodichloromethane	0/5	ND	0.04	USEPA 8260B	RBRGs of Industrial	2.85	1030	NA	NA
Chloroform	0/5	ND	0.04			1.54	1100	NA	NA
Methylene Chloride	0/5	ND	5			13.9	921	NA	NA
Tetrachloroethene	0/5	ND	0.04			0.777	97.1	NA	NA
Trichloroethene	0/5	ND	0.04			5.68	488	NA	NA
Non-halogenated Solvent									
Acetone	0/5	ND	50	USEPA 8260B	RBRGs of Industrial	10000*	***	NA	NA
2-Butanone	0/5	ND	5.0			10000*	***	NA	NA
Methyl tert-Butyl Ether	0/5	ND	0.5			70.1	2380	NA	NA
Phenol	0/5	ND	0.5			10000*	7260	NA	NA
Polyaromatic Hydrocarbons									
Acenaphthene	0/5	ND	0.5	USEPA 8270D	RBRGs of Industrial	10000*	60.2	NA	NA
Acenaphthylene	0/5	ND	0.5			10000*	19.8	NA	NA
Anthracene	0/5	ND	0.5			10000*	2.56	NA	NA
Benzo(a)anthracene	0/5	ND	0.5			91.8	NA	NA	NA
Benzo(a)pyrene	0/5	ND	0.5			9.18	NA	NA	NA
Benzo(b) & Benzo(k)fluoranthene	0/5	ND	1			17.8	NA	NA	NA
Benzo(g,h,i)perylene	0/5	ND	0.5			10000*	NA	NA	NA
Chrysene	0/5	ND	0.5			1140	NA	NA	NA
Dibenzo(a,h)anthracene	0/5	ND	0.5			9.18	NA	NA	NA
Fluoranthene	0/5	ND	0.5			10000*	NA	NA	NA
Fluorene	0/5	ND	0.5			10000*	54.7	NA	NA
Indeno(1,2,3-cd)pyrene	0/5	ND	0.5			91.8	NA	NA	NA
Naphthalene	0/5	ND	0.5			453	125	NA	NA
Phenanthrene	0/5	ND	0.5			10000*	28	NA	NA
Pyrene	0/5	ND	0.5			10000*	NA	NA	NA
Metals									
Lead	47/47	3-22	1	USEPA 6020	RBRGs of Industrial	2290	NA	No	NA
Trivalent Chromium	5/5	3-6	1			10000*	NA	No	NA
Hexavalent Chromium	0/5	ND	1			1960	NA	NA	NA
Zinc	5/5	13-116	1			10000*	NA	No	NA
Copper	5/5	1-34	1			10000*	NA	No	NA
Petroleum Carbon Ranges									
C6 - C8 Fraction	0/47	ND	5	USEPA 8015	RBRGs of Industrial	10000*	1000	NA	NA
C9 - C16 Fraction	0/47	ND	200			10000*	3000	NA	NA
C17 - C35 Fraction	1/47	510	500			10000*	5000	No	No

Note:

* indicates a "ceiling limit" concentration

*** indicates that the Csat value exceeds the 'ceiling limit' therefore the RBRG applies

NIL= Maximum concentration detected is below respective RBRG or solubility limit

ND = The concentrations of the chemical are lower than the detection limit

NA= Not Applicable

Duplicate Samples are included in the summary.

Standard Form 3.3 – Groundwater Data Summary and Comparison to RBRGs and Csat

Chemical	Frequency of detection (x/y)	Range of Detected Concentration	Range of Method Reporting Limit	Analytical Method	Relevant Land Use Categories	Lowest RBRG(s) (µg/L)	Csat (µg/L)	Maximum Detected Concentration Exceeds (check if applicable)	
								RBRG	Csat
BTEX									
Benzene	0/10	ND	5	USEPA 8260B	RBRGs of Industrial	54000	1750000	NA	NA
Ethylbenzene	0/10	ND	5			10000000*	169000	NA	NA
Toluene	0/10	ND	5			10000000*	526000	NA	NA
Xylenes (Total)	0/10	ND	15			1570000	175000	NA	NA
Halogenated Solvent									
Bromodichloromethane	0/1	ND	5	USEPA 8260B	RBRGs of Industrial	26200	6740000	NA	NA
Chloroform	0/1	ND	5			11300	7920000	NA	NA
Methylene Chloride	0/1	ND	50			224000	***	NA	NA
Tetrachloroethene	0/1	ND	5			2950	200000	NA	NA
Trichloroethene	0/1	ND	5			14200	1100000	NA	NA
Non-halogenated Solvent									
Acetone	0/1	ND	500	USEPA 8260B	RBRGs of Industrial	10000000*	***	NA	NA
2-Butanone	0/1	ND	50			10000000*	***	NA	NA
Methyl tert-Butyl Ether	0/1	ND	5			1810000	***	NA	NA
Polyaromatic Hydrocarbons									
Acenaphthene	0/1	ND	2	USEPA 8270D	RBRGs of Industrial	10000000*	4240	NA	NA
Acenaphthylene	0/1	ND	2			10000000*	3930	NA	NA
Anthracene	0/1	ND	2			10000000*	43.4	NA	NA
Benzo(b) & Benzo(k)fluoranthene	0/1	ND	1			7530	1.5	NA	NA
Chrysene	0/1	ND	1			812000	1.6	NA	NA
Fluoranthene	0/1	ND	2			10000000*	206	NA	NA
Fluorene	0/1	ND	2			10000000*	1980	NA	NA
Naphthalene	0/1	ND	2			862000	31000	NA	NA
Phenanthrene	0/1	ND	2			10000000*	1000	NA	NA
Pyrene	0/1	ND	2			10000000*	135	NA	NA
Petroleum Carbon Ranges									
C6 - C8 Fraction	0/10	ND	20	USEPA 8015	RBRGs of Industrial	1150000	5230	NA	NA
C9 - C16 Fraction	0/10	ND	500			9980000	2800	NA	NA
C17 - C35 Fraction	1/10	1300	500			178000	2800	No	No

Note:

* indicates a "ceiling limit" concentration

*** indicates that the Csat value exceeds the 'ceiling limit' therefore the RBRG applies

NIL= Maximum concentration detected is below respective RBRG or solubility limit

ND = The concentrations of the chemical are lower than the detection limit

NA= Not Applicable

Duplicate Samples are included in the summary.

Chemical	List Samples		Concentration (mg/kg)	Check if RBRG Exceeded	Check if Csat Exceeded	Approximate Size of Affected Area* (m²)
	Sample Number	Sample Depth (m, bbc)				
BTEX						
Benzene	NA	NA	ND	NA	NA	NA
Ethylbenzene	NA	NA	ND	NA	NA	NA
Toluene	NA	NA	ND	NA	NA	NA
Xylenes(Total)	NA	NA	ND	NA	NA	NA
Halogenated Solvent						
Bromodichloromethane	NA	NA	ND	NA	NA	NA
Chloroform	NA	NA	ND	NA	NA	NA
Methylene Chloride	NA	NA	ND	NA	NA	NA
Tetrachloroethene	NA	NA	ND	NA	NA	NA
Trichloroethene	NA	NA	ND	NA	NA	NA
Non-halogenated Solvent						
Acetone	NA	NA	ND	NA	NA	NA
2-Butanone	NA	NA	ND	NA	NA	NA
Methyl tert-Butyl Ether	NA	NA	ND	NA	NA	NA
Phenol	NA	NA	ND	NA	NA	NA
Polyaromatic Hydrocarbons						
Acenaphthene	NA	NA	ND	NA	NA	NA
Acenaphthylene	NA	NA	ND	NA	NA	NA
Anthracene	NA	NA	ND	NA	NA	NA
Benzo(a)anthracene	NA	NA	ND	NA	NA	NA
Benzo(a)pyrene	NA	NA	ND	NA	NA	NA
Benzo(b) & Benzo(k)fluoranthene	NA	NA	ND	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	ND	NA	NA	NA
Chrysene	NA	NA	ND	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	ND	NA	NA	NA
Fluoranthene	NA	NA	ND	NA	NA	NA
Fluorene	NA	NA	ND	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	ND	NA	NA	NA
Naphthalene	NA	NA	ND	NA	NA	NA
Phenanthrene	NA	NA	ND	NA	NA	NA
Pyrene	NA	NA	ND	NA	NA	NA
Metals						
Lead	J-01	0.50	22	NIL	NA	NA
	J-01	1.50	5	NIL	NA	NA
	J-01	2.7-3.2	4	NIL	NA	NA
	J-01	4.2-4.7	10	NIL	NA	NA
	J-01	5.7-6.2	4	NIL	NA	NA
	J-02	0.50	15	NIL	NA	NA
	J-02	1.50	15	NIL	NA	NA
	J-02	2.7-3.2	5	NIL	NA	NA
	J-02	4.2-4.7	6	NIL	NA	NA
	J-02	5.7-6.2	5	NIL	NA	NA
	J-03	0.50	8	NIL	NA	NA
	J-03	1.50	5	NIL	NA	NA
	J-03	2.7-3.2	7	NIL	NA	NA
	J-03	4.2-4.7	10	NIL	NA	NA
	J-03	5.7-6.2	4	NIL	NA	NA
	J-04	0.50	3	NIL	NA	NA
	J-04	1.50	5	NIL	NA	NA
	J-04	2.7-3.2	8	NIL	NA	NA
	J-04	4.2-4.7	4	NIL	NA	NA
	J-04	5.7-6.2	5	NIL	NA	NA
	J-05	0.50	16	NIL	NA	NA
	J-05	1.50	12	NIL	NA	NA
	J-05	2.7-3.2	4	NIL	NA	NA
	J-05	4.2-4.7	4	NIL	NA	NA
	J-05	5.7-6.2	4	NIL	NA	NA
	J-06	0.50	6	NIL	NA	NA
	J-06	1.50	6	NIL	NA	NA
	J-06	2.7-3.2	18	NIL	NA	NA
	J-06	4.2-4.7	9	NIL	NA	NA
	J-06	5.7-6.2	4	NIL	NA	NA
	J-07	0.50	18	NIL	NA	NA
	J-07	1.50	6	NIL	NA	NA
	J-07	2.7-3.2	5	NIL	NA	NA
J-07	4.2-4.7	5	NIL	NA	NA	
J-07	5.7-6.2	7	NIL	NA	NA	
J-08	0.50	5	NIL	NA	NA	
J-08	1.50	18	NIL	NA	NA	
J-08	2.7-3.2	7	NIL	NA	NA	
J-08	4.2-4.7	4	NIL	NA	NA	
J-08	5.7-6.2	4	NIL	NA	NA	
J-09	0.50	5	NIL	NA	NA	
J-09	1.50	4	NIL	NA	NA	
J-09	2.7-3.2	5	NIL	NA	NA	
J-09	4.2-4.7	5	NIL	NA	NA	
J-09	5.7-6.2	3	NIL	NA	NA	
QC01 (Duplicate of J-04)	0.50	4	NIL	NA	NA	
QC05 (Duplicate of J-07)	2.7-3.2	9	NIL	NA	NA	
Trivalent Chromium	J-09	0.50	5	NIL	NA	NA
	J-09	1.50	4	NIL	NA	NA
	J-09	2.7-3.2	6	NIL	NA	NA
	J-09	4.2-4.7	5	NIL	NA	NA
	J-09	5.7-6.2	3	NIL	NA	NA
Hexavalent Chromium	NA	NA	ND	NA	NA	NA
Zinc	J-09	0.50	16	NIL	NA	NA
	J-09	1.50	13	NIL	NA	NA
	J-09	2.7-3.2	62	NIL	NA	NA
	J-09	4.2-4.7	116	NIL	NA	NA
	J-09	5.7-6.2	84	NIL	NA	NA
Copper	J-09	0.50	2	NIL	NA	NA
	J-09	1.50	1	NIL	NA	NA
	J-09	2.7-3.2	34	NIL	NA	NA
	J-09	4.2-4.7	19	NIL	NA	NA
	J-09	5.7-6.2	17	NIL	NA	NA

Chemical	List Samples		Concentration (mg/kg)	Check if RBRG Exceeded	Check if Csat Exceeded	Approximate Size of Affected Area* (m ²)
	Sample Number	Sample Depth (m, bbc)				
Petroleum Carbon Ranges						
C6 - C8 Fraction	NA	NA	ND	NA	NA	NA
C9 - C16 Fraction	NA	NA	ND	NA	NA	NA
C17 - C35 Fraction	J-03	2.7-3.2	510	NIL	NA	NA

Note:

NA= Not Applicable

bbc= below base of concrete

NIL= Concentration detected is below repective RBRG or solubility limit

* = Confirmatory tests would be carried out to further confirm size of affected area

Standard Form 3.5 – Groundwater Sample Concentrations and Exceedances of RBRGs and Csat

Chemical	List Samples		Concentration (μg/L)	Check if RBRG Exceeded	Check if Csat Exceeded	Approximate Size of Affected Area (m²)
	Sample Number	Sample Depth (m, bbc)				
BTEX						
Benzene	NA	NA	ND	NA	NA	NA
Ethylbenzene	NA	NA	ND	NA	NA	NA
Toluene	NA	NA	ND	NA	NA	NA
Xylenes(Total)	NA	NA	ND	NA	NA	NA
Halogenated Solvent						
Bromodichloromethane	NA	NA	ND	NA	NA	NA
Chloroform	NA	NA	ND	NA	NA	NA
Methylene Chloride	NA	NA	ND	NA	NA	NA
Tetrachloroethene	NA	NA	ND	NA	NA	NA
Trichloroethene	NA	NA	ND	NA	NA	NA
Non-halogenated Solvent						
Acetone	NA	NA	ND	NA	NA	NA
2-Butanone	NA	NA	ND	NA	NA	NA
Methyl tert-Butyl Ether	NA	NA	ND	NA	NA	NA
Polyaromatic Hydrocarbons						
Acenaphthene	NA	NA	ND	NA	NA	NA
Acenaphthylene	NA	NA	ND	NA	NA	NA
Anthracene	NA	NA	ND	NA	NA	NA
Benzo(b) & Benzo(k)fluoranthene	NA	NA	ND	NA	NA	NA
Chrysene	NA	NA	ND	NA	NA	NA
Fluoranthene	NA	NA	ND	NA	NA	NA
Fluorene	NA	NA	ND	NA	NA	NA
Naphthalene	NA	NA	ND	NA	NA	NA
Phenanthrene	NA	NA	ND	NA	NA	NA
Pyrene	NA	NA	ND	NA	NA	NA
Petroleum Carbon Ranges						
C6 - C8 Fraction	NA	NA	ND	NA	NA	NA
C9 - C16 Fraction	NA	NA	ND	NA	NA	NA
C17 - C35 Fraction	QC09 (Duplicate of J-07)	NA	1300	NIL	NIL	NA

Note:

bbc= below base of concrete

NIL= Maximum concentration detected is below respective RBRG or solubility limit

NA= Not Applicable

ND= Not Detectable

Laboratory Reports

Soil



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1015847
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	Amendment	: 1
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 14-JUL-2010
Order number	: 60159686			Issue Date	: 09-AUG-2010
C-O-C number	: H009741			No. of samples received	: 2
Site	: NAM CHEONG STATION			No. of samples analysed	: 2

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

22-JUL-2010

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: **HK1015847**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-01 0.5	J-01 1.5			
				[14-JUL-2010]	[14-JUL-2010]			
Compound	CAS Number	LOR	Unit	HK1015847-001	HK1015847-002			
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	5.7	4.9			
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	22	5			
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2			
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5			
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5			
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5			
C9 - C16 Fraction	----	200	mg/kg	<200	<200			
C17 - C35 Fraction	----	500	mg/kg	<500	<500			
EP-080S: TPH(Volatile)/BTEX Surrogate						Surrogate control limits listed at end of this report.		
Dibromofluoromethane	1868-53-7	0.1	%	120	105			
Toluene-D8	2037-26-5	0.1	%	101	99.9			
4-Bromofluorobenzene	460-00-4	0.1	%	92.7	94.4			



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1417798)								
HK1015705-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	11.4	11.7	2.6
EG: Metals and Major Cations (QC Lot: 1417804)								
HK1015705-002	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	211	193	9.1
EP-080: BTEX (QC Lot: 1417728)								
HK1015847-001	J-01 0.5	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)								
HK1015847-001	J-01 0.5	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)								
HK1015847-001	J-01 0.5	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1417804)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	90.9	----	85	115	----	----
EP-080: BTEX (QC Lot: 1417728)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	100	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	95.4	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	97.1	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	95.7	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	114	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	85.2	----	43	106	----	----

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

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



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1417804)										
HK1015705-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----
EP-080: BTEX (QC Lot: 1417728)										
HK1015847-002	J-01 1.5	Benzene	71-43-2	0.2 mg/kg	109	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	107	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	95.1	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	116	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	96.2	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)										
HK1015847-002	J-01 1.5	C6 - C8 Fraction	----	3 mg/kg	119	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)										
HK1015847-002	J-01 1.5	C9 - C16 Fraction	----	31 mg/kg	81.0	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	65.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL			Recovery Limits (%)	
Compound	CAS Number		Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate				
Dibromofluoromethane	1868-53-7		80	120
Toluene-D8	2037-26-5		81	117
4-Bromofluorobenzene	460-00-4		74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 7
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016098
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 15-JUL-2010
Order number	: 60159686			Issue Date	: 29-JUL-2010
C-O-C number	: H009742			No. of samples received	: 3
Site	: NAM CHEONG STATION			No. of samples analysed	: 3

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

26-JUL-2010

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: **HK1016098**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-01-2.7M-3.2M	J-01-4.2M-4.7M			
				[15-JUL-2010]	[15-JUL-2010]			
Compound	CAS Number	LOR	Unit	HK1016098-001	HK1016098-002			
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	5.3	8.0			
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	4	10			
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2			
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5			
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5			
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5			
C9 - C16 Fraction	----	200	mg/kg	<200	<200			
C17 - C35 Fraction	----	500	mg/kg	<500	<500			
EP-080S: TPH(Volatile)/BTEX Surrogate						Surrogate control limits listed at end of this report.		
Dibromofluoromethane	1868-53-7	0.1	%	114	108			
Toluene-D8	2037-26-5	0.1	%	100	99.7			
4-Bromofluorobenzene	460-00-4	0.1	%	94.8	93.3			



Sub-Matrix: WATER				Client sample ID	QC15				
				Client sampling date / time	[15-JUL-2010]				
Compound	CAS Number	LOR	Unit		HK1016098-003				
EP-080: BTEX									
Benzene	71-43-2	5	µg/L		<5				
Toluene	108-88-3	5	µg/L		<5				
Ethylbenzene	100-41-4	5	µg/L		<5				
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L		<10				
ortho-Xylene	95-47-6	5	µg/L		<5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	20	µg/L		<20				
EP-080S: TPH(Volatile)/BTEX Surrogate								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		116				
Toluene-D8	2037-26-5	0.1	%		102				
4-Bromofluorobenzene	460-00-4	0.1	%		86.8				



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1419813)								
HK1016011-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	5.0	5.8	13.5
EG: Metals and Major Cations (QC Lot: 1419814)								
HK1016098-001	J-01-2.7M-3.2M	EG020: Lead	7439-92-1	1	mg/kg	4	5	0.0
EP-080: BTEX (QC Lot: 1417728)								
HK1015847-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)								
HK1015847-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)								
HK1015847-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-080: BTEX (QC Lot: 1424582)								
HK1016332-001	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)								
HK1016332-001	Anonymous	C6 - C8 Fraction	----	0.02	mg/L	<0.02	<0.02	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1419814)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	90.9	----	85	115	----	----
EP-080: BTEX (QC Lot: 1417728)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	100	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	95.4	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	97.1	----	80	115	----	----



Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EP-080: BTEX (QC Lot: 1417728) - Continued											
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	95.7	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	114	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	85.2	----	43	106	----	----

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentratio	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result			LCS	DCS	Low	High	Value
EP-080: BTEX (QC Lot: 1424582)											
Benzene	71-43-2	1	µg/L	<1	---	---	---	---	---	---	---
				---	10 µg/L	88.2	---	70	115	---	---
Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	---	67	117	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.0	---	76	107	---	---
meta- & para-Xylene	108-38-3 106-42-3	4	µg/L	<4	20 µg/L	103	---	77	112	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.3	---	69	109	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)											
C6 - C8 Fraction	---	0.02	mg/L	<0.02	---	---	---	---	---	---	---
				---	0.15 mg/L	102	---	68	125	---	---

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

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1419814)										
HK1016011-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	92.1	----	75	125	----	----
EP-080: BTEX (QC Lot: 1417728)										
HK1015847-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	109	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	107	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	95.1	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	116	----	50	130	----	----
			106-42-3							
		ortho-Xylene	95-47-6	0.2 mg/kg	96.2	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)										
HK1015847-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	119	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)										
HK1015847-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	81.0	----	50	130	----	----



Matrix: SOIL

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734) - Continued										
HK1015847-002	Anonymous	C17 - C35 Fraction	----	75 mg/kg	65.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: WATER

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



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 7
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016168
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 16-JUL-2010
Order number	: 60159686			Issue Date	: 27-JUL-2010
C-O-C number	: H009743			No. of samples received	: 2
Site	: NAM CHEONG STATION			No. of samples analysed	: 2

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

26-JUL-2010

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: **HK1016168**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

J-01-5.7M-6.2M

Client sampling date / time

[16-JUL-2010]

Compound	CAS Number	LOR	Unit	HK1016168-001				
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	8.7				
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	4				
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2				
Toluene	108-88-3	0.5	mg/kg	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5				
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5				
C9 - C16 Fraction	----	200	mg/kg	<200				
C17 - C35 Fraction	----	500	mg/kg	<500				
EP-080S: TPH(Volatile)/BTEX Surrogate							Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%	113				
Toluene-D8	2037-26-5	0.1	%	101				
4-Bromofluorobenzene	460-00-4	0.1	%	95.7				



Sub-Matrix: WATER				Client sample ID	QC16				
				Client sampling date / time	[16-JUL-2010]				
Compound	CAS Number	LOR	Unit		HK1016168-002				
EP-080: BTEX									
Benzene	71-43-2	5	µg/L		<5				
Toluene	108-88-3	5	µg/L		<5				
Ethylbenzene	100-41-4	5	µg/L		<5				
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L		<10				
ortho-Xylene	95-47-6	5	µg/L		<5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	20	µg/L		<20				
EP-080S: TPH(Volatile)/BTEX Surrogate								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		113				
Toluene-D8	2037-26-5	0.1	%		103				
4-Bromofluorobenzene	460-00-4	0.1	%		91.5				



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1421403)								
HK1015946-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	14.6	15.9	8.5
EG: Metals and Major Cations (QC Lot: 1423010)								
HK1016169-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	5	6	0.0
EP-080: BTEX (QC Lot: 1417728)								
HK1015847-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)								
HK1015847-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)								
HK1015847-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-080: BTEX (QC Lot: 1424582)								
HK1016332-001	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)								
HK1016332-001	Anonymous	C6 - C8 Fraction	----	0.02	mg/L	<0.02	<0.02	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1423010)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	90.4	----	85	115	----	----
EP-080: BTEX (QC Lot: 1417728)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	100	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	95.4	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	97.1	----	80	115	----	----



Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: CompoundCAS Number					Spike Concentratio	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LCS	DCS	Low		High	Value	Control Limit			
n											
EP-080: BTEX (QC Lot: 1417728) - Continued											
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	95.7	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	114	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	85.2	----	43	106	----	----

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: CompoundCAS Number					Spike Concentratio	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LCS	DCS	Low		High	Value	Control Limit			
n											
EP-080: BTEX (QC Lot: 1424582)											
Benzene	71-43-2	1	µg/L	<1	----	----	----	----	----	----	----
				----	10 µg/L	88.2	----	70	115	----	----
Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	----	67	117	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.0	----	76	107	----	----
meta- & para-Xylene	108-38-3 106-42-3	4	µg/L	<4	20 µg/L	103	----	77	112	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.3	----	69	109	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	----	----	----	----	----	----	----
				----	0.15 mg/L	102	----	68	125	----	----

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

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1423010)										
HK1016168-001	J-01-5.7M-6.2M	EG020: Lead	7439-92-1	5 mg/kg	87.8	----	75	125	----	----
EP-080: BTEX (QC Lot: 1417728)										
HK1015847-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	109	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	107	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	95.1	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	116	----	50	130	----	----
			106-42-3							
		ortho-Xylene	95-47-6	0.2 mg/kg	96.2	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)										
HK1015847-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	119	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)										
HK1015847-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	81.0	----	50	130	----	----



Matrix: SOIL

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734) - Continued										
HK1015847-002	Anonymous	C17 - C35 Fraction	----	75 mg/kg	65.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: WATER

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



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 7
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016011
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 14-JUL-2010
Order number	: 60159686			Issue Date	: 28-JUL-2010
C-O-C number	: H009741			No. of samples received	: 2
Site	: NAM CHEONG STATION			No. of samples analysed	: 2

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

26-JUL-2010

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: **HK1016011**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-02 0.5				
				[14-JUL-2010]				
Compound	CAS Number	LOR	Unit	HK1016011-001				
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	5.0				
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	15				
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2				
Toluene	108-88-3	0.5	mg/kg	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5				
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5				
C9 - C16 Fraction	----	200	mg/kg	<200				
C17 - C35 Fraction	----	500	mg/kg	<500				
EP-080S: TPH(Volatile)/BTEX Surrogate							Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%	114				
Toluene-D8	2037-26-5	0.1	%	102				
4-Bromofluorobenzene	460-00-4	0.1	%	92.6				



Sub-Matrix: WATER				Client sample ID	QC14				
				Client sampling date / time	[14-JUL-2010]				
Compound	CAS Number	LOR	Unit		HK1016011-002				
EP-080: BTEX									
Benzene	71-43-2	5	µg/L		<5				
Toluene	108-88-3	5	µg/L		<5				
Ethylbenzene	100-41-4	5	µg/L		<5				
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L		<10				
ortho-Xylene	95-47-6	5	µg/L		<5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	20	µg/L		<20				
EP-080S: TPH(Volatile)/BTEX Surrogate								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		108				
Toluene-D8	2037-26-5	0.1	%		104				
4-Bromofluorobenzene	460-00-4	0.1	%		86.1				



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1419813)								
HK1016011-001	J-02 0.5	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	5.0	5.8	13.5
EG: Metals and Major Cations (QC Lot: 1419814)								
HK1016098-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	4	5	0.0
EP-080: BTEX (QC Lot: 1417728)								
HK1015847-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)								
HK1015847-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)								
HK1015847-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-080: BTEX (QC Lot: 1424582)								
HK1016332-001	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)								
HK1016332-001	Anonymous	C6 - C8 Fraction	----	0.02	mg/L	<0.02	<0.02	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1419814)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	90.9	----	85	115	----	----
EP-080: BTEX (QC Lot: 1417728)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	100	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	95.4	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	97.1	----	80	115	----	----



Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EP-080: BTEX (QC Lot: 1417728) - Continued											
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	95.7	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	114	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	85.2	----	43	106	----	----

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
Method: Compound	CAS Number	LOR	Unit	Result			LCS	DCS	Low	High	Value	Control Limit
EP-080: BTEX (QC Lot: 1424582)												
Benzene	71-43-2	1	µg/L	<1	----	----	----	----	----	----	----	----
				----	10 µg/L	88.2	----	70	115	----	----	----
Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	----	67	117	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.0	----	76	107	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	4	µg/L	<4	20 µg/L	103	----	77	112	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.3	----	69	109	----	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)												
C6 - C8 Fraction	----	0.02	mg/L	<0.02	----	----	----	----	----	----	----	----
				----	0.15 mg/L	102	----	68	125	----	----	----

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

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EG: Metals and Major Cations (QC Lot: 1419814)										
HK1016011-001	J-02 0.5	EG020: Lead	7439-92-1	5 mg/kg	92.1	----	75	125	----	----
EP-080: BTEX (QC Lot: 1417728)										
HK1015847-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	109	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	107	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	95.1	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	116	----	50	130	----	----
			106-42-3							
		ortho-Xylene	95-47-6	0.2 mg/kg	96.2	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)										
HK1015847-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	119	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)										
HK1015847-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	81.0	----	50	130	----	----



Matrix: SOIL

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734) - Continued										
HK1015847-002	Anonymous	C17 - C35 Fraction	----	75 mg/kg	65.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: WATER

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



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016106
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Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 15-JUL-2010
Order number	: 60159686			Issue Date	: 29-JUL-2010
C-O-C number	: H009742			No. of samples received	: 1
Site	: NAM CHEONG STATION			No. of samples analysed	: 1

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

22-JUL-2010

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: **HK1016106**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

J-02-1.5M

Client sampling date / time

[15-JUL-2010]

Compound	CAS Number	LOR	Unit	HK1016106-001				
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	4.7				
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	15				
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2				
Toluene	108-88-3	0.5	mg/kg	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5				
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5				
C9 - C16 Fraction	----	200	mg/kg	<200				
C17 - C35 Fraction	----	500	mg/kg	<500				
EP-080S: TPH(Volatile)/BTEX Surrogate							Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%	109				
Toluene-D8	2037-26-5	0.1	%	100				
4-Bromofluorobenzene	460-00-4	0.1	%	94.3				



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1419813)								
HK1016011-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	5.0	5.8	13.5
EG: Metals and Major Cations (QC Lot: 1419814)								
HK1016098-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	4	5	0.0
EP-080: BTEX (QC Lot: 1417728)								
HK1015847-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)								
HK1015847-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)								
HK1015847-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1419814)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	90.9	----	85	115	----	----
EP-080: BTEX (QC Lot: 1417728)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	100	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	95.4	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	97.1	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	95.7	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	114	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	85.2	----	43	106	----	----

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

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



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1419814)										
HK1016011-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	92.1	----	75	125	----	----
EP-080: BTEX (QC Lot: 1417728)										
HK1015847-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	109	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	107	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	95.1	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	116	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	96.2	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)										
HK1015847-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	119	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)										
HK1015847-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	81.0	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	65.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016169
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 16-JUL-2010
Order number	: 60159686			Issue Date	: 29-JUL-2010
C-O-C number	: H009744			No. of samples received	: 1
Site	: NAM CHEONG STATION			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Anh Ngoc Huynh	Senior Chemist	Organics
Fung Lim Chee, Richard	General Manager	Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

23-JUL-2010

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: **HK1016169**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

J-02-2.7M-3.2M

Client sampling date / time

[16-JUL-2010]

Compound	CAS Number	LOR	Unit	HK1016169-001				
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	4.2				
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	5				
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2				
Toluene	108-88-3	0.5	mg/kg	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5				
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5				
C9 - C16 Fraction	----	200	mg/kg	<200				
C17 - C35 Fraction	----	500	mg/kg	<500				
EP-080S: TPH(Volatile)/BTEX Surrogate							Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%	103				
Toluene-D8	2037-26-5	0.1	%	101				
4-Bromofluorobenzene	460-00-4	0.1	%	94.8				



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1421403)								
HK1015946-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	14.6	15.9	8.5
EG: Metals and Major Cations (QC Lot: 1423010)								
HK1016169-001	J-02-2.7M-3.2M	EG020: Lead	7439-92-1	1	mg/kg	5	6	0.0
EP-080: BTEX (QC Lot: 1417728)								
HK1015847-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)								
HK1015847-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)								
HK1015847-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1423010)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	90.4	----	85	115	----	----
EP-080: BTEX (QC Lot: 1417728)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	100	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	95.4	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	97.1	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	95.7	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	114	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	85.2	----	43	106	----	----

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

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



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1423010)										
HK1016168-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	87.8	----	75	125	----	----
EP-080: BTEX (QC Lot: 1417728)										
HK1015847-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	109	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	107	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	95.1	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	116	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	96.2	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)										
HK1015847-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	119	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)										
HK1015847-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	81.0	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	65.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 7
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016229
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 17-JUL-2010
Order number	: 60159686			Issue Date	: 29-JUL-2010
C-O-C number	: H009745			No. of samples received	: 3
Site	: NAM CHEONG STATION			No. of samples analysed	: 3

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

26-JUL-2010

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: **HK1016229**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were received in an ambient condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-02-4.2M-4.7M	J-02-5.7M-6.2M			
				[17-JUL-2010]	[17-JUL-2010]			
Compound	CAS Number	LOR	Unit	HK1016229-001	HK1016229-002			
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	5.8	11.6			
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	6	5			
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2			
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5			
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5			
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5			
C9 - C16 Fraction	----	200	mg/kg	<200	<200			
C17 - C35 Fraction	----	500	mg/kg	<500	<500			
EP-080S: TPH(Volatile)/BTEX Surrogate						Surrogate control limits listed at end of this report.		
Dibromofluoromethane	1868-53-7	0.1	%	101	101			
Toluene-D8	2037-26-5	0.1	%	97.6	97.9			
4-Bromofluorobenzene	460-00-4	0.1	%	96.9	97.3			



Sub-Matrix: WATER				Client sample ID	QC17				
				Client sampling date / time	[17-JUL-2010]				
Compound	CAS Number	LOR	Unit		HK1016229-003				
EP-080: BTEX									
Benzene	71-43-2	5	µg/L		<5				
Toluene	108-88-3	5	µg/L		<5				
Ethylbenzene	100-41-4	5	µg/L		<5				
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L		<10				
ortho-Xylene	95-47-6	5	µg/L		<5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	20	µg/L		<20				
EP-080S: TPH(Volatile)/BTEX Surrogate								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		102				
Toluene-D8	2037-26-5	0.1	%		104				
4-Bromofluorobenzene	460-00-4	0.1	%		86.0				



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1421403)								
HK1015946-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	14.6	15.9	8.5
EG: Metals and Major Cations (QC Lot: 1423010)								
HK1016169-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	5	6	0.0
EP-080: BTEX (QC Lot: 1417728)								
HK1015847-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)								
HK1015847-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)								
HK1015847-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-080: BTEX (QC Lot: 1424582)								
HK1016332-001	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)								
HK1016332-001	Anonymous	C6 - C8 Fraction	----	0.02	mg/L	<0.02	<0.02	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1423010)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	90.4	----	85	115	----	----
EP-080: BTEX (QC Lot: 1417728)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	100	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	95.4	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	97.1	----	80	115	----	----



Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EP-080: BTEX (QC Lot: 1417728) - Continued											
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	95.7	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	114	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	85.2	----	43	106	----	----

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
Method: Compound	CAS Number	LOR	Unit	Result			LCS	DCS	Low	High	Value	Control Limit
EP-080: BTEX (QC Lot: 1424582)												
Benzene	71-43-2	1	µg/L	<1	----	----	----	----	----	----	----	----
				----	10 µg/L	88.2	----	70	115	----	----	----
Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	----	67	117	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.0	----	76	107	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	4	µg/L	<4	20 µg/L	103	----	77	112	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.3	----	69	109	----	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)												
C6 - C8 Fraction	----	0.02	mg/L	<0.02	----	----	----	----	----	----	----	----
				----	0.15 mg/L	102	----	68	125	----	----	----

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

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EG: Metals and Major Cations (QC Lot: 1423010)										
HK1016168-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	87.8	----	75	125	----	----
EP-080: BTEX (QC Lot: 1417728)										
HK1015847-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	109	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	107	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	95.1	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	116	----	50	130	----	----
			106-42-3							
		ortho-Xylene	95-47-6	0.2 mg/kg	96.2	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)										
HK1015847-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	119	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)										
HK1015847-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	81.0	----	50	130	----	----



Matrix: SOIL

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734) - Continued										
HK1015847-002	Anonymous	C17 - C35 Fraction	----	75 mg/kg	65.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: WATER

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



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016107
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 15-JUL-2010
Order number	: 60159686			Issue Date	: 29-JUL-2010
C-O-C number	: H009742			No. of samples received	: 2
Site	: NAM CHEONG STATION			No. of samples analysed	: 2

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

22-JUL-2010

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: **HK1016107**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-03-0.5M	J-03-1.5M			
				[15-JUL-2010]	[15-JUL-2010]			
Compound	CAS Number	LOR	Unit	HK1016107-001	HK1016107-002			
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	3.1	4.5			
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	8	5			
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2			
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5			
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5			
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5			
C9 - C16 Fraction	----	200	mg/kg	<200	<200			
C17 - C35 Fraction	----	500	mg/kg	<500	<500			
EP-080S: TPH(Volatile)/BTEX Surrogate						Surrogate control limits listed at end of this report.		
Dibromofluoromethane	1868-53-7	0.1	%	105	110			
Toluene-D8	2037-26-5	0.1	%	99.7	101			
4-Bromofluorobenzene	460-00-4	0.1	%	92.1	94.4			



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1419813)								
HK1016011-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	5.0	5.8	13.5
EG: Metals and Major Cations (QC Lot: 1419814)								
HK1016098-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	4	5	0.0
EP-080: BTEX (QC Lot: 1417728)								
HK1015847-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)								
HK1015847-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)								
HK1015847-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1419814)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	90.9	----	85	115	----	----
EP-080: BTEX (QC Lot: 1417728)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	100	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	95.4	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	97.1	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	95.7	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	114	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	85.2	----	43	106	----	----

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

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



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1419814)										
HK1016011-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	92.1	----	75	125	----	----
EP-080: BTEX (QC Lot: 1417728)										
HK1015847-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	109	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	107	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	95.1	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	116	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	96.2	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)										
HK1015847-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	119	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)										
HK1015847-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	81.0	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	65.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016230
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 17-JUL-2010
Order number	: 60159686			Issue Date	: 29-JUL-2010
C-O-C number	: H009746			No. of samples received	: 2
Site	: NAM CHEONG STATION			No. of samples analysed	: 2

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

23-JUL-2010

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: **HK1016230**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were received in an ambient condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-03-2.7M-3.2M	J-03-4.2M-4.7M			
				[17-JUL-2010]	[17-JUL-2010]			
Compound	CAS Number	LOR	Unit	HK1016230-001	HK1016230-002			
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	4.4	13.1			
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	7	10			
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2			
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5			
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5			
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5			
C9 - C16 Fraction	----	200	mg/kg	<200	<200			
C17 - C35 Fraction	----	500	mg/kg	510	<500			
EP-080S: TPH(Volatile)/BTEX Surrogate						Surrogate control limits listed at end of this report.		
Dibromofluoromethane	1868-53-7	0.1	%	101	103			
Toluene-D8	2037-26-5	0.1	%	99.4	99.5			
4-Bromofluorobenzene	460-00-4	0.1	%	95.6	96.2			



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1421403)								
HK1015946-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	14.6	15.9	8.5
EG: Metals and Major Cations (QC Lot: 1423010)								
HK1016169-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	5	6	0.0
EP-080: BTEX (QC Lot: 1417728)								
HK1015847-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)								
HK1015847-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)								
HK1015847-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1423010)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	90.4	----	85	115	----	----
EP-080: BTEX (QC Lot: 1417728)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	100	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	95.4	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	97.1	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	95.7	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	114	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	85.2	----	43	106	----	----

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

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



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1423010)										
HK1016168-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	87.8	----	75	125	----	----
EP-080: BTEX (QC Lot: 1417728)										
HK1015847-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	109	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	107	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	95.1	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	116	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	96.2	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)										
HK1015847-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	119	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)										
HK1015847-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	81.0	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	65.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016329
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 19-JUL-2010
Order number	: 60159686			Issue Date	: 30-JUL-2010
C-O-C number	: H009747			No. of samples received	: 1
Site	: NAM CHEONG STATION			No. of samples analysed	: 1

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

26-JUL-2010

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: **HK1016329**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

J-03 5.7M-6.2M

Client sampling date / time

[19-JUL-2010]

Compound	CAS Number	LOR	Unit	HK1016329-001				
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	11.6				
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	4				
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2				
Toluene	108-88-3	0.5	mg/kg	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5				
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5				
C9 - C16 Fraction	----	200	mg/kg	<200				
C17 - C35 Fraction	----	500	mg/kg	<500				
EP-080S: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	106				
Toluene-D8	2037-26-5	0.1	%	99.6				
4-Bromofluorobenzene	460-00-4	0.1	%	96.8				

Surrogate control limits listed at end of this report.



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1422336)								
HK1016325-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	7.0	7.7	9.2
EG: Metals and Major Cations (QC Lot: 1424430)								
HK1016327-002	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	9	10	0.0
EP-080: BTEX (QC Lot: 1417728)								
HK1015847-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)								
HK1015847-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)								
HK1015847-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1424430)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	89.7	----	85	115	----	----
EP-080: BTEX (QC Lot: 1417728)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	100	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	95.4	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	97.1	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	95.7	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	114	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	85.2	----	43	106	----	----

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

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



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1424430)										
HK1016327-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	95.1	----	75	125	----	----
EP-080: BTEX (QC Lot: 1417728)										
HK1015847-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	109	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	107	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	95.1	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	116	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	96.2	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)										
HK1015847-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	119	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)										
HK1015847-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	81.0	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	65.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016330
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 19-JUL-2010
Order number	: 60159686			Issue Date	: 31-JUL-2010
C-O-C number	: H009750			No. of samples received	: 2
Site	: NAM CHEONG STATION			No. of samples analysed	: 2

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

26-JUL-2010

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: **HK1016330**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-04 0.5M	J-04 1.5M			
				[19-JUL-2010]	[19-JUL-2010]			
Compound	CAS Number	LOR	Unit	HK1016330-001	HK1016330-002			
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	4.2	5.1			
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	3	5			
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2			
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5			
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5			
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5			
C9 - C16 Fraction	----	200	mg/kg	<200	<200			
C17 - C35 Fraction	----	500	mg/kg	<500	<500			
EP-080S: TPH(Volatile)/BTEX Surrogate						Surrogate control limits listed at end of this report.		
Dibromofluoromethane	1868-53-7	0.1	%	111	109			
Toluene-D8	2037-26-5	0.1	%	102	99.3			
4-Bromofluorobenzene	460-00-4	0.1	%	95.3	95.9			



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1422336)								
HK1016325-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	7.0	7.7	9.2
EG: Metals and Major Cations (QC Lot: 1424430)								
HK1016327-002	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	9	10	0.0
EP-080: BTEX (QC Lot: 1422220)								
HK1016330-001	J-04 0.5M	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)								
HK1016330-001	J-04 0.5M	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)								
HK1016330-001	J-04 0.5M	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1424430)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	89.7	----	85	115	----	----
EP-080: BTEX (QC Lot: 1422220)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	102	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	106	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	108	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	96.3	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.9	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	82.6	----	43	106	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	121	----	74	129	----	----

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

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



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1424430)										
HK1016327-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	95.1	----	75	125	----	----
EP-080: BTEX (QC Lot: 1422220)										
HK1016330-002	J-04 1.5M	Benzene	71-43-2	0.2 mg/kg	100	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	101	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	84.6	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	106	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	87.6	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)										
HK1016330-002	J-04 1.5M	C9 - C16 Fraction	----	31 mg/kg	88.8	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	86.7	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)										
HK1016330-002	J-04 1.5M	C6 - C8 Fraction	----	3 mg/kg	112	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016413
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 20-JUL-2010
Order number	: 60159686			Issue Date	: 03-AUG-2010
C-O-C number	: H009751			No. of samples received	: 3
Site	: NAM CHEONG STATION			No. of samples analysed	: 3

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

27-JUL-2010

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: **HK1016413**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-04 2.7M-3.2M	J-04 4.2M-4.7M	J-04 5.7M-6.2M		
				[20-JUL-2010]	[20-JUL-2010]	[20-JUL-2010]		
Compound	CAS Number	LOR	Unit	HK1016413-001	HK1016413-002	HK1016413-003		
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	10.5	6.9	10.4		
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	8	4	5		
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2		
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5		
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5		
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0		
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5		
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5	<5		
C9 - C16 Fraction	----	200	mg/kg	<200	<200	<200		
C17 - C35 Fraction	----	500	mg/kg	<500	<500	<500		
EP-080S: TPH(Volatile)/BTEX Surrogate							Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%	112	112	112		
Toluene-D8	2037-26-5	0.1	%	102	103	102		
4-Bromofluorobenzene	460-00-4	0.1	%	94.8	94.9	93.8		



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1424432)								
HK1016285-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	28.7	31.7	9.8
HK1016413-002	J-04 4.2M-4.7M	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	6.9	7.1	2.9
EG: Metals and Major Cations (QC Lot: 1425785)								
HK1016408-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	5	4	0.0
HK1016413-003	J-04 5.7M-6.2M	EG020: Lead	7439-92-1	1	mg/kg	5	5	0.0
EP-080: BTEX (QC Lot: 1422220)								
HK1016330-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)								
HK1016330-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)								
HK1016330-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1425785)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	93.4	----	85	115	----	----
EP-080: BTEX (QC Lot: 1422220)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	102	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	106	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	108	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	96.3	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.9	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	82.6	----	43	106	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	121	----	74	129	----	----

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

Matrix: SOIL	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report
--------------	---



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1425785)										
HK1016332-004	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	102	----	75	125	----	----
EP-080: BTEX (QC Lot: 1422220)										
HK1016330-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	100	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	101	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	84.6	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	106	----	50	130	----	----
		ortho-Xylene	106-42-3	0.2 mg/kg	87.6	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)										
HK1016330-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	88.8	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	86.7	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)										
HK1016330-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	112	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016410
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 20-JUL-2010
Order number	: 60159686			Issue Date	: 03-AUG-2010
C-O-C number	: H009752			No. of samples received	: 5
Site	: NAM CHEONG STATION			No. of samples analysed	: 5

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

27-JUL-2010

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: **HK1016410**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-05 0.5M	J-05 1.5M	J-05 2.7M-3.2M	J-05 4.2M-4.7M	J-05 5.7M-6.2M
				[20-JUL-2010]	[20-JUL-2010]	[20-JUL-2010]	[20-JUL-2010]	[20-JUL-2010]
Compound	CAS Number	LOR	Unit	HK1016410-001	HK1016410-002	HK1016410-003	HK1016410-004	HK1016410-005
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	5.2	3.9	4.4	14.0	11.5
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	16	12	4	4	4
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5	<5	<5	<5
C9 - C16 Fraction	----	200	mg/kg	<200	<200	<200	<200	<200
C17 - C35 Fraction	----	500	mg/kg	<500	<500	<500	<500	<500
EP-080S: TPH(Volatile)/BTEX Surrogate							Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%	108	110	115	110	114
Toluene-D8	2037-26-5	0.1	%	101	102	102	102	103
4-Bromofluorobenzene	460-00-4	0.1	%	94.8	96.3	97.0	94.7	94.6



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1424432)								
HK1016285-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	28.7	31.7	9.8
HK1016413-002	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	6.9	7.1	2.9
EG: Metals and Major Cations (QC Lot: 1425785)								
HK1016408-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	5	4	0.0
HK1016413-003	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	5	5	0.0
EP-080: BTEX (QC Lot: 1422220)								
HK1016330-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
106-42-3								
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)								
HK1016330-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)								
HK1016330-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1425785)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	93.4	----	85	115	----	----
EP-080: BTEX (QC Lot: 1422220)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	102	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	106	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	108	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	96.3	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.9	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	82.6	----	43	106	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	121	----	74	129	----	----

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

Matrix: SOIL	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report
--------------	---



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1425785)										
HK1016332-004	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	102	----	75	125	----	----
EP-080: BTEX (QC Lot: 1422220)										
HK1016330-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	100	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	101	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	84.6	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	106	----	50	130	----	----
		ortho-Xylene	106-42-3	0.2 mg/kg	87.6	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)										
HK1016330-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	88.8	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	86.7	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)										
HK1016330-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	112	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016109
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 15-JUL-2010
Order number	: 60159686			Issue Date	: 29-JUL-2010
C-O-C number	: H009742			No. of samples received	: 2
Site	: NAM CHEONG STATION			No. of samples analysed	: 2

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

22-JUL-2010

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: **HK1016109**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-06-0.5M	J-06-1.5M			
				[15-JUL-2010]	[15-JUL-2010]			
Compound	CAS Number	LOR	Unit	HK1016109-001	HK1016109-002			
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	6.7	3.8			
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	6	6			
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2			
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5			
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5			
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5			
C9 - C16 Fraction	----	200	mg/kg	<200	<200			
C17 - C35 Fraction	----	500	mg/kg	<500	<500			
EP-080S: TPH(Volatile)/BTEX Surrogate						Surrogate control limits listed at end of this report.		
Dibromofluoromethane	1868-53-7	0.1	%	109	112			
Toluene-D8	2037-26-5	0.1	%	101	100			
4-Bromofluorobenzene	460-00-4	0.1	%	94.3	93.8			



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1419813)								
HK1016011-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	5.0	5.8	13.5
EG: Metals and Major Cations (QC Lot: 1419814)								
HK1016098-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	4	5	0.0
EP-080: BTEX (QC Lot: 1417728)								
HK1015847-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)								
HK1015847-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)								
HK1015847-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1419814)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	90.9	----	85	115	----	----
EP-080: BTEX (QC Lot: 1417728)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	100	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	95.4	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	97.1	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	95.7	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	114	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	85.2	----	43	106	----	----

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

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



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1419814)										
HK1016011-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	92.1	----	75	125	----	----
EP-080: BTEX (QC Lot: 1417728)										
HK1015847-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	109	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	107	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	95.1	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	116	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	96.2	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)										
HK1015847-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	119	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)										
HK1015847-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	81.0	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	65.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016327
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 19-JUL-2010
Order number	: 60159686			Issue Date	: 30-JUL-2010
C-O-C number	: H009748			No. of samples received	: 3
Site	: NAM CHEONG STATION			No. of samples analysed	: 3

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

26-JUL-2010

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: **HK1016327**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-06 2.7M-3.2M	J-06 4.2M-4.7M	J-06 5.7M-6.2M		
				[19-JUL-2010]	[19-JUL-2010]	[19-JUL-2010]		
Compound	CAS Number	LOR	Unit	HK1016327-001	HK1016327-002	HK1016327-003		
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	7.2	10.8	14.8		
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	18	9	4		
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2		
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5		
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5		
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0		
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5		
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5	<5		
C9 - C16 Fraction	----	200	mg/kg	<200	<200	<200		
C17 - C35 Fraction	----	500	mg/kg	<500	<500	<500		
EP-080S: TPH(Volatile)/BTEX Surrogate							Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%	100	105	103		
Toluene-D8	2037-26-5	0.1	%	99.5	100	99.9		
4-Bromofluorobenzene	460-00-4	0.1	%	96.2	97.8	96.6		



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1422336)								
HK1016325-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	7.0	7.7	9.2
EG: Metals and Major Cations (QC Lot: 1424430)								
HK1016327-002	J-06 4.2M-4.7M	EG020: Lead	7439-92-1	1	mg/kg	9	10	0.0
EP-080: BTEX (QC Lot: 1417728)								
HK1015847-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)								
HK1015847-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)								
HK1015847-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1424430)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	89.7	----	85	115	----	----
EP-080: BTEX (QC Lot: 1417728)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	100	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	95.4	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	97.1	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	95.7	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	114	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	85.2	----	43	106	----	----

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

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



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1424430)										
HK1016327-001	J-06 2.7M-3.2M	EG020: Lead	7439-92-1	5 mg/kg	95.1	----	75	125	----	----
EP-080: BTEX (QC Lot: 1417728)										
HK1015847-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	109	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	107	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	95.1	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	116	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	96.2	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417728)										
HK1015847-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	119	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1417734)										
HK1015847-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	81.0	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	65.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 7
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016528
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 21-JUL-2010
Order number	: 60159686			Issue Date	: 04-AUG-2010
C-O-C number	: H009754			No. of samples received	: 3
Site	: NAM CHEONG STATION			No. of samples analysed	: 3

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

31-JUL-2010

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: **HK1016528**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-07 0.5M	J-07 1.5M			
				[21-JUL-2010]	[21-JUL-2010]			
Compound	CAS Number	LOR	Unit	HK1016528-001	HK1016528-002			
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	4.8	4.6			
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	18	6			
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2			
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5			
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5			
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5			
C9 - C16 Fraction	----	200	mg/kg	<200	<200			
C17 - C35 Fraction	----	500	mg/kg	<500	<500			
EP-080S: TPH(Volatile)/BTEX Surrogate						Surrogate control limits listed at end of this report.		
Dibromofluoromethane	1868-53-7	0.1	%	99.8	100			
Toluene-D8	2037-26-5	0.1	%	99.7	100			
4-Bromofluorobenzene	460-00-4	0.1	%	95.0	95.2			



Sub-Matrix: WATER				Client sample ID	QC21				
				Client sampling date / time	[21-JUL-2010]				
Compound	CAS Number	LOR	Unit		HK1016528-003				
EP-080: BTEX									
Benzene	71-43-2	5	µg/L		<5				
Toluene	108-88-3	5	µg/L		<5				
Ethylbenzene	100-41-4	5	µg/L		<5				
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L		<10				
ortho-Xylene	95-47-6	5	µg/L		<5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	20	µg/L		<20				
EP-080S: TPH(Volatile)/BTEX Surrogate								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		109				
Toluene-D8	2037-26-5	0.1	%		106				
4-Bromofluorobenzene	460-00-4	0.1	%		87.5				



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1425967)								
HK1016332-004	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	3.8	3.9	3.6
EG: Metals and Major Cations (QC Lot: 1427545)								
HK1016528-002	J-07 1.5M	EG020: Lead	7439-92-1	1	mg/kg	6	6	0.0
EP-080: BTEX (QC Lot: 1422220)								
HK1016330-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)								
HK1016330-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)								
HK1016330-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-080: BTEX (QC Lot: 1424582)								
HK1016332-001	Anonymous	meta- & para-Xylene	108-38-3 106-42-3	10	µg/L	<10	<10	0.0
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)								
HK1016332-001	Anonymous	C6 - C8 Fraction	----	0.02	mg/L	<0.02	<0.02	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result			LCS	DCS	Low	High	Value
EG: Metals and Major Cations (QC Lot: 1427545)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	93.5	----	85	115	----	----
EP-080: BTEX (QC Lot: 1422220)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	102	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	106	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	108	----	80	115	----	----



Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result			LCS	DCS	Low	High	Value
EP-080: BTEX (QC Lot: 1422220) - Continued											
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	96.3	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.9	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	82.6	----	43	106	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	121	----	74	129	----	----

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result			LCS	DCS	Low	High	Value
EP-080: BTEX (QC Lot: 1424582)											
Benzene	71-43-2	1	µg/L	<1	----	----	----	----	----	----	----
				----	10 µg/L	88.2	----	70	115	----	----
Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	----	67	117	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.0	----	76	107	----	----
meta- & para-Xylene	108-38-3	4	µg/L	<4	20 µg/L	103	----	77	112	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.3	----	69	109	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	----	----	----	----	----	----	----
				----	0.15 mg/L	102	----	68	125	----	----

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

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1427545)										
HK1016528-001	J-07 0.5M	EG020: Lead	7439-92-1	5 mg/kg	93.4	----	75	125	----	----
EP-080: BTEX (QC Lot: 1422220)										
HK1016330-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	100	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	101	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	84.6	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	106	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	87.6	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)										
HK1016330-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	88.8	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	86.7	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)										



Matrix: SOIL

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220) - Continued										
HK1016330-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	112	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: WATER

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



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016628
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 22-JUL-2010
Order number	: 60159686			Issue Date	: 05-AUG-2010
C-O-C number	: H009757			No. of samples received	: 3
Site	: NAM CHEONG STATION			No. of samples analysed	: 3

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

28-JUL-2010

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: **HK1016628**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-07 2.7M-3.2M	J-07 4.2M-4.7M	J-07 5.7M-6.2M		
				[22-JUL-2010]	[22-JUL-2010]	[22-JUL-2010]		
Compound	CAS Number	LOR	Unit	HK1016628-001	HK1016628-002	HK1016628-003		
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	5.2	4.4	8.7		
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	5	5	7		
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2		
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5		
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5		
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0		
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5		
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5	<5		
C9 - C16 Fraction	----	200	mg/kg	<200	<200	<200		
C17 - C35 Fraction	----	500	mg/kg	<500	<500	<500		
EP-080S: TPH(Volatile)/BTEX Surrogate							Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%	108	105	105		
Toluene-D8	2037-26-5	0.1	%	100	102	96.4		
4-Bromofluorobenzene	460-00-4	0.1	%	87.0	85.3	87.0		



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1427521)								
HK1016625-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	6.0	5.8	1.9
EG: Metals and Major Cations (QC Lot: 1428969)								
HK1016625-002	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	4	4	0.0
EP-080: BTEX (QC Lot: 1426701)								
HK1016625-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426701)								
HK1016625-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426702)								
HK1016625-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1428969)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	94.0	----	85	115	----	----
EP-080: BTEX (QC Lot: 1426701)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	94.4	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	90.7	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	84.4	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	94.4	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	81.3	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426701)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	112	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426702)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	83.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	75.7	----	43	106	----	----

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

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



Matrix: SOIL

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1428969)										
HK1016625-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	87.0	----	75	125	----	----
EP-080: BTEX (QC Lot: 1426701)										
HK1016625-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	88.3	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	83.0	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	72.7	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	77.7	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	69.2	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426701)										
HK1016625-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	106	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426702)										
HK1016625-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	74.6	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	62.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016529
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 21-JUL-2010
Order number	: 60159686			Issue Date	: 04-AUG-2010
C-O-C number	: H009756			No. of samples received	: 2
Site	: NAM CHEONG STATION			No. of samples analysed	: 2

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

31-JUL-2010

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: **HK1016529**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-08 0.5M	J-08 1.5M			
				[21-JUL-2010]	[21-JUL-2010]			
Compound	CAS Number	LOR	Unit	HK1016529-001	HK1016529-002			
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	3.7	3.7			
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	5	18			
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2			
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5			
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5			
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5			
C9 - C16 Fraction	----	200	mg/kg	<200	<200			
C17 - C35 Fraction	----	500	mg/kg	<500	<500			
EP-080S: TPH(Volatile)/BTEX Surrogate						Surrogate control limits listed at end of this report.		
Dibromofluoromethane	1868-53-7	0.1	%	98.2	99.2			
Toluene-D8	2037-26-5	0.1	%	101	100			
4-Bromofluorobenzene	460-00-4	0.1	%	95.6	95.8			



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1425967)								
HK1016332-004	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	3.8	3.9	3.6
EG: Metals and Major Cations (QC Lot: 1427545)								
HK1016528-002	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	6	6	0.0
EP-080: BTEX (QC Lot: 1422220)								
HK1016330-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)								
HK1016330-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)								
HK1016330-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1427545)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	93.5	----	85	115	----	----
EP-080: BTEX (QC Lot: 1422220)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	102	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	106	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	108	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	96.3	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.9	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	82.6	----	43	106	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	121	----	74	129	----	----

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

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



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1427545)										
HK1016528-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	93.4	----	75	125	----	----
EP-080: BTEX (QC Lot: 1422220)										
HK1016330-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	100	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	101	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	84.6	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	106	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	87.6	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)										
HK1016330-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	88.8	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	86.7	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)										
HK1016330-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	112	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016625
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 22-JUL-2010
Order number	: 60159686			Issue Date	: 04-AUG-2010
C-O-C number	: H009759			No. of samples received	: 3
Site	: NAM CHEONG STATION			No. of samples analysed	: 3

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

28-JUL-2010

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: **HK1016625**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-08 2.7M-3.2M	J-08 4.2M-4.7M	J-08 5.7M-6.2M		
				[22-JUL-2010]	[22-JUL-2010]	[22-JUL-2010]		
Compound	CAS Number	LOR	Unit	HK1016625-001	HK1016625-002	HK1016625-003		
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	6.0	14.0	10.4		
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	7	4	4		
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2		
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5		
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5		
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0		
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5		
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5	<5		
C9 - C16 Fraction	----	200	mg/kg	<200	<200	<200		
C17 - C35 Fraction	----	500	mg/kg	<500	<500	<500		
EP-080S: TPH(Volatile)/BTEX Surrogate							Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%	101	106	106		
Toluene-D8	2037-26-5	0.1	%	96.9	99.1	99.0		
4-Bromofluorobenzene	460-00-4	0.1	%	87.8	83.8	87.6		



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1427521)								
HK1016625-001	J-08 2.7M-3.2M	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	6.0	5.8	1.9
EG: Metals and Major Cations (QC Lot: 1428969)								
HK1016625-002	J-08 4.2M-4.7M	EG020: Lead	7439-92-1	1	mg/kg	4	4	0.0
EP-080: BTEX (QC Lot: 1426701)								
HK1016625-001	J-08 2.7M-3.2M	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426701)								
HK1016625-001	J-08 2.7M-3.2M	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426702)								
HK1016625-001	J-08 2.7M-3.2M	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1428969)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	94.0	----	85	115	----	----
EP-080: BTEX (QC Lot: 1426701)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	94.4	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	90.7	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	84.4	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	94.4	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	81.3	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426701)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	112	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426702)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	83.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	75.7	----	43	106	----	----

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

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



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1428969)										
HK1016625-001	J-08 2.7M-3.2M	EG020: Lead	7439-92-1	5 mg/kg	87.0	----	75	125	----	----
EP-080: BTEX (QC Lot: 1426701)										
HK1016625-002	J-08 4.2M-4.7M	Benzene	71-43-2	0.2 mg/kg	88.3	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	83.0	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	72.7	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	77.7	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	69.2	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426701)										
HK1016625-002	J-08 4.2M-4.7M	C6 - C8 Fraction	----	3 mg/kg	106	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426702)										
HK1016625-002	J-08 4.2M-4.7M	C9 - C16 Fraction	----	31 mg/kg	74.6	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	62.4	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 10
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016408
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	Amendment	: 1
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 20-JUL-2010
Order number	: 60159686			Issue Date	: 09-AUG-2010
C-O-C number	: H009753			No. of samples received	: 3
Site	: NAM CHEONG STATION			No. of samples analysed	: 3

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

27-JUL-2010

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: **HK1016408**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-09 0.5M	J-09 1.5M			
				[20-JUL-2010]	[20-JUL-2010]			
Compound	CAS Number	LOR	Unit	HK1016408-001	HK1016408-002			
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	3.8	4.5			
EG: Metals and Major Cations								
EG020: Copper	7440-50-8	1	mg/kg	2	1			
EG020: Lead	7439-92-1	1	mg/kg	5	4			
EG020: Zinc	7440-66-6	1	mg/kg	16	13			
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	5	4			
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1			
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2			
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5			
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5			
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5			
C9 - C16 Fraction	----	200	mg/kg	<200	<200			
C17 - C35 Fraction	----	500	mg/kg	<500	<500			
EP-074B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50			
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5.0	<5.0			
EP-074E: Halogenated Aliphatics								
Methylene chloride	75-09-2	5	mg/kg	<5	<5			
Trichloroethene	79-01-6	0.04	mg/kg	<0.04	<0.04			
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	<0.04			
EP-074G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.04	mg/kg	<0.04	<0.04			
Bromodichloromethane	75-27-4	0.04	mg/kg	<0.04	<0.04			
EP-074L: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	<0.5			
EP-075A: Phenols								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5			
EP-075B: Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5			
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5			
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5			
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5			



Sub-Matrix: SOIL				Client sample ID	J-09 0.5M	J-09 1.5M			
				Client sampling date / time	[20-JUL-2010]	[20-JUL-2010]			
Compound	CAS Number	LOR	Unit		HK1016408-001	HK1016408-002			
EP-075B: Polyaromatic Hydrocarbons (PAHs) - Continued									
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5			
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5			
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5			
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5			
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5			
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5			
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg		<1	<1			
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5			
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5			
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5			
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5			
EP-080S: TPH(Volatile)/BTEX Surrogate							Surrogate control limits listed at end of this report.		
Dibromofluoromethane	1868-53-7	0.1	%		107	108			
Toluene-D8	2037-26-5	0.1	%		102	102			
4-Bromofluorobenzene	460-00-4	0.1	%		94.9	97.6			
EP-074S: VOC Surrogates							Surrogate control limits listed at end of this report.		
Dibromofluoromethane	1868-53-7	0.1	%		102	107			
Toluene-D8	2037-26-5	0.1	%		99.4	102			
4-Bromofluorobenzene	460-00-4	0.1	%		96.3	96.7			
EP-075S: Acid Extractable Surrogates							Surrogate control limits listed at end of this report.		
2-Fluorophenol	367-12-4	0.1	%		74.9	77.0			
Phenol-d6	13127-88-3	0.1	%		47.8	37.8			
2,4,6-Tribromophenol	118-79-6	0.1	%		45.6	20.9			
EP-075T: Base/Neutral Extractable Surrogates							Surrogate control limits listed at end of this report.		
Nitrobenzene -d5	4165-60-0	0.1	%		69.1	61.5			
2-Fluorobiphenyl	321-60-8	0.1	%		61.1	61.0			
4-Terphenyl-d14	1718-51-0	0.1	%		82.0	83.1			



Sub-Matrix: WATER				Client sample ID	QC20				
				Client sampling date / time	[20-JUL-2010]				
Compound	CAS Number	LOR	Unit		HK1016408-003				
EP-080: BTEX									
Benzene	71-43-2	5	µg/L		<5				
Toluene	108-88-3	5	µg/L		<5				
Ethylbenzene	100-41-4	5	µg/L		<5				
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L		<10				
ortho-Xylene	95-47-6	5	µg/L		<5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	20	µg/L		<20				
EP-080S: TPH(Volatile)/BTEX Surrogate								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		113				
Toluene-D8	2037-26-5	0.1	%		107				
4-Bromofluorobenzene	460-00-4	0.1	%		87.2				



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1424432)								
HK1016285-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	28.7	31.7	9.8
HK1016413-002	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	6.9	7.1	2.9
EG: Metals and Major Cations (QC Lot: 1425785)								
HK1016408-001	J-09 0.5M	EG020: Copper	7440-50-8	1	mg/kg	2	2	0.0
		EG020: Lead	7439-92-1	1	mg/kg	5	4	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	16	15	0.0
HK1016413-003	Anonymous	EG020: Copper	7440-50-8	1	mg/kg	5	6	0.0
		EG020: Lead	7439-92-1	1	mg/kg	5	5	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	48	52	9.5
EG: Metals and Major Cations (QC Lot: 1427546)								
HK1016408-002	J-09 1.5M	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
EP-080: BTEX (QC Lot: 1422220)								
HK1016330-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)								
HK1016330-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)								
HK1016330-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-074B: Oxygenated Compounds (QC Lot: 1420787)								
HK1016264-001	Anonymous	2-Butanone (MEK)	78-93-3	0.4	mg/kg	<0.4	<0.4	0.0
		2-Propanone (Acetone)	67-64-1	5	mg/kg	<5	<5	0.0
EP-074E: Halogenated Aliphatics (QC Lot: 1420787)								
HK1016264-001	Anonymous	Trichloroethene	79-01-6	0.04	mg/kg	<0.04	<0.04	0.0
		Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	<0.04	0.0
		Methylene chloride	75-09-2	5	mg/kg	<5	<5	0.0
EP-074G: Trihalomethanes (THM) (QC Lot: 1420787)								
HK1016264-001	Anonymous	Chloroform	67-66-3	0.04	mg/kg	<0.04	<0.04	0.0
		Bromodichloromethane	75-27-4	0.04	mg/kg	<0.04	<0.04	0.0
EP-074L: Methyl-tert-butyl Ether (QC Lot: 1420787)								
HK1016264-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	<0.5	0.0
EP-075A: Phenols (QC Lot: 1424687)								
HK1016408-001	J-09 0.5M	Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1424687)								



Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1424687) - Continued								
HK1016408-001	J-09 0.5M	Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0
		Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0
		Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0
		Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0
		Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0
		Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0
		Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0
		Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0
		Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0
		Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0
		Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0
		Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0
		Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0
		Benzo(b) & Benzo(k)fluoranthene	205-99-2	1	mg/kg	<1	<1	0.0
	207-08-9							

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-080: BTEX (QC Lot: 1424582)								
HK1016332-001	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)								
HK1016332-001	Anonymous	C6 - C8 Fraction	----	0.02	mg/L	<0.02	<0.02	0.0

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							
						Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentratio	LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1425785)											
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	99.0	----	85	115	----	----
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	93.4	----	85	115	----	----
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	96.6	----	85	115	----	----
EG: Metals and Major Cations (QC Lot: 1427546)											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	111	----	85	115	----	----
EP-080: BTEX (QC Lot: 1422220)											



Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentratio n	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-080: BTEX (QC Lot: 1422220) - Continued											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	102	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	106	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	108	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	96.3	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.9	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	82.6	----	43	106	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	121	----	74	129	----	----
EP-074B: Oxygenated Compounds (QC Lot: 1420787)											
2-Propanone (Acetone)	67-64-1	5.0	mg/kg	<5	----	----	----	----	----	----	----
2-Butanone (MEK)	78-93-3	0.4	mg/kg	<0.4	1.6 mg/kg	96.3	----	61	135	----	----
EP-074E: Halogenated Aliphatics (QC Lot: 1420787)											
Methylene chloride	75-09-2	5.0	mg/kg	<5	----	----	----	----	----	----	----
Trichloroethene	79-01-6	0.04	mg/kg	<0.04	0.16 mg/kg	86.4	----	65	117	----	----
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.16 mg/kg	95.1	----	55	119	----	----
EP-074G: Trihalomethanes (THM) (QC Lot: 1420787)											
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.16 mg/kg	94.5	----	73	117	----	----
Bromodichloromethane	75-27-4	0.04	mg/kg	<0.04	0.16 mg/kg	95.7	----	79	109	----	----
EP-074L: Methyl-tert-butyl Ether (QC Lot: 1420787)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	----	----	----	----	----	----	----
EP-075A: Phenols (QC Lot: 1424687)											
Phenol	108-95-2	0.5	mg/kg	<0.5	0.25 mg/kg	78.4	----	51	102	----	----
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1424687)											
Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.25 mg/kg	95.9	----	60	110	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.25 mg/kg	73.9	----	58	118	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	0.25 mg/kg	90.6	----	64	110	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	0.25 mg/kg	94.2	----	64	110	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.25 mg/kg	91.7	----	68	115	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	0.25 mg/kg	93.6	----	68	113	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.25 mg/kg	94.4	----	71	112	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	0.25 mg/kg	92.9	----	68	112	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.25 mg/kg	74.2	----	62	112	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	0.25 mg/kg	93.3	----	71	117	----	----
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg	<1	0.50 mg/kg	89.2	----	58	114	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	0.25 mg/kg	75.5	----	59	104	----	----



Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentratio	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1424687) - Continued											
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.25 mg/kg	77.6	----	48	115	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.25 mg/kg	77.9	----	45	97	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	0.25 mg/kg	92.0	----	48	99	----	----
Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentratio	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-080: BTEX (QC Lot: 1424582)											
Benzene	71-43-2	1	µg/L	<1	----	----	----	----	----	----	----
				----	10 µg/L	88.2	----	70	115	----	----
Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	----	67	117	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.0	----	76	107	----	----
meta- & para-Xylene	108-38-3 106-42-3	4	µg/L	<4	20 µg/L	103	----	77	112	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.3	----	69	109	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	----	----	----	----	----	----	----
				----	0.15 mg/L	102	----	68	125	----	----

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

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1425785)										
HK1016332-004	Anonymous	EG020: Copper	7440-50-8	5 mg/kg	94.7	----	75	125	----	----
		EG020: Lead	7439-92-1	5 mg/kg	102	----	75	125	----	----
		EG020: Zinc	7440-66-6	5 mg/kg	96.3	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 1427546)										
HK1016408-001	J-09 0.5M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	111	----	75	125	----	----
EP-080: BTEX (QC Lot: 1422220)										
HK1016330-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	100	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	101	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	84.6	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	106	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	87.6	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)										
HK1016330-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	88.8	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	86.7	----	50	130	----	----



Matrix: SOIL

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)										
HK1016330-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	112	----	50	130	----	

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: 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-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137

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



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 8
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016530
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	Amendment	: 1
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 21-JUL-2010
Order number	: 60159686			Issue Date	: 09-AUG-2010
C-O-C number	: H009755			No. of samples received	: 3
Site	: NAM CHEONG STATION			No. of samples analysed	: 3

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

31-JUL-2010

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: **HK1016530**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				J-09 2.7M-3.2M	J-09 4.2M-4.7M	J-09 5.7M-6.2M		
				[21-JUL-2010]	[21-JUL-2010]	[21-JUL-2010]		
Compound	CAS Number	LOR	Unit	HK1016530-001	HK1016530-002	HK1016530-003		
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	11.3	9.4	9.3		
EG: Metals and Major Cations								
EG020: Copper	7440-50-8	1	mg/kg	34	19	17		
EG020: Lead	7439-92-1	1	mg/kg	5	5	3		
EG020: Zinc	7440-66-6	1	mg/kg	62	116	84		
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	6	5	3		
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1		
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2		
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5		
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5		
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0		
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5		
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5	<5		
C9 - C16 Fraction	----	200	mg/kg	<200	<200	<200		
C17 - C35 Fraction	----	500	mg/kg	<500	<500	<500		
EP-074B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50		
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5.0	<5.0	<5.0		
EP-074E: Halogenated Aliphatics								
Methylene chloride	75-09-2	5	mg/kg	<5	<5	<5		
Trichloroethene	79-01-6	0.04	mg/kg	<0.04	<0.04	<0.04		
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	<0.04	<0.04		
EP-074G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.04	mg/kg	<0.04	<0.04	<0.04		
Bromodichloromethane	75-27-4	0.04	mg/kg	<0.04	<0.04	<0.04		
EP-074L: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	<0.5	<0.5		
EP-075A: Phenols								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5		
EP-075B: Polyaromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5		
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5		
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5		
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5		



Sub-Matrix: SOIL				Client sample ID	J-09 2.7M-3.2M	J-09 4.2M-4.7M	J-09 5.7M-6.2M		
				Client sampling date / time	[21-JUL-2010]	[21-JUL-2010]	[21-JUL-2010]		
Compound	CAS Number	LOR	Unit		HK1016530-001	HK1016530-002	HK1016530-003		
EP-075B: Polyaromatic Hydrocarbons (PAHs) - Continued									
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5		
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5		
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5		
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5		
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5		
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5		
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg		<1	<1	<1		
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5		
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5		
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5		
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5		
EP-080S: TPH(Volatile)/BTEX Surrogate								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		101	101	102		
Toluene-D8	2037-26-5	0.1	%		101	102	101		
4-Bromofluorobenzene	460-00-4	0.1	%		95.8	95.2	96.0		
EP-074S: VOC Surrogates								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		101	101	102		
Toluene-D8	2037-26-5	0.1	%		101	102	101		
4-Bromofluorobenzene	460-00-4	0.1	%		95.8	95.2	96.0		
EP-075S: Acid Extractable Surrogates								Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%		96.2	42.7	54.8		
Phenol-d6	13127-88-3	0.1	%		65.0	52.0	53.9		
2,4,6-Tribromophenol	118-79-6	0.1	%		64.0	36.2	42.6		
EP-075T: Base/Neutral Extractable Surrogates								Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%		67.6	55.5	67.9		
2-Fluorobiphenyl	321-60-8	0.1	%		71.8	60.8	65.2		
4-Terphenyl-d14	1718-51-0	0.1	%		86.7	79.8	81.4		



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1425967)								
HK1016332-004	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	3.8	3.9	3.6
EG: Metals and Major Cations (QC Lot: 1427545)								
HK1016528-002	Anonymous	EG020: Copper	7440-50-8	1	mg/kg	2	2	0.0
		EG020: Lead	7439-92-1	1	mg/kg	6	6	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	16	17	0.0
EG: Metals and Major Cations (QC Lot: 1427546)								
HK1016408-002	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
EP-080: BTEX (QC Lot: 1422220)								
HK1016330-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
		106-42-3						
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)								
HK1016330-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)								
HK1016330-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-074B: Oxygenated Compounds (QC Lot: 1420787)								
HK1016264-001	Anonymous	2-Butanone (MEK)	78-93-3	0.4	mg/kg	<0.4	<0.4	0.0
		2-Propanone (Acetone)	67-64-1	5	mg/kg	<5	<5	0.0
EP-074E: Halogenated Aliphatics (QC Lot: 1420787)								
HK1016264-001	Anonymous	Trichloroethene	79-01-6	0.04	mg/kg	<0.04	<0.04	0.0
		Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	<0.04	0.0
		Methylene chloride	75-09-2	5	mg/kg	<5	<5	0.0
EP-074G: Trihalomethanes (THM) (QC Lot: 1420787)								
HK1016264-001	Anonymous	Chloroform	67-66-3	0.04	mg/kg	<0.04	<0.04	0.0
		Bromodichloromethane	75-27-4	0.04	mg/kg	<0.04	<0.04	0.0
EP-074L: Methyl-tert-butyl Ether (QC Lot: 1420787)								
HK1016264-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	<0.5	0.0
EP-075A: Phenols (QC Lot: 1424687)								
HK1016408-001	Anonymous	Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1424687)								
HK1016408-001	Anonymous	Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0
		Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0
		Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0
		Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0



Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1424687) - Continued								
HK1016408-001	Anonymous	Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0
		Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0
		Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0
		Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0
		Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0
		Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0
		Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0
		Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0
		Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0
		Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1	<1	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1427545)											
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	102	----	85	115	----	----
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	93.5	----	85	115	----	----
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	100	----	85	115	----	----
EG: Metals and Major Cations (QC Lot: 1427546)											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	111	----	85	115	----	----
EP-080: BTEX (QC Lot: 1422220)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	102	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	106	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	108	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	96.3	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.9	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	82.6	----	43	106	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	121	----	74	129	----	----
EP-074B: Oxygenated Compounds (QC Lot: 1420787)											
2-Propanone (Acetone)	67-64-1	5.0	mg/kg	<5	----	----	----	----	----	----	----
2-Butanone (MEK)	78-93-3	0.4	mg/kg	<0.4	1.6 mg/kg	96.3	----	61	135	----	----
EP-074E: Halogenated Aliphatics (QC Lot: 1420787)											
Methylene chloride	75-09-2	5.0	mg/kg	<5	----	----	----	----	----	----	----



Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EP-074E: Halogenated Aliphatics (QC Lot: 1420787) - Continued											
Trichloroethene	79-01-6	0.04	mg/kg	<0.04	0.16 mg/kg	86.4	----	65	117	----	----
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.16 mg/kg	95.1	----	55	119	----	----
EP-074G: Trihalomethanes (THM) (QC Lot: 1420787)											
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.16 mg/kg	94.5	----	73	117	----	----
Bromodichloromethane	75-27-4	0.04	mg/kg	<0.04	0.16 mg/kg	95.7	----	79	109	----	----
EP-074L: Methyl-tert-butyl Ether (QC Lot: 1420787)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	----	----	----	----	----	----	----
EP-075A: Phenols (QC Lot: 1424687)											
Phenol	108-95-2	0.5	mg/kg	<0.5	0.25 mg/kg	78.4	----	51	102	----	----
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1424687)											
Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.25 mg/kg	95.9	----	60	110	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.25 mg/kg	73.9	----	58	118	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	0.25 mg/kg	90.6	----	64	110	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	0.25 mg/kg	94.2	----	64	110	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.25 mg/kg	91.7	----	68	115	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	0.25 mg/kg	93.6	----	68	113	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.25 mg/kg	94.4	----	71	112	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	0.25 mg/kg	92.9	----	68	112	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.25 mg/kg	74.2	----	62	112	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	0.25 mg/kg	93.3	----	71	117	----	----
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg	<1	0.50 mg/kg	89.2	----	58	114	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	0.25 mg/kg	75.5	----	59	104	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.25 mg/kg	77.6	----	48	115	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.25 mg/kg	77.9	----	45	97	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	0.25 mg/kg	92.0	----	48	99	----	----

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

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EG: Metals and Major Cations (QC Lot: 1427545)										
HK1016528-001	Anonymous	EG020: Copper	7440-50-8	5 mg/kg	91.1	----	75	125	----	----
		EG020: Lead	7439-92-1	5 mg/kg	93.4	----	75	125	----	----
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 1427546)										



Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EG: Metals and Major Cations (QC Lot: 1427546) - Continued										
HK1016408-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	111	----	75	125	----	----
EP-080: BTEX (QC Lot: 1422220)										
HK1016330-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	100	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	101	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	84.6	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	106	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	87.6	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)										
HK1016330-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	88.8	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	86.7	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)										
HK1016330-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	112	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: 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-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137

Groundwater



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 7
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016946
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	Amendment	: 1
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 26-JUL-2010
Order number	: 60159686			Issue Date	: 13-AUG-2010
C-O-C number	: H009769			No. of samples received	: 9
Site	: NAM CHEONG STATION			No. of samples analysed	: 9

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is: 30-JUL-2010

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: **HK1016946**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh

Position

Senior Chemist

Authorised results for

Organics



Analytical Results

Sub-Matrix: WATER

Client sample ID

Client sampling date / time

				J-01	J-02	J-03	J-04	J-05
				[26-JUL-2010]	[26-JUL-2010]	[26-JUL-2010]	[26-JUL-2010]	[26-JUL-2010]
Compound	CAS Number	LOR	Unit	HK1016946-001	HK1016946-002	HK1016946-003	HK1016946-004	HK1016946-005
EP-080: BTEX								
Benzene	71-43-2	5	µg/L	<5	<5	<5	<5	<5
Toluene	108-88-3	5	µg/L	<5	<5	<5	<5	<5
Ethylbenzene	100-41-4	5	µg/L	<5	<5	<5	<5	<5
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L	<10	<10	<10	<10	<10
ortho-Xylene	95-47-6	5	µg/L	<5	<5	<5	<5	<5
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C9 - C16 Fraction	----	500	µg/L	<500	<500	<500	<500	<500
C17 - C35 Fraction	----	500	µg/L	<500	<500	<500	<500	<500
EP-080S: TPH(Volatile)/BTEX Surrogate							Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%	96.1	94.1	101	97.1	96.5
Toluene-D8	2037-26-5	0.1	%	97.6	97.8	94.3	98.4	101
4-Bromofluorobenzene	460-00-4	0.1	%	90.4	86.1	89.1	86.2	86.0



Sub-Matrix: WATER				Client sample ID	J-06	J-07	J-08	J-09	
Client sampling date / time					[26-JUL-2010]	[26-JUL-2010]	[26-JUL-2010]	[26-JUL-2010]	
Compound	CAS Number	LOR	Unit		HK1016946-006	HK1016946-007	HK1016946-008	HK1016946-009	
EP-080: BTEX									
Benzene	71-43-2	5	µg/L		<5	<5	<5	<5	
Toluene	108-88-3	5	µg/L		<5	<5	<5	<5	
Ethylbenzene	100-41-4	5	µg/L		<5	<5	<5	<5	
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L		<10	<10	<10	<10	
ortho-Xylene	95-47-6	5	µg/L		<5	<5	<5	<5	
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	20	µg/L		<20	<20	<20	<20	
C9 - C16 Fraction	----	500	µg/L		<500	<500	<500	<500	
C17 - C35 Fraction	----	500	µg/L		<500	<500	<500	<500	
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	500	µg/L		----	----	----	<500	
2-Butanone (MEK)	78-93-3	50	µg/L		----	----	----	<50	
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	50	µg/L		----	----	----	<50	
Trichloroethene	79-01-6	5.0	µg/L		----	----	----	<5.0	
Tetrachloroethene	127-18-4	5.0	µg/L		----	----	----	<5.0	
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	5.0	µg/L		----	----	----	<5.0	
Bromodichloromethane	75-27-4	5.0	µg/L		----	----	----	<5.0	
EP-074L: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5	µg/L		----	----	----	<5	
EP-075B: Polyaromatic Hydrocarbons (PAHs)									
Naphthalene	91-20-3	2.0	µg/L		----	----	----	<2.0	
Acenaphthylene	208-96-8	2.0	µg/L		----	----	----	<2.0	
Acenaphthene	83-32-9	2.0	µg/L		----	----	----	<2.0	
Fluorene	86-73-7	2.0	µg/L		----	----	----	<2.0	
Phenanthrene	85-01-8	2.0	µg/L		----	----	----	<2.0	
Anthracene	120-12-7	2.0	µg/L		----	----	----	<2.0	
Fluoranthene	206-44-0	2.0	µg/L		----	----	----	<2.0	
Pyrene	129-00-0	2.0	µg/L		----	----	----	<2.0	
Chrysene	218-01-9	1.0	µg/L		----	----	----	<1.0	
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.00	µg/L		----	----	----	<1.00	
EP-080S: TPH(Volatile)/BTEX Surrogate								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		100	95.0	99.0	102	
Toluene-D8	2037-26-5	0.1	%		101	96.0	97.8	98.7	
4-Bromofluorobenzene	460-00-4	0.1	%		88.9	87.4	86.2	86.0	
EP-074S: VOC Surrogates								Surrogate control limits listed at end of this report.	



Sub-Matrix: WATER				Client sample ID	J-06	J-07	J-08	J-09	
Client sampling date / time					[26-JUL-2010]	[26-JUL-2010]	[26-JUL-2010]	[26-JUL-2010]	
Compound	CAS Number	LOR	Unit		HK1016946-006	HK1016946-007	HK1016946-008	HK1016946-009	
EP-074S: VOC Surrogates - Continued									Surrogate control limits listed at end of this report.
Dibromofluoromethane	1868-53-7	0.1	%	----	----	----	----	102	
Toluene-D8	2037-26-5	0.1	%	----	----	----	----	98.7	
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	----	86.0	
EP-075S: Acid Extractable Surrogates									Surrogate control limits listed at end of this report.
2-Fluorophenol	367-12-4	0.1	%	----	----	----	----	29.3	
Phenol-d6	13127-88-3	0.1	%	----	----	----	----	24.1	
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	----	----	61.7	
EP-075T: Base/Neutral Extractable Surrogates									Surrogate control limits listed at end of this report.
Nitrobenzene -d5	4165-60-0	0.1	%	----	----	----	----	45.2	
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	----	----	44.8	
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	----	----	67.0	



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-080: BTEX (QC Lot: 1424582)								
HK1016332-001	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-080: BTEX (QC Lot: 1432426)								
HK1016946-009	J-09	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)								
HK1016332-001	Anonymous	C6 - C8 Fraction	----	0.02	mg/L	<0.02	<0.02	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1432426)								
HK1016946-009	J-09	C6 - C8 Fraction	----	0.02	mg/L	<0.02	<0.02	0.0
EP-074B: Oxygenated Compounds (QC Lot: 1424581)								
HK1016332-001	Anonymous	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
EP-074E: Halogenated Aliphatics (QC Lot: 1424581)								
HK1016332-001	Anonymous	Trichloroethene	79-01-6	5.0	µg/L	<5.0	<5.0	0.0
		Tetrachloroethene	127-18-4	5.0	µg/L	<5.0	<5.0	0.0
		Methylene chloride	75-09-2	50	µg/L	<50	<50	0.0
EP-074G: Trihalomethanes (THM) (QC Lot: 1424581)								
HK1016332-001	Anonymous	Chloroform	67-66-3	5.0	µg/L	<5.0	<5.0	0.0
		Bromodichloromethane	75-27-4	5.0	µg/L	<5.0	<5.0	0.0

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

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentratio	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result			LCS	DCS	Low	High	Value
EP-080: BTEX (QC Lot: 1424582)											
Benzene	71-43-2	1	µg/L	<1	----	----	----	----	----	----	----
				----	10 µg/L	88.2	----	70	115	----	----
Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	----	67	117	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.0	----	76	107	----	----
meta- & para-Xylene	108-38-3 106-42-3	4	µg/L	<4	20 µg/L	103	----	77	112	----	----



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 Concentratio n	Spike Recovery (%)		Recovery Limits (%)
		LCS	DCS	Low					High	Value	Control Limit
EP-080: BTEX (QC Lot: 1424582) - Continued											
ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.3	----	69	109	----	----
EP-080: BTEX (QC Lot: 1432426)											
Benzene	71-43-2	2	µg/L	----	10 µg/L	78.1	----	70	115	----	----
				<1	----	----	----	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	10 µg/L	79.7	----	67	117	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	79.8	----	76	107	----	----
meta- & para-Xylene	108-38-3 106-42-3	4	µg/L	<4	20 µg/L	85.1	----	77	112	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	76.5	----	69	109	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	----	----	----	----	----	----	----
				----	0.15 mg/L	102	----	68	125	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424689)											
C9 - C16 Fraction	----	0.5	mg/L	<0.5	0.25 mg/L	82.3	----	17	170	----	----
C17 - C35 Fraction	----	0.5	mg/L	<0.5	0.5 mg/L	85.1	----	32	143	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1432426)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	----	----	----	----	----	----	----
				----	0.15 mg/L	95.7	----	68	125	----	----
EP-074B: Oxygenated Compounds (QC Lot: 1424581)											
2-Propanone (Acetone)	67-64-1	50	µg/L	<50	----	----	----	----	----	----	----
2-Butanone (MEK)	78-93-3	5	µg/L	<5	20 µg/L	77.4	----	44	128	----	----
EP-074E: Halogenated Aliphatics (QC Lot: 1424581)											
Methylene chloride	75-09-2	50	µg/L	<50	----	----	----	----	----	----	----
Trichloroethene	79-01-6	0.5	µg/L	<0.5	2 µg/L	86.0	----	70	122	----	----
Tetrachloroethene	127-18-4	0.5	µg/L	<0.5	2 µg/L	78.0	----	51	121	----	----
EP-074G: Trihalomethanes (THM) (QC Lot: 1424581)											
Chloroform	67-66-3	0.5	µg/L	<0.5	2 µg/L	90.0	----	70	132	----	----
Bromodichloromethane	75-27-4	0.5	µg/L	<0.5	2 µg/L	81.0	----	72	120	----	----
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1424688)											
Naphthalene	91-20-3	0.5	µg/L	<0.5	5 µg/L	78.5	----	39	109	----	----
Acenaphthylene	208-96-8	0.5	µg/L	<0.5	5 µg/L	81.1	----	40	113	----	----
Acenaphthene	83-32-9	0.5	µg/L	<0.5	5 µg/L	84.3	----	37	116	----	----
Fluorene	86-73-7	0.5	µg/L	<0.5	5 µg/L	79.2	----	43	111	----	----
Phenanthrene	85-01-8	0.5	µg/L	<0.5	5 µg/L	82.1	----	50	118	----	----
Anthracene	120-12-7	0.5	µg/L	<0.5	5 µg/L	82.7	----	51	113	----	----
Fluoranthene	206-44-0	0.5	µg/L	<0.5	5 µg/L	95.1	----	66	110	----	----
Pyrene	129-00-0	0.5	µg/L	<0.5	5 µg/L	94.9	----	65	109	----	----
Chrysene	218-01-9	0.2	µg/L	<0.2	5 µg/L	90.0	----	67	119	----	----
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.05	µg/L	<0.05	10 µg/L	88.6	----	65	91	----	----



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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: 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-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141

Others



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 10
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016332
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 19-JUL-2010
Order number	: 60159686			Issue Date	: 05-AUG-2010
C-O-C number	: H009749			No. of samples received	: 4
Site	: NAM CHEONG STATION			No. of samples analysed	: 4

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

31-JUL-2010

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: **HK1016332**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				QC01				
				[19-JUL-2010]				
Compound	CAS Number	LOR	Unit	HK1016332-004				
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	3.8				
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	4				
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2				
Toluene	108-88-3	0.5	mg/kg	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5				
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5				
C9 - C16 Fraction	----	200	mg/kg	<200				
C17 - C35 Fraction	----	500	mg/kg	<500				
EP-080S: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	106				
Toluene-D8	2037-26-5	0.1	%	100				
4-Bromofluorobenzene	460-00-4	0.1	%	97.0				

Surrogate control limits listed at end of this report.



Sub-Matrix: WATER				Client sample ID	QC02	QC03	QC04		
Client sampling date / time					[19-JUL-2010]	[19-JUL-2010]	[19-JUL-2010]		
Compound	CAS Number	LOR	Unit		HK1016332-001	HK1016332-002	HK1016332-003		
EG: Metals and Major Cations									
EG020: Copper	7440-50-8	1	µg/L		<1	<1	----		
EG020: Lead	7439-92-1	1	µg/L		<1	<1	----		
EG020: Zinc	7440-66-6	10	µg/L		<10	<10	----		
EG049: Trivalent Chromium	16065-83-1	0.02	mg/L		<0.02	<0.02	----		
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L		<0.02	<0.02	----		
EP-080: BTEX									
Benzene	71-43-2	5	µg/L		<5	<5	<5		
Toluene	108-88-3	5	µg/L		<5	<5	<5		
Ethylbenzene	100-41-4	5	µg/L		<5	<5	<5		
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L		<10	<10	<10		
ortho-Xylene	95-47-6	5	µg/L		<5	<5	<5		
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	20	µg/L		<20	<20	<20		
C9 - C16 Fraction	----	500	µg/L		<500	<500	----		
C17 - C35 Fraction	----	500	µg/L		<500	<500	----		
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)									
Ethylbenzene	100-41-4	5.0	µg/L		<5.0	<5.0	----		
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	500	µg/L		<500	<500	----		
2-Butanone (MEK)	78-93-3	50	µg/L		<50	<50	----		
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	50	µg/L		<50	<50	----		
Trichloroethene	79-01-6	5.0	µg/L		<5.0	<5.0	----		
Tetrachloroethene	127-18-4	5.0	µg/L		<5.0	<5.0	----		
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	5.0	µg/L		<5.0	<5.0	----		
Bromodichloromethane	75-27-4	5.0	µg/L		<5.0	<5.0	----		
EP-074L: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5	µg/L		<5	<5	----		
EP-075A: Phenols									
Phenol	108-95-2	2.0	µg/L		<2.0	<2.0	----		
EP-075B: Polyaromatic Hydrocarbons (PAHs)									
Naphthalene	91-20-3	2.0	µg/L		<2.0	<2.0	----		
Acenaphthylene	208-96-8	2.0	µg/L		<2.0	<2.0	----		
Acenaphthene	83-32-9	2.0	µg/L		<2.0	<2.0	----		
Fluorene	86-73-7	2.0	µg/L		<2.0	<2.0	----		
Phenanthrene	85-01-8	2.0	µg/L		<2.0	<2.0	----		
Anthracene	120-12-7	2.0	µg/L		<2.0	<2.0	----		



Sub-Matrix: WATER				Client sample ID	QC02	QC03	QC04		
Client sampling date / time					[19-JUL-2010]	[19-JUL-2010]	[19-JUL-2010]		
Compound	CAS Number	LOR	Unit		HK1016332-001	HK1016332-002	HK1016332-003		
EP-075B: Polyaromatic Hydrocarbons (PAHs) - Continued									
Fluoranthene	206-44-0	2.0	µg/L		<2.0	<2.0	----		
Pyrene	129-00-0	2.0	µg/L		<2.0	<2.0	----		
Benz(a)anthracene	56-55-3	2.0	µg/L		<2.0	<2.0	----		
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----		
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.00	µg/L		<1.00	<1.00	----		
Benzo(a)pyrene	50-32-8	2.00	µg/L		<2.00	<2.00	----		
Indeno(1.2.3.cd)pyrene	193-39-5	2.00	µg/L		<2.00	<2.00	----		
Dibenz(a,h)anthracene	53-70-3	2.0	µg/L		<2.0	<2.0	----		
Benzo(g,h,i)perylene	191-24-2	2.00	µg/L		<2.00	<2.00	----		
EP-080S: TPH(Volatile)/BTEX Surrogate								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		107	111	108		
Toluene-D8	2037-26-5	0.1	%		99.1	100	99.8		
4-Bromofluorobenzene	460-00-4	0.1	%		94.8	94.7	94.3		
EP-074S: VOC Surrogates								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		107	111	----		
Toluene-D8	2037-26-5	0.1	%		99.1	100	----		
4-Bromofluorobenzene	460-00-4	0.1	%		94.8	94.7	----		
EP-075S: Acid Extractable Surrogates								Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%		35.3	32.1	----		
Phenol-d6	13127-88-3	0.1	%		47.0	23.4	----		
2.4.6-Tribromophenol	118-79-6	0.1	%		61.7	71.9	----		
EP-075T: Base/Neutral Extractable Surrogates								Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%		48.9	54.3	----		
2-Fluorobiphenyl	321-60-8	0.1	%		52.6	48.2	----		
4-Terphenyl-d14	1718-51-0	0.1	%		78.6	83.9	----		



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1425967)								
HK1016332-004	QC01	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	3.8	3.9	3.6
EG: Metals and Major Cations (QC Lot: 1425785)								
HK1016408-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	5	4	0.0
HK1016413-003	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	5	5	0.0
EP-080: BTEX (QC Lot: 1422220)								
HK1016330-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
			106-42-3					
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)								
HK1016330-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)								
HK1016330-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 1425849)								
HK1016332-002	QC03	EG020: Copper	7440-50-8	1	µg/L	<1	<1	0.0
		EG020: Lead	7439-92-1	1	µg/L	<1	<1	0.0
		EG020: Zinc	7440-66-6	10	µg/L	<10	<10	0.0
HK1016506-009	Anonymous	EG020: Copper	7440-50-8	1	µg/L	13	14	0.0
		EG020: Lead	7439-92-1	1	µg/L	<1	<1	0.0
		EG020: Zinc	7440-66-6	10	µg/L	53	47	11.7
EG: Metals and Major Cations (QC Lot: 1425877)								
HK1016332-002	QC03	EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	<0.02	0.0
EP-080: BTEX (QC Lot: 1424582)								
HK1016332-001	QC02	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)								
HK1016332-001	QC02	C6 - C8 Fraction	----	0.02	mg/L	<0.02	<0.02	0.0
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1424581)								
HK1016332-001	QC02	Ethylbenzene	100-41-4	5.0	µg/L	<5.0	<5.0	0.0



Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-074B: Oxygenated Compounds (QC Lot: 1424581)								
HK1016332-001	QC02	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
EP-074E: Halogenated Aliphatics (QC Lot: 1424581)								
HK1016332-001	QC02	Trichloroethene	79-01-6	5.0	µg/L	<5.0	<5.0	0.0
		Tetrachloroethene	127-18-4	5.0	µg/L	<5.0	<5.0	0.0
		Methylene chloride	75-09-2	50	µg/L	<50	<50	0.0
EP-074G: Trihalomethanes (THM) (QC Lot: 1424581)								
HK1016332-001	QC02	Chloroform	67-66-3	5.0	µg/L	<5.0	<5.0	0.0
		Bromodichloromethane	75-27-4	5.0	µg/L	<5.0	<5.0	0.0

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						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 1425785)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	93.4	----	85	115	----	----
EP-080: BTEX (QC Lot: 1422220)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	102	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	106	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	94.6	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	108	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	96.3	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	89.9	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	82.6	----	43	106	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	121	----	74	129	----	----

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentratio n	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1425849)											
EG020: Copper	7440-50-8	1	µg/L	<1	100 µg/L	94.2	----	85	115	----	----
EG020: Lead	7439-92-1	1	µg/L	<1	100 µg/L	94.6	----	85	115	----	----
EG020: Zinc	7440-66-6	10	µg/L	<10	100 µg/L	92.0	----	85	115	----	----
EG: Metals and Major Cations (QC Lot: 1425877)											
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	0.5 mg/L	98.0	----	85	115	----	----
EP-080: BTEX (QC Lot: 1424582)											
Benzene	71-43-2	1	µg/L	<1	----	----	----	----	----	----	----
				----	10 µg/L	88.2	----	70	115	----	----



Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-080: BTEX (QC Lot: 1424582) - Continued											
Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	----	67	117	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.0	----	76	107	----	----
meta- & para-Xylene	108-38-3 106-42-3	4	µg/L	<4	20 µg/L	103	----	77	112	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.3	----	69	109	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	----	----	----	----	----	----	----
				----	0.15 mg/L	102	----	68	125	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424689)											
C9 - C16 Fraction	----	0.5	mg/L	<0.5	0.25 mg/L	82.3	----	17	170	----	----
C17 - C35 Fraction	----	0.5	mg/L	<0.5	0.5 mg/L	85.1	----	32	143	----	----
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1424581)											
Ethylbenzene	100-41-4	0.5	µg/L	<0.5	2 µg/L	87.0	----	66	112	----	----
EP-074B: Oxygenated Compounds (QC Lot: 1424581)											
2-Propanone (Acetone)	67-64-1	50	µg/L	<50	----	----	----	----	----	----	----
2-Butanone (MEK)	78-93-3	5	µg/L	<5	20 µg/L	77.4	----	44	128	----	----
EP-074E: Halogenated Aliphatics (QC Lot: 1424581)											
Methylene chloride	75-09-2	50	µg/L	<50	----	----	----	----	----	----	----
Trichloroethene	79-01-6	0.5	µg/L	<0.5	2 µg/L	86.0	----	70	122	----	----
Tetrachloroethene	127-18-4	0.5	µg/L	<0.5	2 µg/L	78.0	----	51	121	----	----
EP-074G: Trihalomethanes (THM) (QC Lot: 1424581)											
Chloroform	67-66-3	0.5	µg/L	<0.5	2 µg/L	90.0	----	70	132	----	----
Bromodichloromethane	75-27-4	0.5	µg/L	<0.5	2 µg/L	81.0	----	72	120	----	----
EP-075A: Phenols (QC Lot: 1424688)											
Phenol	108-95-2	0.5	µg/L	<0.5	5 µg/L	58.1	----	9	91	----	----
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1424688)											
Naphthalene	91-20-3	0.5	µg/L	<0.5	5 µg/L	78.5	----	39	109	----	----
Acenaphthylene	208-96-8	0.5	µg/L	<0.5	5 µg/L	81.1	----	40	113	----	----
Acenaphthene	83-32-9	0.5	µg/L	<0.5	5 µg/L	84.3	----	37	116	----	----
Fluorene	86-73-7	0.5	µg/L	<0.5	5 µg/L	79.2	----	43	111	----	----
Phenanthrene	85-01-8	0.5	µg/L	<0.5	5 µg/L	82.1	----	50	118	----	----
Anthracene	120-12-7	0.5	µg/L	<0.5	5 µg/L	82.7	----	51	113	----	----
Fluoranthene	206-44-0	0.5	µg/L	<0.5	5 µg/L	95.1	----	66	110	----	----
Pyrene	129-00-0	0.5	µg/L	<0.5	5 µg/L	94.9	----	65	109	----	----
Benz(a)anthracene	56-55-3	0.5	µg/L	<0.5	5 µg/L	84.0	----	65	111	----	----
Chrysene	218-01-9	0.2	µg/L	<0.2	5 µg/L	90.0	----	67	119	----	----
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.05	µg/L	<0.05	10 µg/L	88.6	----	65	91	----	----
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	5 µg/L	75.5	----	60	95	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.05	µg/L	<0.05	5 µg/L	93.4	----	36	106	----	----



Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1424688) - Continued											
Dibenz(a,h)anthracene	53-70-3	0.5	µg/L	<0.5	5 µg/L	73.8	----	50	80	----	----
Benzo(g,h,i)perylene	191-24-2	0.05	µg/L	<0.05	5 µg/L	72.6	----	49	81	----	----

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

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EG: Metals and Major Cations (QC Lot: 1425785)										
HK1016332-004	QC01	EG020: Lead	7439-92-1	5 mg/kg	102	----	75	125	----	----
EP-080: BTEX (QC Lot: 1422220)										
HK1016330-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	100	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	101	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	84.6	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	106	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	87.6	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422216)										
HK1016330-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	88.8	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	86.7	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1422220)										
HK1016330-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	112	----	50	130	----	----

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EG: Metals and Major Cations (QC Lot: 1425849)										
HK1016332-001	QC02	EG020: Copper	7440-50-8	100 µg/L	96.0	----	75	125	----	----
		EG020: Lead	7439-92-1	100 µg/L	93.2	----	75	125	----	----
		EG020: Zinc	7440-66-6	100 µg/L	94.2	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 1425877)										
HK1016332-001	QC02	EG050: Hexavalent Chromium	18540-29-9	0.5 mg/L	106	----	75	125	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			



Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate - Continued			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: 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-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 10
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016633
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 22-JUL-2010
Order number	: 60159686			Issue Date	: 04-AUG-2010
C-O-C number	: H009758			No. of samples received	: 4
Site	: NAM CHEONG STATION			No. of samples analysed	: 4

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is:

29-JUL-2010

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: **HK1016633**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

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

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

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

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				QC05				
				[22-JUL-2010]				
Compound	CAS Number	LOR	Unit	HK1016633-001				
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	7.5				
EG: Metals and Major Cations								
EG020: Lead	7439-92-1	1	mg/kg	9				
EP-080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2				
Toluene	108-88-3	0.5	mg/kg	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5				
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5				
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5				
C9 - C16 Fraction	----	200	mg/kg	<200				
C17 - C35 Fraction	----	500	mg/kg	<500				
EP-080S: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	107				
Toluene-D8	2037-26-5	0.1	%	99.2				
4-Bromofluorobenzene	460-00-4	0.1	%	88.2				

Surrogate control limits listed at end of this report.



Sub-Matrix: WATER				Client sample ID	QC06	QC07	QC08		
Client sampling date / time					[22-JUL-2010]	[22-JUL-2010]	[22-JUL-2010]		
Compound	CAS Number	LOR	Unit		HK1016633-002	HK1016633-003	HK1016633-004		
EG: Metals and Major Cations									
EG020: Copper	7440-50-8	1	µg/L		<1	<1	----		
EG020: Lead	7439-92-1	1	µg/L		<1	<1	----		
EG020: Zinc	7440-66-6	10	µg/L		<10	<10	----		
EG049: Trivalent Chromium	16065-83-1	0.02	mg/L		<0.02	<0.02	----		
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L		<0.02	<0.02	----		
EP-080: BTEX									
Benzene	71-43-2	5	µg/L		<5	<5	<5		
Toluene	108-88-3	5	µg/L		<5	<5	<5		
Ethylbenzene	100-41-4	5	µg/L		<5	<5	<5		
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L		<10	<10	<10		
ortho-Xylene	95-47-6	5	µg/L		<5	<5	<5		
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	----	20	µg/L		<20	<20	<20		
C9 - C16 Fraction	----	500	µg/L		<500	<500	----		
C17 - C35 Fraction	----	500	µg/L		<500	<500	----		
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)									
Ethylbenzene	100-41-4	5.0	µg/L		<5.0	<5.0	----		
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	500	µg/L		<500	<500	----		
2-Butanone (MEK)	78-93-3	50	µg/L		<50	<50	----		
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	50	µg/L		<50	<50	----		
Trichloroethene	79-01-6	5.0	µg/L		<5.0	<5.0	----		
Tetrachloroethene	127-18-4	5.0	µg/L		<5.0	<5.0	----		
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	5.0	µg/L		<5.0	<5.0	----		
Bromodichloromethane	75-27-4	5.0	µg/L		<5.0	<5.0	----		
EP-074L: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5	µg/L		<5	<5	----		
EP-075A: Phenols									
Phenol	108-95-2	2.0	µg/L		<2.0	<2.0	----		
EP-075B: Polyaromatic Hydrocarbons (PAHs)									
Naphthalene	91-20-3	2.0	µg/L		<2.0	<2.0	----		
Acenaphthylene	208-96-8	2.0	µg/L		<2.0	<2.0	----		
Acenaphthene	83-32-9	2.0	µg/L		<2.0	<2.0	----		
Fluorene	86-73-7	2.0	µg/L		<2.0	<2.0	----		
Phenanthrene	85-01-8	2.0	µg/L		<2.0	<2.0	----		
Anthracene	120-12-7	2.0	µg/L		<2.0	<2.0	----		



Sub-Matrix: WATER				Client sample ID	QC06	QC07	QC08		
Client sampling date / time					[22-JUL-2010]	[22-JUL-2010]	[22-JUL-2010]		
Compound	CAS Number	LOR	Unit		HK1016633-002	HK1016633-003	HK1016633-004		
EP-075B: Polyaromatic Hydrocarbons (PAHs) - Continued									
Fluoranthene	206-44-0	2.0	µg/L		<2.0	<2.0	----		
Pyrene	129-00-0	2.0	µg/L		<2.0	<2.0	----		
Benz(a)anthracene	56-55-3	2.0	µg/L		<2.0	<2.0	----		
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----		
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.00	µg/L		<1.00	<1.00	----		
Benzo(a)pyrene	50-32-8	2.00	µg/L		<2.00	<2.00	----		
Indeno(1.2.3.cd)pyrene	193-39-5	2.00	µg/L		<2.00	<2.00	----		
Dibenz(a,h)anthracene	53-70-3	2.0	µg/L		<2.0	<2.0	----		
Benzo(g,h,i)perylene	191-24-2	2.00	µg/L		<2.00	<2.00	----		
EP-080S: TPH(Volatile)/BTEX Surrogate								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		114	118	115		
Toluene-D8	2037-26-5	0.1	%		104	101	102		
4-Bromofluorobenzene	460-00-4	0.1	%		87.8	87.9	86.1		
EP-074S: VOC Surrogates								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		114	118	----		
Toluene-D8	2037-26-5	0.1	%		104	101	----		
4-Bromofluorobenzene	460-00-4	0.1	%		87.8	87.9	----		
EP-075S: Acid Extractable Surrogates								Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%		54.6	55.8	----		
Phenol-d6	13127-88-3	0.1	%		37.0	32.2	----		
2.4.6-Tribromophenol	118-79-6	0.1	%		92.3	82.6	----		
EP-075T: Base/Neutral Extractable Surrogates								Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%		75.0	53.8	----		
2-Fluorobiphenyl	321-60-8	0.1	%		64.2	55.1	----		
4-Terphenyl-d14	1718-51-0	0.1	%		95.2	82.0	----		



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 (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1431030)								
HK1016633-001	QC05	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	7.5	8.2	8.3
HK1016854-010	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	25.5	28.1	9.5
EG: Metals and Major Cations (QC Lot: 1428969)								
HK1016625-002	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	4	4	0.0
EP-080: BTEX (QC Lot: 1426701)								
HK1016625-001	Anonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
			106-42-3					
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426701)								
HK1016625-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426702)								
HK1016625-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 1429016)								
HK1016633-003	QC07	EG020: Copper	7440-50-8	1	µg/L	<1	<1	0.0
		EG020: Lead	7439-92-1	1	µg/L	<1	<1	0.0
		EG020: Zinc	7440-66-6	10	µg/L	<10	<10	0.0
EG: Metals and Major Cations (QC Lot: 1429272)								
HK1016633-003	QC07	EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	<0.02	0.0
EP-080: BTEX (QC Lot: 1424582)								
HK1016332-001	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)								
HK1016332-001	Anonymous	C6 - C8 Fraction	----	0.02	mg/L	<0.02	<0.02	0.0
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1424581)								
HK1016332-001	Anonymous	Ethylbenzene	100-41-4	5.0	µg/L	<5.0	<5.0	0.0
EP-074B: Oxygenated Compounds (QC Lot: 1424581)								
HK1016332-001	Anonymous	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0



Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-074E: Halogenated Aliphatics (QC Lot: 1424581)								
HK1016332-001	Anonymous	Trichloroethene	79-01-6	5.0	µg/L	<5.0	<5.0	0.0
		Tetrachloroethene	127-18-4	5.0	µg/L	<5.0	<5.0	0.0
		Methylene chloride	75-09-2	50	µg/L	<50	<50	0.0
EP-074G: Trihalomethanes (THM) (QC Lot: 1424581)								
HK1016332-001	Anonymous	Chloroform	67-66-3	5.0	µg/L	<5.0	<5.0	0.0
		Bromodichloromethane	75-27-4	5.0	µg/L	<5.0	<5.0	0.0

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							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1428969)											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	94.0	----	85	115	----	----
EP-080: BTEX (QC Lot: 1426701)											
Benzene	71-43-2	0.2	mg/kg	<0.2	0.2 mg/kg	94.4	----	75	117	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	0.2 mg/kg	90.7	----	69	111	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.2 mg/kg	84.4	----	75	112	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.4	mg/kg	<0.4	0.4 mg/kg	94.4	----	80	115	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.2 mg/kg	81.3	----	72	110	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426701)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	112	----	74	129	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426702)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	83.5	----	57	107	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	75.7	----	43	106	----	----

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
EG: Metals and Major Cations (QC Lot: 1429016)											
EG020: Copper	7440-50-8	1	µg/L	<1	100 µg/L	101	----	85	115	----	----
EG020: Lead	7439-92-1	1	µg/L	<1	100 µg/L	97.7	----	85	115	----	----
EG020: Zinc	7440-66-6	10	µg/L	<10	100 µg/L	97.8	----	85	115	----	----
EG: Metals and Major Cations (QC Lot: 1429272)											
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	0.5 mg/L	92.0	----	85	115	----	----
EP-080: BTEX (QC Lot: 1424582)											
Benzene	71-43-2	1	µg/L	<1	----	----	----	----	----	----	----
				----	10 µg/L	88.2	----	70	115	----	----
Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.0	----	67	117	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.0	----	76	107	----	----
meta- & para-Xylene	108-38-3 106-42-3	4	µg/L	<4	20 µg/L	103	----	77	112	----	----



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
n											
EP-080: BTEX (QC Lot: 1424582) - Continued											
ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.3	----	69	109	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424582)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	----	----	----	----	----	----	----
				----	0.15 mg/L	102	----	68	125	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424689)											
C9 - C16 Fraction	----	0.5	mg/L	<0.5	0.25 mg/L	82.3	----	17	170	----	----
C17 - C35 Fraction	----	0.5	mg/L	<0.5	0.5 mg/L	85.1	----	32	143	----	----
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1424581)											
Ethylbenzene	100-41-4	0.5	µg/L	<0.5	2 µg/L	87.0	----	66	112	----	----
EP-074B: Oxygenated Compounds (QC Lot: 1424581)											
2-Propanone (Acetone)	67-64-1	50	µg/L	<50	----	----	----	----	----	----	----
2-Butanone (MEK)	78-93-3	5	µg/L	<5	20 µg/L	77.4	----	44	128	----	----
EP-074E: Halogenated Aliphatics (QC Lot: 1424581)											
Methylene chloride	75-09-2	50	µg/L	<50	----	----	----	----	----	----	----
Trichloroethene	79-01-6	0.5	µg/L	<0.5	2 µg/L	86.0	----	70	122	----	----
Tetrachloroethene	127-18-4	0.5	µg/L	<0.5	2 µg/L	78.0	----	51	121	----	----
EP-074G: Trihalomethanes (THM) (QC Lot: 1424581)											
Chloroform	67-66-3	0.5	µg/L	<0.5	2 µg/L	90.0	----	70	132	----	----
Bromodichloromethane	75-27-4	0.5	µg/L	<0.5	2 µg/L	81.0	----	72	120	----	----
EP-075A: Phenols (QC Lot: 1424688)											
Phenol	108-95-2	0.5	µg/L	<0.5	5 µg/L	58.1	----	9	91	----	----
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1424688)											
Naphthalene	91-20-3	0.5	µg/L	<0.5	5 µg/L	78.5	----	39	109	----	----
Acenaphthylene	208-96-8	0.5	µg/L	<0.5	5 µg/L	81.1	----	40	113	----	----
Acenaphthene	83-32-9	0.5	µg/L	<0.5	5 µg/L	84.3	----	37	116	----	----
Fluorene	86-73-7	0.5	µg/L	<0.5	5 µg/L	79.2	----	43	111	----	----
Phenanthrene	85-01-8	0.5	µg/L	<0.5	5 µg/L	82.1	----	50	118	----	----
Anthracene	120-12-7	0.5	µg/L	<0.5	5 µg/L	82.7	----	51	113	----	----
Fluoranthene	206-44-0	0.5	µg/L	<0.5	5 µg/L	95.1	----	66	110	----	----
Pyrene	129-00-0	0.5	µg/L	<0.5	5 µg/L	94.9	----	65	109	----	----
Benz(a)anthracene	56-55-3	0.5	µg/L	<0.5	5 µg/L	84.0	----	65	111	----	----
Chrysene	218-01-9	0.2	µg/L	<0.2	5 µg/L	90.0	----	67	119	----	----
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.05	µg/L	<0.05	10 µg/L	88.6	----	65	91	----	----
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	5 µg/L	75.5	----	60	95	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.05	µg/L	<0.05	5 µg/L	93.4	----	36	106	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	µg/L	<0.5	5 µg/L	73.8	----	50	80	----	----
Benzo(g,h,i)perylene	191-24-2	0.05	µg/L	<0.05	5 µg/L	72.6	----	49	81	----	----



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

Matrix: SOIL

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1428969)										
HK1016625-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	87.0	----	75	125	----	----
EP-080: BTEX (QC Lot: 1426701)										
HK1016625-002	Anonymous	Benzene	71-43-2	0.2 mg/kg	88.3	----	50	130	----	----
		Toluene	108-88-3	0.2 mg/kg	83.0	----	50	130	----	----
		Ethylbenzene	100-41-4	0.2 mg/kg	72.7	----	50	130	----	----
		meta- & para-Xylene	108-38-3	0.4 mg/kg	77.7	----	50	130	----	----
			106-42-3							
	ortho-Xylene	95-47-6	0.2 mg/kg	69.2	----	50	130	----	----	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426701)										
HK1016625-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	106	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1426702)										
HK1016625-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	74.6	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	62.4	----	50	130	----	----

Matrix: WATER

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 1429016)										
HK1016633-002	QC06	EG020: Copper	7440-50-8	100 µg/L	103	----	75	125	----	----
		EG020: Lead	7439-92-1	100 µg/L	98.2	----	75	125	----	----
		EG020: Zinc	7440-66-6	100 µg/L	97.0	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 1429272)										
HK1016633-002	QC06	EG050: Hexavalent Chromium	18540-29-9	0.5 mg/L	98.0	----	75	125	----	----

Surrogate Control Limits

Sub-Matrix: SOIL

		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

Sub-Matrix: WATER

		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	86	118



Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate - Continued			
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141



CERTIFICATE OF ANALYSIS

Client	: AECOM ASIA COMPANY LIMITED	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 6
Contact	: MS CATHERINE PO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1016948
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T., HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	Amendment	: 1
E-mail	: Hoiman.Po@AECOM.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2605 6262	Telephone	: +852 2610 1044		
Facsimile	: +852 2691 2649	Facsimile	: +852 2610 2021		
Project	: NAM CHEONG BARGING POINT (SITE J)	Quote number	: HK/840/2010**	Date Samples Received	: 26-JUL-2010
Order number	: 60159686			Issue Date	: 16-AUG-2010
C-O-C number	: H009770			No. of samples received	: 4
Site	: NAM CHEONG STATION			No. of samples analysed	: 4

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is: 30-JUL-2010

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: **HK1016948**

Project: Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link Revised Contamination Assessment Plan for Nam Cheong Barging Point (Site) J.

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Water sample(s) digested by In-house method E-3005 based on USEPA method 3005, prior to the determination of total metals.

This report may not be reproduced except with prior written approval from the testing laboratory.

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Anh Ngoc Huynh

Position

Senior Chemist

Authorised results for

Organics



Analytical Results

Sub-Matrix: WATER

Client sample ID

Client sampling date / time

				QC09	QC10	QC11	QC26	
				[26-JUL-2010]	[26-JUL-2010]	[26-JUL-2010]	[26-JUL-2010]	
Compound	CAS Number	LOR	Unit	HK1016948-001	HK1016948-002	HK1016948-003	HK1016948-004	
EP-080: BTEX								
Benzene	71-43-2	5	µg/L	<5	<5	<5	<5	
Toluene	108-88-3	5	µg/L	<5	<5	<5	<5	
Ethylbenzene	100-41-4	5	µg/L	<5	<5	<5	<5	
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L	<10	<10	<10	<10	
ortho-Xylene	95-47-6	5	µg/L	<5	<5	<5	<5	
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	20	µg/L	<20	<20	<20	<20	
C9 - C16 Fraction	----	500	µg/L	<500	<500	<500	----	
C17 - C35 Fraction	----	500	µg/L	1300	<500	<500	----	
EP-074B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	500	µg/L	----	<500	<500	----	
2-Butanone (MEK)	78-93-3	50	µg/L	----	<50	<50	----	
EP-074E: Halogenated Aliphatics								
Methylene chloride	75-09-2	50	µg/L	----	<50	<50	----	
Trichloroethene	79-01-6	5.0	µg/L	----	<5.0	<5.0	----	
Tetrachloroethene	127-18-4	5.0	µg/L	----	<5.0	<5.0	----	
EP-074G: Trihalomethanes (THM)								
Chloroform	67-66-3	5.0	µg/L	----	<5.0	<5.0	----	
Bromodichloromethane	75-27-4	5.0	µg/L	----	<5.0	<5.0	----	
EP-074L: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5	µg/L	----	<5	<5	----	
EP-075B: Polyaromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	2.0	µg/L	----	<2.0	<2.0	----	
Acenaphthylene	208-96-8	2.0	µg/L	----	<2.0	<2.0	----	
Acenaphthene	83-32-9	2.0	µg/L	----	<2.0	<2.0	----	
Fluorene	86-73-7	2.0	µg/L	----	<2.0	<2.0	----	
Phenanthrene	85-01-8	2.0	µg/L	----	<2.0	<2.0	----	
Anthracene	120-12-7	2.0	µg/L	----	<2.0	<2.0	----	
Fluoranthene	206-44-0	2.0	µg/L	----	<2.0	<2.0	----	
Pyrene	129-00-0	2.0	µg/L	----	<2.0	<2.0	----	
Chrysene	218-01-9	1.0	µg/L	----	<1.0	<1.0	----	
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.00	µg/L	----	<1.00	<1.00	----	
EP-080S: TPH(Volatile)/BTEX Surrogate							Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%	102	103	103	97.7	
Toluene-D8	2037-26-5	0.1	%	95.7	100	99.4	99.3	
4-Bromofluorobenzene	460-00-4	0.1	%	88.0	86.7	87.3	90.3	



Sub-Matrix: WATER				Client sample ID	QC09	QC10	QC11	QC26	
Client sampling date / time					[26-JUL-2010]	[26-JUL-2010]	[26-JUL-2010]	[26-JUL-2010]	
Compound	CAS Number	LOR	Unit		HK1016948-001	HK1016948-002	HK1016948-003	HK1016948-004	
EP-074S: VOC Surrogates									Surrogate control limits listed at end of this report.
Dibromofluoromethane	1868-53-7	0.1	%		----	103	103	----	
Toluene-D8	2037-26-5	0.1	%		----	100	99.4	----	
4-Bromofluorobenzene	460-00-4	0.1	%		----	86.7	87.3	----	
EP-075S: Acid Extractable Surrogates									Surrogate control limits listed at end of this report.
2-Fluorophenol	367-12-4	0.1	%		32.0	29.4	35.3	----	
Phenol-d6	13127-88-3	0.1	%		41.3	29.2	28.4	----	
2,4,6-Tribromophenol	118-79-6	0.1	%		68.2	33.1	53.5	----	
EP-075T: Base/Neutral Extractable Surrogates									Surrogate control limits listed at end of this report.
Nitrobenzene -d5	4165-60-0	0.1	%		57.8	70.8	43.6	----	
2-Fluorobiphenyl	321-60-8	0.1	%		53.1	44.0	53.0	----	
4-Terphenyl-d14	1718-51-0	0.1	%		66.1	66.7	72.3	----	



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-080: BTEX (QC Lot: 1432426)								
HK1016946-009	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1432426)								
HK1016946-009	Anonymous	C6 - C8 Fraction	----	0.02	mg/L	<0.02	<0.02	0.0
EP-074B: Oxygenated Compounds (QC Lot: 1424581)								
HK1016332-001	Anonymous	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
EP-074E: Halogenated Aliphatics (QC Lot: 1424581)								
HK1016332-001	Anonymous	Trichloroethene	79-01-6	5.0	µg/L	<5.0	<5.0	0.0
		Tetrachloroethene	127-18-4	5.0	µg/L	<5.0	<5.0	0.0
		Methylene chloride	75-09-2	50	µg/L	<50	<50	0.0
EP-074G: Trihalomethanes (THM) (QC Lot: 1424581)								
HK1016332-001	Anonymous	Chloroform	67-66-3	5.0	µg/L	<5.0	<5.0	0.0
		Bromodichloromethane	75-27-4	5.0	µg/L	<5.0	<5.0	0.0

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

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result			LCS	DCS	Low	High	Value
EP-080: BTEX (QC Lot: 1432426)											
Benzene	71-43-2	2	µg/L	----	10 µg/L	78.1	----	70	115	----	----
				<1	----	----	----	----	----		
Toluene	108-88-3	2	µg/L	<2	10 µg/L	79.7	----	67	117	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	79.8	----	76	107	----	----
meta- & para-Xylene	108-38-3	4	µg/L	<4	20 µg/L	85.1	----	77	112	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	76.5	----	69	109	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1424689)											
C9 - C16 Fraction	----	0.5	mg/L	<0.5	0.25 mg/L	82.3	----	17	170	----	----
C17 - C35 Fraction	----	0.5	mg/L	<0.5	0.5 mg/L	85.1	----	32	143	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1432426)											
C6 - C8 Fraction	----	0.02	mg/L	<0.02	----	----	----	----	----	----	----
				----	0.15 mg/L	95.7	----	68	125	----	----
EP-074B: Oxygenated Compounds (QC Lot: 1424581)											
2-Propanone (Acetone)	67-64-1	50	µg/L	<50	----	----	----	----	----	----	----



Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentratio	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EP-074B: Oxygenated Compounds (QC Lot: 1424581) - Continued											
2-Butanone (MEK)	78-93-3	5	µg/L	<5	20 µg/L	77.4	----	44	128	----	----
EP-074E: Halogenated Aliphatics (QC Lot: 1424581)											
Methylene chloride	75-09-2	50	µg/L	<50	----	----	----	----	----	----	----
Trichloroethene	79-01-6	0.5	µg/L	<0.5	2 µg/L	86.0	----	70	122	----	----
Tetrachloroethene	127-18-4	0.5	µg/L	<0.5	2 µg/L	78.0	----	51	121	----	----
EP-074G: Trihalomethanes (THM) (QC Lot: 1424581)											
Chloroform	67-66-3	0.5	µg/L	<0.5	2 µg/L	90.0	----	70	132	----	----
Bromodichloromethane	75-27-4	0.5	µg/L	<0.5	2 µg/L	81.0	----	72	120	----	----
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1424688)											
Naphthalene	91-20-3	0.5	µg/L	<0.5	5 µg/L	78.5	----	39	109	----	----
Acenaphthylene	208-96-8	0.5	µg/L	<0.5	5 µg/L	81.1	----	40	113	----	----
Acenaphthene	83-32-9	0.5	µg/L	<0.5	5 µg/L	84.3	----	37	116	----	----
Fluorene	86-73-7	0.5	µg/L	<0.5	5 µg/L	79.2	----	43	111	----	----
Phenanthrene	85-01-8	0.5	µg/L	<0.5	5 µg/L	82.1	----	50	118	----	----
Anthracene	120-12-7	0.5	µg/L	<0.5	5 µg/L	82.7	----	51	113	----	----
Fluoranthene	206-44-0	0.5	µg/L	<0.5	5 µg/L	95.1	----	66	110	----	----
Pyrene	129-00-0	0.5	µg/L	<0.5	5 µg/L	94.9	----	65	109	----	----
Chrysene	218-01-9	0.2	µg/L	<0.2	5 µg/L	90.0	----	67	119	----	----
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.05	µg/L	<0.05	10 µg/L	88.6	----	65	91	----	----

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: 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-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94



Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates - Continued			
2,4,6-Tribromophenol	118-79-6	20	123
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141