



### CERTIFICATE OF ANALYSIS

<i>Client</i>	: ERM HONG KONG	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 7
<i>Contact</i>	: MS KAREN LUI	<i>Contact</i>	: Alice Wong	<i>Work Order</i>	: HK0801070
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<i>Project</i>	: EM&A FOR THE PERMANENT AVIATION FUEL FACILITY	<i>Quote number</i>	: ---	<i>Date received</i>	: 23 Jan 2008
<i>Order number</i>	: ---			<i>Date of issue</i>	: 18 Feb 2008
<i>C-O-C number</i>	: ---			<i>No. of samples</i>	- Received : 18
<i>Site</i>	: ---				- Analysed : 18

### Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0801070 supersedes any previous reports with this reference. The completion date of analysis is 13 Feb 2008. Results apply to 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 process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0801070 : **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 Hona Kona. Chapter 553. Section 6.

<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:-</i>
Anh Ngoc Huynh	Senior Chemist	Organics



## Analytical Results

				Client Sample ID :	MPB1-ME	MPB1-ME DUP	MPB2-ME	MPB2-ME DUP	MP-ME
				Laboratory Sample ID :	HK0801070-001	HK0801070-002	HK0801070-003	HK0801070-004	HK0801070-005
				Sample Date / Time :	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]
Submatrix: MARINE WATER									
Method: Analysis Description	CAS number	LOR	Units						
<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 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	%	<b>96.9</b>	<b>102</b>	<b>102</b>	<b>99.5</b>	<b>99.5</b>	<b>99.1</b>
Tetrachlorometaxylene	877-09-8	0.1	%	<b>98.4</b>	<b>101</b>	<b>98.7</b>	<b>99.5</b>	<b>99.5</b>	<b>101</b>
Dibutylchloroendate	1770-80-5	0.1	%	<b>99.6</b>	<b>98.0</b>	<b>99.8</b>	<b>101</b>	<b>101</b>	<b>100</b>



**Analytical Results**

				Client Sample ID :	MP-ME DUP	C2 (NM5)-ME	C2 (NM5)-ME DUP	MPB1-MF	MPB1-MF DUP
				Laboratory Sample ID :	HK0801070-006	HK0801070-007	HK0801070-008	HK0801070-009	HK0801070-010
				Sample Date / Time :	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]
Submatrix: MARINE WATER									
Method: Analysis Description	CAS number	LOR	Units						
<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 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	%	<b>102</b>	<b>100</b>	<b>101</b>	<b>103</b>	<b>100</b>	
Tetrachlorometaxylene	877-09-8	0.1	%	<b>101</b>	<b>98.5</b>	<b>103</b>	<b>103</b>	<b>101</b>	
Dibutylchloroendate	1770-80-5	0.1	%	<b>99.6</b>	<b>103</b>	<b>98.5</b>	<b>97.0</b>	<b>98.1</b>	



## Analytical Results

				Client Sample ID :	MPB2-MF	MPB2-MF DUP	MP-MF	MP-MF DUP	C1 (NM3)-MF
				Laboratory Sample ID :	HK0801070-011	HK0801070-012	HK0801070-013	HK0801070-014	HK0801070-015
				Sample Date / Time :	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]
Submatrix: MARINE WATER									
Method: Analysis Description	CAS number	LOR	Units						
<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 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	%	<b>98.6</b>	<b>104</b>	<b>104</b>	<b>101</b>	<b>111</b>	
Tetrachlorometaxylene	877-09-8	0.1	%	<b>99.1</b>	<b>101</b>	<b>98.4</b>	<b>99.6</b>	<b>98.9</b>	
Dibutylchloroendate	1770-80-5	0.1	%	<b>101</b>	<b>106</b>	<b>107</b>	<b>106</b>	<b>97.0</b>	



## Analytical Results

				Client Sample ID :	C1 (NM3)-MF DUP	C1 (NM6)-MF	C1 (NM6)-MF DUP		
				Laboratory Sample ID :	HK0801070-016	HK0801070-017	HK0801070-018		
				Sample Date / Time :	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]	[ 23 Jan 2008 ]		
				Submatrix: MARINE WATER					
Method: Analysis Description	CAS number	LOR	Units						
<b>EP-065A: PCB Single Congeners</b>									
PCB 8	34883-43-7	0.01	µg/L	<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		
PCB 28	7012-37-5	0.01	µg/L	<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		
PCB 44	41464-39-5	0.01	µg/L	<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		
PCB 101	37680-73-2	0.01	µg/L	<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		
PCB 149	38380-04-0	0.01	µg/L	<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		
PCB 153	35065-27-1	0.01	µg/L	<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		
PCB 126	57465-28-8	0.01	µg/L	<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		
PCB 128	38380-07-3	0.01	µg/L	<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		
PCB 180	35065-29-3	0.01	µg/L	<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		
PCB 170	35065-30-6	0.01	µg/L	<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		
<b>EP-065B: Organochlorine Pesticides</b>									
4.4'-DDT	50-29-3	0.01	µg/L	<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		
4.4'-DDD	72-54-8	0.01	µg/L	<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>97.6</b>	<b>105</b>	<b>97.3</b>			
Tetrachlorometaxylene	877-09-8	0.1	%	<b>103</b>	<b>104</b>	<b>99.5</b>			
Dibutylchlorendate	1770-80-5	0.1	%	<b>105</b>	<b>99.8</b>	<b>99.6</b>			



### Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: WATER					Duplicate (DUP) Results				
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	LOR	Units	Original Result	Duplicate Result	RPD (%)	
<b>EP-065A: PCB Single Congeners (QC Lot: 592111)</b>									
HK0801070-001	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 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: 592111)</b>									
HK0801070-001	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	

### Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Matrix Type: WATER			Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results					
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						SCS	DCS	Low	High	Value	Control Limit
<b>EP-065A: PCB Single Congeners (QCLot: 592111)</b>											
PCB 8	34883-43-7	0.01	µg/L	<0.01	10 µg/L	94.7	----	50	130	----	----
PCB 18	37680-65-2	0.01	µg/L	<0.01	10 µg/L	105	----	50	130	----	----
PCB 28	7012-37-5	0.01	µg/L	<0.01	10 µg/L	113	----	50	130	----	----
PCB 52	35693-99-3	0.01	µg/L	<0.01	10 µg/L	87.8	----	50	130	----	----
PCB 44	41464-39-5	0.01	µg/L	<0.01	10 µg/L	112	----	50	130	----	----
PCB 66	32598-10-0	0.01	µg/L	<0.01	10 µg/L	96.3	----	50	130	----	----
PCB 101	37680-73-2	0.01	µg/L	<0.01	10 µg/L	92.8	----	50	130	----	----



**Matrix Type: WATER**

Method: Analysis Description		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results							
		CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
							SCS	DCS	Low	High	Value	Control Limit
<b>EP-065A: PCB Single Congeners (QCLot: 592111) - continued</b>												
PCB 77	32598-13-3	0.01	µg/L	<0.01	10 µg/L	109	----	50	130	----	----	
PCB 149	38380-04-0	0.01	µg/L	<0.01	10 µg/L	91.4	----	50	130	----	----	
PCB 118	31508-00-6	0.01	µg/L	<0.01	10 µg/L	107	----	50	130	----	----	
PCB 153	35065-27-1	0.01	µg/L	<0.01	10 µg/L	93.3	----	50	130	----	----	
PCB 105	32598-14-4	0.01	µg/L	<0.01	10 µg/L	86.1	----	50	130	----	----	
PCB 126	57465-28-8	0.01	µg/L	<0.01	10 µg/L	97.8	----	50	130	----	----	
PCB 187	52663-68-0	0.01	µg/L	<0.01	10 µg/L	110	----	50	130	----	----	
PCB 128	38380-07-3	0.01	µg/L	<0.01	10 µg/L	87.2	----	50	130	----	----	
PCB 156	38380-08-4	0.01	µg/L	<0.01	10 µg/L	89.3	----	50	130	----	----	
PCB 180	35065-29-3	0.01	µg/L	<0.01	10 µg/L	85.0	----	50	130	----	----	
PCB 169	60044-26-0	0.01	µg/L	<0.01	10 µg/L	99.8	----	50	130	----	----	
PCB 170	35065-30-6	0.01	µg/L	<0.01	10 µg/L	89.1	----	50	130	----	----	
PCB 195	52663-78-2	0.01	µg/L	<0.01	10 µg/L	98.4	----	50	130	----	----	
<b>EP-065B: Organochlorine Pesticides (QCLot: 592111)</b>												
4.4'-DDT	50-29-3	0.01	µg/L	<0.01	10 µg/L	Not Determined	----	50	130	----	----	
4.4'-DDE	72-55-9	0.01	µg/L	<0.01	10 µg/L	Not Determined	----	50	130	----	----	
4.4'-DDD	72-54-8	0.01	µg/L	<0.01	10 µg/L	Not Determined	----	50	130	----	----	

**Surrogate Control Limits**

**Submatrix Type: MARINE WATER**

Method: Analysis Description	Units	Lower Limit	Upper Limit
<b>EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate</b>			
Decachlorobiphenyl	%	50	130
Tetrachlorometaxylene	%	50	130
Dibutylchloroendate	%	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, HONG KONG  
**PROJECT:** EM&A FOR THE PERMANENT AVIATION FUEL FACILITY

**Batch:** HK0801070  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 23/01/2008  
**DATE OF ISSUE:** 12/02/2008  
**SAMPLE TYPE:** WATER  
**No. of SAMPLES:** 18

### COMMENTS

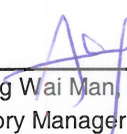
Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.  
PAHs was subcontracted and tested by ALS Sydney.  
ALS Sydney details report was attached. The attached report contains a total of 14 pages.

### 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  
**Fax:** 852-2610 2021  
**Email:** hongkong@alsenviro.com

  
Ms Wong Wai Man, Alice  
Laboratory Manager - Hong Kong

#### **Other ALS Environmental Laboratories**

##### **AUSTRALIA**

Brisbane  
Melbourne  
Sydney  
Newcastle

Hong Kong  
Singapore  
Kuala Lumpur  
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





# CERTIFICATE OF ANALYSIS

**Batch:** HK0801070  
**Date of Issue:** 12/02/2008  
**Client:** ERM HONG KONG  
**Client Reference:** EM&A FOR THE PERMANENT AVIATION FUEL FACILITY

ALS Sydney report is attached for the analysis of PAHs in water.  
This attached report contains a total of 14 pages.

## Sample Details

<i>ALS Lab ID</i>	<i>ALS Sydney Lab ID</i>	<i>Client's Sample ID</i>	<i>Sampling Date</i>
HK0801070-1	ES0801251-1	MPB1 ME	23/01/2008
HK0801070-2	ES0801251-2	MPB1 ME DUP	23/01/2008
HK0801070-3	ES0801251-3	MPB2 ME	23/01/2008
HK0801070-4	ES0801251-4	MPB2 ME DUP	23/01/2008
HK0801070-5	ES0801251-5	MP ME	23/01/2008
HK0801070-6	ES0801251-6	MP ME DUP	23/01/2008
HK0801070-7	ES0801251-7	C2(NM5) ME	23/01/2008
HK0801070-8	ES0801251-8	C2(NM5) ME DUP	23/01/2008
HK0801070-9	ES0801251-9	MPB1 MF	23/01/2008
HK0801070-10	ES0801251-10	MPB1 MF DUP	23/01/2008
HK0801070-11	ES0801251-11	MPB2 MF	23/01/2008
HK0801070-12	ES0801251-12	MPB2 MF DUP	23/01/2008
HK0801070-13	ES0801251-13	MP MF	23/01/2008
HK0801070-14	ES0801251-14	MP MF DUP	23/01/2008
HK0801070-15	ES0801251-15	C1(NM3) MF	23/01/2008
HK0801070-16	ES0801251-16	C1(NM3) MF DUP	23/01/2008
HK0801070-17	ES0801251-17	C3(NM6) MF	23/01/2008
HK0801070-18	ES0801251-18	C3(NM6) MF DUP	23/01/2008



## Environmental Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>ES0801251</b>	Page	: 1 of 8
Client	: <b>ALS TECHNICHEM (HK)</b>	Laboratory	: Environmental Division Sydney
Contact	: MS ALICE WONG	Contact	: Victor Kedicioglu
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	: Victor.Kedicioglu@alsenviro.com
Telephone	: +852 001585226101044	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	: 01-FEB-2008
C-O-C number	: ----	Issue Date	: 12-FEB-2008
Sampler	: ----	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	Position	Accreditation Category
EDWANDY FADJAR	Senior Organic Chemist	Organics

---

**Environmental Division Sydney**  
Part of the **ALS Laboratory Group**

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### **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 process purposes.

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

Client sampling date / time

Compound	CAS Number	LOR	Unit	MPB1-ME	MPB1-ME DUP	MPB2-ME	MPB2-ME DUP	MP-ME
				23-JAN-2008 15:00	23-JAN-2008 15:00	23-JAN-2008 15:00	23-JAN-2008 15:00	23-JAN-2008 15:00
				ES0801251-001	ES0801251-002	ES0801251-003	ES0801251-004	ES0801251-005
<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	%	68.9	72.7	75.6	78.6	80.0
Anthracene-d10	1719-06-8	0.1	%	75.5	77.5	80.0	85.6	85.1
4-Terphenyl-d14	1718-51-0	0.1	%	77.0	80.0	82.1	87.2	85.8



## Analytical Results

Sub-Matrix: WATER

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	MP-ME DUP	C2 (NM5)-ME	C2 (NM5)-ME DUP	MPB1-MF	MPB1-MF DUP
				23-JAN-2008 15:00	23-JAN-2008 15:00	23-JAN-2008 15:00	23-JAN-2008 15:00	23-JAN-2008 15:00
				ES0801251-006	ES0801251-007	ES0801251-008	ES0801251-009	ES0801251-010
<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	%	72.3	73.7	76.6	72.1	74.3
Anthracene-d10	1719-06-8	0.1	%	82.6	78.7	84.6	80.7	80.7
4-Terphenyl-d14	1718-51-0	0.1	%	83.9	81.7	86.2	81.4	82.8



## Analytical Results

Sub-Matrix: WATER

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	MPB2-MF	MPB2-MF DUP	MP-MF	MP-MF DUP	C1 (NM3)-MF
				23-JAN-2008 15:00	23-JAN-2008 15:00	23-JAN-2008 15:00	23-JAN-2008 15:00	23-JAN-2008 15:00
				ES0801251-011	ES0801251-012	ES0801251-013	ES0801251-014	ES0801251-015
<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	%	67.6	71.9	73.7	79.3	70.5
Anthracene-d10	1719-06-8	0.1	%	78.1	80.2	71.8	77.1	72.2
4-Terphenyl-d14	1718-51-0	0.1	%	80.6	80.9	71.5	78.7	73.4



## Analytical Results

Sub-Matrix: WATER

Client sample ID

Client sampling date / time

				C1 (NM3)-MF DUP	C3 (NM6)-MF	C3 (NM6)-MF DUP	----	----
				23-JAN-2008 15:00	23-JAN-2008 15:00	23-JAN-2008 15:00	----	----
Compound	CAS Number	LOR	Unit	ES0801251-016	ES0801251-017	ES0801251-018	----	----
<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	----	----
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	%	<b>79.8</b>	<b>76.2</b>	<b>78.5</b>	----	----
Anthracene-d10	1719-06-8	0.1	%	<b>83.2</b>	<b>78.0</b>	<b>80.7</b>	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	<b>84.7</b>	<b>78.9</b>	<b>81.5</b>	----	----





### Surrogate Control Limits

Sub-Matrix: 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**

<b>Work Order</b>	<b>: ES0801251</b>	<b>Page</b>	: 1 of 6
<b>Client</b>	<b>: ALS TECHNICHEM (HK)</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	<b>: MS ALICE WONG</b>	<b>Contact</b>	: Victor Kedicioglu
<b>Address</b>	<b>: 11/F CHUNG SHUN KNITTING CNTR 1-3 WING YIP STREET KWAI CHUNG, N.T HONG KONG HONG KONG</b>	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	<b>: alice.wong@alsenviro.com</b>	<b>E-mail</b>	: Victor.Kedicioglu@alsenviro.com
<b>Telephone</b>	<b>: +852 001585226101044</b>	<b>Telephone</b>	: +61-2-8784 8555
<b>Facsimile</b>	<b>: +852 26102021</b>	<b>Facsimile</b>	: +61-2-8784 8500
<b>Project</b>	: ----	<b>QC Level</b>	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----	<b>Date Samples Received</b>	: 01-FEB-2008
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 12-FEB-2008
<b>Sampler</b>	: ----	<b>No. of samples received</b>	: 18
<b>Order number</b>	: ----	<b>No. of samples analysed</b>	: 18
<b>Quote number</b>	<b>: SY/241/07</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 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.

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.

<u>Signatories</u>	<u>Position</u>	<u>Accreditation Category</u>
EDWANDY FADJAR	Senior 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 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) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 584941)</b>								
EP132: 3-Methylcholanthrene	56-49-5	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 91.0	---- 65.8	---- 121
EP132: 2-Methylnaphthalene	91-57-6	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 86.8	---- 67.7	---- 112
EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 81.3	---- 11.6	---- 146
EP132: Acenaphthene	83-32-9	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 85.2	---- 73.2	---- 111
EP132: Acenaphthylene	208-96-8	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 103	---- 72.4	---- 112
EP132: Anthracene	120-12-7	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 89.5	---- 73.4	---- 113
EP132: Benz(a)anthracene	56-55-3	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 85.8	---- 73.6	---- 114
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	87.1	75.2	117
EP132: Benzo(b)fluoranthene	205-99-2	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 99.8	---- 71.4	---- 119
EP132: Benzo(e)pyrene	192-97-2	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 93.1	---- 75.3	---- 118
EP132: Benzo(g,h,i)perylene	191-24-2	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 89.8	---- 66.6	---- 121
EP132: Benzo(k)fluoranthene	207-08-9	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 88.2	---- 74.8	---- 118
EP132: Chrysene	218-01-9	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 89.0	---- 69.6	---- 120
EP132: Coronene	191-07-1	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 94.7	---- 47.4	---- 131
EP132: Dibenz(a,h)anthracene	53-70-3	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 90.1	---- 71.5	---- 117
EP132: Fluoranthene	206-44-0	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 87.6	---- 74.8	---- 117
EP132: Fluorene	86-73-7	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 87.2	---- 72.9	---- 114
EP132: Indeno(1,2,3-cd)pyrene	193-39-5	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 91.5	---- 67.8	---- 119
EP132: N-2-Fluorenyl Acetamide	53-96-3	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 100	---- 53.6	---- 131
EP132: Naphthalene	91-20-3	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 86.8	---- 68.3	---- 116



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 584941) - continued</b>								
EP132: Perylene	198-55-0	0.1	µg/L	<0.1	----	----	----	----
		0.10	µg/L	----	2 µg/L	90.3	68	122
EP132: Phenanthrene	85-01-8	0.1	µg/L	<0.1	----	----	----	----
		0.10	µg/L	----	2 µg/L	88.8	74.8	112
EP132: Pyrene	129-00-0	0.1	µg/L	<0.1	----	----	----	----
		0.10	µg/L	----	2 µg/L	95.2	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.**



### CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 8
Contact	: MS KAREN LUI	Contact	: Alice Wong	Work Order	: HK0801768
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	: 2271 3000	Telephone	: +852 2610 1044		
Facsimile	: 2723 5660	Facsimile	: +852 2610 2021		
Project	: EM&A FOR THE PERMANENT AVIATION FUEL FACILITY	Quote number	: ---	Date received	: 6 Feb 2008
Order number	: ---			Date of issue	: 27 Feb 2008
C-O-C number	: ---			No. of samples	- Received : 18
Site	: ---				- Analysed : 18

#### Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0801768 supersedes any previous reports with this reference. The completion date of analysis is 16 Feb 2008. Results apply to 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 process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0801768 : **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 Hona Kona. Chapter 553. Section 6.

<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:-</i>
Anh Ngoc Huynh	Senior Chemist	Organics





**Analytical Results**

			Analyte :	PCB 8	PCB 18	PCB 28	PCB 52	PCB 44
			LOR / Units :	0.01 µg/L	0.01 µg/L	0.01 µg/L	0.01 µg/L	0.01 µg/L
			Analyte Group :	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners
Client Sample ID	Sample Date / Time	ALS Identification	Submatrix: MARINE WATER					
MPB1 ME	[ 6 Feb 2008 ]	HK0801768-001		<0.01	<0.01	<0.01	<0.01	<0.01
MPB ME DUP	[ 6 Feb 2008 ]	HK0801768-002		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 ME	[ 6 Feb 2008 ]	HK0801768-003		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 ME DUP	[ 6 Feb 2008 ]	HK0801768-004		<0.01	<0.01	<0.01	<0.01	<0.01
MP ME	[ 6 Feb 2008 ]	HK0801768-005		<0.01	<0.01	<0.01	<0.01	<0.01
MP ME DUP	[ 6 Feb 2008 ]	HK0801768-006		<0.01	<0.01	<0.01	<0.01	<0.01
C2 (NM5) ME	[ 6 Feb 2008 ]	HK0801768-007		<0.01	<0.01	<0.01	<0.01	<0.01
C2 (NM5) ME DUP	[ 6 Feb 2008 ]	HK0801768-008		<0.01	<0.01	<0.01	<0.01	<0.01
MPB1 MF	[ 6 Feb 2008 ]	HK0801768-009		<0.01	<0.01	<0.01	<0.01	<0.01
MPB1 MF DUP	[ 6 Feb 2008 ]	HK0801768-010		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 MF	[ 6 Feb 2008 ]	HK0801768-011		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 MF DUP	[ 6 Feb 2008 ]	HK0801768-012		<0.01	<0.01	<0.01	<0.01	<0.01
MP MF	[ 6 Feb 2008 ]	HK0801768-013		<0.01	<0.01	<0.01	<0.01	<0.01
MP MF DUP	[ 6 Feb 2008 ]	HK0801768-014		<0.01	<0.01	<0.01	<0.01	<0.01
C1 (NM3) MF	[ 6 Feb 2008 ]	HK0801768-015		<0.01	<0.01	<0.01	<0.01	<0.01
C1 (NM3) MF DUP	[ 6 Feb 2008 ]	HK0801768-016		<0.01	<0.01	<0.01	<0.01	<0.01
C3 (NM6) MF	[ 6 Feb 2008 ]	HK0801768-017		<0.01	<0.01	<0.01	<0.01	<0.01
C3 (NM6) MF DUP	[ 6 Feb 2008 ]	HK0801768-018		<0.01	<0.01	<0.01	<0.01	<0.01



**Analytical Results**

			Analyte :	PCB 66	PCB 101	PCB 77	PCB 149	PCB 118
			LOR / Units :	0.01 µg/L	0.01 µg/L	0.01 µg/L	0.01 µg/L	0.01 µg/L
			Analyte Group :	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners
Client Sample ID	Sample Date / Time	ALS Identification	Submatrix: MARINE WATER					
MPB1 ME	[ 6 Feb 2008 ]	HK0801768-001		<0.01	<0.01	<0.01	<0.01	<0.01
MPB ME DUP	[ 6 Feb 2008 ]	HK0801768-002		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 ME	[ 6 Feb 2008 ]	HK0801768-003		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 ME DUP	[ 6 Feb 2008 ]	HK0801768-004		<0.01	<0.01	<0.01	<0.01	<0.01
MP ME	[ 6 Feb 2008 ]	HK0801768-005		<0.01	<0.01	<0.01	<0.01	<0.01
MP ME DUP	[ 6 Feb 2008 ]	HK0801768-006		<0.01	<0.01	<0.01	<0.01	<0.01
C2 (NM5) ME	[ 6 Feb 2008 ]	HK0801768-007		<0.01	<0.01	<0.01	<0.01	<0.01
C2 (NM5) ME DUP	[ 6 Feb 2008 ]	HK0801768-008		<0.01	<0.01	<0.01	<0.01	<0.01
MPB1 MF	[ 6 Feb 2008 ]	HK0801768-009		<0.01	<0.01	<0.01	<0.01	<0.01
MPB1 MF DUP	[ 6 Feb 2008 ]	HK0801768-010		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 MF	[ 6 Feb 2008 ]	HK0801768-011		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 MF DUP	[ 6 Feb 2008 ]	HK0801768-012		<0.01	<0.01	<0.01	<0.01	<0.01
MP MF	[ 6 Feb 2008 ]	HK0801768-013		<0.01	<0.01	<0.01	<0.01	<0.01
MP MF DUP	[ 6 Feb 2008 ]	HK0801768-014		<0.01	<0.01	<0.01	<0.01	<0.01
C1 (NM3) MF	[ 6 Feb 2008 ]	HK0801768-015		<0.01	<0.01	<0.01	<0.01	<0.01
C1 (NM3) MF DUP	[ 6 Feb 2008 ]	HK0801768-016		<0.01	<0.01	<0.01	<0.01	<0.01
C3 (NM6) MF	[ 6 Feb 2008 ]	HK0801768-017		<0.01	<0.01	<0.01	<0.01	<0.01
C3 (NM6) MF DUP	[ 6 Feb 2008 ]	HK0801768-018		<0.01	<0.01	<0.01	<0.01	<0.01



**Analytical Results**

			Analyte :	PCB 153	PCB 105	PCB 126	PCB 187	PCB 128
			LOR / Units :	0.01 µg/L	0.01 µg/L	0.01 µg/L	0.01 µg/L	0.01 µg/L
			Analyte Group :	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners
Client Sample ID	Sample Date / Time	ALS Identification	Submatrix: MARINE WATER					
MPB1 ME	[ 6 Feb 2008 ]	HK0801768-001		<0.01	<0.01	<0.01	<0.01	<0.01
MPB ME DUP	[ 6 Feb 2008 ]	HK0801768-002		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 ME	[ 6 Feb 2008 ]	HK0801768-003		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 ME DUP	[ 6 Feb 2008 ]	HK0801768-004		<0.01	<0.01	<0.01	<0.01	<0.01
MP ME	[ 6 Feb 2008 ]	HK0801768-005		<0.01	<0.01	<0.01	<0.01	<0.01
MP ME DUP	[ 6 Feb 2008 ]	HK0801768-006		<0.01	<0.01	<0.01	<0.01	<0.01
C2 (NM5) ME	[ 6 Feb 2008 ]	HK0801768-007		<0.01	<0.01	<0.01	<0.01	<0.01
C2 (NM5) ME DUP	[ 6 Feb 2008 ]	HK0801768-008		<0.01	<0.01	<0.01	<0.01	<0.01
MPB1 MF	[ 6 Feb 2008 ]	HK0801768-009		<0.01	<0.01	<0.01	<0.01	<0.01
MPB1 MF DUP	[ 6 Feb 2008 ]	HK0801768-010		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 MF	[ 6 Feb 2008 ]	HK0801768-011		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 MF DUP	[ 6 Feb 2008 ]	HK0801768-012		<0.01	<0.01	<0.01	<0.01	<0.01
MP MF	[ 6 Feb 2008 ]	HK0801768-013		<0.01	<0.01	<0.01	<0.01	<0.01
MP MF DUP	[ 6 Feb 2008 ]	HK0801768-014		<0.01	<0.01	<0.01	<0.01	<0.01
C1 (NM3) MF	[ 6 Feb 2008 ]	HK0801768-015		<0.01	<0.01	<0.01	<0.01	<0.01
C1 (NM3) MF DUP	[ 6 Feb 2008 ]	HK0801768-016		<0.01	<0.01	<0.01	<0.01	<0.01
C3 (NM6) MF	[ 6 Feb 2008 ]	HK0801768-017		<0.01	<0.01	<0.01	<0.01	<0.01
C3 (NM6) MF DUP	[ 6 Feb 2008 ]	HK0801768-018		<0.01	<0.01	<0.01	<0.01	<0.01



**Analytical Results**

			Analyte :	PCB 156	PCB 180	PCB 169	PCB 170	PCB 195
			LOR / Units :	0.01 µg/L	0.01 µg/L	0.01 µg/L	0.01 µg/L	0.01 µg/L
			Analyte Group :	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners	EP-065A: PCB Single Congeners
Client Sample ID	Sample Date / Time	ALS Identification	Submatrix: MARINE WATER					
MPB1 ME	[ 6 Feb 2008 ]	HK0801768-001		<0.01	<0.01	<0.01	<0.01	<0.01
MPB ME DUP	[ 6 Feb 2008 ]	HK0801768-002		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 ME	[ 6 Feb 2008 ]	HK0801768-003		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 ME DUP	[ 6 Feb 2008 ]	HK0801768-004		<0.01	<0.01	<0.01	<0.01	<0.01
MP ME	[ 6 Feb 2008 ]	HK0801768-005		<0.01	<0.01	<0.01	<0.01	<0.01
MP ME DUP	[ 6 Feb 2008 ]	HK0801768-006		<0.01	<0.01	<0.01	<0.01	<0.01
C2 (NM5) ME	[ 6 Feb 2008 ]	HK0801768-007		<0.01	<0.01	<0.01	<0.01	<0.01
C2 (NM5) ME DUP	[ 6 Feb 2008 ]	HK0801768-008		<0.01	<0.01	<0.01	<0.01	<0.01
MPB1 MF	[ 6 Feb 2008 ]	HK0801768-009		<0.01	<0.01	<0.01	<0.01	<0.01
MPB1 MF DUP	[ 6 Feb 2008 ]	HK0801768-010		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 MF	[ 6 Feb 2008 ]	HK0801768-011		<0.01	<0.01	<0.01	<0.01	<0.01
MPB2 MF DUP	[ 6 Feb 2008 ]	HK0801768-012		<0.01	<0.01	<0.01	<0.01	<0.01
MP MF	[ 6 Feb 2008 ]	HK0801768-013		<0.01	<0.01	<0.01	<0.01	<0.01
MP MF DUP	[ 6 Feb 2008 ]	HK0801768-014		<0.01	<0.01	<0.01	<0.01	<0.01
C1 (NM3) MF	[ 6 Feb 2008 ]	HK0801768-015		<0.01	<0.01	<0.01	<0.01	<0.01
C1 (NM3) MF DUP	[ 6 Feb 2008 ]	HK0801768-016		<0.01	<0.01	<0.01	<0.01	<0.01
C3 (NM6) MF	[ 6 Feb 2008 ]	HK0801768-017		<0.01	<0.01	<0.01	<0.01	<0.01
C3 (NM6) MF DUP	[ 6 Feb 2008 ]	HK0801768-018		<0.01	<0.01	<0.01	<0.01	<0.01



**Analytical Results**

			Analyte :	4.4'-DDT	4.4'-DDE	4.4'-DDD	Decachlorobiphenyl	Tetrachlorometaxylene
			LOR / Units :	0.01 µg/L	0.01 µg/L	0.01 µg/L	0.1 %	0.1 %
			Analyte Group :	EP-065B: Organochlorine Pesticides	EP-065B: Organochlorine Pesticides	EP-065B: Organochlorine Pesticides	EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate	EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate
Client Sample ID	Sample Date / Time	ALS Identification						
MPB1 ME	[ 6 Feb 2008 ]	HK0801768-001	<0.01	<0.01	<0.01	112	110	
MPB ME DUP	[ 6 Feb 2008 ]	HK0801768-002	<0.01	<0.01	<0.01	116	119	
MPB2 ME	[ 6 Feb 2008 ]	HK0801768-003	<0.01	<0.01	<0.01	117	93.2	
MPB2 ME DUP	[ 6 Feb 2008 ]	HK0801768-004	<0.01	<0.01	<0.01	111	118	
MP ME	[ 6 Feb 2008 ]	HK0801768-005	<0.01	<0.01	<0.01	87.9	108	
MP ME DUP	[ 6 Feb 2008 ]	HK0801768-006	<0.01	<0.01	<0.01	113	118	
C2 (NM5) ME	[ 6 Feb 2008 ]	HK0801768-007	<0.01	<0.01	<0.01	99.2	116	
C2 (NM5) ME DUP	[ 6 Feb 2008 ]	HK0801768-008	<0.01	<0.01	<0.01	114	117	
MPB1 MF	[ 6 Feb 2008 ]	HK0801768-009	<0.01	<0.01	<0.01	99.8	110	
MPB1 MF DUP	[ 6 Feb 2008 ]	HK0801768-010	<0.01	<0.01	<0.01	100	87.0	
MPB2 MF	[ 6 Feb 2008 ]	HK0801768-011	<0.01	<0.01	<0.01	120	125	
MPB2 MF DUP	[ 6 Feb 2008 ]	HK0801768-012	<0.01	<0.01	<0.01	88.1	89.9	
MP MF	[ 6 Feb 2008 ]	HK0801768-013	<0.01	<0.01	<0.01	78.3	93.2	
MP MF DUP	[ 6 Feb 2008 ]	HK0801768-014	<0.01	<0.01	<0.01	108	105	
C1 (NM3) MF	[ 6 Feb 2008 ]	HK0801768-015	<0.01	<0.01	<0.01	113	99.6	
C1 (NM3) MF DUP	[ 6 Feb 2008 ]	HK0801768-016	<0.01	<0.01	<0.01	111	106	
C3 (NM6) MF	[ 6 Feb 2008 ]	HK0801768-017	<0.01	<0.01	<0.01	89.2	106	
C3 (NM6) MF DUP	[ 6 Feb 2008 ]	HK0801768-018	<0.01	<0.01	<0.01	101	111	



**Analytical Results**

Submatrix: MARINE WATER			Analyte : LOR / Units : Analyte Group :	Dibutylchloroendate 0.1 % EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate				
Client Sample ID	Sample Date / Time	ALS Identification						
MPB1 ME	[ 6 Feb 2008 ]	HK0801768-001	104					
MPB ME DUP	[ 6 Feb 2008 ]	HK0801768-002	88.5					
MPB2 ME	[ 6 Feb 2008 ]	HK0801768-003	91.8					
MPB2 ME DUP	[ 6 Feb 2008 ]	HK0801768-004	121					
MP ME	[ 6 Feb 2008 ]	HK0801768-005	88.3					
MP ME DUP	[ 6 Feb 2008 ]	HK0801768-006	107					
C2 (NM5) ME	[ 6 Feb 2008 ]	HK0801768-007	93.2					
C2 (NM5) ME DUP	[ 6 Feb 2008 ]	HK0801768-008	92.0					
MPB1 MF	[ 6 Feb 2008 ]	HK0801768-009	90.2					
MPB1 MF DUP	[ 6 Feb 2008 ]	HK0801768-010	92.7					
MPB2 MF	[ 6 Feb 2008 ]	HK0801768-011	97.4					
MPB2 MF DUP	[ 6 Feb 2008 ]	HK0801768-012	93.6					
MP MF	[ 6 Feb 2008 ]	HK0801768-013	107					
MP MF DUP	[ 6 Feb 2008 ]	HK0801768-014	98.6					
C1 (NM3) MF	[ 6 Feb 2008 ]	HK0801768-015	95.8					
C1 (NM3) MF DUP	[ 6 Feb 2008 ]	HK0801768-016	82.2					
C3 (NM6) MF	[ 6 Feb 2008 ]	HK0801768-017	97.7					
C3 (NM6) MF DUP	[ 6 Feb 2008 ]	HK0801768-018	88.2					



## Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Matrix Type: WATER		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						SCS	DCS	Low	High	Value	Control Limit
<b>EP-065A: PCB Single Congeners (QCLot: 593437)</b>											
PCB 8	34883-43-7	0.01	µg/L	<0.01	10 µg/L	112	----	50	130	----	----
PCB 18	37680-65-2	0.01	µg/L	<0.01	10 µg/L	117	----	50	130	----	----
PCB 28	7012-37-5	0.01	µg/L	<0.01	10 µg/L	82.6	----	50	130	----	----
PCB 52	35693-99-3	0.01	µg/L	<0.01	10 µg/L	104	----	50	130	----	----
PCB 44	41464-39-5	0.01	µg/L	<0.01	10 µg/L	88.4	----	50	130	----	----
PCB 66	32598-10-0	0.01	µg/L	<0.01	10 µg/L	86.9	----	50	130	----	----
PCB 101	37680-73-2	0.01	µg/L	<0.01	10 µg/L	105	----	50	130	----	----
PCB 77	32598-13-3	0.01	µg/L	<0.01	10 µg/L	104	----	50	130	----	----
PCB 149	38380-04-0	0.01	µg/L	<0.01	10 µg/L	91.6	----	50	130	----	----
PCB 118	31508-00-6	0.01	µg/L	<0.01	10 µg/L	104	----	50	130	----	----
PCB 153	35065-27-1	0.01	µg/L	<0.01	10 µg/L	91.3	----	50	130	----	----
PCB 105	32598-14-4	0.01	µg/L	<0.01	10 µg/L	101	----	50	130	----	----
PCB 126	57465-28-8	0.01	µg/L	<0.01	10 µg/L	103	----	50	130	----	----
PCB 187	52663-68-0	0.01	µg/L	<0.01	10 µg/L	92.9	----	50	130	----	----
PCB 128	38380-07-3	0.01	µg/L	<0.01	10 µg/L	112	----	50	130	----	----
PCB 156	38380-08-4	0.01	µg/L	<0.01	10 µg/L	118	----	50	130	----	----
PCB 180	35065-29-3	0.01	µg/L	<0.01	10 µg/L	108	----	50	130	----	----
PCB 169	60044-26-0	0.01	µg/L	<0.01	10 µg/L	102	----	50	130	----	----
PCB 170	35065-30-6	0.01	µg/L	<0.01	10 µg/L	98.6	----	50	130	----	----
PCB 195	52663-78-2	0.01	µg/L	<0.01	10 µg/L	93.1	----	50	130	----	----
<b>EP-065B: Organochlorine Pesticides (QCLot: 593437)</b>											
4,4'-DDT	50-29-3	0.01	µg/L	<0.01	10 µg/L	Not Determined	----	50	130	----	----
4,4'-DDE	72-55-9	0.01	µg/L	<0.01	10 µg/L	Not Determined	----	50	130	----	----
4,4'-DDD	72-54-8	0.01	µg/L	<0.01	10 µg/L	Not Determined	----	50	130	----	----

## Surrogate Control Limits

Submatrix Type: MARINE WATER

Method: Analysis Description	Units	Lower Limit	Upper Limit
<b>EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate</b>			
Decachlorobiphenyl	%	50	130
Tetrachlorometaxylene	%	50	130
Dibutylchlorendate	%	50	130



**CERTIFICATE OF ANALYSIS**

<b>CONTACT:</b>	MS KAREN LUI	<b>Batch:</b>	HK0801768
<b>CLIENT:</b>	ERM HONG KONG	<b>LABORATORY:</b>	HONG KONG
<b>ADDRESS:</b>	21/F., LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, HONG KONG	<b>DATE RECEIVED:</b>	06/02/2008
<b>PROJECT:</b>	EM&A FOR THE PERMANENT AVIATION FUEL FACILITY	<b>DATE OF ISSUE:</b>	27/02/2008
		<b>SAMPLE TYPE:</b>	WATER
		<b>No. of SAMPLES:</b>	18

**COMMENTS**

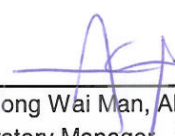
Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.  
PAHs was subcontracted and tested by ALS Sydney.  
ALS Sydney details report was attached. The attached report contains a total of 14 pages.

**ISSUING LABORATORY: HONG KONG**

**Address**

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11/F Chung Shun Knitting Centre  
1-3 Wing Yip Street  
Kwai Chung  
HONG KONG

**Phone:** 852-2610 1044  
**Fax:** 852-2610 2021  
**Email:** hongkong@alsenviro.com

  
Ms Wong Wai Man, Alice  
Laboratory Manager - Hong Kong

**Other ALS Environmental Laboratories**

**AUSTRALIA**

Brisbane      Hong Kong  
Melbourne    Singapore  
Sydney        Kuala Lumpur  
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**AMERICAS**

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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





# CERTIFICATE OF ANALYSIS

**Batch:** HK0801768  
**Date of Issue:** 27/02/2008  
**Client:** ERM HONG KONG  
**Client Reference:** EM&A FOR THE PERMANENT AVIATION FUEL FACILITY

ALS Sydney report is attached for the analysis of PAHs in water.  
This attached report contains a total of 14 pages.

## Sample Details

<i>ALS Lab ID</i>	<i>ALS Sydney Lab ID</i>	<i>Client's Sample ID</i>	<i>Sampling Date</i>
HK0801768-1	ES0802227-1	MPB1 ME	06/02/2008
HK0801768-2	ES0802227-2	MPB1 ME DUP	06/02/2008
HK0801768-3	ES0802227-3	MPB2 ME	06/02/2008
HK0801768-4	ES0802227-4	MPB2 ME DUP	06/02/2008
HK0801768-5	ES0802227-5	MP ME	06/02/2008
HK0801768-6	ES0802227-6	MP ME DUP	06/02/2008
HK0801768-7	ES0802227-7	C2(NM5) ME	06/02/2008
HK0801768-8	ES0802227-8	C2(NM5) ME DUP	06/02/2008
HK0801768-9	ES0802227-9	MPB1 MF	06/02/2008
HK0801768-10	ES0802227-10	MPB1 MF DUP	06/02/2008
HK0801768-11	ES0802227-11	MPB2 MF	06/02/2008
HK0801768-12	ES0802227-12	MPB2 MF DUP	06/02/2008
HK0801768-13	ES0802227-13	MP MF	06/02/2008
HK0801768-14	ES0802227-14	MP MF DUP	06/02/2008
HK0801768-15	ES0802227-15	C1(NM3) MF	06/02/2008
HK0801768-16	ES0802227-16	C1(NM3) MF DUP	06/02/2008
HK0801768-17	ES0802227-17	C3(NM6) MF	06/02/2008
HK0801768-18	ES0802227-18	C3(NM6) MF DUP	06/02/2008



Environmental Division

**CERTIFICATE OF ANALYSIS**

Work Order	: <b>ES0802227</b>	Page	: 1 of 8
Client	: <b>ALS TECHNICHEM (HK)</b>	Laboratory	: Environmental Division Sydney
Contact	: <b>MS KERRY YUEN</b>	Contact	: Ashwini Sharma
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>
E-mail	: <b>kerry.yuen@alsenviro.com</b>	E-mail	: <b>Ashwini.Sharma@alsenviro.com</b>
Telephone	: <b>+852 001585226101044</b>	Telephone	: <b>+61-2-8784 8555</b>
Facsimile	: <b>+852 26102021</b>	Facsimile	: <b>+61-2-8784 8500</b>
Project	: ----	QC Level	: <b>NEPM 1999 Schedule B(3) and ALS QCS3 requirement</b>
Order number	: ----	Date Samples Received	: <b>20-FEB-2008</b>
C-O-C number	: ----	Issue Date	: <b>26-FEB-2008</b>
Sampler	: ----	No. of samples received	: <b>18</b>
Site	: ----	No. of samples analysed	: <b>18</b>
Quote number	: <b>SY/241/07</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



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>
PHALAK INTHAKESONE	Organics Co-ordinator	Organics

---

**Environmental Division Sydney**  
Part of the **ALS Laboratory Group**  
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*A Campbell Brothers Limited Company*

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Page : 3 of 8  
Work Order : ES0802227  
Client : ALS TECHNICHEM (HK)  
Project : ----



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### **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 process purposes.

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



Page : 4 of 8  
 Work Order : ES0802227  
 Client : ALS TECHNICHEM (HK)  
 Project : ----



## Analytical Results

Sub-Matrix: WATER

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	HK0801768-1	HK0801768-2	HK0801768-3	HK0801768-4	HK0801768-5
				06-FEB-2008 15:00	06-FEB-2008 15:00	06-FEB-2008 15:00	06-FEB-2008 15:00	06-FEB-2008 15:00
				ES0802227-001	ES0802227-002	ES0802227-003	ES0802227-004	ES0802227-005
<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	%	113	81.1	68.4	86.4	75.5
Anthracene-d10	1719-06-8	0.1	%	110	84.2	74.0	89.8	81.4
4-Terphenyl-d14	1718-51-0	0.1	%	114	90.3	79.3	97.2	88.6



**Analytical Results**

Sub-Matrix: WATER

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	HK0801768-6	HK0801768-7	HK0801768-8	HK0801768-9	HK0801768-10
				06-FEB-2008 15:00	06-FEB-2008 15:00	06-FEB-2008 15:00	06-FEB-2008 15:00	06-FEB-2008 15:00
				ES0802227-006	ES0802227-007	ES0802227-008	ES0802227-009	ES0802227-010
<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	%	84.0	86.6	76.9	88.6	77.8
Anthracene-d10	1719-06-8	0.1	%	86.6	88.1	84.9	90.2	72.7
4-Terphenyl-d14	1718-51-0	0.1	%	91.9	94.3	91.8	94.2	79.6



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 Client : ALS TECHNICHEM (HK)  
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## Analytical Results

Sub-Matrix: WATER

Compound	CAS Number	LOR	Unit	Client sample ID	Client sample ID	Client sample ID	Client sample ID	Client sample ID
				HK0801768-11	HK0801768-12	HK0801768-13	HK0801768-14	HK0801768-15
				Client sampling date / time	Client sampling date / time	Client sampling date / time	Client sampling date / time	Client sampling date / time
				06-FEB-2008 15:00	06-FEB-2008 15:00	06-FEB-2008 15:00	06-FEB-2008 15:00	06-FEB-2008 15:00
				ES0802227-011	ES0802227-012	ES0802227-013	ES0802227-014	ES0802227-015
<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	%	82.2	79.0	92.8	76.2	73.5
Anthracene-d10	1719-06-8	0.1	%	83.5	84.5	91.4	77.0	80.0
4-Terphenyl-d14	1718-51-0	0.1	%	91.0	89.7	100	84.9	84.5



### Analytical Results

Sub-Matrix: WATER

				Client sample ID	HK0801768-16	HK0801768-17	HK0801768-18	----	----
				Client sampling date / time	06-FEB-2008 15:00	06-FEB-2008 15:00	06-FEB-2008 15:00	----	----
Compound	CAS Number	LOR	Unit	ES0802227-016	ES0802227-017	ES0802227-018	----	----	----
<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	----	----	----
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	%	77.7	66.8	84.5	----	----	----
Anthracene-d10	1719-06-8	0.1	%	83.0	84.2	80.2	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	91.4	94.1	86.5	----	----	----



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### Surrogate Control Limits

Sub-Matrix: <b>WATER</b>		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**

<b>Work Order</b>	: <b>ES0802227</b>	<b>Page</b>	: 1 of 6
<b>Client</b>	: <b>ALS TECHNICHEM (HK)</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: <b>MS KERRY YUEN</b>	<b>Contact</b>	: <b>Ashwini Sharma</b>
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<b>Telephone</b>	: <b>+852 001585226101044</b>	<b>Telephone</b>	: <b>+61-2-8784 8555</b>
<b>Facsimile</b>	: <b>+852 26102021</b>	<b>Facsimile</b>	: <b>+61-2-8784 8500</b>
<b>Project</b>	: ----	<b>QC Level</b>	: <b>NEPM 1999 Schedule B(3) and ALS QCS3 requirement</b>
<b>Site</b>	: ----	<b>Date Samples Received</b>	: <b>20-FEB-2008</b>
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: <b>26-FEB-2008</b>
<b>Sampler</b>	: ----	<b>No. of samples received</b>	: <b>18</b>
<b>Order number</b>	: ----	<b>No. of samples analysed</b>	: <b>18</b>
<b>Quote number</b>	: <b>SY/241/07</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 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.

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>
PHALAK INTHAKESONE	Organics Co-ordinator	Organics

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### **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

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### **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 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) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 597567)</b>								
EP132: 3-Methylcholanthrene	56-49-5	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 86.5	---- 65.8	---- 121
EP132: 2-Methylnaphthalene	91-57-6	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 90.1	---- 67.7	---- 112
EP132: 7,12-Dimethylbenz(a)anthracene	57-97-6	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 80.1	---- 11.6	---- 146
EP132: Acenaphthene	83-32-9	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 85.0	---- 73.2	---- 111
EP132: Acenaphthylene	208-96-8	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 91.9	---- 72.4	---- 112
EP132: Anthracene	120-12-7	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 87.3	---- 73.4	---- 113
EP132: Benz(a)anthracene	56-55-3	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 85.2	---- 73.6	---- 114
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	85.4	75.2	117
EP132: Benzo(b)fluoranthene	205-99-2	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 84.9	---- 71.4	---- 119
EP132: Benzo(e)pyrene	192-97-2	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 87.2	---- 75.3	---- 118
EP132: Benzo(g,h,i)perylene	191-24-2	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 88.9	---- 66.6	---- 121
EP132: Benzo(k)fluoranthene	207-08-9	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 96.6	---- 74.8	---- 118
EP132: Chrysene	218-01-9	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 89.6	---- 69.6	---- 120
EP132: Coronene	191-07-1	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 86.7	---- 47.4	---- 131
EP132: Dibenz(a,h)anthracene	53-70-3	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 89.4	---- 71.5	---- 117
EP132: Fluoranthene	206-44-0	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 88.5	---- 74.8	---- 117
EP132: Fluorene	86-73-7	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 90.7	---- 72.9	---- 114
EP132: Indeno(1,2,3-cd)pyrene	193-39-5	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 83.8	---- 67.8	---- 119
EP132: N-2-Fluorenyl Acetamide	53-96-3	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 102	---- 53.6	---- 131
EP132: Naphthalene	91-20-3	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 85.4	---- 68.3	---- 116

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Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 597567) - continued</b>									
EP132: Perylene	198-55-0	0.1	µg/L	<0.1	----	----	----	----	
		0.10	µg/L	----	2 µg/L	85.4	68	122	
EP132: Phenanthrene	85-01-8	0.1	µg/L	<0.1	----	----	----	----	
		0.10	µg/L	----	2 µg/L	86.7	74.8	112	
EP132: Pyrene	129-00-0	0.1	µg/L	<0.1	----	----	----	----	
		0.10	µg/L	----	2 µg/L	89.3	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.**