



## CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 7
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Project	: EM&A FOR THE PERMANENT AVIATION FUEL FACILITY	Quote number	: ----	Date Samples Received	: 03-SEP-2008
Order number	: ----			Issue Date	: 25-SEP-2008
C-O-C number	: ----			No. of samples received	: 18
Site	: ----			No. of samples analysed	: 18

### 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: 10-SEP-2008

Key: LOR = Limit of reporting; CAS Number = Chemistry Abstract Services number

Specific comments for Work Order: **HK0813891**

**Sample(s) were collected by ALS Technichem (HK) staff on 03 September, 2008.**

**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*

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*Position*

Senior Chemist

*Authorised results for*

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A Campbell Brothers Limited Company



### Analytical Results

Sub-Matrix: MARINE WATER

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	MPB1 ME	MPB1 ME DUP	MPB2 ME	MPB2 ME DUP	MP ME
				[03-SEP-2008]	[03-SEP-2008]	[03-SEP-2008]	[03-SEP-2008]	[03-SEP-2008]
				HK0813891-001	HK0813891-002	HK0813891-003	HK0813891-004	HK0813891-005
<b>EP-065A: PCB Single Congeners</b>								
PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 138	35065-28-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
<b>EP-065B: Organochlorine Pesticides</b>								
4,4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
4,4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
4,4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
<b>EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate</b>						Surrogate control limits listed at end of this report.		
Decachlorobiphenyl	2051-24-3	0.1	%	<b>71.4</b>	<b>84.0</b>	<b>63.6</b>	<b>80.3</b>	<b>76.0</b>



Sub-Matrix: MARINE WATER				Client sample ID	MP ME DUP	C2 (NM5) ME	C2 (NM5) ME DUP	MPB1 MF	MPB1 MF DUP
Client sampling date / time				[03-SEP-2008]	[03-SEP-2008]	[03-SEP-2008]	[03-SEP-2008]	[03-SEP-2008]	
Compound	CAS Number	LOR	Unit	HK0813891-006	HK0813891-007	HK0813891-008	HK0813891-009	HK0813891-010	
<b>EP-065A: PCB Single Congeners</b>									
PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 138	35065-28-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
<b>EP-065B: Organochlorine Pesticides</b>									
4,4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
4,4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
4,4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
<b>EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate</b>							Surrogate control limits listed at end of this report.		
Decachlorobiphenyl	2051-24-3	0.1	%	74.1	72.2	69.8	102	57.5	



Sub-Matrix: MARINE WATER				Client sample ID	MPB2 MF	MPB2 MF DUP	MP MF	MP MF DUP	C1 (NM3) MF
				Client sampling date / time	[03-SEP-2008]	[03-SEP-2008]	[03-SEP-2008]	[03-SEP-2008]	[03-SEP-2008]
Compound	CAS Number	LOR	Unit	HK0813891-011	HK0813891-012	HK0813891-013	HK0813891-014	HK0813891-015	
<b>EP-065A: PCB Single Congeners</b>									
PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 138	35065-28-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<b>EP-065B: Organochlorine Pesticides</b>									
4,4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4,4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4,4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<b>EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate</b>								Surrogate control limits listed at end of this report.	
Decachlorobiphenyl	2051-24-3	0.1	%	63.2	59.0	73.4	64.4	60.1	



Sub-Matrix: MARINE WATER				Client sample ID	C1 (NM3) MF DUP	C3 (NM6) MF	C3 (NM6) MF DUP		
				Client sampling date / time	[03-SEP-2008]	[03-SEP-2008]	[03-SEP-2008]		
Compound	CAS Number	LOR	Unit	HK0813891-016	HK0813891-017	HK0813891-018			
<b>EP-065A: PCB Single Congeners</b>									
PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 138	35065-28-2	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	<0.01			
<b>EP-065B: Organochlorine Pesticides</b>									
4,4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	<0.01			
4,4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	<0.01			
4,4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	<0.01			
<b>EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate</b>							Surrogate control limits listed at end of this report.		
Decachlorobiphenyl	2051-24-3	0.1	%	57.1	51.5	60.1			



### 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 (%)
<b>EP-065A: PCB Single Congeners (QC Lot: 749667)</b>								
HK0813891-001	MPB1 ME	PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	0.0
		PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	0.0
		PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	0.0
		PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	0.0
		PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	0.0
		PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	0.0
		PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	0.0
		PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	0.0
		PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	0.0
		PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	0.0
		PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	0.0
		PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	0.0
		PCB 138	35065-28-2	0.01	µg/L	<0.01	<0.01	0.0
		PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	0.0
		PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	0.0
		PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	0.0
		PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	0.0
		PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	0.0
		PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	0.0
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	0.0		
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	0.0		
<b>EP-065B: Organochlorine Pesticides (QC Lot: 749667)</b>								
HK0813891-001	MPB1 ME	4.4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	0.0
		4.4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	0.0
		4.4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	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						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentratio	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
<b>EP-065A: PCB Single Congeners (QC Lot: 749667)</b>											
PCB 8	34883-43-7	0.01	µg/L	<0.01	100 µg/L	77.5	----	50	130	----	----
PCB 18	37680-65-2	0.01	µg/L	<0.01	100 µg/L	88.4	----	50	130	----	----
PCB 28	7012-37-5	0.01	µg/L	<0.01	100 µg/L	104	----	50	130	----	----
PCB 52	35693-99-3	0.01	µg/L	<0.01	100 µg/L	110	----	50	130	----	----
PCB 44	41464-39-5	0.01	µg/L	<0.01	100 µg/L	110	----	50	130	----	----
PCB 66	32598-10-0	0.01	µg/L	<0.01	100 µg/L	109	----	50	130	----	----
PCB 101	37680-73-2	0.01	µg/L	<0.01	100 µg/L	109	----	50	130	----	----



Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
<b>EP-065A: PCB Single Congeners (QC Lot: 749667) - Continued</b>											
PCB 77	32598-13-3	0.01	µg/L	<0.01	100 µg/L	97.4	----	50	130	----	----
PCB 149	38380-04-0	0.01	µg/L	<0.01	100 µg/L	97.5	----	50	130	----	----
PCB 118	31508-00-6	0.01	µg/L	<0.01	100 µg/L	99.6	----	50	130	----	----
PCB 153	35065-27-1	0.01	µg/L	<0.01	100 µg/L	110	----	50	130	----	----
PCB 105	32598-14-4	0.01	µg/L	<0.01	100 µg/L	96.9	----	50	130	----	----
PCB 138	35065-28-2	0.01	µg/L	<0.01	100 µg/L	# 154	----	50	130	----	----
PCB 126	57465-28-8	0.01	µg/L	<0.01	100 µg/L	112	----	50	130	----	----
PCB 187	52663-68-0	0.01	µg/L	<0.01	100 µg/L	84.3	----	50	130	----	----
PCB 128	38380-07-3	0.01	µg/L	<0.01	100 µg/L	98.4	----	50	130	----	----
PCB 156	38380-08-4	0.01	µg/L	<0.01	100 µg/L	94.1	----	50	130	----	----
PCB 180	35065-29-3	0.01	µg/L	<0.01	100 µg/L	93.8	----	50	130	----	----
PCB 169	60044-26-0	0.01	µg/L	<0.01	100 µg/L	96.6	----	50	130	----	----
PCB 170	35065-30-6	0.01	µg/L	<0.01	100 µg/L	96.8	----	50	130	----	----
PCB 195	52663-78-2	0.01	µg/L	<0.01	100 µg/L	96.3	----	50	130	----	----
<b>EP-065B: Organochlorine Pesticides (QC Lot: 749667)</b>											
4,4'-DDT	50-29-3	0.01	µg/L	<0.01	100 µg/L	# Not Determined	----	50	130	----	----
4,4'-DDE	72-55-9	0.01	µg/L	<0.01	100 µg/L	# Not Determined	----	50	130	----	----
4,4'-DDD	72-54-8	0.01	µg/L	<0.01	100 µg/L	# Not Determined	----	50	130	----	----

**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: MARINE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate</b>			
Decachlorobiphenyl	2051-24-3	50	130



### CERTIFICATE OF ANALYSIS

**CONTACT:** MS KAREN LUI  
**CLIENT:** ERM HONG KONG  
**ADDRESS:** 21/F, LINCOLN HOUSE, 979 KING'S ROAD,  
 TAIKOO PLACE, ISLAND EAST,  
 QUARRY BAY, HONG KONG.  
**PROJECT:** EM&A FOR THE PERMANENT AVIATION FUEL FACILITY

**Batch:** HK0813891  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 03/09/2008  
**DATE OF ISSUE:** 25/09/2008  
**SAMPLE TYPE:** WATER  
**No. of SAMPLES:** 18

#### COMMENTS

Sample(s) were collected by ALS Technichem (HK) staff on 03 September, 2008.  
 Water sample(s) analysed and reported on an as received basis.  
 PAHs were subcontracted and tested by ALS Sydney.  
 ALS Sydney details report was attached. The attached report contains a total of 16 pages.

#### Sample Details

ALS Lab ID	Sample ID	Date of Sampling
HK0813891 - 1	MPB1-ME	03/09/2008
HK0813891 - 2	MPB1-ME DUP	03/09/2008
HK0813891 - 3	MPB2-ME	03/09/2008
HK0813891 - 4	MPB2-ME DUP	03/09/2008
HK0813891 - 5	MP-ME	03/09/2008
HK0813891 - 6	MP-ME DUP	03/09/2008
HK0813891 - 7	C2 (NM5)-ME	03/09/2008
HK0813891 - 8	C2 (NM5)-ME DUP	03/09/2008
HK0813891 - 9	MPB1-MF	03/09/2008
HK0813891 - 10	MPB1-MF DUP	03/09/2008
HK0813891 - 11	MPB2-MF	03/09/2008
HK0813891 - 12	MPB2-MF DUP	03/09/2008
HK0813891 - 13	MP-MF	03/09/2008
HK0813891 - 14	MP-MF DUP	03/09/2008
HK0813891 - 15	C1 (NM3)-MF	03/09/2008
HK0813891 - 16	C1 (NM3)-MF DUP	03/09/2008
HK0813891 - 17	C3 (NM6)-MF	03/09/2008
HK0813891 - 18	C3 (NM6)-MF DUP	03/09/2008

#### ISSUING LABORATORY: HONG KONG

**Address**

ALS Technichem (HK) Pty Ltd  
 11/F Chung Shun Knitting Centre  
 1-3 Wing Yip Street  
 Kwai Chung  
 HONG KONG

**Phone:** 852-2610 1044  
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 Ms Wong Wai Man, Alice  
 Laboratory Manager - Hong Kong

**Other ALS Environmental Laboratories**

**AUSTRALIA**  
 Brisbane Hong Kong  
 Melbourne Singapore  
 Sydney Kuala Lumpur  
 Newcastle Bogor

**AMERICAS**  
 Vancouver  
 Santiago  
 Amtofagasta  
 Lima

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Abbreviations: % SPK REC denotes percentage spike recovery  
 CHK denotes duplicate check sample  
 LOR denotes limit of reporting  
 LCS % REC denotes Laboratory Control Sample percentage recovery

ALS Technichem (HK) Pty Ltd  
 Part of the ALS Laboratory Group

11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., H.K.  
 Phone: 852-2610 1044 Fax: 852-2610 2021 www.alsenviro.com  
 A Campbell Brothers Limited Company





Environmental Division

**CERTIFICATE OF ANALYSIS**

Work Order	: <b>ES0813042</b>	Page	: 1 of 8
Amendment	: <b>1</b>		
Client	: <b>ALS TECHNICHEM (HK)</b>	Laboratory	: Environmental Division Sydney
Contact	: <b>MS ALICE WONG</b>	Contact	: Charlie Pierce
Address	: <b>11/F CHUNG SHUN KNITTING CNTR 1-3 WING YIP STREET KWAI CHUNG, N.T HONG KONG HONG KONG</b>	Address	: <b>277-289 Woodpark Road Smithfield NSW Australia 2164</b>
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Telephone	: <b>+852 001185226101044</b>	Telephone	: <b>+61-2-8784 8555</b>
Facsimile	: <b>+852 26102021</b>	Facsimile	: <b>+61-2-8784 8500</b>
Project	: <b>----</b>	QC Level	: <b>NEPM 1999 Schedule B(3) and ALS QCS3 requirement</b>
Order number	: <b>----</b>		
C-O-C number	: <b>----</b>	Date Samples Received	: <b>08-SEP-2008</b>
Sampler	: <b>----</b>	Issue Date	: <b>24-SEP-2008</b>
Site	: <b>----</b>		
Quote number	: <b>SY/241/07</b>	No. of samples received	: <b>18</b>
		No. of samples analysed	: <b>18</b>

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.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



WORLD RECOGNISED  
**ACCREDITATION**

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

*Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alex Rossi	Organic Chemist	Organics

Page : 3 of 8  
Work Order : ES0813042 Amendment 1  
Client : ALS TECHNICHEM (HK)  
Project : ----



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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.

Key : CAS Number = Chemistry Abstract Services number  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting



**Analytical Results**

Sub-Matrix: WATER	Client Sample ID	HK0813891-1 MPB1-ME 03-SEP-2008 15:00 ES0813042-001	HK0813891-2 MPB1-ME DUP 03-SEP-2008 15:00 ES0813042-002	HK0813891-3 MPB2-ME 03-SEP-2008 15:00 ES0813042-003	HK0813891-4 MPB2-ME DUP 03-SEP-2008 15:00 ES0813042-004	HK0813891-5 MP-ME 03-SEP-2008 15:00 ES0813042-005
Compound	CAS Number	LDR	Unit			
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>						
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1
7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1
Perylene	193-59-0	0.1	µg/L	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1
<b>EP132T: Base/Neutral Extractable Surrogates</b>						
2-Fluorobiphenyl	321-80-8	0.1	%	86.5	84.3	86.5
Anthracene-d10	1719-08-8	0.1	%	96.3	93.6	95.8
4-Terphenyl-d14	1718-51-0	0.1	%	97.5	92.9	94.4



**Analytical Results**

Sub-Matrix: WATER

Compound	CAS Number	LDR	Unit	Client sample ID:	Client sample ID:	Client sample ID:	Client sample ID:	Client sample ID:
				HK0813891-6	HK0813891-7	HK0813891-8	HK0813891-9	HK0813891-10
				MP-ME DUP	C2(NM5)-ME	C2(NM5)-ME DUP	MPB1-MF	MPB1-MF DUP
Client sampling date / time:				03-SEP-2008 15:00	03-SEP-2008 15:00	03-SEP-2008 15:00	03-SEP-2008 15:00	03-SEP-2008 15:00
				ES0813042-006	ES0813042-007	ES0813042-008	ES0813042-009	ES0813042-010
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	93.0	88.0	89.6	95.8	105
Anthracene-d10	1719-06-8	0.1	%	103	97.9	98.0	106	107
4-Terphenyl-d14	1718-51-0	0.1	%	103	96.2	98.9	108	109



### Analytical Results

Sub-Matrix: WATER	Client Sample ID:	HK0813891-11	HK0813891-12	HK0813891-13	HK0813891-15	HK0813891-16		
	Client sampling date / time:	MPB2-MF	MPB2-MF DUP	MP-MF	C1(NM3)-MF	C1(NM3)-MF DUP		
		03-SEP-2008 15:00	03-SEP-2008 15:00	03-SEP-2008 15:00	03-SEP-2008 15:00	03-SEP-2008 15:00		
Component	CAS Number	LOR	Unit	ES0813042-011	ES0813042-012	ES0813042-013	ES0813042-014	ES0813042-015
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	98.6	88.2	87.5	92.8	96.4
Anthracene-d10	1719-06-8	0.1	%	112	97.6	96.6	105	106
4-Terphenyl-d14	1718-51-0	0.1	%	113	96.8	95.6	104	106



**Analytical Results**

Sub-Matrix: WATER	Client Sample ID	HK0813891-17	HK0813891-18	HK0813891-14		
	Client sampling date / time	C1(NM6)-MF	C1(NM6)-MF DUP	MP-MF DUP		
Compound	CAS Number	LQR	Unit	ES0813042-016	ES0813042-017	ES0813042-018
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>						
3-Methylcholanthrene	56-48-5	0.1	µg/L	<0.1	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1
7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1
Acenaphthene	83-32-8	0.1	µg/L	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1
Perylene	196-55-0	0.1	µg/L	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1
<b>EP132T: Base/Neutral Extractable Surrogates</b>						
2-Fluorobiphenyl	321-60-8	0.1	%	92.8	87.3	83.2
Anthracene-d10	1719-06-8	0.1	%	101	99.1	98.4
4-Terphenyl-d14	1718-51-0	0.1	%	101	97.3	95.9



### Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP132T: Basic/Neutral Extractable Surrogates</b>			
2-Fluorobiphenyl	321-60-8	43	116
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	33	141



Environmental Division

**QUALITY CONTROL REPORT**

Work Order	: ES0813042	Page	: 1 of 7
Amendment	: 1		
Client	: ALS TECHNICHEM (HK)	Laboratory	: Environmental Division Sydney
Contact	: MS ALICE WONG	Contact	: Charlie Pierce
Address	: 11/F CHUNG SHUN KNITTING CNTR 1-3 WING YIP STREET KWAI CHUNG, N.T HONG KONG HONG KONG	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alice.wong@alsenviro.com	E-mail	: charlie.pierce@alsenviro.com
Telephone	: +852 001185226101044	Telephone	: +61-2-8784 8555
Facsimile	: +852 26102021	Facsimile	: +61-2-8784 8500
Project	: ---	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ---		
C-O-C number	: ---	Date Samples Received	: 08-SEP-2008
Sampler	: ---	Issue Date	: 24-SEP-2008
Order number	: ---		
Quote number	: SY/241/07	No. of samples received	: 18
		No. of samples analysed	: 18

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.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025.

**Signatories**

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Organics





## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = Chemistry Abstract Services number  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



### **Laboratory Duplicate (DUP) Report**

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

No Limit

- **No Laboratory Duplicate (DUP) Results are required to be reported.**



**Method Blank (MB) and Laboratory Control Spike (LCS) Report**

The quality control term Method Blank (MB) refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: WATER

Method/Compound	CAS Number	LOD	Unit	Method Blank (MB)	Spike Concentration	Laboratory Control Spike (LCS) Report	
				Result		Spike Recovery (%)	Recovery Limits (%)
						Low	High
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 752483)</b>							
EP132: 3-Methylcholanthrene	55-16-5	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	82.6	65.8 121
EP132: 2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	87.4	67.7 112
EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	77.9	11.6 146
EP132: Acenaphthene	83-32-9	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	87.2	73.2 111
EP132: Acenaphthylene	208-96-8	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	89.0	72.4 112
EP132: Anthracene	120-12-7	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	86.7	73.4 113
EP132: Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	88.3	73.6 114
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	85.0	75.2 117
EP132: Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	88.2	71.4 119
EP132: Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	84.2	75.3 118
EP132: Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	82.9	66.6 121
EP132: Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	92.6	74.8 118
EP132: Chrysene	218-01-9	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	84.6	69.6 120
EP132: Coronene	191-07-1	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	76.2	47.4 131
EP132: Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	83.6	71.5 117
EP132: Fluoranthene	206-44-0	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	89.4	74.8 117
EP132: Fluorene	86-73-7	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	88.3	72.9 114
EP132: Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	---	---	---
		0.10	µg/L	---	2 µg/L	83.4	67.8 119



Substrate: WATER

Method	Compound	CAS Number	LOD	Unit	Method Blank (MB)	Spike	Laboratory Control Spikes (LCS) Report		Recovery Limits (%)
					Report		Concentration	Spikes Recovery (%)	
					Result		LCS	Low	High
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 752483) - continued</b>									
EP132:	N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	20 µg/L	71.0	53.6	131
EP132:	Naphthalene	91-20-3	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	94.5	68.3	116
EP132:	Perylene	198-55-0	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	83.3	68	122
EP132:	Phenanthrene	85-01-8	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	88.4	74.8	112
EP132:	Pyrene	129-00-0	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	90.7	75.1	117
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 759512)</b>									
EP132:	3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	83.4	65.8	121
EP132:	2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	90.0	67.7	112
EP132:	7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	82.5	11.6	146
EP132:	Acenaphthene	83-32-9	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	88.1	73.2	111
EP132:	Acenaphthylene	208-96-8	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	92.5	72.4	112
EP132:	Anthracene	120-12-7	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	91.3	73.4	113
EP132:	Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	91.7	73.6	114
EP132:	Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	91.0	75.2	117
EP132:	Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	90.9	71.4	119
EP132:	Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	91.3	75.3	118
EP132:	Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	92.6	66.6	121
EP132:	Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	91.1	74.8	118
EP132:	Chrysene	218-01-9	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	92.2	69.6	120
EP132:	Coronene	191-07-1	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	95.2	47.4	131
EP132:	Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	95.8	71.5	117



Sub-Matrix: WATER

Method/Compound	CAS Number	LOD	Unit	Method Blank (MB)	Spike	Laboratory Control Spike (LCS) Report		
				Report		Concentration	Spike Recovery (%)	Recovery Limits (%)
				Result		LCs	Low	High
<b>EP132B: Polynuclear Aromatic Hydrocarbons (OCLoc: 759512) - continued</b>								
EP132: Fluoranthene	206-44-0	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	92.4	74.8	117
EP132: Fluorene	86-73-7	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	90.5	72.9	114
EP132: Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	94.6	67.8	119
EP132: N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	97.0	53.6	131
EP132: Naphthalene	91-20-3	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	93.7	68.3	116
EP132: Perylene	198-55-0	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	90.9	68	122
EP132: Phenanthrene	85-01-8	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	93.7	74.8	112
EP132: Pyrene	129-00-0	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	92.8	75.1	117



### ***Matrix Spike (MS) Report***

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) Results are required to be reported.**



## CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 7
Contact	: MS KAREN LUI	Contact	: Wong Wai Man, Alice	Work Order	: HK0814214
Address	: 21/F, LINCOLN HOUSE, 979 KING`S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Karen.Lui@erm.com	E-mail	: Alice.Wong@alsenviro.com		
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044		
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021		
Project	: EM&A FOR THE PERMANENT AVIATION FUEL FACILITY	Quote number	: ----	Date Samples Received	: 17-SEP-2008
Order number	: ----			Issue Date	: 09-OCT-2008
C-O-C number	: ----			No. of samples received	: 18
Site	: ----			No. of samples analysed	: 18

### 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-SEP-2008

Key: LOR = Limit of reporting; CAS Number = Chemistry Abstract Services number

Specific comments for Work Order: **HK0814214**

**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.**

**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

**ALS Laboratory Group**

Trading Name: **ALS Technichem (HK) Pty Ltd**

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A Campbell Brothers Limited Company



### Analytical Results

Sub-Matrix: MARINE WATER

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	MPB1 ME	MPB1 ME DUP	MPB2 ME	MPB2 ME DUP	MP ME
				[17-SEP-2008]	[17-SEP-2008]	[17-SEP-2008]	[17-SEP-2008]	[17-SEP-2008]
				HK0814214-001	HK0814214-002	HK0814214-003	HK0814214-004	HK0814214-005
<b>EP-065A: PCB Single Congeners</b>								
PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 138	35065-28-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
<b>EP-065B: Organochlorine Pesticides</b>								
4,4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
4,4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
4,4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
<b>EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate</b>						Surrogate control limits listed at end of this report.		
Decachlorobiphenyl	2051-24-3	0.1	%	98.6	98.6	99.3	94.8	80.3





Sub-Matrix: MARINE WATER				Client sample ID	MP ME DUP	C2 (NM5) ME	C2 (NM5) ME DUP	MPB1 MF	MPB1 MF DUP
Client sampling date / time				[17-SEP-2008]	[17-SEP-2008]	[17-SEP-2008]	[17-SEP-2008]	[17-SEP-2008]	
Compound	CAS Number	LOR	Unit	HK0814214-006	HK0814214-007	HK0814214-008	HK0814214-009	HK0814214-010	
<b>EP-065A: PCB Single Congeners</b>									
PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 138	35065-28-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
<b>EP-065B: Organochlorine Pesticides</b>									
4,4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
4,4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
4,4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
<b>EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate</b>							Surrogate control limits listed at end of this report.		
Decachlorobiphenyl	2051-24-3	0.1	%	93.1	96.6	95.4	102	105	



Sub-Matrix: MARINE WATER				Client sample ID	MPB2 MF	MPB2 MF DUP	MP MF	MP MF DUP	C1 (NM3) MF
Client sampling date / time				[17-SEP-2008]	[17-SEP-2008]	[17-SEP-2008]	[17-SEP-2008]	[17-SEP-2008]	[17-SEP-2008]
Compound	CAS Number	LOR	Unit	HK0814214-011	HK0814214-012	HK0814214-013	HK0814214-014	HK0814214-015	
<b>EP-065A: PCB Single Congeners</b>									
PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 138	35065-28-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<b>EP-065B: Organochlorine Pesticides</b>									
4,4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4,4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4,4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<b>EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate</b>							Surrogate control limits listed at end of this report.		
Decachlorobiphenyl	2051-24-3	0.1	%	92.5	101	92.6	89.0	93.9	



Sub-Matrix: MARINE WATER				Client sample ID	C1 (NM3) MF DUP	C3 (NM6) MF	C3 (NM6) MF DUP		
				Client sampling date / time	[17-SEP-2008]	[17-SEP-2008]	[17-SEP-2008]		
Compound	CAS Number	LOR	Unit	HK0814214-016	HK0814214-017	HK0814214-018			
<b>EP-065A: PCB Single Congeners</b>									
PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 138	35065-28-2	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	<0.01			
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	<0.01			
<b>EP-065B: Organochlorine Pesticides</b>									
4,4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	<0.01			
4,4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	<0.01			
4,4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	<0.01			
<b>EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate</b>								Surrogate control limits listed at end of this report.	
Decachlorobiphenyl	2051-24-3	0.1	%	102	103	99.0			



### 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 (%)
<b>EP-065A: PCB Single Congeners (QC Lot: 763840)</b>								
HK0814214-001	MPB1 ME	PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	0.0
		PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	0.0
		PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	0.0
		PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	0.0
		PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	0.0
		PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	0.0
		PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	0.0
		PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	0.0
		PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	0.0
		PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	0.0
		PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	0.0
		PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	0.0
		PCB 138	35065-28-2	0.01	µg/L	<0.01	<0.01	0.0
		PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	0.0
		PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	0.0
		PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	0.0
		PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	0.0
		PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	0.0
		PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	0.0
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	0.0		
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	0.0		
<b>EP-065B: Organochlorine Pesticides (QC Lot: 763840)</b>								
HK0814214-001	MPB1 ME	4.4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	0.0
		4.4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	0.0
		4.4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	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					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentratio	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
<b>EP-065A: PCB Single Congeners (QC Lot: 763840)</b>											
PCB 8	34883-43-7	0.01	µg/L	<0.01	100 µg/L	85.9	----	50	130	----	----
PCB 18	37680-65-2	0.01	µg/L	<0.01	100 µg/L	76.4	----	50	130	----	----
PCB 28	7012-37-5	0.01	µg/L	<0.01	100 µg/L	63.6	----	50	130	----	----
PCB 52	35693-99-3	0.01	µg/L	<0.01	100 µg/L	57.9	----	50	130	----	----
PCB 44	41464-39-5	0.01	µg/L	<0.01	100 µg/L	56.9	----	50	130	----	----
PCB 66	32598-10-0	0.01	µg/L	<0.01	100 µg/L	59.5	----	50	130	----	----
PCB 101	37680-73-2	0.01	µg/L	<0.01	100 µg/L	58.2	----	50	130	----	----



Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
<b>EP-065A: PCB Single Congeners (QC Lot: 763840) - Continued</b>											
PCB 77	32598-13-3	0.01	µg/L	<0.01	100 µg/L	66.4	----	50	130	----	----
PCB 149	38380-04-0	0.01	µg/L	<0.01	100 µg/L	62.0	----	50	130	----	----
PCB 118	31508-00-6	0.01	µg/L	<0.01	100 µg/L	66.4	----	50	130	----	----
PCB 153	35065-27-1	0.01	µg/L	<0.01	100 µg/L	67.3	----	50	130	----	----
PCB 105	32598-14-4	0.01	µg/L	<0.01	100 µg/L	70.6	----	50	130	----	----
PCB 138	35065-28-2	0.01	µg/L	<0.01	100 µg/L	70.6	----	50	130	----	----
PCB 126	57465-28-8	0.01	µg/L	<0.01	100 µg/L	73.1	----	50	130	----	----
PCB 187	52663-68-0	0.01	µg/L	<0.01	100 µg/L	67.1	----	50	130	----	----
PCB 128	38380-07-3	0.01	µg/L	<0.01	100 µg/L	72.3	----	50	130	----	----
PCB 156	38380-08-4	0.01	µg/L	<0.01	100 µg/L	74.8	----	50	130	----	----
PCB 180	35065-29-3	0.01	µg/L	<0.01	100 µg/L	74.6	----	50	130	----	----
PCB 169	60044-26-0	0.01	µg/L	<0.01	100 µg/L	79.0	----	50	130	----	----
PCB 170	35065-30-6	0.01	µg/L	<0.01	100 µg/L	77.7	----	50	130	----	----
PCB 195	52663-78-2	0.01	µg/L	<0.01	100 µg/L	80.0	----	50	130	----	----
<b>EP-065B: Organochlorine Pesticides (QC Lot: 763840)</b>											
4,4'-DDT	50-29-3	0.01	µg/L	<0.01	100 µg/L	# Not Determined	----	50	130	----	----
4,4'-DDE	72-55-9	0.01	µg/L	<0.01	100 µg/L	# Not Determined	----	50	130	----	----
4,4'-DDD	72-54-8	0.01	µg/L	<0.01	100 µg/L	# Not Determined	----	50	130	----	----

**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: MARINE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate</b>			
Decachlorobiphenyl	2051-24-3	50	130



Environmental Division

**CERTIFICATE OF ANALYSIS**

**CONTACT:** MS KAREN LUI  
**CLIENT:** ERM HONG KONG  
**ADDRESS:** 21/F, LINCOLN HOUSE, 979 KING'S ROAD,  
TAIKOO PLACE, ISLAND EAST,  
QUARRY BAY, HONG KONG.  
**PROJECT:** EM&A FOR THE PERMANENT AVIATION FUEL FACILITY

**Batch:** HK0814214  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 17/09/2008  
**DATE OF ISSUE:** 06/10/2008  
**SAMPLE TYPE:** WATER  
**No. of SAMPLES:** 18

**COMMENTS**

Sample(s) were collected by ALS Technichem (HK) staff on 17 September, 2008.  
Water sample(s) analysed and reported on an as received basis.  
PAHs were subcontracted and tested by ALS Sydney.  
ALS Sydney details report was attached. The attached report contains a total of 15 pages.

**Sample Details**

<b>ALS Lab ID</b>	<b>Sample ID</b>	<b>Date of Sampling</b>
HK0814214 - 1	MPB1_ME	17/09/2008
HK0814214 - 2	MPB1_ME DUP	17/09/2008
HK0814214 - 3	MPB2_ME	17/09/2008
HK0814214 - 4	MPB2_ME DUP	17/09/2008
HK0814214 - 5	MP_ME	17/09/2008
HK0814214 - 6	MP_ME DUP	17/09/2008
HK0814214 - 7	C2 (NM5)_ME	17/09/2008
HK0814214 - 8	C2 (NM5)_ME DUP	17/09/2008
HK0814214 - 9	MPB1_MF	17/09/2008
HK0814214 - 10	MPB1_MF DUP	17/09/2008
HK0814214 - 11	MPB2_MF	17/09/2008
HK0814214 - 12	MPB2_MF DUP	17/09/2008
HK0814214 - 13	MP_MF	17/09/2008
HK0814214 - 14	MP_MF DUP	17/09/2008
HK0814214 - 15	C1 (NM3)_MF	17/09/2008
HK0814214 - 16	C1 (NM3)_MF DUP	17/09/2008
HK0814214 - 17	C3 (NM6)_MF	17/09/2008
HK0814214 - 18	C3 (NM6)_MF DUP	17/09/2008

**ISSUING LABORATORY: HONG KONG**

**Address**

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11/F Chung Shun Knitting Centre  
1-3 Wing Yip Street  
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*(Signature)*  
Ms Wong Wai Mai, Alice  
Laboratory Manager - Hong Kong

**Other ALS Environmental Laboratories**

**AUSTRALIA**  
Brisbane  
Melbourne  
Sydney  
Newcastle

**AMERICAS**  
Vancouver  
Santiago  
Artofagasta  
Lima

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Abbreviations: % SPK REC denotes percentage spike recovery  
CHK denotes duplicate check sample  
LOR denotes limit of reporting  
LCS % REC denotes Laboratory Control Sample percentage recovery



Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: ES0813842	Page	: 1 of 8
Client	: ALS TECHNICHEM (HK)	Laboratory	: Environmental Division Sydney
Contact	: MS ALICE WONG	Contact	: Charlie Pierce
Address	: 11/F CHUNG SHUN KNITTING CNTR 1-3 WING YIP STREET KWAI CHUNG, N.T HONG KONG HONG KONG	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alice.wong@alsenviro.com	E-mail	: charlie.pierce@alsenviro.com
Telephone	: +852 001185226101044	Telephone	: +61-2-8784 8555
Facsimile	: +852 26102021	Facsimile	: +61-2-8784 8500
Project	: ----	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 22-SEP-2008
C-O-C number	: ----	Issue Date	: 02-OCT-2008
Sampler	: AW	No. of samples received	: 18
Site	: ----	No. of samples analysed	: 18
Quote number	: SY/241/07		

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.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

*Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

*Signatories*

Alex Rossi

*Position*

Organic Chemist

*Accreditation Category*

Organics



### General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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.

Key : CAS Number = Chemistry Abstract Services number

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting





**Analytical Results**

Sub-Matrix: WATER	Client sample ID	HK0814214_1	HK0814214_2	HK0814214_3	HK0814214_5	HK0814214_6		
		MPB1_ME	MPB1_ME DUP	MPB2_ME	MP_ME	MP_ME DUP		
	Client sampling date / time	17-SEP-2008 15:00	17-SEP-2008 15:00	17-SEP-2008 15:00	17-SEP-2008 15:00	17-SEP-2008 15:00		
Compound	CAS Number	LOR	Unit	ES0813842-001	ES0813842-002	ES0813842-003	ES0813842-004	ES0813842-005

EP132B: Polynuclear Aromatic Hydrocarbons								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	89.9	72.4	70.8	87.7	92.3
Anthracene-d10	1719-06-8	0.1	%	90.6	79.5	76.6	86.1	92.1
4-Terphenyl-d14	1718-51-0	0.1	%	89.6	77.3	74.7	85.0	89.4



**Analytical Results**

Sub-Matrix: WATER

Client sample ID

HK0814214\_7

HK0814214\_8

HK0814214\_9

HK0814214\_10

HK0814214\_11

C2(NM5)\_ME

C2(NM5)\_ME DUP

MPB1\_MF

MPB1\_MF DUP

MPB2\_MF

Client sampling date / time

17-SEP-2008 15:00

17-SEP-2008 15:00

17-SEP-2008 15:00

17-SEP-2008 15:00

17-SEP-2008 15:00

ES0813842-006

ES0813842-007

ES0813842-008

ES0813842-009

ES0813842-010

Compound	CAS Number	Unit	ES0813842-006	ES0813842-007	ES0813842-008	ES0813842-009	ES0813842-010	
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
2-Methylnaphthalene	91-57-6	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
7,12-Dimethylbenz(a)anthracene	57-97-6	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Acenaphthene	83-32-9	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Acenaphthylene	208-96-8	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Anthracene	120-12-7	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Benz(a)anthracene	56-55-3	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Benzo(a)pyrene	50-32-8	0.05 µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(b)fluoranthene	205-99-2	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Benzo(e)pyrene	192-97-2	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Benzo(g,h,i)perylene	191-24-2	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Benzo(k)fluoranthene	207-08-9	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Chrysene	218-01-9	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Coronene	191-07-1	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Dibenz(a,h)anthracene	53-70-3	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Fluoranthene	206-44-0	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Fluorene	86-73-7	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Indeno(1,2,3-cd)pyrene	193-39-5	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
N-2-Fluorenyl Acetamide	53-96-3	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Naphthalene	91-20-3	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Perylene	198-55-0	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Phenanthrene	85-01-8	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
Pyrene	129-00-0	0.1 µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
<b>EP132T: Base/Neutral Extractable Sumgates</b>								
2-Fluorobiphenyl	321-60-8	0.1 %	93.9	86.7	87.3	90.2	96.1	
Anthracene-d10	1719-06-8	0.1 %	92.5	87.0	85.6	90.6	97.3	
4-Terphenyl-d14	1718-51-0	0.1 %	92.7	88.3	88.1	93.0	100	



**Analytical Results**

Sub-Matrix: WATER

Compound	CAS Number	LOD	Unit	Client sample ID	Client sample ID	Client sample ID	Client sample ID	Client sample ID
				HK0814214_12	HK0814214_13	HK0814214_14	HK0814214_15	HK0814214_16
				MPB2_MF DUP	MP_MF	MP_MF DUP	C1(NM3)_MF	C1(NM3)_MF DUP
Client sampling date / time				17-SEP-2008 15:00	17-SEP-2008 15:00	17-SEP-2008 15:00	17-SEP-2008 15:00	17-SEP-2008 15:00
				ES0813842-011	ES0813842-012	ES0813842-013	ES0813842-014	ES0813842-015
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP132T: Base/Neutral Extractable Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	54.7	99.7	83.9	86.0	84.8
Anthracene-d10	1719-06-8	0.1	%	56.7	100	83.7	86.5	86.0
4-Terphenyl-d14	1718-51-0	0.1	%	58.5	102	85.9	89.5	88.3



**Analytical Results**

Sub-Matrix: WATER	Client sample ID	HK0814214_17	HK0814214_18	HK0814214_4	---	---
		C3(NM6)_MF	C3(NM6)_MF DUP	MPB2-ME DUP		
	Client sampling date / time	17-SEP-2008 15:00	17-SEP-2008 15:00	29/09/2008		
		17-SEP-2008 15:00	17-SEP-2008 15:00	17-SEP-2008 15:00		
Compound	CAS Number	LOF	Unit	ES0813842-016	ES0813842-017	ES0813842-018
<b>EP132B: Polynuclear Aromatic Hydrocarbons</b>						
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1
2-Methylnaphthalene	81-57-6	0.1	µg/L	<0.1	<0.1	<0.1
7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1
<b>EP132T: Base/Neutral Extractable Surrogates</b>						
2-Fluorobiphenyl	321-60-8	0.1	%	86.2	91.9	82.4
Anthracene-d10	1719-06-8	0.1	%	87.2	92.6	86.9
4-Terphenyl-d14	1718-51-0	0.1	%	88.8	95.6	87.6



### Surrogate Control Limits

Substrate: WATER

Recovery Limits (%)

Compound	CAS Number	Low	High
<b>EP132T - Base/Neutral Extractable Surrogates</b>			
2-Fluorobiphenyl	321-60-8	43	116
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	33	141



Environmental Division

QUALITY CONTROL REPORT

Work Order	: ES0813842	Page	: 1 of 7
Client	: ALS TECHNICHEM (HK)	Laboratory	: Environmental Division Sydney
Contact	: MS ALICE WONG	Contact	: Charlie Pierce
Address	: 11/F CHUNG SHUN KNITTING CNTR 1-3 WING YIP STREET KWAI CHUNG, N.T HONG KONG HONG KONG	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: alice.wong@alsenviro.com	E-mail	: charlie.pierce@alsenviro.com
Telephone	: +852 001185226101044	Telephone	: +61-2-8784 8555
Facsimile	: +852 26102021	Facsimile	: +61-2-8784 8500
Project	: ---	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ---	Date Samples Received	: 22-SEP-2008
C-O-C number	: ---	Issue Date	: 02-OCT-2008
Sampler	: AW	No. of samples received	: 18
Order number	: ---	No. of samples analysed	: 18
Quote number	: SY/241/07		

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.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



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ACCREDITATION

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This document is issued in  
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accreditation requirements.

Accredited for compliance with  
ISO/IEC 17025.

*Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alex Rossi	Organic Chemist	Organics

Page 2 of 7  
Work Order: ES0813842  
Client : ALS TECHNICHEM (HK)  
Project : ----



### **General Comments**

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = Chemistry Abstract Services number  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



### **Laboratory Duplicate (DUP) Report**

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

No Limit

- **No Laboratory Duplicate (DUP) Results are required to be reported.**





### Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB)	Spike Concentration	Laboratory Control Spike (LCS) Report		
				Report Result		Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (OCLot: 784833)</b>								
EP132: 3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	85.6	65.8	121
EP132: 2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	85.1	67.7	112
EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	83.5	11.6	146
EP132: Acenaphthene	83-32-9	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	84.8	73.2	111
EP132: Acenaphthylene	208-96-8	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	87.9	72.4	112
EP132: Anthracene	120-12-7	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	90.3	73.4	113
EP132: Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	84.9	73.6	114
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	83.6	75.2	117
EP132: Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	91.0	71.4	119
EP132: Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	84.6	75.3	118
EP132: Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	88.5	66.6	121
EP132: Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	89.6	74.8	118
EP132: Chrysene	218-01-9	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	85.1	69.6	120
EP132: Coronene	191-07-1	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	92.1	47.4	131
EP132: Dibenzo(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	84.9	71.5	117
EP132: Fluoranthene	206-44-0	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	85.3	74.8	117
EP132: Fluorene	86-73-7	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	86.5	72.9	114
EP132: Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	---	---	---	---
		0.10	µg/L	---	2 µg/L	80.5	67.8	119



Substrate: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB)	Spike Concentration	Laboratory Control Spike (LCS) Range		Recovery Limits (%)	
				Report Result		Spike Recovery (%)	LCS	Low	High
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 764933) - continued</b>									
EP132: N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	20 µg/L	69.6	53.6	131	
EP132: Naphthalene	91-20-3	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	85.2	68.3	116	
EP132: Perylene	198-55-0	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	86.6	68	122	
EP132: Phenanthrene	85-01-8	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	94.6	74.8	112	
EP132: Pyrene	129-00-0	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	85.8	75.1	117	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 770710)</b>									
EP132: 3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	81.0	65.8	121	
EP132: 2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	83.9	67.7	112	
EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	87.8	11.6	146	
EP132: Acenaphthene	83-32-9	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	84.2	73.2	111	
EP132: Acenaphthylene	208-96-8	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	85.7	72.4	112	
EP132: Anthracene	120-12-7	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	86.4	73.4	113	
EP132: Benz(a)anthracene	56-53-3	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	92.3	73.6	114	
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	90.7	75.2	117	
EP132: Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	102	71.4	119	
EP132: Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	91.9	75.3	118	
EP132: Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	94.1	66.6	121	
EP132: Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	87.2	74.8	118	
EP132: Chrysene	218-01-9	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	90.3	69.6	120	
EP132: Coronene	191-07-1	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	105	47.4	131	
EP132: Dibenzo(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	---	---	---	---	---
		0.10	µg/L	---	2 µg/L	88.9	71.5	117	



Sub-Matrix: WATER

Method	Compound	CAS Number	LOD	Unit	Method Blank (MS)	Spike	Laboratory Control Spire (LCS) Report		
					Report		Concentration	Spike Recovery (%)	Recovery Limits (%)
					Result		LCS	Low	High
<b>EP132B Polynuclear Aromatic Hydrocarbons (QCLo# 770718) - continued</b>									
EP132:	Fluoranthene	206-44-0	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	83.7	74.8	117
EP132:	Fluorene	86-73-7	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	83.9	72.9	114
EP132:	Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	89.0	67.8	119
EP132:	N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	20 µg/L	70.9	53.6	131
EP132:	Naphthalene	91-20-3	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	89.3	68.3	116
EP132:	Perylene	198-55-0	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	90.8	68	122
EP132:	Phenanthrene	85-01-8	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	94.9	74.8	112
EP132:	Pyrene	129-00-0	0.1	µg/L	<0.1	---	---	---	---
			0.10	µg/L	---	2 µg/L	92.4	75.1	117



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### ***Matrix Spike (MS) Report***

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) Results are required to be reported.**