

CERTIFICATE OF ANALYSIS

102321

Client:

Environmental Resources Management Australia

Locked Bag 24

Broadway

NSW 2007

Attention: Joe Ferring

Sample log in details:

Your Reference:	0224193, Project Symphony
No. of samples:	1 water
Date samples received / completed instructions received	12/12/13 / 12/12/13

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date: 19/12/13 / 19/12/13

Date of Preliminary Report: Not issued

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Results Approved By:



Jacinta Hurst
Laboratory Manager

VOCs in water Our Reference: Your Reference	UNITS -----	102321-1 T01-031213 -NH
Type of sample	-----	Water
Date extracted	-	18/12/2013
Date analysed	-	19/12/2013
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1
Bromoform	µg/L	<1
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1
1,2,3-trichloropropane	µg/L	<1

VOCs in water Our Reference: Your Reference Type of sample	UNITS ----- -----	102321-1 T01-031213 -NH Water
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	113
Surrogate toluene-d8	%	91
Surrogate 4-BFB	%	98

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	102321-1
Your Reference	-----	T01-031213
Type of sample	-----	-NH Water
Date extracted	-	18/12/2013
Date analysed	-	19/12/2013
TRHC ₆ - C ₉	µg/L	<10
TRHC ₆ - C ₁₀	µg/L	<10
TRHC ₆ - C ₁₀ less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	113
Surrogate toluene-d8	%	91
Surrogate 4-BFB	%	98

svTRH (C10-C40) in Water		
Our Reference:	UNITS	102321-1
Your Reference	-----	T01-031213
Type of sample	-----	-NH Water
Date extracted	-	16/12/2013
Date analysed	-	17/12/2013
TRHC ₁₀ - C ₁₄	µg/L	<50
TRHC ₁₅ - C ₂₈	µg/L	<100
TRHC ₂₉ - C ₃₆	µg/L	<100
TRH>C ₁₀ - C ₁₆	µg/L	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50
TRH>C ₁₆ - C ₃₄	µg/L	<100
TRH>C ₃₄ - C ₄₀	µg/L	<100
Surrogate o-Terphenyl	%	93

PAHs in Water Our Reference: Your Reference Type of sample	UNITS ----- -----	102321-1 T01-031213 -NH Water
Date extracted	-	16/12/2013
Date analysed	-	16/12/2013
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate <i>p</i> -Terphenyl-d14	%	109

Total Phenolics in Water		
Our Reference:	UNITS	102321-1
Your Reference	-----	T01-031213
Type of sample	-----	-NH Water
Date extracted	-	13/12/2013
Date analysed	-	13/12/2013
Total Phenolics (as Phenol)	mg/L	<0.05

PCBs in Water Our Reference: Your Reference	UNITS ----- -----	102321-1 T01-031213 -NH Water
Type of sample		
Date extracted	-	16/12/2013
Date analysed	-	17/12/2013
Arochlor 1016	µg/L	<2
Arochlor 1221	µg/L	<2
Arochlor 1232	µg/L	<2
Arochlor 1242	µg/L	<2
Arochlor 1248	µg/L	<2
Arochlor 1254	µg/L	<2
Arochlor 1260	µg/L	<2
Surrogate TCLMX	%	97

HM in water - dissolved		
Our Reference:	UNITS	102321-1
Your Reference	-----	T01-031213
Type of sample	-----	-NH Water
Date prepared	-	13/12/2013
Date analysed	-	13/12/2013
Arsenic-Dissolved	µg/L	8
Cadmium-Dissolved	µg/L	0.6
Chromium-Dissolved	µg/L	5
Copper-Dissolved	µg/L	32
Lead-Dissolved	µg/L	53
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	490
Zinc-Dissolved	µg/L	1,800

MethodID	Methodology Summary
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following disitillation, based upon APHA 22nd ED 5530 D.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		
Date extracted	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
Date analysed	-			19/12/2013	[NT]	[NT]	LCS-W1	19/12/2013
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	95%
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	95%
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	103%
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	94%
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	126%
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	95%
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	90%
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	110%
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NR]	[NR]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate	%		Org-013	108	[NT]	[NT]	LCS-W1	97%
Dibromofluoromethane								
Surrogate toluene-d8	%		Org-013	93	[NT]	[NT]	LCS-W1	101%
Surrogate 4-BFB	%		Org-013	96	[NT]	[NT]	LCS-W1	97%

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Water						Base II Duplicate II %RPD		
Date extracted	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
Date analysed	-			19/12/2013	[NT]	[NT]	LCS-W1	19/12/2013
TRHC ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	100%
TRHC ₆ - C ₁₀	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	100%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	99%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	100%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	102%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	100%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	104%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	108	[NT]	[NT]	LCS-W1	74%
Surrogate toluene-d8	%		Org-016	93	[NT]	[NT]	LCS-W1	105%
Surrogate 4-BFB	%		Org-016	96	[NT]	[NT]	LCS-W1	101%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Water						Base II Duplicate II %RPD		
Date extracted	-			16/12/2013	[NT]	[NT]	LCS-W1	16/12/2013
Date analysed	-			17/12/2013	[NT]	[NT]	LCS-W1	17/12/2013
TRHC ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	92%
TRHC ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	101%
TRHC ₂₉ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	86%
TRH>C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	92%
TRH>C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	101%
TRH>C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	86%
Surrogate o-Terphenyl	%		Org-003	103	[NT]	[NT]	LCS-W1	88%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	-			16/12/2013	[NT]	[NT]	LCS-W2	16/12/2013
Date analysed	-			16/12/2013	[NT]	[NT]	LCS-W2	16/12/2013
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	81%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	86%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	81%

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	81%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	85%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	80%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	93%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	110	[NT]	[NT]	LCS-W2	100%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Water						Base II Duplicate II %RPD		
Date extracted	-			13/12/2013	[NT]	[NT]	LCS-W1	13/12/2013
Date analysed	-			13/12/2013	[NT]	[NT]	LCS-W1	13/12/2013
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-030	<0.05	[NT]	[NT]	LCS-W1	96%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Water						Base II Duplicate II %RPD		
Date extracted	-			16/12/2013	[NT]	[NT]	LCS-W1	16/12/2013
Date analysed	-			17/12/2013	[NT]	[NT]	LCS-W1	17/12/2013
Arochlor 1016	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	µg/L	2	Org-006	<2	[NT]	[NT]	LCS-W1	90%
Arochlor 1260	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	91	[NT]	[NT]	LCS-W1	92%

Client Reference: 0224193, Project Symphony

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Date prepared	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
Date analysed	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	100%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W1	97%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	95%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	117%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	100%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	LCS-W1	100%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	95%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	93%

Report Comments:

Asbestos ID was analysed by Approved Identifier: Not applicable for this job
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

ES1327421

CHAIN OF CUSTODY



ALS Laboratory:
 400 University Ave, Suite 100, St. Leonards, NSW 2206, Australia
 Ph: 02 9379 2122 E: sales@als.com.au
ALS Laboratory:
 please tick →

CLIENT: ERM

OFFICE: SYDNEY

PROJECT: Project Symphony

ORDER NUMBER: 224193

PROJECT MANAGER: Joe Fernig

SAMPLER: Kate Fox

COC emailed to ALS? (YES (✓) / NO (X))

Email Reports to (will default to PM if no other addresses are listed): Symphony.mcg@erm.com

Email Invoice to (will default to PM if no other addresses are listed):

TURNAROUND REQUIREMENTS:
 Standard TAT (List due date):
 Non Standard or urgent TAT (List due date):

ALS QUOTE NO.: SV794/13

SITE: BAYSWATER/LIDDELL

CONTACT PH: 0424970463

SAMPLER MOBILE: 0622411815

EDD FORMAT (or default):

RELINQUISHED BY: Alston

DATE/TIME: 19/12/13

RECEIVED BY: [Signature]

DATE/TIME: 13/12/13 16:45

RECEIVED BY: [Signature]

DATE/TIME: 13/12/13 17:00

FOR LABORATORY USE ONLY (Circle)

Custody Seal intact? (Yes) No N/A

Free ice / frozen ice bricks present upon receipt? (Yes) No N/A

Random Sample Temperature on Receipt: _____ °C

Other comment:

UNIVERSITY OF SYDNEY
 485 University Ave, Sydney, NSW 2006
 Ph: (61) 2 9351 2311 E: info@usyd.edu.au

NEWCASTLE UNIVERSITY
 179 University Ave, Newcastle, NSW 2300
 Ph: (61) 2 492 1414 E: info@newcastle.edu.au

UNIVERSITY OF WOLLONGONG
 Locked Mail Bag 955, North Wollongong, NSW 2522
 Ph: (61) 2 422 3120 E: info@uow.edu.au

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	ANALYSIS REQUIRED including SUITES (NB: Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information
1	Tφ1-101213-JCF	19/12/13	W	(4XVS, 2xAK, 1XP (1xORC compressed))	8	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Cd, Cr, Cu, Ni) Hg Se Selenium (Freshwater ORC) VOC Target Scan PCB FOS/FOA W-24 TRH(C6-Phenols) C40/BTEXN, PAH Catons/ Phenols	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc. Forward to Environment
TOTAL							

TAT

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Plastic; HS = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag

ERKOLAB Services
 12 Ashby St
 Chatswood NSW 2067
 Ph: (02) 9910 6200
 Job No: 102638

Date Received: 16/12/13
 Time Received: 17:00
 Received by: AW
 Temp: Ambient
 Cooling: Icepack 12.1°C
 Security: Broken None



Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Environmental Resources Management Australia
Locked Bag 24
Broadway NSW 2007

ph: 02 8584 8888

Fax: 02 8584 8800

Attention: Joe Ferring

Sample log in details:

Your reference:

0224193, Project Symphony

Envirolab Reference:

102638

Date received:

16/12/13

Date results expected to be reported:

18/12/13

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 water
Turnaround time requested:	48hr
Temperature on receipt (°C)	12.1
Cooling Method:	Ice
Sampling Date Provided:	YES

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9910 6200 fax: 02 9910 6201

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

CERTIFICATE OF ANALYSIS

102638

Client:

Environmental Resources Management Australia

Locked Bag 24

Broadway

NSW 2007

Attention: Joe Ferring

Sample log in details:

Your Reference:	0224193, Project Symphony
No. of samples:	1 water
Date samples received / completed instructions received	16/12/13 / 16/12/13

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date: 18/12/13 / 18/12/13

Date of Preliminary Report: None Issued

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:



Jacinta Hurst
Laboratory Manager

VOCs in water Our Reference: Your Reference	UNITS -----	102638-1 T01-101213 -KF
Date Sampled Type of sample	-----	10/12/2013 Water
Date extracted	-	17/12/2013
Date analysed	-	18/12/2013
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1
Bromoform	µg/L	<1
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1

VOCs in water Our Reference: Your Reference	UNITS -----	102638-1 T01-101213 -KF
Date Sampled Type of sample	-----	10/12/2013 Water
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	104
Surrogate toluene-d8	%	96
Surrogate 4-BFB	%	124

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	102638-1
Your Reference	-----	T01-101213
		-KF
Date Sampled	-----	10/12/2013
Type of sample		Water
Date extracted	-	17/12/2013
Date analysed	-	18/12/2013
TRHC ₆ - C ₉	µg/L	<10
TRHC ₆ - C ₁₀	µg/L	<10
TRHC ₆ - C ₁₀ less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	104
Surrogate toluene-d8	%	96
Surrogate 4-BFB	%	124

svTRH (C10-C40) in Water		
Our Reference:	UNITS	102638-1
Your Reference	-----	T01-101213
		-KF
Date Sampled	-----	10/12/2013
Type of sample		Water
Date extracted	-	17/12/2013
Date analysed	-	18/12/2013
TRHC ₁₀ - C ₁₄	µg/L	<50
TRHC ₁₅ - C ₂₈	µg/L	<100
TRHC ₂₉ - C ₃₆	µg/L	<100
TRH>C ₁₀ - C ₁₆	µg/L	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50
TRH>C ₁₆ - C ₃₄	µg/L	<100
TRH>C ₃₄ - C ₄₀	µg/L	<100
Surrogate o-Terphenyl	%	107

PAHs in Water		
Our Reference:	UNITS	102638-1
Your Reference	-----	T01-101213
		-KF
Date Sampled	-----	10/12/2013
Type of sample		Water
Date extracted	-	17/12/2013
Date analysed	-	17/12/2013
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	109

Total Phenolics in Water		
Our Reference:	UNITS	102638-1
Your Reference	-----	T01-101213
		-KF
Date Sampled	-----	10/12/2013
Type of sample		Water
Date extracted	-	17/12/2013
Date analysed	-	17/12/2013
Total Phenolics (as Phenol)	mg/L	<0.05

HM in water - dissolved		
Our Reference:	UNITS	102638-1
Your Reference	-----	T01-101213
		-KF
Date Sampled	-----	10/12/2013
Type of sample		Water
Date prepared	-	17/12/2013
Date analysed	-	17/12/2013
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	2
Lead-Dissolved	µg/L	1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	4
Zinc-Dissolved	µg/L	13
Barium-Dissolved	µg/L	20
Beryllium-Dissolved	µg/L	<0.5
Boron-Dissolved	µg/L	370
Cobalt-Dissolved	µg/L	<1
Manganese-Dissolved	µg/L	61
Molybdenum-Dissolved	µg/L	5
Selenium-Dissolved	µg/L	<1
Thallium-Dissolved	µg/L	<1
Vanadium-Dissolved	µg/L	2

Ion Balance		
Our Reference:	UNITS	102638-1
Your Reference	-----	T01-101213
		-KF
Date Sampled	-----	10/12/2013
Type of sample		Water
Date prepared	-	17/12/2013
Date analysed	-	18/12/2013
Calcium - Dissolved	mg/L	280
Potassium - Dissolved	mg/L	17
Sodium - Dissolved	mg/L	2,600
Magnesium - Dissolved	mg/L	520
Hydroxide Alkalinity (OH ⁻) as CaCO ₃	mg/L	<5
Bicarbonate Alkalinity as CaCO ₃	mg/L	540
Carbonate Alkalinity as CaCO ₃	mg/L	<5
Total Alkalinity as CaCO ₃	mg/L	540
Sulphate, SO ₄	mg/L	4,900
Chloride, Cl	mg/L	1,100
Ionic Balance	%	7.7

MethodID	Methodology Summary
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following distillation, based upon APHA 22nd ED 5530 D.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA 22nd ED, 2320-B.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA 22nd ED, 4110 -B.
Inorg-041	Gravimetric determination of the total solids content of water using APHA 22nd ED 2540B.

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		
Date extracted	-			17/12/2013	[NT]	[NT]	LCS-W1	17/12/2013
Date analysed	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	131%
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	126%
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	121%
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	125%
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	122%
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	127%
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	115%
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	123%
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NR]	[NR]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate	%		Org-013	123	[NT]	[NT]	LCS-W1	100%
Dibromofluoromethane								
Surrogate toluene-d8	%		Org-013	103	[NT]	[NT]	LCS-W1	102%
Surrogate 4-BFB	%		Org-013	100	[NT]	[NT]	LCS-W1	99%

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Water						Base II Duplicate II %RPD		
Date extracted	-			17/12/2013	[NT]	[NT]	LCS-W1	17/12/2013
Date analysed	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
TRHC ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	90%
TRHC ₆ - C ₁₀	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	90%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	77%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	92%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	96%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	93%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	91%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	123	[NT]	[NT]	LCS-W1	140%
Surrogate toluene-d8	%		Org-016	103	[NT]	[NT]	LCS-W1	101%
Surrogate 4-BFB	%		Org-016	100	[NT]	[NT]	LCS-W1	98%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Water						Base II Duplicate II %RPD		
Date extracted	-			17/12/2013	[NT]	[NT]	LCS-W3	17/12/2013
Date analysed	-			17/12/2013	[NT]	[NT]	LCS-W3	18/12/2013
TRHC ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W3	127%
TRHC ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W3	70%
TRHC ₂₉ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W3	73%
TRH>C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W3	127%
TRH>C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W3	70%
TRH>C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W3	73%
Surrogate o-Terphenyl	%		Org-003	76	[NT]	[NT]	LCS-W3	86%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	-			17/12/2013	[NT]	[NT]	LCS-W3	17/12/2013
Date analysed	-			17/12/2013	[NT]	[NT]	LCS-W3	17/12/2013
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W3	70%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W3	74%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W3	72%

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W3	72%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W3	75%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W3	71%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W3	63%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	92	[NT]	[NT]	LCS-W3	95%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Water						Base II Duplicate II %RPD		
Date extracted	-			17/12/2013	[NT]	[NT]	LCS-W1	17/12/2013
Date analysed	-			17/12/2013	[NT]	[NT]	LCS-W1	17/12/2013
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-030	<0.05	[NT]	[NT]	LCS-W1	94%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Date prepared	-			17/12/2013	[NT]	[NT]	LCS-W1	17/12/2013
Date analysed	-			17/12/2013	[NT]	[NT]	LCS-W1	17/12/2013
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	104%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W1	103%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	103%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	105%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	103%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	LCS-W1	96%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	102%

Client Reference: 0224193, Project Symphony

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	102%
Barium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	104%
Beryllium-Dissolved	µg/L	0.5	Metals-022 ICP-MS	<0.5	[NT]	[NT]	LCS-W1	106%
Boron-Dissolved	µg/L	5	Metals-022 ICP-MS	<5	[NT]	[NT]	LCS-W1	96%
Cobalt-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	105%
Manganese-Dissolved	µg/L	5	Metals-022 ICP-MS	<5	[NT]	[NT]	LCS-W1	105%
Molybdenum-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	97%
Selenium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	103%
Thallium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	97%
Vanadium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	103%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Ion Balance						Base II Duplicate II %RPD		
Date prepared	-			17/12/2013	[NT]	[NT]	LCS-W1	17/12/2013
Date analysed	-			17/12/2013	[NT]	[NT]	LCS-W1	17/12/2013
Calcium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-W1	98%
Potassium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-W1	119%
Sodium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-W1	105%
Magnesium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-W1	100%
Hydroxide Alkalinity (OH ⁻) as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NR]	[NR]
Bicarbonate Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NR]	[NR]
Carbonate Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NR]	[NR]
Total Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	LCS-W1	99%
Sulphate, SO ₄	mg/L	1	Inorg-081	<1	[NT]	[NT]	LCS-W1	116%
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	LCS-W1	100%
Ionic Balance	%		Inorg-041	[NT]	[NT]	[NT]	[NR]	[NR]

Report Comments:

Asbestos ID was analysed by Approved Identifier: Not applicable for this job
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



CHAIN OF CUSTODY
ALS Laboratory
please tick ->

CLIENT: ERM
OFFICE: SYDNEY
PROJECT: Project Symphony
ORDER NUMBER: 0224193
PROJECT MANAGER: Joe Ferris
SAMPLER: J. Grant
COC emailed to ALS? (YES / NO): YES

TURNAROUND REQUIREMENTS:
 Standard TAT (List due date):
 Non Standard or urgent TAT (List due date): 48hrs
ALS QUOTE NO.: SY179413
SITE: BAYSWATER/LIDDELL
CONTACT PH: 0424 970 468
SAMPLER MOBILE: 0432 596 844
EDD FORMAT (or default): DATE/TIME
RELINQUISHED BY: J. Grant
DATE/TIME: 13/12/03 1645

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? Yes No
Free ice / frozen ice blocks present upon receipt? Yes No
Random Sample Temperature on Receipt: 16°C
RECEIVED BY: J. Grant
DATE/TIME: 13/12/03 1700

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	CONTAINER INFORMATION	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information
1	BA-MW03	11.12.13	W	TYPE & PRESERVATIVE codes below W-24 TRH (C6-Phenols) C40/BTEXN, PAH, Catechol/Amino	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Ba, Cr, Cu, Ni) Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, V, Zn, B, Mo, Ti) Se, Selenium (Freshwater ORC) VOC Target Scan PCB PFOS/PFOA	Comments of Key Contaminant Envirolab Services dilutions, ENVIROLAB specific OC 12 Ashley St analysis etc. Job No: 102697 Date Received: 17/12/13 Time Received: 1300 Received by: JYH Temp. Cool/Ambient 9.3°C Cooling: Ice/Icepack Security: Intact/Intact/None
2	BA-MW01	11.12.13	W	Attach By PO / Internal Sheet W-24 TRH (C6-Phenols) C40/BTEXN, PAH, Catechol/Amino	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Ba, Cr, Cu, Ni) Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, V, Zn, B, Mo, Ti) Se, Selenium (Freshwater ORC) VOC Target Scan PCB PFOS/PFOA	Labelled as RO1-11213 only BTEX BTEX + TRH * Send to Envirolab
3	BA-EW-MW01	11.12.13	W	TYPE & PRESERVATIVE codes below W-24 TRH (C6-Phenols) C40/BTEXN, PAH, Catechol/Amino	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Ba, Cr, Cu, Ni) Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, V, Zn, B, Mo, Ti) Se, Selenium (Freshwater ORC) VOC Target Scan PCB PFOS/PFOA	
4	BX-MW03	11.12.13	W	TYPE & PRESERVATIVE codes below W-24 TRH (C6-Phenols) C40/BTEXN, PAH, Catechol/Amino	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Ba, Cr, Cu, Ni) Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, V, Zn, B, Mo, Ti) Se, Selenium (Freshwater ORC) VOC Target Scan PCB PFOS/PFOA	
5	BT-MW21	11.12.13	W	TYPE & PRESERVATIVE codes below W-24 TRH (C6-Phenols) C40/BTEXN, PAH, Catechol/Amino	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Ba, Cr, Cu, Ni) Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, V, Zn, B, Mo, Ti) Se, Selenium (Freshwater ORC) VOC Target Scan PCB PFOS/PFOA	
6	RO1-11213-J6	11.12.13	W	TYPE & PRESERVATIVE codes below W-24 TRH (C6-Phenols) C40/BTEXN, PAH, Catechol/Amino	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Ba, Cr, Cu, Ni) Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, V, Zn, B, Mo, Ti) Se, Selenium (Freshwater ORC) VOC Target Scan PCB PFOS/PFOA	
7	TS-12	11.12.13	W	TYPE & PRESERVATIVE codes below W-24 TRH (C6-Phenols) C40/BTEXN, PAH, Catechol/Amino	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Ba, Cr, Cu, Ni) Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, V, Zn, B, Mo, Ti) Se, Selenium (Freshwater ORC) VOC Target Scan PCB PFOS/PFOA	
8	TB-11	11.12.13	W	TYPE & PRESERVATIVE codes below W-24 TRH (C6-Phenols) C40/BTEXN, PAH, Catechol/Amino	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Ba, Cr, Cu, Ni) Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, V, Zn, B, Mo, Ti) Se, Selenium (Freshwater ORC) VOC Target Scan PCB PFOS/PFOA	
9	BQ-MW14	12.12.13	W	TYPE & PRESERVATIVE codes below W-24 TRH (C6-Phenols) C40/BTEXN, PAH, Catechol/Amino	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Ba, Cr, Cu, Ni) Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, V, Zn, B, Mo, Ti) Se, Selenium (Freshwater ORC) VOC Target Scan PCB PFOS/PFOA	
10	*T01-121213-J6	12.12.13	W	TYPE & PRESERVATIVE codes below W-24 TRH (C6-Phenols) C40/BTEXN, PAH, Catechol/Amino	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Ba, Cr, Cu, Ni) Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, V, Zn, B, Mo, Ti) Se, Selenium (Freshwater ORC) VOC Target Scan PCB PFOS/PFOA	
11	RO1-121213-J6	12.12.13	W	TYPE & PRESERVATIVE codes below W-24 TRH (C6-Phenols) C40/BTEXN, PAH, Catechol/Amino	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Ba, Cr, Cu, Ni) Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, V, Zn, B, Mo, Ti) Se, Selenium (Freshwater ORC) VOC Target Scan PCB PFOS/PFOA	
12	BE-MW03	12.12.13	W	TYPE & PRESERVATIVE codes below W-24 TRH (C6-Phenols) C40/BTEXN, PAH, Catechol/Amino	17 Metals (As, Ba, Pb, Zn, Hg) W-2 Metals (As, Ba, Cr, Cu, Ni) Be, Cd, Co, Cr, Cu, Mo, Ni, Pb, V, Zn, B, Mo, Ti) Se, Selenium (Freshwater ORC) VOC Target Scan PCB PFOS/PFOA	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Acid Preserved; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic

Environmental Division Sydney
Work Order
ES1327444

Telephone: +61-2-8784 8555

PAGE 1/2



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12 Ashley St Chatswood NSW 2067
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www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Environmental Resources Management Australia
Locked Bag 24
Broadway NSW 2007

ph: 02 8584 8888

Fax: 02 8584 8800

Attention: Joe Ferring

Sample log in details:

Your reference:

0224193, Project Symphony

Envirolab Reference:

102697

Date received:

17/12/13

Date results expected to be reported:

19/12/13

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 water
Turnaround time requested:	48hr
Temperature on receipt (°C)	12.1
Cooling Method:	Ice
Sampling Date Provided:	YES

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9910 6200 fax: 02 9910 6201

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

CERTIFICATE OF ANALYSIS

102697

Client:

Environmental Resources Management Australia

Locked Bag 24

Broadway

NSW 2007

Attention: Joe Ferring

Sample log in details:

Your Reference:	0224193, Project Symphony
No. of samples:	1 water
Date samples received / completed instructions received	17/12/13 / 17/12/13

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date: 19/12/13 / 19/12/13

Date of Preliminary Report: Not issued

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:



Jacinta Hurst
Laboratory Manager

VOCs in water Our Reference: Your Reference	UNITS -----	102697-1 T01-121213- JG
Date Sampled Type of sample	-----	12/12/2013 Water
Date extracted	-	18/12/2013
Date analysed	-	19/12/2013
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1
Bromoform	µg/L	<1
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1

VOCs in water Our Reference: Your Reference	UNITS -----	102697-1 T01-121213- JG
Date Sampled Type of sample	-----	12/12/2013 Water
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
<i>Surrogate</i> Dibromofluoromethane	%	120
<i>Surrogate</i> toluene-d8	%	89
<i>Surrogate</i> 4-BFB	%	95

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	102697-1
Your Reference	-----	T01-121213- JG
Date Sampled	-----	12/12/2013
Type of sample		Water
Date extracted	-	18/12/2013
Date analysed	-	19/12/2013
TRHC ₆ - C ₉	µg/L	<10
TRHC ₆ - C ₁₀	µg/L	<10
TRHC ₆ - C ₁₀ less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	120
Surrogate toluene-d8	%	89
Surrogate 4-BFB	%	95

svTRH (C10-C40) in Water		
Our Reference:	UNITS	102697-1
Your Reference	-----	T01-121213- JG
Date Sampled	-----	12/12/2013
Type of sample		Water
Date extracted	-	18/12/2013
Date analysed	-	19/12/2013
TRHC ₁₀ - C ₁₄	µg/L	<50
TRHC ₁₅ - C ₂₈	µg/L	<100
TRHC ₂₉ - C ₃₆	µg/L	<100
TRH>C ₁₀ - C ₁₆	µg/L	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50
TRH>C ₁₆ - C ₃₄	µg/L	<100
TRH>C ₃₄ - C ₄₀	µg/L	<100
Surrogate o-Terphenyl	%	100

PAHs in Water Our Reference: Your Reference	UNITS -----	102697-1 T01-121213- JG
Date Sampled Type of sample	-----	12/12/2013 Water
Date extracted	-	18/12/2013
Date analysed	-	18/12/2013
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	96

Total Phenolics in Water		
Our Reference:	UNITS	102697-1
Your Reference	-----	T01-121213- JG
Date Sampled	-----	12/12/2013
Type of sample		Water
Date extracted	-	18/12/2013
Date analysed	-	18/12/2013
Total Phenolics (as Phenol)	mg/L	<0.05

HM in water - dissolved		
Our Reference:	UNITS	102697-1
Your Reference	-----	T01-121213- JG
Date Sampled	-----	12/12/2013
Type of sample		Water
Date prepared	-	18/12/2013
Date analysed	-	18/12/2013
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	2
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	66
Zinc-Dissolved	µg/L	40
Barium-Dissolved	µg/L	52
Beryllium-Dissolved	µg/L	<0.5
Boron-Dissolved	µg/L	94
Cobalt-Dissolved	µg/L	140
Manganese-Dissolved	µg/L	2,900
Molybdenum-Dissolved	µg/L	<1
Selenium-Dissolved	µg/L	<1
Thallium-Dissolved	µg/L	<1
Vanadium-Dissolved	µg/L	<1

Ion Balance		
Our Reference:	UNITS	102697-1
Your Reference	-----	T01-121213- JG
Date Sampled	-----	12/12/2013
Type of sample		Water
Date prepared	-	18/12/2013
Date analysed	-	18/12/2013
Calcium - Dissolved	mg/L	250
Potassium - Dissolved	mg/L	5.8
Sodium - Dissolved	mg/L	1,600
Magnesium - Dissolved	mg/L	180
Hydroxide Alkalinity (OH ⁻) as CaCO ₃	mg/L	<5
Bicarbonate Alkalinity as CaCO ₃	mg/L	130
Carbonate Alkalinity as CaCO ₃	mg/L	<5
Total Alkalinity as CaCO ₃	mg/L	130
Sulphate, SO ₄	mg/L	2,300
Chloride, Cl	mg/L	1,300
Ionic Balance	%	6.8

MethodID	Methodology Summary
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following disitillation, based upon APHA 22nd ED 5530 D.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA 22nd ED, 2320-B.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA 22nd ED, 4110 -B.
Inorg-041	Gravimetric determination of the total solids content of water using APHA 22nd ED 2540B.

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		
Date extracted	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
Date analysed	-			19/12/2013	[NT]	[NT]	LCS-W1	19/12/2013
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	103%
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	105%
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	103%
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	110%
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	115%
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	87%
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	71%
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	112%
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NR]	[NR]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate	%		Org-013	108	[NT]	[NT]	LCS-W1	101%
Dibromofluoromethane								
Surrogate toluene-d8	%		Org-013	93	[NT]	[NT]	LCS-W1	98%
Surrogate 4-BFB	%		Org-013	96	[NT]	[NT]	LCS-W1	98%

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Water						Base II Duplicate II %RPD		
Date extracted	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
Date analysed	-			19/12/2013	[NT]	[NT]	LCS-W1	19/12/2013
TRHC ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	119%
TRHC ₆ - C ₁₀	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	119%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	118%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	114%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	122%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	121%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	123%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	108	[NT]	[NT]	LCS-W1	102%
Surrogate toluene-d8	%		Org-016	93	[NT]	[NT]	LCS-W1	91%
Surrogate 4-BFB	%		Org-016	96	[NT]	[NT]	LCS-W1	101%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Water						Base II Duplicate II %RPD		
Date extracted	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
Date analysed	-			19/12/2013	[NT]	[NT]	LCS-W1	19/12/2013
TRHC ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	77%
TRHC ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	93%
TRHC ₂₉ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	123%
TRH>C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	77%
TRH>C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	93%
TRH>C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	123%
Surrogate o-Terphenyl	%		Org-003	100	[NT]	[NT]	LCS-W1	80%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	-			18/12/2013	[NT]	[NT]	LCS-W2	18/12/2013
Date analysed	-			18/12/2013	[NT]	[NT]	LCS-W2	18/12/2013
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	116%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	128%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	124%

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QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	123%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	129%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	118%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	137%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	79	[NT]	[NT]	LCS-W2	125%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Water						Base II Duplicate II %RPD		
Date extracted	-			[NT]	[NT]	[NT]	LCS-W1	18/12/2013
Date analysed	-			[NT]	[NT]	[NT]	LCS-W1	18/12/2013
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-030	<0.05	[NT]	[NT]	LCS-W1	88%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Date prepared	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
Date analysed	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	97%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W1	101%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	94%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	95%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	100%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	LCS-W1	116%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	96%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	94%

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Barium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	103%
Beryllium-Dissolved	µg/L	0.5	Metals-022 ICP-MS	<0.5	[NT]	[NT]	LCS-W1	92%
Boron-Dissolved	µg/L	5	Metals-022 ICP-MS	<5	[NT]	[NT]	LCS-W1	96%
Cobalt-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	99%
Manganese-Dissolved	µg/L	5	Metals-022 ICP-MS	<5	[NT]	[NT]	LCS-W1	94%
Molybdenum-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	97%
Selenium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	100%
Thallium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	94%
Vanadium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	99%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Ion Balance						Base II Duplicate II %RPD		
Date prepared	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
Date analysed	-			18/12/2013	[NT]	[NT]	LCS-W1	18/12/2013
Calcium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-W1	101%
Potassium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-W1	118%
Sodium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-W1	105%
Magnesium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-W1	100%
Hydroxide Alkalinity (OH ⁻) as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NR]	[NR]
Bicarbonate Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NR]	[NR]
Carbonate Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NR]	[NR]
Total Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	LCS-W1	99%
Sulphate, SO ₄	mg/L	1	Inorg-081	<1	[NT]	[NT]	LCS-W1	118%
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	LCS-W1	101%
Ionic Balance	%		Inorg-041	[NT]	[NT]	[NT]	[NR]	[NR]

Report Comments:

Asbestos ID was analysed by Approved Identifier: Not applicable for this job
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



CHAIN OF CUSTODY
ALS Laboratory
please tick →

LABORATORY: 21 Sunny Road, North Sydney, NSW 1585
PH: 02 9390 8800
FAX: 02 9390 8801
WWW: www.als.com.au

LABORATORY: 21 Sunny Road, North Sydney, NSW 1585
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LABORATORY: 21 Sunny Road, North Sydney, NSW 1585
PH: 02 9390 8800
FAX: 02 9390 8801
WWW: www.als.com.au

CLIENT: ERM

OFFICE: Sydney

PROJECT: Project Symphony ORDER NUMBER: 0224193

ORDER NUMBER: 0224193

PROJECT MANAGER: Joe Ferris

SAMPLER: Shak Gant

COC emailed to ALS? (YES / NO)

CONTACT PH: 0424 970 468

SAMPLER MOBILE: 0432 596344

EDD FORMAT (or default):

Relinquished by: Shak Gant DATE/TIME: 17/12/13

Relinquished by: Shak Gant DATE/TIME: 19/12 14:10

RECEIVED BY: JYH (ELS) DATE/TIME: 23/12/13 10:30

Comments/Reports to (will default to PM if no other addresses are listed):

Comments/Invoice to (will default to PM if no other addresses are listed):

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:

Standard TAT (List due date):

Non Standard or urgent TAT (List due date):

Standard TAT may be longer for some tests e.g. Ultra Trace Organics

ALS QUOTE NO.: SY79413

SITE: BAYSWATER / LIDDELL

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No

Free ice / frozen ice bricks present upon receipt? Yes No

Random Sample Temperature on Receipt °C

Other comment:

ANALYSIS REQUIRED including SUITES (NB, Suite Codes must be listed to attract suite price)

Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti)	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	Seelenium (Freshwater ORC)	VOC Target Scan	PCB	FOS/FFOA	W-24 TRH (Cs, C40)/BTEXN, PAH, Phenols	Additional Information
1	BK-MW04	16.12.13	W		7	X	X	X	X	X	X	X	
2	BY-MW12	17.12.13	W		7	X	X	X	X	X	X	X	
3	ROI-171213-J4	17.12.13	W		7	X	X	X	X	X	X	X	
4	DOI-171213-J4	17.12.13	W		7	X	X	X	X	X	X	X	
5	BY-MK25	17.12.13	W		7	X	X	X	X	X	X	X	Send to EnviroLab
6	TS1		W		1								BTEX only
7	TB9		W		1								ONE SAMPLE (combine)
8	TB7		W		1								BTEX & TRH
9	TB7		W		1								ONE SAMPLE (combine)

Environmental Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 103045

Date Received: 23/12/13

Time Received: 10:30

Received by: JYH

Temp: Cool/Ambient

Cooling: Ice/icepack

Environmental Division
Sydney
Work Order
ES1327890

Attach By TO / Internal Sheet:

WO No:

Connote / Courier:

Relinquished By / Date:

Organised By / Date:

Subcol / Forward Lab / Split WO

EnviroLab

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide/HCI Preserved; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Disulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airright Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ed Plastic; F = Formaldehyde Preserved Glass;



Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Environmental Resources Management Australia
Locked Bag 24
Broadway NSW 2007

ph: 02 8584 8888
Fax: 02 8584 8800

Attention: Joe Ferring

Sample log in details:

Your reference:	0224193, Project Symphony
Envirolab Reference:	103045
Date received:	23/12/2013
Date results expected to be reported:	2/01/14

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 water
Turnaround time requested:	Standard
Temperature on receipt (°C)	14.2
Cooling Method:	Ice
Sampling Date Provided:	YES

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

CERTIFICATE OF ANALYSIS

103045

Client:

Environmental Resources Management Australia

Locked Bag 24

Broadway

NSW 2007

Attention: Joe Ferring

Sample log in details:

Your Reference:

0224193, Project Symphony

No. of samples:

1 water

Date samples received / completed instructions received

23/12/2013 / 23/12/2013

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:

2/01/14 / 2/01/14

Date of Preliminary Report:

Not issued

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Accredited for compliance with ISO/IEC 17025.

Tests not covered by NATA are denoted with *.

Results Approved By:



Jacinta Hurst
Laboratory Manager

VOCs in water Our Reference: Your Reference	UNITS -----	103045-1 T01-171213- JG
Date Sampled Type of sample	-----	17/12/2013 Water
Date extracted	-	30/12/2013
Date analysed	-	30/12/2013
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1
Bromoform	µg/L	<1
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1

VOCs in water Our Reference: Your Reference	UNITS -----	103045-1 T01-171213- JG
Date Sampled Type of sample	-----	17/12/2013 Water
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	137
Surrogate toluene-d8	%	89
Surrogate 4-BFB	%	84

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	103045-1
Your Reference	-----	T01-171213- JG
Date Sampled	-----	17/12/2013
Type of sample		Water
Date extracted	-	30/12/2013
Date analysed	-	30/12/2013
TRHC ₆ - C ₉	µg/L	<10
TRHC ₆ - C ₁₀	µg/L	<10
TRHC ₆ - C ₁₀ less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	137
Surrogate toluene-d8	%	89
Surrogate 4-BFB	%	84

svTRH (C10-C40) in Water		
Our Reference:	UNITS	103045-1
Your Reference	-----	T01-171213- JG
Date Sampled	-----	17/12/2013
Type of sample		Water
Date extracted	-	24/12/2013
Date analysed	-	24/12/2013
TRHC ₁₀ - C ₁₄	µg/L	<50
TRHC ₁₅ - C ₂₈	µg/L	<100
TRHC ₂₉ - C ₃₆	µg/L	<100
TRH>C ₁₀ - C ₁₆	µg/L	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50
TRH>C ₁₆ - C ₃₄	µg/L	<100
TRH>C ₃₄ - C ₄₀	µg/L	<100
Surrogate o-Terphenyl	%	84

PAHs in Water Our Reference: Your Reference	UNITS -----	103045-1 T01-171213- JG
Date Sampled Type of sample	-----	17/12/2013 Water
Date extracted	-	24/12/2013
Date analysed	-	24/12/2013
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	98

Total Phenolics in Water		
Our Reference:	UNITS	103045-1
Your Reference	-----	T01-171213- JG
Date Sampled	-----	17/12/2013
Type of sample		Water
Date extracted	-	02/01/2014
Date analysed	-	02/01/2014
Total Phenolics (as Phenol)	mg/L	<0.05

HM in water - dissolved		
Our Reference:	UNITS	103045-1
Your Reference	-----	T01-171213- JG
Date Sampled	-----	17/12/2013
Type of sample		Water
Date prepared	-	24/12/2013
Date analysed	-	24/12/2013
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	1.7
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	3
Lead-Dissolved	µg/L	6
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	260
Zinc-Dissolved	µg/L	300
Barium-Dissolved	µg/L	43
Beryllium-Dissolved	µg/L	0.9
Boron-Dissolved	µg/L	35
Cobalt-Dissolved	µg/L	120
Manganese-Dissolved	µg/L	2,200
Molybdenum-Dissolved	µg/L	<1
Selenium-Dissolved	µg/L	38
Thallium-Dissolved	µg/L	<1
Vanadium-Dissolved	µg/L	<1

MethodID	Methodology Summary
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following disitillation, based upon APHA 22nd ED 5530 D.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		
Date extracted	-			30/12/2013	[NT]	[NT]	LCS-W1	30/12/2013
Date analysed	-			30/12/2013	[NT]	[NT]	LCS-W1	30/12/2013
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	100%
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	100%
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	93%
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	98%
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	98%
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	101%
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	104%
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	96%
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NR]	[NR]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate	%		Org-013	108	[NT]	[NT]	LCS-W1	100%
Dibromofluoromethane								
Surrogate toluene-d8	%		Org-013	110	[NT]	[NT]	LCS-W1	104%
Surrogate 4-BFB	%		Org-013	82	[NT]	[NT]	LCS-W1	101%

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Water						Base II Duplicate II %RPD		
Date extracted	-			30/12/2013	[NT]	[NT]	LCS-W1	30/12/2013
Date analysed	-			30/12/2013	[NT]	[NT]	LCS-W1	30/12/2013
TRHC ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	112%
TRHC ₆ - C ₁₀	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	112%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	107%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	110%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	110%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	116%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	115%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	108	[NT]	[NT]	LCS-W1	113%
Surrogate toluene-d8	%		Org-016	110	[NT]	[NT]	LCS-W1	98%
Surrogate 4-BFB	%		Org-016	82	[NT]	[NT]	LCS-W1	104%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Water						Base II Duplicate II %RPD		
Date extracted	-			24/12/2013	[NT]	[NT]	LCS-W1	24/12/2013
Date analysed	-			24/12/2013	[NT]	[NT]	LCS-W1	24/12/2013
TRHC ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	82%
TRHC ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	95%
TRHC ₂₉ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	88%
TRH>C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	82%
TRH>C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	95%
TRH>C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	88%
Surrogate o-Terphenyl	%		Org-003	91	[NT]	[NT]	LCS-W1	99%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	-			24/12/2013	[NT]	[NT]	LCS-W1	24/12/2013
Date analysed	-			24/12/2013	[NT]	[NT]	LCS-W1	24/12/2013
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	96%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	93%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	92%

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	95%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	99%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	80%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	92%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	94	[NT]	[NT]	LCS-W1	103%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Water						Base II Duplicate II %RPD		
Date extracted	-			02/01/2014	[NT]	[NT]	LCS-W1	02/01/2014
Date analysed	-			02/01/2014	[NT]	[NT]	LCS-W1	02/01/2014
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-030	<0.05	[NT]	[NT]	LCS-W1	98%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Date prepared	-			24/12/2013	[NT]	[NT]	LCS-W1	24/12/2013
Date analysed	-			24/12/2013	[NT]	[NT]	LCS-W1	24/12/2013
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	82%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W1	92%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	95%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	93%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	104%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	LCS-W1	96%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	98%

Client Reference: 0224193, Project Symphony

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	80%
Barium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	97%
Beryllium-Dissolved	µg/L	0.5	Metals-022 ICP-MS	<0.5	[NT]	[NT]	LCS-W1	97%
Boron-Dissolved	µg/L	5	Metals-022 ICP-MS	<5	[NT]	[NT]	LCS-W1	103%
Cobalt-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	98%
Manganese-Dissolved	µg/L	5	Metals-022 ICP-MS	<5	[NT]	[NT]	LCS-W1	95%
Molybdenum-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	97%
Selenium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	91%
Thallium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	90%
Vanadium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	99%

QUALITYCONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
HM in water - dissolved			Base + Duplicate + %RPD		
Date prepared	-	[NT]	[NT]	103045-1	24/12/2013
Date analysed	-	[NT]	[NT]	103045-1	24/12/2013
Arsenic-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Cadmium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Chromium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Copper-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Lead-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Mercury-Dissolved	µg/L	[NT]	[NT]	103045-1	88%
Nickel-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Zinc-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Barium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Beryllium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Boron-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Cobalt-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Manganese-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Molybdenum-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Selenium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Thallium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Vanadium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]

Report Comments:

Asbestos ID was analysed by Approved Identifier: Not applicable for this job
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



CHAIN OF CUSTODY
ALS Laboratory
please tick →

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Environmental Division
Sydney
Work Order
ES1326215



Telephone : + 61 2 8784 8555

CLIENT: ERM
 OFFICE: Sydney
 PROJECT: Project Symphomy
 ORDER NUMBER: 0224493
 PROJECT MANAGER: Joe Runtz
 SAMPLER: Nathan Hearty
 COC emailed to ALS? (YES) (NO)
 EDD FORMAT (or default):
 Email Reports to (will default to PM if no other addresses are listed): Symphomy.molgen@erm.com
 Email Invoice to (will default to PM if no other addresses are listed):
 COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S)/WATER (W)	CONTAINER INFORMATION	ANALYSIS REQUIRED INCLUDING SUTES AND Solute Codes must be listed to attract site price Where Metals are required, specify Total (unfiltered) or Dissolved (filtered) bottle (required)	Additional Information											
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	REFER TO	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Tl)	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PFOS/PFOA	W-24 TRH(C6-C40)/BTEXN, PAH, Phenols	ORC ultratrace metals	Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.
	1	BN MW08	28/11/13 15:30	W	1xN, 1xORC, 4xVS, 3xAG	9	X			X	X			X	
	2	BN MW09	28/11/13 14:35			9	X			X	X			X	
	3	BN MW10	28/11/13 15:50			9	X			X	X			X	
	4	Rinsak.281113.NH	28/11/13 16:00		1N, 1xORC, 2xVS, 2xAG	6	X			X	X			X	
	5	BD_EW_MW01	29/11/13 10:30		1xN, 1xORC, 4xVS, 2xAG	8	X			X	X			X	
	6	BD_EW_MW02	29/11/13 11:30			8	X			X	X			X	
	7	BD_EW_MW03	29/11/13 09:00			8	X			X	X			X	
	8	BD_EW_MW04	29/11/13 12:45			8	X			X	X			X	
	9	Rinsade.291113.NH	29/11/13 19:15		1N, 1xORC, 2xVS, 2xAG	6	X			X	X			X	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved Plastic; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airtight Unpreserved Plastic
 V = VOA Vial HQ Preserved; VS = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unpreserved Bag

NS

ORC

Wael Saleh

From: Barbara Hanna
Sent: Tuesday, 3 December 2013 12:24 PM
To: Wael Saleh; Fadi Soro
Cc: ERM Australia Project Symphony MacGen; John Ewing
Subject: RE: ES1326215

Hi Wael,

Could you please arrange this ASAP.

Hi Fadi,

Could you please confirm the bottles received as per below.

Thanks!!

Kind Regards

Barbara Hanna

Client Services Manager
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

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Please see our latest [EnviroMail 68 - Sampling and Analysis Implications of the new NEPM - July 2013](#)

[EnviroMail 69 - Testing Requirements of the new NEPM - July 2013](#)

[EnviroMail 70 - Variation of Naphthalene by SVOC and VOC Methods in Water - July 2013](#)

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Winner of the inaugural CARE Award 2011 - Sustainable Technology & Innovation:

Reduction in Sample Volumes - Improving quality, safety, efficiency and sustainability in environmental practices



Please consider the environment before printing this email.

From: John Ewing [mailto:John.Ewing@erm.com]
Sent: Tuesday, 3 December 2013 12:07 PM
To: Barbara Hanna
Cc: ERM Australia Project Symphony MacGen
Subject: ES1326215

Barbara,

I am just checking the SRN and COC for ES1326215. There are some sample container non compliances. It appears that the metals bottles were not received by ALS. I have spoken to the field scientist who took the samples and he assures me that he collected samples in plastic metals bottles and that he counted them into the eskie as he wrote the COC. Can you check that you definitely did not receive these bottles? Can you tell me how many and which bottles you do have for Samples:

ES1326215-003 BV_MW10
ES1326215-006 BD_EW_MW02

Also,

Can you confirm the difference between Water – EG093A-F Dissolved metals in saline water by ORC-ICPMS and WATER – 093B-F Dissolved metals in saline water – Suite B by?


Finally,

Can you please make the following amendments:

ES1326215-004 - RINSATE_281113_NH **Change sample ID to R01_281113_NH. Remove ORC Analysis**
ES1326215-009 - RINSATE_291113_NH **Change sample ID to R01_291113_NH. Remove ORC Analysis. Remove all dissolved metals analysis and replace with total metals**

Thanks,

John

 **John Ewing | Environmental Scientist**
Environmental Resources Management Australia
Building C, 33 Saunders Street, Pyrmont, Sydney
Locked Bag 24 Broadway NSW 2007

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SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326215		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact Address	: MR JOSEPH FERRING : GROUND FLOOR : 33 SAUNDERS STREET, PYRMONT : NSW 2009 : LOCKED BAG 24 : BROADWAY NSW, AUSTRALIA 2007	Contact Address	: Barbara Hanna : 277-289 Woodpark Road Smithfield : NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	Page	: 1 of 3
Order number	: 0224193	Quote number	: ES2013ENVRES0369 (SY/794/13)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	: NATHAN.H		

Dates

Date Samples Received	: 29-NOV-2013	Issue Date	: 03-DEC-2013 14:29
Client Requested Due Date	: 06-DEC-2013	Scheduled Reporting Date	: 06-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 5.4°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 9
Security Seal	: Intact.	No. of samples analysed	: 9

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG035T Total Mercury by FIMS	WATER - EG093A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EG093B-F Dissolved Metals in Saline Water Suite B by	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - W-01T 7 metals (Total)	WATER - W-02T 8 metals (Total)
ES1326215-001	28-NOV-2013 13:30	BV_MW08	✓		✓	✓	✓	✓		
ES1326215-002	28-NOV-2013 14:35	BV_MW09	✓		✓	✓	✓	✓		
ES1326215-003	28-NOV-2013 15:50	BV_MW10	✓		✓	✓	✓	✓		
ES1326215-004	28-NOV-2013 16:00	R01_281113_NH		✓			✓	✓	✓	
ES1326215-005	29-NOV-2013 10:30	BD_EW_MW01	✓		✓	✓		✓		
ES1326215-006	29-NOV-2013 11:30	BD_EW_MW02	✓		✓	✓		✓		
ES1326215-007	29-NOV-2013 09:00	BD_EW_MW03	✓		✓	✓		✓		
ES1326215-008	29-NOV-2013 12:45	BD_EW_MW04	✓		✓	✓		✓		
ES1326215-009	29-NOV-2013 13:45	R01_291113_NH						✓		✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-24 TRH/TEX/NPAH/Phenols
ES1326215-001	28-NOV-2013 13:30	BV_MW08	✓
ES1326215-002	28-NOV-2013 14:35	BV_MW09	✓
ES1326215-003	28-NOV-2013 15:50	BV_MW10	✓
ES1326215-004	28-NOV-2013 16:00	R01_281113_NH	✓
ES1326215-005	29-NOV-2013 10:30	BD_EW_MW01	✓
ES1326215-006	29-NOV-2013 11:30	BD_EW_MW02	✓
ES1326215-007	29-NOV-2013 09:00	BD_EW_MW03	✓
ES1326215-008	29-NOV-2013 12:45	BD_EW_MW04	✓
ES1326215-009	29-NOV-2013 13:45	R01_291113_NH	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA)	Email	symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	symphony.macgen@erm.com
- A4 - AU Tax Invoice (INV)	Email	symphony.macgen@erm.com
- Chain of Custody (CoC) (COC)	Email	symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG)	Email	symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT)	Email	symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1326215 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : PROJECT SYMPHONY Order number : 0224193 C-O-C number : ---- Sampler : NATHAN.H Site : ---- Quote number : SY/794/13	Page : 1 of 15 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 29-NOV-2013 Issue Date : 09-DEC-2013 No. of samples received : 9 No. of samples analysed : 9
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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

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>
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney Inorganics



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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EG035: Poor matrix spike recovery was obtained for Mercury on sample ES1326215#1 due to matrix interference. Confirmed by reanalysis**
- **EP075: 'Sum of PAH' is the sum of the USEPA 16 priority PAHs**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BV_MW08	BV_MW09	BV_MW10	R01_281113_NH	BD_EW_MW01
				28-NOV-2013 13:30	28-NOV-2013 14:35	28-NOV-2013 15:50	28-NOV-2013 16:00	29-NOV-2013 10:30
Compound	CAS Number	LOR	Unit	ES1326215-001	ES1326215-002	ES1326215-003	ES1326215-004	ES1326215-005
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	----	----	<0.001	----
Nickel	7440-02-0	0.001	mg/L	----	----	----	<0.001	----
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	----
Zinc	7440-66-6	0.005	mg/L	----	----	----	<0.005	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	<0.0001
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	9.2	11.0	0.6	----	1.8
Arsenic	7440-38-2	0.2	µg/L	6.0	6.5	0.4	----	2.2
Barium	7440-39-3	0.5	µg/L	27.3	35.7	31.9	----	27.7
Beryllium	7440-41-7	0.1	µg/L	17.9	14.1	0.2	----	<0.1
Boron	7440-42-8	5	µg/L	54	197	216	----	176
Cadmium	7440-43-9	0.05	µg/L	0.60	1.66	0.49	----	0.27
Chromium	7440-47-3	0.2	µg/L	7.9	2.1	<0.2	----	0.2
Cobalt	7440-48-4	0.1	µg/L	477	574	27.7	----	89.0
Copper	7440-50-8	0.5	µg/L	90.7	2.8	0.5	----	0.6
Lead	7439-92-1	0.1	µg/L	20.6	4.1	12.5	----	0.5
Manganese	7439-96-5	0.5	µg/L	632	10700	199	----	9730
Molybdenum	7439-98-7	0.1	µg/L	0.2	0.2	0.4	----	0.5
Nickel	7440-02-0	0.5	µg/L	1080	517	37.7	----	79.6
Thallium	7440-28-0	0.02	µg/L	0.31	0.60	0.10	----	0.86
Vanadium	7440-62-2	0.2	µg/L	1.0	1.9	1.2	----	0.4
Zinc	7440-66-6	1	µg/L	2190	1740	56	----	21
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BV_MW08	BV_MW09	BV_MW10	R01_281113_NH	BD_EW_MW01
				28-NOV-2013 13:30	28-NOV-2013 14:35	28-NOV-2013 15:50	28-NOV-2013 16:00	29-NOV-2013 10:30
Compound	CAS Number	LOR	Unit	ES1326215-001	ES1326215-002	ES1326215-003	ES1326215-004	ES1326215-005
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BV_MW08	BV_MW09	BV_MW10	R01_281113_NH	BD_EW_MW01
				28-NOV-2013 13:30	28-NOV-2013 14:35	28-NOV-2013 15:50	28-NOV-2013 16:00	29-NOV-2013 10:30
Compound	CAS Number	LOR	Unit	ES1326215-001	ES1326215-002	ES1326215-003	ES1326215-004	ES1326215-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BV_MW08	BV_MW09	BV_MW10	R01_281113_NH	BD_EW_MW01
				28-NOV-2013 13:30	28-NOV-2013 14:35	28-NOV-2013 15:50	28-NOV-2013 16:00	29-NOV-2013 10:30
Compound	CAS Number	LOR	Unit	ES1326215-001	ES1326215-002	ES1326215-003	ES1326215-004	ES1326215-005
EP074G: Trihalomethanes - Continued								
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BV_MW08	BV_MW09	BV_MW10	R01_281113_NH	BD_EW_MW01
				28-NOV-2013 13:30	28-NOV-2013 14:35	28-NOV-2013 15:50	28-NOV-2013 16:00	29-NOV-2013 10:30
Compound	CAS Number	LOR	Unit	ES1326215-001	ES1326215-002	ES1326215-003	ES1326215-004	ES1326215-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	87.2	92.9	93.4	77.8	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	122	117	113	113	110
Toluene-D8	2037-26-5	0.1	%	126	119	118	121	114
4-Bromofluorobenzene	460-00-4	0.1	%	111	104	104	102	98.4



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BV_MW08	BV_MW09	BV_MW10	R01_281113_NH	BD_EW_MW01
				28-NOV-2013 13:30	28-NOV-2013 14:35	28-NOV-2013 15:50	28-NOV-2013 16:00	29-NOV-2013 10:30
Compound	CAS Number	LOR	Unit	ES1326215-001	ES1326215-002	ES1326215-003	ES1326215-004	ES1326215-005
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	39.4	35.2	42.8	40.7	41.9
2-Chlorophenol-D4	93951-73-6	0.1	%	65.7	62.0	78.4	77.5	76.5
2,4,6-Tribromophenol	118-79-6	0.1	%	90.4	72.1	92.9	99.4	97.1
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	68.4	59.3	86.4	83.1	71.4
Anthracene-d10	1719-06-8	0.1	%	82.5	91.0	81.4	98.1	106
4-Terphenyl-d14	1718-51-0	0.1	%	72.3	69.7	106	108	108
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	128	123	118	132	115
Toluene-D8	2037-26-5	0.1	%	118	112	110	129	107
4-Bromofluorobenzene	460-00-4	0.1	%	112	107	105	117	100



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BD_EW_MW02	BD_EW_MW03	BD_EW_MW04	R01_291113_NH	----
				29-NOV-2013 11:30	29-NOV-2013 09:00	29-NOV-2013 12:45	29-NOV-2013 13:45	----
Compound	CAS Number	LOR	Unit	ES1326215-006	ES1326215-007	ES1326215-008	ES1326215-009	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	----	----	<0.001	----
Nickel	7440-02-0	0.001	mg/L	----	----	----	<0.001	----
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	----
Zinc	7440-66-6	0.005	mg/L	----	----	----	<0.005	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	1.8	1.3	3.3	----	----
Arsenic	7440-38-2	0.2	µg/L	1.7	1.6	5.3	----	----
Barium	7440-39-3	0.5	µg/L	12.6	25.8	38.1	----	----
Beryllium	7440-41-7	0.1	µg/L	0.3	<0.1	0.1	----	----
Boron	7440-42-8	5	µg/L	173	197	141	----	----
Cadmium	7440-43-9	0.05	µg/L	0.19	0.41	0.12	----	----
Chromium	7440-47-3	0.2	µg/L	2.1	0.2	1.1	----	----
Cobalt	7440-48-4	0.1	µg/L	176	79.4	177	----	----
Copper	7440-50-8	0.5	µg/L	1.6	1.1	0.6	----	----
Lead	7439-92-1	0.1	µg/L	0.4	0.2	0.3	----	----
Manganese	7439-96-5	0.5	µg/L	4540	11800	12700	----	----
Molybdenum	7439-98-7	0.1	µg/L	<0.1	0.3	0.3	----	----
Nickel	7440-02-0	0.5	µg/L	193	52.2	120	----	----
Thallium	7440-28-0	0.02	µg/L	0.40	0.69	0.49	----	----
Vanadium	7440-62-2	0.2	µg/L	0.3	0.3	0.9	----	----
Zinc	7440-66-6	1	µg/L	357	15	57	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BD_EW_MW02	BD_EW_MW03	BD_EW_MW04	R01_291113_NH	----
				29-NOV-2013 11:30	29-NOV-2013 09:00	29-NOV-2013 12:45	29-NOV-2013 13:45	----
Compound	CAS Number	LOR	Unit	ES1326215-006	ES1326215-007	ES1326215-008	ES1326215-009	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BD_EW_MW02	BD_EW_MW03	BD_EW_MW04	R01_291113_NH	----
				29-NOV-2013 11:30	29-NOV-2013 09:00	29-NOV-2013 12:45	29-NOV-2013 13:45	----
Compound	CAS Number	LOR	Unit	ES1326215-006	ES1326215-007	ES1326215-008	ES1326215-009	----
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BD_EW_MW02	BD_EW_MW03	BD_EW_MW04	R01_291113_NH	----
				29-NOV-2013 11:30	29-NOV-2013 09:00	29-NOV-2013 12:45	29-NOV-2013 13:45	----
Compound	CAS Number	LOR	Unit	ES1326215-006	ES1326215-007	ES1326215-008	ES1326215-009	----
EP074G: Trihalomethanes - Continued								
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BD_EW_MW02	BD_EW_MW03	BD_EW_MW04	R01_291113_NH	----
				29-NOV-2013 11:30	29-NOV-2013 09:00	29-NOV-2013 12:45	29-NOV-2013 13:45	----
Compound	CAS Number	LOR	Unit	ES1326215-006	ES1326215-007	ES1326215-008	ES1326215-009	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C10 - C14 Fraction	----	50	µg/L	----	<50	<50	<50	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	----	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	----	<50	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	----	----	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	----	<100	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	----	<100	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	----	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	<100	<100	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	<100	<100	<100	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BD_EW_MW02	BD_EW_MW03	BD_EW_MW04	R01_291113_NH	----
				29-NOV-2013 11:30	29-NOV-2013 09:00	29-NOV-2013 12:45	29-NOV-2013 13:45	----
Compound	CAS Number	LOR	Unit	ES1326215-006	ES1326215-007	ES1326215-008	ES1326215-009	----
ORG14: Separatory Funnel Extraction of Liquids								
Amount	----	-	L	0.102	----	----	----	----
Volume	----	-	mL	1.00	----	----	----	----
Sample Preparation Method								
Amount	----	-	mL	5.00	----	----	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	119	120	122	123	----
Toluene-D8	2037-26-5	0.1	%	124	123	125	126	----
4-Bromofluorobenzene	460-00-4	0.1	%	108	107	107	111	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	27.3	41.4	20.5	15.7	----
2-Chlorophenol-D4	93951-73-6	0.1	%	52.6	72.4	34.8	29.9	----
2,4,6-Tribromophenol	118-79-6	0.1	%	67.3	93.2	49.6	38.6	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	63.0	71.7	35.8	33.2	----
Anthracene-d10	1719-06-8	0.1	%	56.4	109	53.9	55.5	----
4-Terphenyl-d14	1718-51-0	0.1	%	80.4	103	51.2	41.0	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	125	125	128	129	----
Toluene-D8	2037-26-5	0.1	%	117	115	117	119	----
4-Bromofluorobenzene	460-00-4	0.1	%	109	108	110	114	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	28.5	129
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1326215	Page	: 1 of 22
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 29-NOV-2013
C-O-C number	: ----	Issue Date	: 09-DEC-2013
Sampler	: NATHAN.H	No. of samples received	: 9
Order number	: 0224193	No. of samples analysed	: 9
Quote number	: SY/794/13		

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

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

Pabi Subba
Raymond Commodor

Position

Senior Organic Chemist
Instrument Chemist

Accreditation Category

Sydney Organics
Sydney Inorganics



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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 3193202)									
ES1326176-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES1326176-012	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.003	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.008	0.013	38.9	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 3195073)									
ES1326064-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0003	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.009	0.009	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.003	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.009	0.007	24.6	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.066	0.054	20.7	0% - 50%
ES1326171-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3193201)									
ES1326215-001	BV_MW08	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3195072)									
ES1326215-002	BV_MW09	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3191612)									
ES1326077-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3191612) - continued									
ES1326145-011	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3197929)									
ES1326215-001	BV_MW08	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.31	0.32	3.8	0% - 50%
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.60	0.57	4.9	0% - 50%
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	17.9	17.8	0.9	0% - 20%
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	477	472	1.0	0% - 20%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	20.6	21.0	2.2	0% - 20%
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	0.2	0.2	0.0	No Limit
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	6.0	5.9	0.0	0% - 20%
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	7.9	7.9	0.0	0% - 20%
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	1.0	1.0	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	27.3	27.2	0.4	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	90.7	89.5	1.3	0% - 20%
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	632	630	0.4	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	1080	1080	0.8	0% - 20%
EG094A-F: Zinc	7440-66-6	1	µg/L	2190	2130	2.6	0% - 20%		
EG094A-F: Boron	7440-42-8	5	µg/L	54	52	3.6	0% - 50%		
ES1326216-004	Anonymous	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.05	0.05	0.0	No Limit
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.06	0.08	29.4	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	4.9	5.0	2.2	0% - 20%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	1.0	1.1	0.0	0% - 50%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	0.8	0.8	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	0.3	0.3	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	1.3	1.3	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	54.6	54.6	0.0	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	1000	942	6.4	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	7.5	7.7	2.6	0% - 50%
EG094A-F: Zinc	7440-66-6	1	µg/L	18	18	0.0	0% - 50%		
EG094A-F: Boron	7440-42-8	5	µg/L	321	307	4.5	0% - 20%		
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3197930)									
ES1326215-001	BV_MW08	EG094B-F: Selenium	7782-49-2	0.2	µg/L	9.2	9.3	0.0	0% - 20%
ES1326216-004	Anonymous	EG094B-F: Selenium	7782-49-2	0.2	µg/L	0.7	0.6	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3193608)									
ES1326215-003	BV_MW10	EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3191996)									
ES1326126-003	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3191996) - continued										
ES1326126-003	Anonymous	EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit			
ES1326215-001	BV_MW08	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit			
EP074B: Oxygenated Compounds (QC Lot: 3191996)										
ES1326126-003	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit	
ES1326215-001	BV_MW08	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit	
EP074C: Sulfonated Compounds (QC Lot: 3191996)										
ES1326126-003	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit	
ES1326215-001	BV_MW08	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit	



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP074D: Fumigants (QC Lot: 3191996)											
ES1326126-003	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit		
ES1326215-001	BV_MW08	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit		
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3191996)											
ES1326126-003	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
		ES1326215-001	BV_MW08	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3191996) - continued									
ES1326215-001	BV_MW08	EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3191996)									
ES1326126-003	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1326215-001	BV_MW08	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 3191996) - continued									
ES1326215-001	BV_MW08	EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3191996)									
ES1326126-003	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1326215-001	BV_MW08	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3191996)									
ES1326126-003	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1326215-001	BV_MW08	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3193610)									
ES1326215-003	BV_MW10	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		ES1326216-005	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0
EP075(SIM): 2-Chlorophenol	95-57-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2.4-Dimethylphenol	105-67-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2.4-Dichlorophenol	120-83-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2.6-Dichlorophenol	87-65-0			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3193610) - continued									
ES1326216-005	Anonymous	EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3193610)									
ES1326215-003	BV_MW10	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
ES1326216-005	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3191997)									
ES1326126-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1326215-001	BV_MW08	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3193609)									



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3193609) - continued										
ES1326215-003	BV_MW10	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
ES1326216-005	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3191997)										
ES1326126-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1326215-001	BV_MW08	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3193609)										
ES1326215-003	BV_MW10	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
ES1326216-005	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
EP080: BTEXN (QC Lot: 3191997)										
ES1326126-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1326215-001	BV_MW08	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit		
	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit		
Sample Preparation Method (QC Lot: 3191996)										
ES1326126-003	Anonymous	ORG16-W: Amount	----	----	mL	----	5.00	----	0% - 20%	



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 (%)		Recovery Limits (%)	
						LCS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 3193202)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.8	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.2	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	103	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.6	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.9	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.4	76	118	
EG020T: Total Metals by ICP-MS (QCLot: 3195073)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	106	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.7	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	103	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	111	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.4	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	116	76	118	
EG035F: Dissolved Mercury by FIMS (QCLot: 3193201)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	91.7	78	114	
EG035F: Dissolved Mercury by FIMS (QCLot: 3195072)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.5	78	114	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3191612)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	104	77	115	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3197929)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	108	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	111	76	120	
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	99.1	74	130	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	10 µg/L	95.5	79	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	105	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	105	71	123	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	103	79	121	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	103	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	114	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	108	79	119	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	94.3	69	127	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	104	72	128	



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	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3197929) - continued									
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	114	71	121	
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	101	78	116	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	104	76	134	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3197930)									
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	92.4	75	125	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3193608)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	104	61.6	107	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3191996)									
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	103	78	116	
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	68	128	
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	104	74	118	
EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	20 µg/L	108	74	122	
	106-42-3								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	102	74	118	
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	109	77	121	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	105	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	104	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	104	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	105	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	103	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	105	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	107	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	106	62	126	
EP074B: Oxygenated Compounds (QCLot: 3191996)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	98.6	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	97.8	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	94.2	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	102	65	137	
EP074C: Sulfonated Compounds (QCLot: 3191996)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	85.3	72.8	127	
EP074D: Fumigants (QCLot: 3191996)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	94.6	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	103	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	98.4	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	92.7	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	92.1	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3191996)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	70.4	60.6	138	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3191996) - continued									
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	78.0	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	84.2	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	89.9	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	96.4	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	102	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	98.6	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	95.4	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	101	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	106	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	102	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	93.5	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	103	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	101	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	109	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	105	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	99.8	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	104	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	102	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	104	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	88.2	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	102	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	100	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	95.0	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	102	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	99.3	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	90.0	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	106	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3191996)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	102	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	101	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	105	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	106	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	106	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	106	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	105	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	104	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	105	67	125	
EP074G: Trihalomethanes (QCLot: 3191996)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	99.8	76	118	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074G: Trihalomethanes (QCLot: 3191996) - continued									
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	102	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	94.4	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	92.3	73.5	126	
EP074H: Naphthalene (QCLot: 3191996)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	103	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3193610)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	50.6	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	77.0	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	100	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	72.8	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	69.9	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	74.3	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	67.1	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	84.4	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	64.9	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	68.8	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	75.1	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	23.4	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3200845)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	39.5	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	69.5	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	64.1	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	61.0	42.5	114	
		2	µg/L	<2.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3200845) - continued									
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	100	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	77.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	74.1	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	79.8	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	74.4	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	84.6	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	70.6	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	27.6	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3193610)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	70.8	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	77.3	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	83.5	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	91.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	89.1	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	91.2	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	94.7	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	85.0	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	68.8	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	88.6	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	97.8	61.7	119	
		1	µg/L	<1.0	----	----	----	----	



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	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3193610) - continued								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	83.1 ----	61.7 ----	117 ----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2 0.5	µg/L µg/L	---- <0.5	5 µg/L ----	88.6 ----	63.3 ----	117 ----
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	67.3 ----	59.9 ----	118 ----
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	70.9 ----	61.2 ----	117 ----
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	78.8 ----	59.1 ----	118 ----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3200845)								
EP075(SIM): Naphthalene	91-20-3	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	86.8 ----	58.6 ----	119 ----
EP075(SIM): Acenaphthylene	208-96-8	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	69.4 ----	63.6 ----	114 ----
EP075(SIM): Acenaphthene	83-32-9	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	68.5 ----	62.2 ----	113 ----
EP075(SIM): Fluorene	86-73-7	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	70.0 ----	63.9 ----	115 ----
EP075(SIM): Phenanthrene	85-01-8	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	65.0 ----	62.6 ----	116 ----
EP075(SIM): Anthracene	120-12-7	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	69.9 ----	64.3 ----	116 ----
EP075(SIM): Fluoranthene	206-44-0	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	# 57.2 ----	63.6 ----	118 ----
EP075(SIM): Pyrene	129-00-0	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	67.6 ----	63.1 ----	118 ----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	70.6 ----	64.1 ----	117 ----
EP075(SIM): Chrysene	218-01-9	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	91.9 ----	62.5 ----	116 ----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	72.5 ----	61.7 ----	119 ----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	76.6 ----	61.7 ----	117 ----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2 0.5	µg/L µg/L	---- <0.5	5 µg/L ----	87.5 ----	63.3 ----	117 ----
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2 1	µg/L µg/L	---- <1.0	5 µg/L ----	73.2 ----	59.9 ----	118 ----



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3200845) - continued									
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	72.3	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	65.6	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3191997)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	106	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3193609)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	105	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	92.0	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	91.9	62	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3200846)									
EP071-SV: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	94.0	59	129	
EP071-SV: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.3	71	131	
EP071-SV: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	100	62	120	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3191997)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	107	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3193609)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	102	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	96.0	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	106	67	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3200846)									
EP071-SV: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	93.6	58.9	131	
EP071-SV: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	101	73.9	138	
EP071-SV: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	104	67	127	
EP080: BTEXN (QCLot: 3191997)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	112	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	104	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	104	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	109	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	110	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	111	70	124	

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.

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
					Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 3193202)							
ES1326176-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	106	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	103	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	108	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	111	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	105	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	106	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	107	70	130
EG020T: Total Metals by ICP-MS (QCLot: 3195073)							
ES1326064-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	100	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	87.8	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	88.6	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	104	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	89.9	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	90.8	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	109	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3193201)							
ES1326215-001	BV_MW08	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 24.4	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3195072)							
ES1326215-003	BV_MW10	EG035F: Mercury	7439-97-6	0.0100 mg/L	84.4	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3191612)							
ES1326077-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	101	70	130
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3197929)							
ES1326215-002	BV_MW09	EG094A-F: Arsenic	7440-38-2	50 µg/L	94.6	70	130
		EG094A-F: Barium	7440-39-3	50 µg/L	76.4	70	130
		EG094A-F: Beryllium	7440-41-7	50 µg/L	72.6	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	70.7	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	82.4	70	130
		EG094A-F: Cobalt	7440-48-4	50 µg/L	# Not Determined	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	76.5	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	73.3	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	# Not Determined	70	130
		EG094A-F: Vanadium	7440-62-2	50 µg/L	82.4	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3197929) - continued							
ES1326215-002	BV_MW09	EG094A-F: Zinc	7440-66-6	50 µg/L	# Not Determined	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3193608)							
ES1326215-001	BV_MW08	EP066: Total Polychlorinated biphenyls	----	10 µg/L	106	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3191996)							
ES1326126-003	Anonymous	EP074: Benzene	71-43-2	25 µg/L	119	70	130
		EP074: Toluene	108-88-3	25 µg/L	117	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3191996)							
ES1326126-003	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	118	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	111	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3191996)							
ES1326126-003	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	121	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3193610)							
ES1326215-001	BV_MW08	EP075(SIM): Phenol	108-95-2	20 µg/L	50.9	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	84.1	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	74.2	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	86.8	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	88.7	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3193610)							
ES1326215-001	BV_MW08	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	90.8	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	105	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3191997)							
ES1326126-003	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	114	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3193609)							
ES1326215-001	BV_MW08	EP071: C10 - C14 Fraction	----	200 µg/L	109	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	100	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	103	67	153
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3191997)							
ES1326126-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	113	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3193609)							
ES1326215-001	BV_MW08	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	102	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	91.6	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	106	67	153
EP080: BTEXN (QCLot: 3191997)							
ES1326126-003	Anonymous	EP080: Benzene	71-43-2	25 µg/L	100	70	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080: BTEXN (QCLot: 3191997) - continued								
ES1326126-003	Anonymous	EP080: Toluene	108-88-3	25 µg/L	96.8	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	104	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	108	70	130		
Sample Preparation Method (QCLot: 3191996)								
ES1326126-003	Anonymous	ORG16-W: Amount	----	----	5.00	----	----	

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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3191612)										
ES1326077-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	101	----	70	130	----	----
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3191996)										
ES1326126-003	Anonymous	EP074: Benzene	71-43-2	25 µg/L	119	----	70	130	----	----
		EP074: Toluene	108-88-3	25 µg/L	117	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3191996)										
ES1326126-003	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	118	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	111	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3191996)										
ES1326126-003	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	121	----	70	130	----	----
Sample Preparation Method (QCLot: 3191996)										
ES1326126-003	Anonymous	ORG16-W: Amount	----	----	5.00	----	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3191997)										
ES1326126-003	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	114	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3191997)										
ES1326126-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	113	----	70	130	----	----
EP080: BTEXN (QCLot: 3191997)										
ES1326126-003	Anonymous	EP080: Benzene	71-43-2	25 µg/L	100	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	96.8	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP080: BTEXN (QCLot: 3191997) - continued										
ES1326126-003	Anonymous	EP080: meta- & para-Xylene	108-38-3	25 µg/L	104	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	108	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3193201)										
ES1326215-001	BV_MW08	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 24.4	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 3193202)										
ES1326176-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	106	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	103	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	108	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	111	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	105	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	106	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	107	----	70	130	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3193608)										
ES1326215-001	BV_MW08	EP066: Total Polychlorinated biphenyls	----	10 µg/L	106	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3193609)										
ES1326215-001	BV_MW08	EP071: C10 - C14 Fraction	----	200 µg/L	109	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	100	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	103	----	67	153	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3193609)										
ES1326215-001	BV_MW08	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	102	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	91.6	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	106	----	67	153	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3193610)										
ES1326215-001	BV_MW08	EP075(SIM): Phenol	108-95-2	20 µg/L	50.9	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	84.1	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	74.2	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	86.8	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	88.7	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3193610)										
ES1326215-001	BV_MW08	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	90.8	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	105	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3195072)										
ES1326215-003	BV_MW10	EG035F: Mercury	7439-97-6	0.0100 mg/L	84.4	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 3195073)										
ES1326064-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	100	----	70	130	----	----



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG020T: Total Metals by ICP-MS (QCLot: 3195073) - continued										
ES1326064-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.25 mg/L	87.8	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	88.6	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	104	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	89.9	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	90.8	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	109	----	70	130	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3197929)										
ES1326215-002	BV_MW09	EG094A-F: Arsenic	7440-38-2	50 µg/L	94.6	----	70	130	----	----
		EG094A-F: Barium	7440-39-3	50 µg/L	76.4	----	70	130	----	----
		EG094A-F: Beryllium	7440-41-7	50 µg/L	72.6	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	70.7	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	82.4	----	70	130	----	----
		EG094A-F: Cobalt	7440-48-4	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	76.5	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	73.3	----	70	130	----	----
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Vanadium	7440-62-2	50 µg/L	82.4	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	# Not Determined	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326215	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 29-NOV-2013
C-O-C number	: ----	Issue Date	: 09-DEC-2013
Sampler	: NATHAN.H	No. of samples received	: 9
Order number	: 0224193	No. of samples analysed	: 9
Quote number	: SY/794/13		

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_281113_NH	28-NOV-2013	04-DEC-2013	27-MAY-2014	✓	04-DEC-2013	27-MAY-2014	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_291113_NH	29-NOV-2013	05-DEC-2013	28-MAY-2014	✓	05-DEC-2013	28-MAY-2014	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) BV_MW08, BV_MW10 BV_MW09,	28-NOV-2013	---	26-DEC-2013	----	05-DEC-2013	26-DEC-2013	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) BD_EW_MW01, BD_EW_MW03, BD_EW_MW02, BD_EW_MW04	29-NOV-2013	---	27-DEC-2013	----	05-DEC-2013	27-DEC-2013	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_281113_NH	28-NOV-2013	----	----	----	04-DEC-2013	26-DEC-2013	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_291113_NH	29-NOV-2013	----	----	----	04-DEC-2013	27-DEC-2013	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BV_MW08, BV_MW10 BV_MW09,	28-NOV-2013	---	27-MAY-2014	----	06-DEC-2013	27-MAY-2014	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BD_EW_MW01, BD_EW_MW03, BD_EW_MW02, BD_EW_MW04	29-NOV-2013	---	28-MAY-2014	----	06-DEC-2013	28-MAY-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) BV_MW08, BV_MW10 BV_MW09,	28-NOV-2013	---	27-MAY-2014	----	06-DEC-2013	27-MAY-2014	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) BD_EW_MW01, BD_EW_MW03, BD_EW_MW02, BD_EW_MW04	29-NOV-2013	---	28-MAY-2014	----	06-DEC-2013	28-MAY-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	05-DEC-2013	05-DEC-2013	✓	05-DEC-2013	14-JAN-2014	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	05-DEC-2013	05-DEC-2013	✓	05-DEC-2013	14-JAN-2014	✓
Amber Glass Bottle - Unpreserved (EP071) BD_EW_MW01, BD_EW_MW04,	BD_EW_MW03, R01_291113_NH	29-NOV-2013	05-DEC-2013	06-DEC-2013	✓	05-DEC-2013	14-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Amber Glass Bottle - Unpreserved (EP071-SV) BD_EW_MW02		29-NOV-2013	06-DEC-2013	06-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	04-DEC-2013	12-DEC-2013	✓	04-DEC-2013	12-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BD_EW_MW01, BD_EW_MW03, R01_291113_NH	BD_EW_MW02, BD_EW_MW04,	29-NOV-2013	04-DEC-2013	13-DEC-2013	✓	04-DEC-2013	13-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	04-DEC-2013	12-DEC-2013	✓	04-DEC-2013	12-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BD_EW_MW01, BD_EW_MW03, R01_291113_NH	BD_EW_MW02, BD_EW_MW04,	29-NOV-2013	04-DEC-2013	13-DEC-2013	✓	04-DEC-2013	13-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	04-DEC-2013	12-DEC-2013	✓	04-DEC-2013	12-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BD_EW_MW01, BD_EW_MW03, R01_291113_NH	BD_EW_MW02, BD_EW_MW04,	29-NOV-2013	04-DEC-2013	13-DEC-2013	✓	04-DEC-2013	13-DEC-2013	✓



Matrix: WATER

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	04-DEC-2013	12-DEC-2013	✓	04-DEC-2013	12-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BD_EW_MW01, BD_EW_MW03, R01_291113_NH	BD_EW_MW02, BD_EW_MW04,	29-NOV-2013	04-DEC-2013	13-DEC-2013	✓	04-DEC-2013	13-DEC-2013	✓
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	04-DEC-2013	12-DEC-2013	✓	04-DEC-2013	12-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BD_EW_MW01, BD_EW_MW03, R01_291113_NH	BD_EW_MW02, BD_EW_MW04,	29-NOV-2013	04-DEC-2013	13-DEC-2013	✓	04-DEC-2013	13-DEC-2013	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	04-DEC-2013	12-DEC-2013	✓	04-DEC-2013	12-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BD_EW_MW01, BD_EW_MW03, R01_291113_NH	BD_EW_MW02, BD_EW_MW04,	29-NOV-2013	04-DEC-2013	13-DEC-2013	✓	04-DEC-2013	13-DEC-2013	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	04-DEC-2013	12-DEC-2013	✓	04-DEC-2013	12-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BD_EW_MW01, BD_EW_MW03, R01_291113_NH	BD_EW_MW02, BD_EW_MW04,	29-NOV-2013	04-DEC-2013	13-DEC-2013	✓	04-DEC-2013	13-DEC-2013	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	04-DEC-2013	12-DEC-2013	✓	04-DEC-2013	12-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BD_EW_MW01, BD_EW_MW03, R01_291113_NH	BD_EW_MW02, BD_EW_MW04,	29-NOV-2013	04-DEC-2013	13-DEC-2013	✓	04-DEC-2013	13-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	05-DEC-2013	05-DEC-2013	✓	05-DEC-2013	14-JAN-2014	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BD_EW_MW01, BD_EW_MW04,	BD_EW_MW03, R01_291113_NH	29-NOV-2013	05-DEC-2013	06-DEC-2013	✓	05-DEC-2013	14-JAN-2014	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BD_EW_MW02		29-NOV-2013	06-DEC-2013	06-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	05-DEC-2013	05-DEC-2013	✓	05-DEC-2013	14-JAN-2014	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BD_EW_MW01, BD_EW_MW04,	BD_EW_MW03, R01_291113_NH	29-NOV-2013	05-DEC-2013	06-DEC-2013	✓	05-DEC-2013	14-JAN-2014	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BD_EW_MW02		29-NOV-2013	06-DEC-2013	06-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	04-DEC-2013	12-DEC-2013	✓	04-DEC-2013	12-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BD_EW_MW01, BD_EW_MW03, R01_291113_NH	BD_EW_MW02, BD_EW_MW04,	29-NOV-2013	04-DEC-2013	13-DEC-2013	✓	04-DEC-2013	13-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Amber VOC Vial - Sulfuric Acid (EP080) BV_MW08, BV_MW10,	BV_MW09, R01_281113_NH	28-NOV-2013	04-DEC-2013	12-DEC-2013	✓	04-DEC-2013	12-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BD_EW_MW01, BD_EW_MW03, R01_291113_NH	BD_EW_MW02, BD_EW_MW04,	29-NOV-2013	04-DEC-2013	13-DEC-2013	✓	04-DEC-2013	13-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	2	15	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	2	11	18.2	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fractions Only	EP071-SV	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	2	11	18.2	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fractions Only	EP071-SV	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	2	11	18.2	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Matrix Spikes (MS) - Continued							
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	15	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fractions Only	EP071-SV	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	3820764-002	----	Fluoranthene	206-44-0	57.2 %	63.6-118%	Recovery less than lower control limit
Matrix Spike (MS) Recoveries							
EG035F: Dissolved Mercury by FIMS	ES1326215-001	BV_MW08	Mercury	7439-97-6	24.4 %	70-130%	Recovery less than lower data quality objective
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1326215-002	BV_MW09	Cobalt	7440-48-4	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1326215-002	BV_MW09	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1326215-002	BV_MW09	Nickel	7440-02-0	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1326215-002	BV_MW09	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



CHAIN OF CUSTODY

ALS Laboratory, please tick →

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SYDNEY 277-259 Watpark Road Smithfield NSW 2104
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TOWNSVILLE 14-15 Cooma Court Bolina QLD 4710
Ph: 07 4796 0600 E: townsville@alsglobal.com

WOLLONGONG 60 Waverly Street Wollongong NSW 2520
Ph: 02 4226 3125 E: wollongong@alsglobal.com

CLIENT: ERM	TURNAROUND REQUIREMENTS : <input type="checkbox"/> Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle):	
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g., Ultra Trace Organics) <input checked="" type="checkbox"/> Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A	
PROJECT: Project Symphony	ALS QUOTE NO.: SY79413	Free ice / frozen ice bricks present upon receipt? Yes No N/A	
ORDER NUMBER: 0224193	SITE: BAYSWATER / HDBELL	Random Sample Temperature on Receipt: °C	
PROJECT MANAGER: Joe Ferry	CONTACT PH:	Other comment:	
SAMPLER: Nathan Hegarty	SAMPLER MOBILE: 0488627876	RECEIVED BY: Frank ALS	RECEIVED BY:
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	DATE/TIME: 4.12.13 1900	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed):	RELINQUISHED BY: Nathan Hegarty	DATE/TIME: 30/11/13 15:50	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):	DATE/TIME:		

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS		CONTAINER INFORMATION			ANALYSIS REQUIRED including SUITES (NB, Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).						Additional Information	
	MATRIX: SOLID (S) WATER (W)					W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Bi, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti)	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PFOS/PFOA		W-24 TRHCs (C40)BTEXN, PAH, Phenols
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below) (refer to)	TOTAL CONTAINERS								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	BU_MW02	29/11/13	W	4x VS, 3x AG, 1x N, 1x ORC	9	X			X	X		X	
2	BU_MW02 BU_MW03	29/11/13	W	↓	9	X			X	X		X	
3	Trip Spike		W	1x VS	1								QA/QC check
4	Trip Blank		W	1x VS	1								QA/QC check
					TOTAL	20							

Environmental Division
Sydney
Work Order
ES1326696



Telephone : +61-2-8784 8555

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

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1326696		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact Address	: MR JOSEPH FERRING : GROUND FLOOR : 33 SAUNDERS STREET, PYRMONT : NSW 2009 : LOCKED BAG 24 : BROADWAY NSW, AUSTRALIA 2007	Contact Address	: Barbara Hanna : 277-289 Woodpark Road Smithfield : NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	Page	: 1 of 2
Order number	: 0224193	Quote number	: ES2013ENVRES0369 (SY/794/13)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYWATER		
Sampler	: NH		

Dates

Date Samples Received	: 04-DEC-2013	Issue Date	: 06-DEC-2013 16:33
Client Requested Due Date	: 10-DEC-2013	Scheduled Reporting Date	: 10-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 3.5°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 4
Security Seal	: Intact.	No. of samples analysed	: 4

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Sample #2 id is BU_MW02 on the COC, but received labelled as BU_MW03, Lab will use sample id as per bottle received, Please confirm**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG093A-F Dissolved metals in saline water by	WATER - EG093B-F Dissolved Metals in Saline Water Suite	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH(BTEXN)/PAH/Phenols
ES1326696-001	29-DEC-2013 15:00	BU_MW02		✓	✓					
	29-NOV-2013 15:00	BU_MW02	✓			✓	✓			✓
ES1326696-002	29-DEC-2013 15:00	BU1_MW03		✓	✓					
	29-NOV-2013 15:00	BU1_MW03	✓			✓	✓			✓
ES1326696-003	29-NOV-2013 15:00	TRIP SPIKE					✓			
ES1326696-004	29-NOV-2013 15:00	TRIP BLANK						✓		

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY ERARING

- *AU Certificate of Analysis - NATA (COA)	Email	Symphony.Eraring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Symphony.Eraring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Symphony.Eraring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Symphony.Eraring@erm.com
- Chain of Custody (CoC) (COC)	Email	Symphony.Eraring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	Symphony.Eraring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	Symphony.Eraring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	Symphony.Eraring@erm.com
- EDI Format - XTab (XTAB)	Email	Symphony.Eraring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1326696 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 0224193 C-O-C number : ---- Sampler : NH Site : BAYWATER Quote number : SY/794/13	Page : 1 of 9 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 04-DEC-2013 Issue Date : 10-DEC-2013 No. of samples received : 4 No. of samples analysed : 4
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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

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>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksono	Laboratory Manager - Organics	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EG035: Poor matrix spike recovery was obtained for Mercury on sample ES1326680#4 due to matrix interference. Confirmed by reanalysis.**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BU_MW02	BU1_MW03	TRIP SPIKE	TRIP BLANK	----
				29-NOV-2013 15:00	29-NOV-2013 15:00	29-NOV-2013 15:00	29-NOV-2013 15:00	----
				ES1326696-001	ES1326696-002	ES1326696-003	ES1326696-004	----
Compound	CAS Number	LOR	Unit	Client sampling date / time				
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	1.2	2.4	----	----	----
Arsenic	7440-38-2	0.2	µg/L	1.2	6.9	----	----	----
Barium	7440-39-3	0.5	µg/L	80.8	47.4	----	----	----
Beryllium	7440-41-7	0.1	µg/L	0.6	1.5	----	----	----
Boron	7440-42-8	5	µg/L	78	128	----	----	----
Cadmium	7440-43-9	0.05	µg/L	0.68	0.64	----	----	----
Chromium	7440-47-3	0.2	µg/L	0.7	2.1	----	----	----
Cobalt	7440-48-4	0.1	µg/L	72.2	416	----	----	----
Copper	7440-50-8	0.5	µg/L	14.2	1.0	----	----	----
Lead	7439-92-1	0.1	µg/L	39.8	3.8	----	----	----
Manganese	7439-96-5	0.5	µg/L	1070	9800	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	0.9	0.2	----	----	----
Nickel	7440-02-0	0.5	µg/L	84.9	376	----	----	----
Thallium	7440-28-0	0.02	µg/L	0.20	0.14	----	----	----
Vanadium	7440-62-2	0.2	µg/L	3.3	1.0	----	----	----
Zinc	7440-66-6	1	µg/L	171	504	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
Styrene	100-42-5	5	µg/L	<5	<5	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BU_MW02	BU1_MW03	TRIP SPIKE	TRIP BLANK	----
				29-NOV-2013 15:00	29-NOV-2013 15:00	29-NOV-2013 15:00	29-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326696-001	ES1326696-002	ES1326696-003	ES1326696-004	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BU_MW02	BU1_MW03	TRIP SPIKE	TRIP BLANK	----
				29-NOV-2013 15:00	29-NOV-2013 15:00	29-NOV-2013 15:00	29-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326696-001	ES1326696-002	ES1326696-003	ES1326696-004	----
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BU_MW02	BU1_MW03	TRIP SPIKE	TRIP BLANK	----
				29-NOV-2013 15:00	29-NOV-2013 15:00	29-NOV-2013 15:00	29-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326696-001	ES1326696-002	ES1326696-003	ES1326696-004	----
EP075(SIM)A: Phenolic Compounds - Continued								
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BU_MW02	BU1_MW03	TRIP SPIKE	TRIP BLANK	----
				29-NOV-2013 15:00	29-NOV-2013 15:00	29-NOV-2013 15:00	29-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326696-001	ES1326696-002	ES1326696-003	ES1326696-004	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	16	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	17	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	18	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	18	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	18	<2	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	36	<2	----
^ Sum of BTEX	----	1	µg/L	<1	<1	87	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	18	<5	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	60.2	60.3	----	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	117	119	----	----	----
Toluene-D8	2037-26-5	0.1	%	116	115	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	110	111	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	20.2	28.7	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	43.0	49.9	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	48.0	57.9	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	48.3	57.4	----	----	----
Anthracene-d10	1719-06-8	0.1	%	46.6	53.6	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	51.0	58.9	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	111	113	89.8	87.9	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

BU_MW02	BU1_MW03	TRIP SPIKE	TRIP BLANK	----
29-NOV-2013 15:00	29-NOV-2013 15:00	29-NOV-2013 15:00	29-NOV-2013 15:00	----

Client sampling date / time

ES1326696-001	ES1326696-002	ES1326696-003	ES1326696-004	----
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Compound	CAS Number	LOR	Unit
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EP080S: TPH(V)/BTEX Surrogates - Continued

Toluene-D8	2037-26-5	0.1	%	110	108	99.6	101	----
4-Bromofluorobenzene	460-00-4	0.1	%	105	106	101	96.3	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	28.5	129
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1326696	Page	: 1 of 17
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYWATER	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: NH	No. of samples received	: 4
Order number	: 0224193	No. of samples analysed	: 4
Quote number	: SY/794/13		

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

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

Celine Conceicao
Phalak Inthaksone

Position

Senior Spectroscopist
Laboratory Manager - Organics

Accreditation Category

Sydney Inorganics
Sydney 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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EG035F: Dissolved Mercury by FIMS (QC Lot: 3199952)										
ES1326680-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3201608)										
ES1326680-003	Anonymous	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.20	0.20	0.0	0% - 50%	
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.65	0.66	1.5	0% - 50%	
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	4.9	4.6	4.6	0% - 20%	
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	432	444	2.7	0% - 20%	
		EG094A-F: Lead	7439-92-1	0.1	µg/L	3.6	3.6	0.0	0% - 20%	
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	0.5	0.3	32.5	No Limit	
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	4.3	4.5	3.8	0% - 20%	
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	2.4	2.4	0.0	0% - 50%	
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	1.0	1.0	0.0	No Limit	
		EG094A-F: Barium	7440-39-3	0.5	µg/L	56.0	56.5	0.8	0% - 20%	
		EG094A-F: Copper	7440-50-8	0.5	µg/L	6.2	5.9	4.7	0% - 50%	
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	1040	1090	4.5	0% - 20%	
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	308	320	3.7	0% - 20%	
EG094A-F: Zinc	7440-66-6	1	µg/L	285	293	2.7	0% - 20%			
EG094A-F: Boron	7440-42-8	5	µg/L	291	288	1.0	0% - 20%			
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3201609)										
ES1326680-003	Anonymous	EG094B-F: Selenium	7782-49-2	0.2	µg/L	3.8	4.2	10.6	0% - 20%	
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3198926)										
ES1326696-001	BU_MW02	EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	0.0	No Limit	
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3201825)										
ES1326696-001	BU_MW02	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit	



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3201825) - continued									
ES1326696-001	BU_MW02	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3201825)									
ES1326696-001	BU_MW02	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3201825)									
ES1326696-001	BU_MW02	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3201825)									
ES1326696-001	BU_MW02	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3201825)									
ES1326696-001	BU_MW02	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3201825) - continued									
ES1326696-001	BU_MW02	EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 3201825)									
ES1326696-001	BU_MW02	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit		
EP074G: Trihalomethanes (QC Lot: 3201825)									
ES1326696-001	BU_MW02	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3201825)									
ES1326696-001	BU_MW02	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3198924)									
ES1326696-001	BU_MW02	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
ES1326680-010	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3198924) - continued									
ES1326680-010	Anonymous	EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3198924)									
ES1326696-001	BU_MW02	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
ES1326680-010	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit

EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3198925)



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3198925) - continued										
ES1326696-001	BU_MW02	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
ES1326680-010	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	960	900	5.8	No Limit	
		EP071: C10 - C14 Fraction	----	50	µg/L	110	120	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3201826)										
ES1326696-001	BU_MW02	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3203047)										
ES1326487-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1326487-010	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3198925)										
ES1326696-001	BU_MW02	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
ES1326680-010	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	370	370	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	770	780	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3201826)										
ES1326696-001	BU_MW02	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3203047)										
ES1326487-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1326487-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 3201826)										
ES1326696-001	BU_MW02	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
EP080: BTEXN (QC Lot: 3203047)										
ES1326487-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	



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 (%)		Recovery Limits (%)	
						LCS	Low	High	
EG035F: Dissolved Mercury by FIMS (QCLot: 319952)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	82.9	78	114	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3201608)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	107	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	109	76	120	
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	102	74	130	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	10 µg/L	101	79	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	103	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	107	71	123	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	103	79	121	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	104	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	111	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	107	79	119	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	99.8	69	127	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	111	72	128	
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	104	71	121	
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	108	78	116	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	110	76	134	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3201609)									
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	118	75	125	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3198926)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	72.5	61.6	107	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3201825)									
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	108	78	116	
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	114	68	128	
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	108	74	118	
EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	20 µg/L	111	74	122	
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	108	74	118	
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	111	77	121	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	111	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	112	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	111	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	112	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	111	71	121	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3201825) - continued									
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	112	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	112	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	113	62	126	
EP074B: Oxygenated Compounds (QCLot: 3201825)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	106	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	112	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	111	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	108	65	137	
EP074C: Sulfonated Compounds (QCLot: 3201825)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	92.2	72.8	127	
EP074D: Fumigants (QCLot: 3201825)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	103	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	110	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	95.2	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	87.3	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	106	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3201825)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	63.8	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	80.4	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	89.6	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	96.7	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	98.9	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	101	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	104	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	93.9	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	106	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	106	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	105	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	100	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	106	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	100	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	111	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	107	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	108	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	123	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	111	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	110	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	98.6	66	114	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3201825) - continued									
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	102	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	112	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	113	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	115	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	98.2	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	92.8	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	112	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3201825)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	112	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	113	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	113	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	113	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	116	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	113	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	116	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	115	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	115	67	125	
EP074G: Trihalomethanes (QCLot: 3201825)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	116	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	102	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	98.4	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	99.4	73.5	126	
EP074H: Naphthalene (QCLot: 3201825)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	119	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3198924)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	# 66.2	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	# 63.5	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	71.0	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	69.6	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	67.0	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	70.2	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	69.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)		
					Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 3198924) - continued								
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	70.8	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	71.3	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	69.8	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	71.2	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	70.2	8.7	95
		2	µg/L	<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3198924)								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	67.5	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	72.0	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	70.6	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	71.1	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	75.3	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	75.9	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	77.0	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	77.3	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	79.7	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	78.2	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	81.4	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	82.7	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	76.7	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	73.3	59.9	118
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3198924) - continued									
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	73.7	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	74.2	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3198925)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	94.6	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	91.3	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	93.5	62	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201826)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	87.8	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3203047)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	104	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3198925)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	98.2	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	94.1	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	97.5	67	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201826)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	95.6	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3203047)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	106	75	127	
EP080: BTEXN (QCLot: 3201826)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	105	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	107	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	105	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	104	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	107	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	113	70	124	
EP080: BTEXN (QCLot: 3203047)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	86.0	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	106	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	106	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	105	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	115	70	124	



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.

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
						Low	High
EG035F: Dissolved Mercury by FIMS (QCLot: 3199952)							
ES1326680-004	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 10.8	70	130
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3201608)							
ES1326680-004	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	127	70	130
		EG094A-F: Barium	7440-39-3	50 µg/L	126	70	130
		EG094A-F: Beryllium	7440-41-7	50 µg/L	72.6	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	108	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	93.1	70	130
		EG094A-F: Cobalt	7440-48-4	50 µg/L	# Not Determined	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	115	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	130	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	# Not Determined	70	130
		EG094A-F: Vanadium	7440-62-2	50 µg/L	98.9	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	# Not Determined	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3198926)							
ES1326696-002	BU1_MW03	EP066: Total Polychlorinated biphenyls	----	10 µg/L	115	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3201825)							
ES1326696-001	BU_MW02	EP074: Benzene	71-43-2	25 µg/L	117	70	130
		EP074: Toluene	108-88-3	25 µg/L	120	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3201825)							
ES1326696-001	BU_MW02	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	117	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	124	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3201825)							
ES1326696-001	BU_MW02	EP074: Chlorobenzene	108-90-7	25 µg/L	124	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3198924)							
ES1326696-002	BU1_MW03	EP075(SIM): Phenol	108-95-2	20 µg/L	39.5	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	78.5	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	74.9	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	76.7	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 3198924) - continued							
ES1326696-002	BU1_MW03	EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	75.0	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3198924)							
ES1326696-002	BU1_MW03	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	74.5	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	76.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3198925)							
ES1326696-002	BU1_MW03	EP071: C10 - C14 Fraction	----	200 µg/L	111	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	104	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	103	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201826)							
ES1326696-001	BU_MW02	EP080: C6 - C9 Fraction	----	325 µg/L	100	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3203047)							
ES1326487-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	122	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3198925)							
ES1326696-002	BU1_MW03	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	112	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	107	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	102	67	153
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201826)							
ES1326696-001	BU_MW02	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	104	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3203047)							
ES1326487-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70	130
EP080: BTEXN (QCLot: 3201826)							
ES1326696-001	BU_MW02	EP080: Benzene	71-43-2	25 µg/L	91.3	70	130
		EP080: Toluene	108-88-3	25 µg/L	93.3	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	96.5	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	96.9	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	25 µg/L	101	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	111	70	130
EP080: BTEXN (QCLot: 3203047)							
ES1326487-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	82.6	70	130
		EP080: Toluene	108-88-3	25 µg/L	105	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	111	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	110	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	25 µg/L	114	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	112	70	130



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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP075(SIM)A: Phenolic Compounds (QCLot: 3198924)										
ES1326696-002	BU1_MW03	EP075(SIM): Phenol	108-95-2	20 µg/L	39.5	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	78.5	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	74.9	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	76.7	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	75.0	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3198924)										
ES1326696-002	BU1_MW03	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	74.5	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	76.0	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3198925)										
ES1326696-002	BU1_MW03	EP071: C10 - C14 Fraction	----	200 µg/L	111	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	104	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	103	----	67	153	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3198925)										
ES1326696-002	BU1_MW03	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	112	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	107	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	102	----	67	153	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3198926)										
ES1326696-002	BU1_MW03	EP066: Total Polychlorinated biphenyls	----	10 µg/L	115	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3199952)										
ES1326680-004	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 10.8	----	70	130	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3201608)										
ES1326680-004	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	127	----	70	130	----	----
		EG094A-F: Barium	7440-39-3	50 µg/L	126	----	70	130	----	----
		EG094A-F: Beryllium	7440-41-7	50 µg/L	72.6	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	108	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	93.1	----	70	130	----	----
		EG094A-F: Cobalt	7440-48-4	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	115	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	130	----	70	130	----	----
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	# Not Determined	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3201608) - continued											
ES1326680-004	Anonymous	EG094A-F: Vanadium	7440-62-2	50 µg/L	98.9	----	70	130	----	----	
		EG094A-F: Zinc	7440-66-6	50 µg/L	# Not Determined	----	70	130	----	----	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3201825)											
ES1326696-001	BU_MW02	EP074: Benzene	71-43-2	25 µg/L	117	----	70	130	----	----	
		EP074: Toluene	108-88-3	25 µg/L	120	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3201825)											
ES1326696-001	BU_MW02	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	117	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	25 µg/L	124	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3201825)											
ES1326696-001	BU_MW02	EP074: Chlorobenzene	108-90-7	25 µg/L	124	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3201826)											
ES1326696-001	BU_MW02	EP080: C6 - C9 Fraction	----	325 µg/L	100	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3201826)											
ES1326696-001	BU_MW02	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	104	----	70	130	----	----	
EP080: BTEXN (QCLot: 3201826)											
ES1326696-001	BU_MW02	EP080: Benzene	71-43-2	25 µg/L	91.3	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	93.3	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	96.5	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	96.9	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	101	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	111	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3203047)											
ES1326487-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	122	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3203047)											
ES1326487-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	----	70	130	----	----	
EP080: BTEXN (QCLot: 3203047)											
ES1326487-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	82.6	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	105	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	111	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	110	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	114	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	112	----	70	130	----	----	

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326696	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYWATER	Date Samples Received	: 04-DEC-2013
C-O-C number	: ----	Issue Date	: 10-DEC-2013
Sampler	: NH	No. of samples received	: 4
Order number	: 0224193	No. of samples analysed	: 4
Quote number	: SY/794/13		

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) BU_MW02, BU1_MW03	29-NOV-2013	---	27-DEC-2013	----	09-DEC-2013	27-DEC-2013	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BU_MW02, BU1_MW03	29-DEC-2013	---	27-JUN-2014	----	09-DEC-2013	27-JUN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) BU_MW02, BU1_MW03	29-DEC-2013	---	27-JUN-2014	----	09-DEC-2013	27-JUN-2014	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) BU_MW02, BU1_MW03	29-NOV-2013	06-DEC-2013	06-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber Glass Bottle - Unpreserved (EP071) BU_MW02, BU1_MW03	29-NOV-2013	06-DEC-2013	06-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW02, BU1_MW03	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	13-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW02, BU1_MW03	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	13-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW02, BU1_MW03	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	13-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW02, BU1_MW03	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	13-DEC-2013	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW02, BU1_MW03	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	13-DEC-2013	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW02, BU1_MW03	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	13-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW02, BU1_MW03	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	13-DEC-2013	✓	
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW02, BU1_MW03	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	13-DEC-2013	✓	
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BU_MW02, BU1_MW03	29-NOV-2013	06-DEC-2013	06-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BU_MW02, BU1_MW03	29-NOV-2013	06-DEC-2013	06-DEC-2013	✓	09-DEC-2013	18-JAN-2014	✓	
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) BU_MW02, BU1_MW03	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	13-DEC-2013	✓	
Amber VOC Vial - Sulfuric Acid (EP080) TRIP SPIKE, TRIP BLANK	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	10-DEC-2013	13-DEC-2013	✓	
EP080/071: Total Petroleum Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP080) BU_MW02, BU1_MW03	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	09-DEC-2013	13-DEC-2013	✓	
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK	29-NOV-2013	09-DEC-2013	13-DEC-2013	✓	10-DEC-2013	13-DEC-2013	✓	



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	23	13.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	10	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	23	8.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	23	8.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	23	8.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	10	10.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Preparation Methods	Method	Matrix	Method Descriptions
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8

Page : 6 of 7
Work Order : ES1326696
Client : ENVIRO RESOURCES MANAGEMENT
Project : Project Symphony



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	3818388-002	----	Phenol	108-95-2	66.2 %	24.5-61.9%	Recovery greater than upper control limit
EP075(SIM)A: Phenolic Compounds	3818388-002	----	2-Chlorophenol	95-57-8	63.5 %	63.8-110%	Recovery less than lower control limit
Matrix Spike (MS) Recoveries							
EG035F: Dissolved Mercury by FIMS	ES1326680-004	Anonymous	Mercury	7439-97-6	10.8 %	70-130%	Recovery less than lower data quality objective
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1326680-004	Anonymous	Cobalt	7440-48-4	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1326680-004	Anonymous	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1326680-004	Anonymous	Nickel	7440-02-0	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1326680-004	Anonymous	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



CHAIN OF CUSTODY

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please tick →

UNDESIRABLE CHAIN OF CUSTODY

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UNDESIRABLE CHAIN OF CUSTODY

UNDESIRABLE CHAIN OF CUSTODY

CLIENT: <u>NSW Treasury / ERM</u>	TURNAROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (List due date): <u>3 day TAT</u>	FOR LABORATORY USE ONLY (Circle)
OFFICE:	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input type="checkbox"/> Non Standard or urgent TAT (List due date):	Custody Seal intact? Yes No <input checked="" type="radio"/> NA
PROJECT: <u>Project Symphony</u>	ALS QUOTE NO.: <u>SY794/13</u>	Free ice / frozen ice bricks present upon receipt? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
ORDER NUMBER:	SITE: <u>BAYSWATER / LIDDELL</u>	Random Sample Temperature on Receipt: <u>29</u> °C
PROJECT MANAGER: <u>Joseph Ferring</u>	CONTACT PH: <u>(02) 49642150</u>	Other comment:
SAMPLER: <u>C. Henry + K. Fox</u>	SAMPLER MOBILE: <u>0410367411</u>	RECEIVED BY: <u>Frank ALS</u>
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	DATE/TIME: <u>10/12/13 1900</u>
Email Reports to (will default to PM if no other addresses are listed): <u>Joseph Ferring</u>	RELINQUISHED BY: <u>[Signature]</u>	DATE/TIME: <u>10/12/13 1430</u>
Email Invoice to (will default to PM if no other addresses are listed):	DATE/TIME:	DATE/TIME: <u>10/12/13 1700</u>

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)				CONTAINER INFORMATION			ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).						Additional Information	
	LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti)	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PFOA/SFOA	W-24 TRR(C6-C40)/BTXN, PAH, Phenols		ORC W-1 metals*
	1	BE-MW04	4/12/13	S	Subcom / Forward Lab / Split WO Lab / Analysis: Evidenc: 701-041213 Relinquished by / Date: <u>Frank ALS</u> / <u>6/12/2013</u> Attach by PO / Internal Sheet: <u>ES126993</u> Contote / Counter: <u>65126993</u>	7	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	*Please lab filter and analyse for 'dissolved', not total & CATIONS & ANIONS
	2	BE-MW05				7	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	3	BE-MW06				7	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	4	BE-MW07				7	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	5	BH-MW05				8							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	6	BH-MW06				8							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	7	BH-MW07				8							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	8	BH-MW08				8							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	9	BV-MW01				8						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	10	BV-MW07				8						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	11	ROI-04 ROI-041213-CH	4/12			7							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	12	ROI-041213-KF	4/12			7							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airflight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airflight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HB = HCl preserved Specimen bottle; SP = Sulfuric Preserved Plastic
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

TAT



Telephone : + 61-2-8784 8555

"ROI-041213-CH"



CHAIN OF CUSTODY

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CHAIN OF CUSTODY - Chain of Custody Form (COC) for the collection, storage, transport and analysis of samples.

USE THIS FORM TO RECORD THE CHAIN OF CUSTODY FOR ALL SAMPLES COLLECTED FOR ANALYSIS BY ALS LABORATORY. THIS FORM MUST BE COMPLETED BY THE PERSON COLLECTING THE SAMPLES AND MUST BE ACCOMPANIED BY THE SAMPLES TO THE LABORATORY.

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CLIENT: <u>NSW Treasury / ERM</u>		TURNAROUND REQUIREMENTS : <input checked="" type="checkbox"/> Standard TAT (List due date): (Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input type="checkbox"/> Non Standard or urgent TAT (List due date):		FOR LABORATORY USE ONLY (Circle)	
OFFICE:		ALS QUOTE NO.: <u>SY794/13</u>		Custody Seal Intact? Yes No <u>N/A</u>	
PROJECT: <u>Project Symphony</u>		SITE: <u>BAYSWATER / LIDDELL</u>		Free Ice / frozen ice bricks present upon receipt? Yes No <u>N/A</u>	
ORDER NUMBER:		COC SEQUENCE NUMBER (Circle)		Random Sample Temperature on Receipt: <u>24</u> °C	
PROJECT MANAGER: <u>Joseph Fleming</u>		CONTACT PH: <u>(02) 49642150</u>		Other comment:	
SAMPLER: <u>C. Henry + K. Fox</u>		SAMPLER MOBILE: <u>0410367411</u>		RECEIVED BY: <u>R</u>	
COC emailed to ALS? (YES /-NO)		EDD FORMAT (or default):		RECEIVED BY: <u>Frank Aus</u>	
Email Reports to (will default to PM if no other addresses are listed):		RELINQUISHED BY: <u>[Signature]</u>		DATE/TIME: <u>10/12/13 1700</u>	
Email Invoice to (will default to PM if no other addresses are listed):		DATE/TIME: <u>10/12/13 1430</u>		DATE/TIME: <u>10/12/13 1700</u>	

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information		
	LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below) (refer to)	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti)	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PFOA/PFOA		W-24 TRH(C6-C40)/BTEXN, PAH, Phenols	ORC metals
X	T01_041213	4/12/13	W			7				X			X	X	Trip to Envirolabs
13	Trip blank		W												Analyse Trip blanks +
14	Trip spike		W												Spike for TRH X BTEX

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Specialion bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1326993

<p>Client : ENVIRO RESOURCES MANAGEMENT</p> <p>Contact : MR JOSEPH FERRING</p> <p>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</p>	<p>Laboratory : Environmental Division Sydney</p> <p>Contact : Barbara Hanna</p> <p>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</p>
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<p>E-mail : joseph.ferring@erm.com</p> <p>Telephone : +61 02 8584 8888</p> <p>Facsimile : +61 02 8584 8800</p>	<p>E-mail : Barbara.Hanna@alsglobal.com</p> <p>Telephone : +61 2 8784 8555</p> <p>Facsimile : +61 2 8784 8555</p>
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<p>Project : Project Symphony</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Site : ----</p> <p>Sampler : CH, KF</p>	<p>Page : 1 of 4</p> <p>Quote number : ES2013ENVRES0369 (SY/794/13)</p> <p>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</p>
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Dates

<p>Date Samples Received : 10-DEC-2013</p> <p>Client Requested Due Date : 13-DEC-2013</p>	<p>Issue Date : 10-DEC-2013 21:44</p> <p>Scheduled Reporting Date : 13-DEC-2013</p>
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Delivery Details

<p>Mode of Delivery : Carrier</p> <p>No. of coolers/boxes : 1 HARD</p> <p>Security Seal : Intact.</p>	<p>Temperature : 5.1°C - Ice present</p> <p>No. of samples received : 14</p> <p>No. of samples analysed : 14</p>
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample T01_041213 to be forwarded to Envirolab.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
EG035F : Dissolved Mercury by FIMS		
BE_MW04	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
BE_MW05	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
BE_MW06	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
BE_MW07	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
BH_MW05	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
BH_MW06	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
BH_MW07	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
BH_MW08	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
BV_MW01	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
BV_MW07	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
R01_041213_CH	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
R01_041213_KF	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
EG093A-F : Dissolved Metals in Saline Water -Suite A by ORC-ICPMS		
BE_MW04	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
BE_MW05	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
BE_MW06	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
BE_MW07	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
BH_MW05	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
BH_MW06	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
BH_MW07	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
BH_MW08	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
BV_MW01	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
BV_MW07	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
R01_041213_CH	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
R01_041213_KF	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.



Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG039A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EN055 - PG Ionic Balance by ED037P, ED041G, ED045G &	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - NT-01 Major Cations (Ca, Mg, Na, K)	WATER - NT-02 Major Anions (Chloride, Sulphate, Alkalinity)
ES1326993-001	04-DEC-2013 15:00	BE_MW04	✓	✓			✓			
ES1326993-002	04-DEC-2013 15:00	BE_MW05	✓	✓			✓			
ES1326993-003	04-DEC-2013 15:00	BE_MW06	✓	✓			✓			
ES1326993-004	04-DEC-2013 15:00	BE_MW07	✓	✓			✓			
ES1326993-005	04-DEC-2013 15:00	BH_MW05	✓	✓	✓		✓		✓	✓
ES1326993-006	04-DEC-2013 15:00	BH_MW06	✓	✓	✓		✓		✓	✓
ES1326993-007	04-DEC-2013 15:00	BH_MW07	✓	✓	✓		✓		✓	✓
ES1326993-008	04-DEC-2013 15:00	BH_MW08	✓	✓	✓		✓		✓	✓
ES1326993-009	04-DEC-2013 15:00	BV_MW01	✓	✓		✓	✓			
ES1326993-010	04-DEC-2013 15:00	BV_MW07	✓	✓		✓	✓			
ES1326993-011	04-DEC-2013 15:00	R01_041213_CH	✓	✓			✓			
ES1326993-012	04-DEC-2013 15:00	R01_041213_KF	✓	✓			✓			
ES1326993-014	04-DEC-2013 15:00	TRIP SPIKE						✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-18 TRH/C6 - C9/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1326993-001	04-DEC-2013 15:00	BE_MW04		✓
ES1326993-002	04-DEC-2013 15:00	BE_MW05		✓
ES1326993-003	04-DEC-2013 15:00	BE_MW06		✓
ES1326993-004	04-DEC-2013 15:00	BE_MW07		✓
ES1326993-005	04-DEC-2013 15:00	BH_MW05		✓
ES1326993-006	04-DEC-2013 15:00	BH_MW06		✓
ES1326993-007	04-DEC-2013 15:00	BH_MW07		✓
ES1326993-008	04-DEC-2013 15:00	BH_MW08		✓
ES1326993-009	04-DEC-2013 15:00	BV_MW01		✓
ES1326993-010	04-DEC-2013 15:00	BV_MW07		✓
ES1326993-011	04-DEC-2013 15:00	R01_041213_CH		✓
ES1326993-012	04-DEC-2013 15:00	R01_041213_KF		✓
ES1326993-013	04-DEC-2013 15:00	TRIP BLANK	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

MR JOSEPH FERRING

- | | | |
|--|-------|------------------------|
| - *AU Certificate of Analysis - NATA (COA) | Email | joseph.ferring@erm.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | joseph.ferring@erm.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | joseph.ferring@erm.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | joseph.ferring@erm.com |
| - Chain of Custody (CoC) (COC) | Email | joseph.ferring@erm.com |
| - EDI Format - ENMRG (ENMRG) | Email | joseph.ferring@erm.com |
| - EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) | Email | joseph.ferring@erm.com |
| - EDI Format - ESDAT (ESDAT) | Email | joseph.ferring@erm.com |
| - EDI Format - XTab (XTAB) | Email | joseph.ferring@erm.com |

THE ACCOUNTS PAYABLE

- | | | |
|-------------------------------|-------|---------------------|
| - A4 - AU Tax Invoice (INV) | Email | au.accounts@erm.com |
|-------------------------------|-------|---------------------|
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CERTIFICATE OF ANALYSIS

Work Order : ES1326993 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : ---- C-O-C number : ---- Sampler : CH, KF Site : ---- Quote number : SY/794/13	Page : 1 of 20 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 10-DEC-2013 Issue Date : 16-DEC-2013 No. of samples received : 14 No. of samples analysed : 14
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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
 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>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EG035: Positive mercury results have been confirmed by re-analysis**
- **EG094: Positive results for sample ES1326993 # 012 confirmed by reanalysis.**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BE_MW04	BE_MW05	BE_MW06	BE_MW07	BH_MW05
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326993-001	ES1326993-002	ES1326993-003	ES1326993-004	ES1326993-005
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	----	----	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	----	----	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	----	----	334
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	----	334
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	----	2000
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	----	----	----	----	774
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	----	----	228
Magnesium	7439-95-4	1	mg/L	----	----	----	----	313
Sodium	7440-23-5	1	mg/L	----	----	----	----	864
Potassium	7440-09-7	1	mg/L	----	----	----	----	15
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	0.4	0.9	1.7	1.6	0.9
Cadmium	7440-43-9	0.05	µg/L	0.23	<0.05	<0.05	<0.05	0.12
Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Copper	7440-50-8	0.5	µg/L	0.5	1.9	2.1	2.1	3.4
Lead	7439-92-1	0.1	µg/L	5.2	0.3	0.3	0.8	0.3
Nickel	7440-02-0	0.5	µg/L	21.1	18.7	7.7	6.5	50.4
Zinc	7440-66-6	1	µg/L	5	12	7	14	14
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	----	----	----	----	70.2
Total Cations	----	0.01	meq/L	----	----	----	----	75.1
Ionic Balance	----	0.01	%	----	----	----	----	3.39
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BE_MW04	BE_MW05	BE_MW06	BE_MW07	BH_MW05
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326993-001	ES1326993-002	ES1326993-003	ES1326993-004	ES1326993-005
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BE_MW04	BE_MW05	BE_MW06	BE_MW07	BH_MW05
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326993-001	ES1326993-002	ES1326993-003	ES1326993-004	ES1326993-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BE_MW04	BE_MW05	BE_MW06	BE_MW07	BH_MW05
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326993-001	ES1326993-002	ES1326993-003	ES1326993-004	ES1326993-005
EP075(SIM)A: Phenolic Compounds - Continued								
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BE_MW04	BE_MW05	BE_MW06	BE_MW07	BH_MW05
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326993-001	ES1326993-002	ES1326993-003	ES1326993-004	ES1326993-005
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	115	115	107	110
Toluene-D8	2037-26-5	0.1	%	103	111	113	109	114
4-Bromofluorobenzene	460-00-4	0.1	%	97.8	103	104	104	108
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	27.9	28.5	24.4	23.0	22.4
2-Chlorophenol-D4	93951-73-6	0.1	%	56.9	59.8	48.4	42.1	50.3
2,4,6-Tribromophenol	118-79-6	0.1	%	67.2	73.0	55.7	50.5	93.2
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	62.2	64.3	53.3	43.8	67.9
Anthracene-d10	1719-06-8	0.1	%	81.9	76.3	69.4	55.8	70.7
4-Terphenyl-d14	1718-51-0	0.1	%	76.8	77.0	67.9	55.2	92.3
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	118	126	126	111	115



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	BE_MW04	BE_MW05	BE_MW06	BE_MW07	BH_MW05
Client sampling date / time	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Client sample ID	ES1326993-001	ES1326993-002	ES1326993-003	ES1326993-004	ES1326993-005

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1326993-001	ES1326993-002	ES1326993-003	ES1326993-004	ES1326993-005
EP080S: TPH(V)/BTEX Surrogates - Continued								
Toluene-D8	2037-26-5	0.1	%	106	114	117	107	112
4-Bromofluorobenzene	460-00-4	0.1	%	106	111	114	110	114



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BH_MW06	BH_MW07	BH_MW08	BV_MW01	BV_MW07
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326993-006	ES1326993-007	ES1326993-008	ES1326993-009	ES1326993-010
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	213	31	181	----	----
Total Alkalinity as CaCO3	----	1	mg/L	213	31	181	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	1850	2150	816	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	549	516	350	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	468	544	141	----	----
Magnesium	7439-95-4	1	mg/L	201	220	118	----	----
Sodium	7440-23-5	1	mg/L	516	447	351	----	----
Potassium	7440-09-7	1	mg/L	26	30	27	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	0.0002	<0.0001
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	0.4	1.1	3.7	1.2	0.6
Cadmium	7440-43-9	0.05	µg/L	<0.05	0.19	<0.05	0.90	<0.05
Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	<0.2	2.0	18.1
Copper	7440-50-8	0.5	µg/L	2.2	9.2	2.5	2.4	3.3
Lead	7439-92-1	0.1	µg/L	0.6	0.2	31.9	3.1	11.7
Nickel	7440-02-0	0.5	µg/L	10.2	69.9	12.3	367	7.0
Zinc	7440-66-6	1	µg/L	6	54	8	930	38
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	58.3	59.9	30.5	----	----
Total Cations	----	0.01	meq/L	63.0	65.5	32.7	----	----
Ionic Balance	----	0.01	%	3.92	4.42	3.52	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	----	----	----	<1	<1
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BH_MW06	BH_MW07	BH_MW08	BV_MW01	BV_MW07
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326993-006	ES1326993-007	ES1326993-008	ES1326993-009	ES1326993-010
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BH_MW06	BH_MW07	BH_MW08	BV_MW01	BV_MW07
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326993-006	ES1326993-007	ES1326993-008	ES1326993-009	ES1326993-010
EP074E: Halogenated Aliphatic Compounds - Continued								
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BH_MW06	BH_MW07	BH_MW08	BV_MW01	BV_MW07
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
				ES1326993-006	ES1326993-007	ES1326993-008	ES1326993-009	ES1326993-010
EP075(SIM)A: Phenolic Compounds - Continued								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BH_MW06	BH_MW07	BH_MW08	BV_MW01	BV_MW07
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326993-006	ES1326993-007	ES1326993-008	ES1326993-009	ES1326993-010
EP080/071: Total Petroleum Hydrocarbons - Continued								
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	60.8	63.2
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	109	115	110	115	116
Toluene-D8	2037-26-5	0.1	%	112	115	102	106	110
4-Bromofluorobenzene	460-00-4	0.1	%	105	109	99.4	103	106
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	23.3	27.9	22.6	21.8	30.4
2-Chlorophenol-D4	93951-73-6	0.1	%	46.4	61.5	48.8	44.8	59.2
2,4,6-Tribromophenol	118-79-6	0.1	%	53.4	86.3	53.0	53.2	74.2
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	51.3	66.7	53.6	51.1	66.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BH_MW06	BH_MW07	BH_MW08	BV_MW01	BV_MW07
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00
				ES1326993-006	ES1326993-007	ES1326993-008	ES1326993-009	ES1326993-010
Compound	CAS Number	LOR	Unit					
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	0.1	%	66.9	86.8	71.9	60.7	80.1
4-Terphenyl-d14	1718-51-0	0.1	%	63.5	93.1	63.4	58.6	77.0
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	114	120	114	120	121
Toluene-D8	2037-26-5	0.1	%	110	113	101	104	107
4-Bromofluorobenzene	460-00-4	0.1	%	112	116	106	112	113



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_041213_CH	R01_041213_KF	TRIP BLANK	TRIP SPIKE	----
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326993-011	ES1326993-012	ES1326993-013	ES1326993-014	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	<0.2	<0.2	----	----	----
Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	----	----	----
Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	----	----	----
Copper	7440-50-8	0.5	µg/L	1.2	2.0	----	----	----
Lead	7439-92-1	0.1	µg/L	<0.1	<0.1	----	----	----
Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	----	----	----
Zinc	7440-66-6	1	µg/L	4	9	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				R01_041213_CH	R01_041213_KF	TRIP BLANK	TRIP SPIKE	----
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326993-011	ES1326993-012	ES1326993-013	ES1326993-014	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_041213_CH	R01_041213_KF	TRIP BLANK	TRIP SPIKE	----
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326993-011	ES1326993-012	ES1326993-013	ES1326993-014	----
EP074F: Halogenated Aromatic Compounds - Continued								
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_041213_CH	R01_041213_KF	TRIP BLANK	TRIP SPIKE	----
Client sampling date / time				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326993-011	ES1326993-012	ES1326993-013	ES1326993-014	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	16	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	16	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	15	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	15	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	16	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	31	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	78	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_041213_CH	R01_041213_KF	TRIP BLANK	TRIP SPIKE	----
				04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	04-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326993-011	ES1326993-012	ES1326993-013	ES1326993-014	----
EP080: BTEXN - Continued								
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	19	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	112	114	----	----	----
Toluene-D8	2037-26-5	0.1	%	111	111	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	107	106	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	27.2	25.3	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	53.4	45.6	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	58.2	52.3	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	61.2	54.1	----	----	----
Anthracene-d10	1719-06-8	0.1	%	71.4	73.5	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	67.5	68.0	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	117	118	116	118	----
Toluene-D8	2037-26-5	0.1	%	109	109	105	108	----
4-Bromofluorobenzene	460-00-4	0.1	%	112	113	111	114	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	28.5	129
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1326993	Page	: 1 of 19
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: CH, KF	No. of samples received	: 14
Order number	: ----	No. of samples analysed	: 14
Quote number	: SY/794/13		

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

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

Ankit Joshi
Celine Conceicao
Pabi Subba
Phalak Inthaksone

Position

Inorganic Chemist
Senior Spectroscopist
Senior Organic Chemist
Laboratory Manager - Organics

Accreditation Category

Sydney Inorganics
Sydney Inorganics
Sydney Organics
Sydney 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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 3206156)									
ES1326993-005	BH_MW05	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	334	335	0.3	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	334	335	0.3	0% - 20%
ES1327010-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1110	1110	0.1	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1110	1110	0.1	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 3206465)									
ES1326657-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	49	49	0.0	0% - 20%
ES1326817-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	84	85	0.0	0% - 20%
ED045G: Chloride Discrete analyser (QC Lot: 3206468)									
ES1326817-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	122	123	0.0	0% - 20%
ES1326923-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	34	35	0.0	0% - 20%
ED045G: Chloride Discrete analyser (QC Lot: 3206472)									
ES1326993-007	BH_MW07	ED045G: Chloride	16887-00-6	1	mg/L	516	520	0.9	0% - 20%
ES1327010-004	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	4070	4100	0.9	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 3206466)									
ES1326923-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	40	40	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	5	5	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	55	56	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	16	16	0.0	0% - 50%
ES1326957-002	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	2	2	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	2	2	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	11	11	0.0	0% - 50%
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 3206473)									
ES1326993-008	BH_MW08	ED093F: Calcium	7440-70-2	1	mg/L	141	141	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	118	118	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	351	352	0.5	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	27	27	0.0	0% - 20%
ES1327010-006	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	539	531	1.5	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	2110	2060	2.1	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	5640	5530	2.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	48	47	3.0	0% - 20%



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG035F: Dissolved Mercury by FIMS (QC Lot: 3207786)									
ES1326819-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	0.0002	0.0002	0.0	No Limit
ES1326993-005	BH_MW05	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3208745)									
EP1309419-008	Anonymous	EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.13	0.12	8.2	No Limit
		EG094A-F: Lead	7439-92-1	0.1	µg/L	39.9	43.2	7.8	0% - 20%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Copper	7440-50-8	0.5	µg/L	71.3	76.6	7.1	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	38.2	40.9	6.7	0% - 20%
		EG094A-F: Zinc	7440-66-6	1	µg/L	503	541	7.2	0% - 20%
ES1326993-001	BE_MW04	EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.23	0.24	0.0	No Limit
		EG094A-F: Lead	7439-92-1	0.1	µg/L	5.2	5.2	0.0	0% - 20%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	0.4	0.3	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Copper	7440-50-8	0.5	µg/L	0.5	0.7	19.7	No Limit
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	21.1	21.4	1.4	0% - 20%
		EG094A-F: Zinc	7440-66-6	1	µg/L	5	5	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3206965)									
ES1326993-009	BV_MW01	EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3207919)									
ES1326993-001	BE_MW04	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1326993-007	BH_MW07	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3207919)									
ES1326993-001	BE_MW04	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074B: Oxygenated Compounds (QC Lot: 3207919) - continued									
ES1326993-001	BE_MW04	EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1326993-007	BH_MW07	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3207919)									
ES1326993-001	BE_MW04	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1326993-007	BH_MW07	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3207919)									
ES1326993-001	BE_MW04	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1326993-007	BH_MW07	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3207919)									
ES1326993-001	BE_MW04	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3207919) - continued											
ES1326993-001	BE_MW04	EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1326993-007	BH_MW07	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074F: Halogenated Aromatic Compounds (QC Lot: 3207919)									
		ES1326993-001	BE_MW04	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 3207919) - continued									
ES1326993-001	BE_MW04	EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1326993-007	BH_MW07	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit		
EP074G: Trihalomethanes (QC Lot: 3207919)									
ES1326993-001	BE_MW04	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1326993-007	BH_MW07	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3207919)									
ES1326993-001	BE_MW04	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1326993-007	BH_MW07	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3206964)									
ES1326993-009	BV_MW01	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3206964) - continued									
ES1326993-009	BV_MW01	EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
ES1326993-011	R01_041213_CH	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3206964)							
ES1326993-009	BV_MW01	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		ES1326993-011	R01_041213_CH	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5
EP075(SIM): Naphthalene	91-20-3			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Acenaphthylene	208-96-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Acenaphthene	83-32-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Fluorene	86-73-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Phenanthrene	85-01-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Anthracene	120-12-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Fluoranthene	206-44-0			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3206964) - continued										
ES1326993-011	R01_041213_CH	EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3206963)										
ES1326993-009	BV_MW01	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	100	70.9	No Limit	
ES1326993-011	R01_041213_CH	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3207920)										
ES1326993-001	BE_MW04	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1326993-007	BH_MW07	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3206963)										
ES1326993-009	BV_MW01	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
ES1326993-011	R01_041213_CH	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3207920)										
ES1326993-001	BE_MW04	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1326993-007	BH_MW07	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 3207920)										
ES1326993-001	BE_MW04	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1326993-007	BH_MW07	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							

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 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Sub-Matrix: WATER				<i>Laboratory Duplicate (DUP) Report</i>					
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>	<i>Original Result</i>	<i>Duplicate Result</i>	<i>RPD (%)</i>	<i>Recovery Limits (%)</i>
EP080: BTEXN (QC Lot: 3207920) - continued									
ES1326993-007	BH_MW07	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



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	
ED037P: Alkalinity by PC Titrator (QCLot: 3206156)								
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	95.7	81	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206465)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	109	86	122
ED045G: Chloride Discrete analyser (QCLot: 3206468)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	95.0	77	123
ED045G: Chloride Discrete analyser (QCLot: 3206472)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	91.2	77	123
ED093F: Dissolved Major Cations (QCLot: 3206466)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	106	87	113
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	103	89	113
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	93.8	79	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	95.7	87	115
ED093F: Dissolved Major Cations (QCLot: 3206473)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	110	87	113
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	106	89	113
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.6	79	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	102	87	115
EG035F: Dissolved Mercury by FIMS (QCLot: 3207786)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	88.8	78	114
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3208745)								
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	90.6	75	129
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	85.8	78	112
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	97.5	71	123
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	84.8	77	125
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	94.2	74	118
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	91.6	72	128
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	94.0	76	134
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3206965)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	77.0	61.6	107
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3207919)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	99.6	74	118
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	101	75	121
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	106	67	123



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	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3207919) - continued									
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	102	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	108	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	103	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	102	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	103	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	105	62	126	
EP074B: Oxygenated Compounds (QCLot: 3207919)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	111	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	111	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	111	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	105	65	137	
EP074C: Sulfonated Compounds (QCLot: 3207919)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	116	72.8	127	
EP074D: Fumigants (QCLot: 3207919)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	110	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	97.0	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	106	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	101	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	105	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3207919)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	89.6	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	115	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	# 129	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	82.0	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	89.1	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	100	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	103	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	90.7	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	109	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	103	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	107	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	104	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	109	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	116	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	100	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	105	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	104	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	108	75	123	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3207919) - continued									
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	107	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	100	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	111	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	109	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	104	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	104	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	102	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	116	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	116	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	97.9	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3207919)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	99.8	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	100	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	101	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	103	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	101	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	101	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	96.6	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	95.6	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	100	67	125	
EP074G: Trihalomethanes (QCLot: 3207919)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	100	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	107	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	109	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	118	73.5	126	
EP074H: Naphthalene (QCLot: 3207919)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	103	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3206964)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	50.1	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	81.2	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	83.4	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	81.6	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	87.2	62.7	117	
		1	µg/L	<1.0	----	----	----	----	



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	
EP075(SIM)A: Phenolic Compounds (QCLot: 3206964) - continued								
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	87.8	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	86.2	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	90.7	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	87.5	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	94.4	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	94.0	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	# 98.1	8.7	95
		2	µg/L	<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206964)								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	75.5	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	91.3	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	86.1	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	90.0	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	98.5	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	97.4	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	96.5	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	96.6	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	103	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	102	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	104	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	97.5	61.7	117
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206964) - continued									
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	97.1	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	93.6	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	93.1	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	93.1	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206963)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	103	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	92.8	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	99.6	62	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207920)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	115	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206963)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	94.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	103	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	103	67	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207920)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	116	75	127	
EP080: BTEXN (QCLot: 3207920)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	114	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	108	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	113	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	109	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	110	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	106	70	124	

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.

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report		
				Spike	SpikeRecovery(%)	Recovery Limits (%)
				Concentration	MS	Low High



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206465)							
ES1326817-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70	130
ED045G: Chloride Discrete analyser (QCLot: 3206468)							
ES1326817-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	93.0	70	130
ED045G: Chloride Discrete analyser (QCLot: 3206472)							
ES1326993-007	BH_MW07	ED045G: Chloride	16887-00-6	250 mg/L	76.9	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3207786)							
ES1326819-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	70.1	70	130
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3208745)							
ES1326993-002	BE_MW05	EG094A-F: Arsenic	7440-38-2	50 µg/L	100	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	70.1	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	72.5	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	71.4	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	73.9	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	84.4	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	82.1	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3206965)							
ES1326993-010	BV_MW07	EP066: Total Polychlorinated biphenyls	----	10 µg/L	87.8	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3207919)							
ES1326993-001	BE_MW04	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	97.0	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	118	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3207919)							
ES1326993-001	BE_MW04	EP074: Chlorobenzene	108-90-7	25 µg/L	120	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3206964)							
ES1326993-010	BV_MW07	EP075(SIM): Phenol	108-95-2	20 µg/L	38.2	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	74.7	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	71.5	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	71.4	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	65.8	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206964)							
ES1326993-010	BV_MW07	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	72.4	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	75.1	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206963)							
ES1326993-010	BV_MW07	EP071: C10 - C14 Fraction	----	200 µg/L	101	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	107	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	106	67	153



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207920)								
ES1326993-001	BE_MW04	EP080: C6 - C9 Fraction	----	325 µg/L	124	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206963)								
ES1326993-010	BV_MW07	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	103	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	98.5	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	112	67	153	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207920)								
ES1326993-001	BE_MW04	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70	130	
EP080: BTEXN (QCLot: 3207920)								
ES1326993-001	BE_MW04	EP080: Benzene	71-43-2	25 µg/L	119	70	130	
		EP080: Toluene	108-88-3	25 µg/L	113	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	114	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	112	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	115	70	130	
	91-20-3	EP080: Naphthalene		25 µg/L	106	70	130	

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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: **WATER**

						Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
						Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration		MS	MSD	Low	High	Value	Control Limit	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206465)												
ES1326817-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	----	70	130	----	----		
ED045G: Chloride Discrete analyser (QCLot: 3206468)												
ES1326817-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	93.0	----	70	130	----	----		
ED045G: Chloride Discrete analyser (QCLot: 3206472)												
ES1326993-007	BH_MW07	ED045G: Chloride	16887-00-6	250 mg/L	76.9	----	70	130	----	----		
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206963)												
ES1326993-010	BV_MW07	EP071: C10 - C14 Fraction	----	200 µg/L	101	----	74	150	----	----		
		EP071: C15 - C28 Fraction	----	300 µg/L	107	----	77	153	----	----		
		EP071: C29 - C36 Fraction	----	200 µg/L	106	----	67	153	----	----		
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206963)												
ES1326993-010	BV_MW07	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	103	----	74	150	----	----		
		EP071: >C16 - C34 Fraction	----	350 µg/L	98.5	----	77	153	----	----		



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206963) - continued										
ES1326993-010	BV_MW07	EP071: >C34 - C40 Fraction	----	150 µg/L	112	----	67	153	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3206964)										
ES1326993-010	BV_MW07	EP075(SIM): Phenol	108-95-2	20 µg/L	38.2	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	74.7	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	71.5	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	71.4	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	65.8	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206964)										
ES1326993-010	BV_MW07	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	72.4	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	75.1	----	70	130	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3206965)										
ES1326993-010	BV_MW07	EP066: Total Polychlorinated biphenyls	----	10 µg/L	87.8	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3207786)										
ES1326819-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	70.1	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3207919)										
ES1326993-001	BE_MW04	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	97.0	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	118	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3207919)										
ES1326993-001	BE_MW04	EP074: Chlorobenzene	108-90-7	25 µg/L	120	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207920)										
ES1326993-001	BE_MW04	EP080: C6 - C9 Fraction	----	325 µg/L	124	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207920)										
ES1326993-001	BE_MW04	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	----	70	130	----	----
EP080: BTEXN (QCLot: 3207920)										
ES1326993-001	BE_MW04	EP080: Benzene	71-43-2	25 µg/L	119	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	113	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	114	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	112	----	70	130	----	----
		EP080: ortho-Xylene	106-42-3	25 µg/L	115	----	70	130	----	----
		EP080: Naphthalene	95-47-6	25 µg/L	115	----	70	130	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3208745)										
ES1326993-002	BE_MW05	EG094A-F: Arsenic	7440-38-2	50 µg/L	100	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	70.1	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	72.5	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	71.4	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	73.9	----	70	130	----	----

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 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3208745) - continued										
ES1326993-002	BE_MW05	EG094A-F: Nickel	7440-02-0	50 µg/L	84.4	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	82.1	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326993	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
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Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: CH, KF	No. of samples received	: 14
Order number	: ----	No. of samples analysed	: 14
Quote number	: SY/794/13		

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) BH_MW05, BH_MW07, BH_MW06, BH_MW08	04-DEC-2013	---	18-DEC-2013	----	11-DEC-2013	18-DEC-2013	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) BH_MW05, BH_MW07, BH_MW06, BH_MW08	04-DEC-2013	---	01-JAN-2014	----	11-DEC-2013	01-JAN-2014	✓
ED045G: Chloride Discrete analyser							
Clear Plastic Bottle - Natural (ED045G) BH_MW05, BH_MW07, BH_MW06, BH_MW08	04-DEC-2013	---	01-JAN-2014	----	11-DEC-2013	01-JAN-2014	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F) BH_MW05, BH_MW07, BH_MW06, BH_MW08	04-DEC-2013	---	11-DEC-2013	----	11-DEC-2013	11-DEC-2013	✓
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035F) BE_MW04, BE_MW06, BH_MW05, BH_MW07, BH_MW07, BH_MW08, BV_MW01, BV_MW07, R01_041213_CH, R01_041213_KF	04-DEC-2013	---	18-DEC-2013	----	12-DEC-2013	18-DEC-2013	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094A-F) BE_MW04, BE_MW06, R01_041213_CH, BE_MW05, BE_MW07, R01_041213_KF	04-DEC-2013	---	02-JUN-2014	----	12-DEC-2013	02-JUN-2014	✓
Clear Plastic Bottle - Natural (EG094A-F) BH_MW05, BH_MW07, BV_MW01, BH_MW06, BH_MW08, BV_MW07	04-DEC-2013	---	02-JUN-2014	----	12-DEC-2013	02-JUN-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) BV_MW01, BV_MW07	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Amber Glass Bottle - Unpreserved (EP071) BE_MW04, BE_MW05, BE_MW06, BE_MW07, BH_MW05, BH_MW06, BH_MW07, BH_MW08, BV_MW01, BV_MW07, R01_041213_CH, R01_041213_KF	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	12-DEC-2013	20-JAN-2014	✓	
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) BE_MW04, BE_MW05, BE_MW06, BE_MW07, BH_MW05, BH_MW06, BH_MW07, BH_MW08, BV_MW01, BV_MW07, R01_041213_CH, R01_041213_KF	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓	
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BE_MW04, BE_MW05, BE_MW06, BE_MW07, BH_MW05, BH_MW06, BH_MW07, BH_MW08, BV_MW01, BV_MW07, R01_041213_CH, R01_041213_KF	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓	
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BE_MW04, BE_MW05, BE_MW06, BE_MW07, BH_MW05, BH_MW06, BH_MW07, BH_MW08, BV_MW01, BV_MW07, R01_041213_CH, R01_041213_KF	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓	



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) BE_MW04, BE_MW06, BH_MW05, BH_MW07, BV_MW01, R01_041213_CH, BE_MW05, BE_MW07, BH_MW06, BH_MW08, BV_MW07, R01_041213_KF	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) BE_MW04, BE_MW06, BH_MW05, BH_MW07, BV_MW01, R01_041213_CH, BE_MW05, BE_MW07, BH_MW06, BH_MW08, BV_MW07, R01_041213_KF	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BE_MW04, BE_MW06, BH_MW05, BH_MW07, BV_MW01, R01_041213_CH, BE_MW05, BE_MW07, BH_MW06, BH_MW08, BV_MW07, R01_041213_KF	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BE_MW04, BE_MW06, BH_MW05, BH_MW07, BV_MW01, R01_041213_CH, BE_MW05, BE_MW07, BH_MW06, BH_MW08, BV_MW07, R01_041213_KF	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) BE_MW04, BE_MW06, BH_MW05, BH_MW07, BV_MW01, R01_041213_CH, BE_MW05, BE_MW07, BH_MW06, BH_MW08, BV_MW07, R01_041213_KF	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
BE_MW04, BE_MW06, BH_MW05, BH_MW07, BV_MW01, R01_041213_CH, BE_MW05, BE_MW07, BH_MW06, BH_MW08, BV_MW07, R01_041213_KF	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	13-DEC-2013	20-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
BE_MW04, BE_MW06, BH_MW05, BH_MW07, BV_MW01, R01_041213_CH, BE_MW05, BE_MW07, BH_MW06, BH_MW08, BV_MW07, R01_041213_KF	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	13-DEC-2013	20-JAN-2014	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
BE_MW04, BE_MW06, BH_MW05, BH_MW07, BV_MW01, R01_041213_CH, TRIP BLANK, BE_MW05, BE_MW07, BH_MW06, BH_MW08, BV_MW07, R01_041213_KF, TRIP SPIKE	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber VOC Vial - Sulfuric Acid (EP080)							
BE_MW04, BE_MW06, BH_MW05, BH_MW07, BV_MW01, R01_041213_CH, TRIP BLANK, BE_MW05, BE_MW07, BH_MW06, BH_MW08, BV_MW07, R01_041213_KF	04-DEC-2013	12-DEC-2013	18-DEC-2013	✓	12-DEC-2013	18-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	4	32	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	4	31	12.9	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	4	32	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	31	6.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	31	6.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Matrix Spikes (MS) - Continued							
Dissolved Mercury by FIMS	EG035F	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Sulfate (Turbidimetric) as SO ₄ ²⁻ by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO ₄ Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ ²⁻ concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Ionic Balance by PCT DA and Turbi SO ₄ DA	EN055 - PG	WATER	APHA 21st Ed. 1030F. The Ionic Balance is calculated based on the major Anions and Cations. The major anions include Alkalinity, Chloride and Sulfate which determined by PCT and DA. The Cations are determined by Turbi SO ₄ by DA. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP074E: Halogenated Aliphatic Compounds	3829367-002	----	Vinyl chloride	75-01-4	129 %	69.4-129%	Recovery greater than upper control limit
EP075(SIM)A: Phenolic Compounds	3827908-007	----	Pentachlorophenol	87-86-5	98.1 %	8.7-95%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES1326817-001	Anonymous	Sulfate as SO4 - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

Subcon Forward Lab / Split WO
Lab / Analysis: ENVIRONMENTAL / FWD

Organised By / Date: _____
Relinquished By / Date: _____
Cons / Courier: _____

	CHAIN OF CUSTODY ALS Laboratory, please tick →	<small>LADELAIDE 21 Bayswater Road, Bayswater VIC 3105 Ph: 03 9492 2000 Fax: 03 9492 2001 LORRIBANE 21 Chapel Street, Eastern Creek VIC 3103 Ph: 03 9492 2000 Fax: 03 9492 2001 LORRIBANE 481 Lonsdale Street, Melbourne VIC 3000 Ph: 03 9492 2000 Fax: 03 9492 2001</small>	<small>UNIVERSITY OF MELBOURNE VIC 3010 VIC 3010 VIC 3010 VIC 3010</small>
CLIENT: <u>ERM</u>	TURNAROUND REQUIREMENTS: Standard TAT (List due date): <u>WO No:</u> Ultra Trace Organics: <input type="checkbox"/> Non Standard or urgent TAT (List due date): _____	FOR LABORATORY USE ONLY (Circle) Custody Seal Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Free ion / (copper, lead, nickel) present upon receipt? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Random Sample Temperature on Receipt: <u>Ambient</u> °C Other comment: _____	
OFFICE: <u>Sydney</u>	ALS QUOTE NO.: <u>SY179413</u>	Attach By PO / Internal Sheet: COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	
PROJECT: <u>Project Symphony</u>	SITE: <u>BAYSWATER / LIDDELL</u>	RECEIVED BY: <u>Rayley W</u> DATE/TIME: <u>10/12/13 15:00</u>	RECEIVED BY: <u>KAR</u> DATE/TIME: <u>10/12/13 19:20</u>
ORDER NUMBER: <u>0224193</u>	CONTACT PH: <u>0424 970 468</u>	RECEIVED BY: <u>Rayley W</u> DATE/TIME: <u>10/12/13 15:00</u>	RECEIVED BY: <u>KAR</u> DATE/TIME: <u>10/12/13 19:20</u>
PROJECT MANAGER: <u>Joe Ferrary</u>	SAMPLER MOBILE: <u>0488 627876</u>	RECEIVED BY: <u>Rayley W</u> DATE/TIME: <u>10/12/13 15:00</u>	RECEIVED BY: <u>KAR</u> DATE/TIME: <u>10/12/13 19:20</u>
SAMPLER: <u>Nathan Hegerly</u>	EDD FORMAT (or default): _____	RECEIVED BY: <u>Rayley W</u> DATE/TIME: <u>10/12/13 15:00</u>	RECEIVED BY: <u>KAR</u> DATE/TIME: <u>10/12/13 19:20</u>
COC emailed to ALS? (YES / NO) <u>NO</u>	Email Reports to (will default to PM if no other addresses are listed): _____	RECEIVED BY: <u>Rayley W</u> DATE/TIME: <u>10/12/13 15:00</u>	RECEIVED BY: <u>KAR</u> DATE/TIME: <u>10/12/13 19:20</u>
Email Invoice to (will default to PM if no other addresses are listed): _____	COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:		

ALS USE	SAMPLE DETAILS			CONTAINER INFORMATION	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information
	MATRIX	DATE / TIME	TYPE & PRESERVATIVE (refer to codes below)		TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Tl)	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PFOA/PFOA	W-24 TRHCS-CALYBTEXAN, PAH, Phenols	ORC + Inhouse Metals		
1	BG-MW01	3/12/13 09:55	3xAG, 4xVS, 1xORC, 1xN	9				X	X		X	X	<p>Standard metal analysis 3F please clear</p> <p>Interlab Dup - Please send to EnviroLab TRH/BTEXAN In-house Dup - Please send to EnviroLab BTEXAN</p>		
2	BG-MW02	11:20	3xAG, 4xVS, 1xORC, 1xN	8				X	X		X	X			
3	BG-MW03	12:35	3xAG, 4xVS, 1xORC	8				X	X		X	X			
4	BG-MW04	13:55	3xAG, 4xVS, 1xORC	8				X	X		X	X			
5	BG-MW05	15:15	3xAG, 4xVS, 1xORC	8				X	X		X	X			
6	TOI 031213 NH		3xAG, 4xVS, 1xORC, 1xN	9				X	X		X	X			
7	Trip Blank		1xVS	1											
8	Trip Spike		1xVS	1											
8	Blank RO1 031213 NH	3/12/13 15:54	3xVS, 1xN, 1xAG	5	X			X							
9	BG-MW06	3/12/13 15:54	3xAG, 4xVS, 1xORC	8				X	X		X	X			

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Environmental Division
 Sydney
 Work Order
ES1326994



SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1326994	
Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800	E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555
Project : Project Symphony Order number : 0224193 C-O-C number : ---- Site : BAYWATER Sampler : NH	Page : 1 of 3 Quote number : ES2013ENVRES0369 (SY/794/13) QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 10-DEC-2013 Client Requested Due Date : 16-DEC-2013	Issue Date : 11-DEC-2013 13:27 Scheduled Reporting Date : 16-DEC-2013
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Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 1 HARD Security Seal : Intact.	Temperature : 5°C SYD - Ice present No. of samples received : 9 No. of samples analysed : 9
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Insufficient time received for analysis of some analytes within 'analytical holding times'. Samples should be submitted with at least half the holding time remaining to minimize the possibility of holding time breaches.
- Sample T01_131213_NH to be forwarded to Envirolab.
- **Samples received in appropriately pretreated and preserved containers.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Breaches in recommended extraction / analysis holding times may occur. Please refer to the 'Proactive Holding Time Report' below for further details. Please contact ALS if further information is required.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG03A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EG03B-F Dissolved Metals in Saline Water Suite B by	WATER - EP06-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - W-02 8 Metals	WATER - W-18 TRH(C6 - C9)/BTEXN
ES1326994-001	03-DEC-2013 09:55	BG_MW01	✓	✓	✓	✓	✓			
ES1326994-002	03-DEC-2013 11:20	BG_MW02	✓	✓	✓	✓	✓			
ES1326994-003	03-DEC-2013 12:35	BG_MW03	✓	✓	✓	✓	✓			
ES1326994-004	03-DEC-2013 13:55	BG_MW04	✓	✓	✓	✓	✓			
ES1326994-005	03-DEC-2013 15:15	BG_MW05	✓	✓	✓	✓	✓			
ES1326994-006	03-DEC-2013 15:00	TRIP BLANK								✓
ES1326994-007	03-DEC-2013 15:00	TRIP SPIKE						✓		
ES1326994-008	03-DEC-2013 15:54	R01_031213_NH					✓		✓	
ES1326994-009	03-DEC-2013 15:54	BG_MW06	✓	✓	✓	✓	✓			

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1326994-001	03-DEC-2013 09:55	BG_MW01	✓
ES1326994-002	03-DEC-2013 11:20	BG_MW02	✓
ES1326994-003	03-DEC-2013 12:35	BG_MW03	✓
ES1326994-004	03-DEC-2013 13:55	BG_MW04	✓
ES1326994-005	03-DEC-2013 15:15	BG_MW05	✓
ES1326994-009	03-DEC-2013 15:54	BG_MW06	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

MR JOSEPH FERRING

- | | | |
|--|-------|------------------------|
| - *AU Certificate of Analysis - NATA (COA) | Email | joseph.ferring@erm.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | joseph.ferring@erm.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | joseph.ferring@erm.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | joseph.ferring@erm.com |
| - Chain of Custody (CoC) (COC) | Email | joseph.ferring@erm.com |
| - EDI Format - ENMRG (ENMRG) | Email | joseph.ferring@erm.com |
| - EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) | Email | joseph.ferring@erm.com |
| - EDI Format - ESDAT (ESDAT) | Email | joseph.ferring@erm.com |
| - EDI Format - XTab (XTAB) | Email | joseph.ferring@erm.com |

THE ACCOUNTS PAYABLE

- | | | |
|-------------------------------|-------|---------------------|
| - A4 - AU Tax Invoice (INV) | Email | au.accounts@erm.com |
|-------------------------------|-------|---------------------|
-

CERTIFICATE OF ANALYSIS

Work Order : ES1326994 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 0224193 C-O-C number : ---- Sampler : NH Site : BAYWATER Quote number : SY/794/13	Page : 1 of 15 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 10-DEC-2013 Issue Date : 16-DEC-2013 No. of samples received : 9 No. of samples analysed : 9
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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
 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>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BG_MW01	BG_MW02	BG_MW03	BG_MW04	BG_MW05
				03-DEC-2013 09:55	03-DEC-2013 11:20	03-DEC-2013 12:35	03-DEC-2013 13:55	03-DEC-2013 15:15
Compound	CAS Number	LOR	Unit	ES1326994-001	ES1326994-002	ES1326994-003	ES1326994-004	ES1326994-005
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS								
Selenium	7782-49-2	2	µg/L	71	----	----	----	----
Arsenic	7440-38-2	0.5	µg/L	9.9	----	----	----	----
Barium	7440-39-3	1	µg/L	36	----	----	----	----
Beryllium	7440-41-7	0.1	µg/L	24.4	----	----	----	----
Boron	7440-42-8	100	µg/L	<100	----	----	----	----
Cadmium	7440-43-9	0.2	µg/L	0.8	----	----	----	----
Chromium	7440-47-3	0.5	µg/L	5.6	----	----	----	----
Cobalt	7440-48-4	0.2	µg/L	393	----	----	----	----
Copper	7440-50-8	1	µg/L	45	----	----	----	----
Lead	7439-92-1	0.2	µg/L	61.5	----	----	----	----
Manganese	7439-96-5	0.5	µg/L	1340	----	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	<0.1	----	----	----	----
Nickel	7440-02-0	0.5	µg/L	650	----	----	----	----
Thallium	7440-28-0	0.1	µg/L	0.6	----	----	----	----
Vanadium	7440-62-2	0.5	µg/L	4.5	----	----	----	----
Zinc	7440-66-6	5	µg/L	2440	----	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	----	0.3	4.5	2.2	9.1
Arsenic	7440-38-2	0.2	µg/L	----	1.0	3.0	2.0	5.0
Barium	7440-39-3	0.5	µg/L	----	18.0	97.4	53.2	50.1
Beryllium	7440-41-7	0.1	µg/L	----	<0.1	<0.1	<0.1	5.2
Boron	7440-42-8	5	µg/L	----	107	98	727	145
Cadmium	7440-43-9	0.05	µg/L	----	0.56	1.43	0.16	1.21
Chromium	7440-47-3	0.2	µg/L	----	<0.2	0.6	<0.2	5.0
Cobalt	7440-48-4	0.1	µg/L	----	505	179	20.6	508
Copper	7440-50-8	0.5	µg/L	----	1.5	7.8	5.6	49.6
Lead	7439-92-1	0.1	µg/L	----	0.2	99.0	38.5	60.1
Manganese	7439-96-5	0.5	µg/L	----	22600	18200	2450	7110
Molybdenum	7439-98-7	0.1	µg/L	----	0.4	1.0	1.4	0.2
Nickel	7440-02-0	0.5	µg/L	----	301	162	20.3	448
Thallium	7440-28-0	0.02	µg/L	----	0.03	0.79	0.13	0.27
Vanadium	7440-62-2	0.2	µg/L	----	<0.2	6.5	4.5	2.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BG_MW01	BG_MW02	BG_MW03	BG_MW04	BG_MW05
				03-DEC-2013 09:55	03-DEC-2013 11:20	03-DEC-2013 12:35	03-DEC-2013 13:55	03-DEC-2013 15:15
Compound	CAS Number	LOR	Unit	ES1326994-001	ES1326994-002	ES1326994-003	ES1326994-004	ES1326994-005
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS - Continued								
Zinc	7440-66-6	1	µg/L	----	88	66	31	971
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	<1
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BG_MW01	BG_MW02	BG_MW03	BG_MW04	BG_MW05
				03-DEC-2013 09:55	03-DEC-2013 11:20	03-DEC-2013 12:35	03-DEC-2013 13:55	03-DEC-2013 15:15
Compound	CAS Number	LOR	Unit	ES1326994-001	ES1326994-002	ES1326994-003	ES1326994-004	ES1326994-005
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BG_MW01	BG_MW02	BG_MW03	BG_MW04	BG_MW05
				03-DEC-2013 09:55	03-DEC-2013 11:20	03-DEC-2013 12:35	03-DEC-2013 13:55	03-DEC-2013 15:15
				ES1326994-001	ES1326994-002	ES1326994-003	ES1326994-004	ES1326994-005
EP074G: Trihalomethanes - Continued								
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BG_MW01	BG_MW02	BG_MW03	BG_MW04	BG_MW05
				03-DEC-2013 09:55	03-DEC-2013 11:20	03-DEC-2013 12:35	03-DEC-2013 13:55	03-DEC-2013 15:15
Compound	CAS Number	LOR	Unit	ES1326994-001	ES1326994-002	ES1326994-003	ES1326994-004	ES1326994-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	64.3	79.9	71.3	96.7	87.1
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	102	105	101	100
Toluene-D8	2037-26-5	0.1	%	91.4	80.7	86.5	96.9	82.4



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BG_MW01	BG_MW02	BG_MW03	BG_MW04	BG_MW05
				03-DEC-2013 09:55	03-DEC-2013 11:20	03-DEC-2013 12:35	03-DEC-2013 13:55	03-DEC-2013 15:15
Compound	CAS Number	LOR	Unit	ES1326994-001	ES1326994-002	ES1326994-003	ES1326994-004	ES1326994-005
EP074S: VOC Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	0.1	%	102	104	106	103	102
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	24.2	32.5	25.1	25.4	36.1
2-Chlorophenol-D4	93951-73-6	0.1	%	45.9	66.0	50.9	33.3	69.5
2,4,6-Tribromophenol	118-79-6	0.1	%	56.3	76.6	56.3	43.9	77.4
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	47.0	68.6	54.1	60.6	70.7
Anthracene-d10	1719-06-8	0.1	%	47.2	69.6	43.7	38.5	65.5
4-Terphenyl-d14	1718-51-0	0.1	%	42.4	70.2	55.1	64.5	76.2
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	104	101	104	100	99.0
Toluene-D8	2037-26-5	0.1	%	93.6	82.5	88.5	99.1	84.2
4-Bromofluorobenzene	460-00-4	0.1	%	103	106	108	104	103



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				TRIP BLANK	TRIP SPIKE	R01_031213_NH	BG_MW06	----
Client sampling date / time				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:54	03-DEC-2013 15:54	----
Compound	CAS Number	LOR	Unit	ES1326994-006	ES1326994-007	ES1326994-008	ES1326994-009	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	----	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	----	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	----	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	<0.005	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	<0.0001	----
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS								
Selenium	7782-49-2	2	µg/L	----	----	----	60	----
Arsenic	7440-38-2	0.5	µg/L	----	----	----	9.6	----
Barium	7440-39-3	1	µg/L	----	----	----	25	----
Beryllium	7440-41-7	0.1	µg/L	----	----	----	39.5	----
Boron	7440-42-8	100	µg/L	----	----	----	<100	----
Cadmium	7440-43-9	0.2	µg/L	----	----	----	3.8	----
Chromium	7440-47-3	0.5	µg/L	----	----	----	8.1	----
Cobalt	7440-48-4	0.2	µg/L	----	----	----	577	----
Copper	7440-50-8	1	µg/L	----	----	----	107	----
Lead	7439-92-1	0.2	µg/L	----	----	----	32.3	----
Manganese	7439-96-5	0.5	µg/L	----	----	----	423	----
Molybdenum	7439-98-7	0.1	µg/L	----	----	----	<0.1	----
Nickel	7440-02-0	0.5	µg/L	----	----	----	908	----
Thallium	7440-28-0	0.1	µg/L	----	----	----	0.5	----
Vanadium	7440-62-2	0.5	µg/L	----	----	----	7.5	----
Zinc	7440-66-6	5	µg/L	----	----	----	2750	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	----	----	----	<1	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	----	----	<1	----	----
Toluene	108-88-3	2	µg/L	----	----	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	----	----	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	----	<2	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP BLANK	TRIP SPIKE	R01_031213_NH	BG_MW06	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:54	03-DEC-2013 15:54	----
Compound	CAS Number	LOR	Unit	ES1326994-006	ES1326994-007	ES1326994-008	ES1326994-009	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
Styrene	100-42-5	5	µg/L	----	----	<5	<5	----
ortho-Xylene	95-47-6	2	µg/L	----	----	<2	----	----
Isopropylbenzene	98-82-8	5	µg/L	----	----	<5	<5	----
n-Propylbenzene	103-65-1	5	µg/L	----	----	<5	<5	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	----	----	<5	<5	----
sec-Butylbenzene	135-98-8	5	µg/L	----	----	<5	<5	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	----	----	<5	<5	----
tert-Butylbenzene	98-06-6	5	µg/L	----	----	<5	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L	----	----	<5	<5	----
n-Butylbenzene	104-51-8	5	µg/L	----	----	<5	<5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	----	----	<50	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L	----	----	<50	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	----	----	<50	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L	----	----	<50	<50	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	----	----	<5	<5	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	----	----	<5	<5	----
1,2-Dichloropropane	78-87-5	5	µg/L	----	----	<5	<5	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	----	----	<5	<5	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	----	----	<5	<5	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	----	<5	<5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	----	<50	<50	----
Chloromethane	74-87-3	50	µg/L	----	----	<50	<50	----
Vinyl chloride	75-01-4	50	µg/L	----	----	<50	<50	----
Bromomethane	74-83-9	50	µg/L	----	----	<50	<50	----
Chloroethane	75-00-3	50	µg/L	----	----	<50	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L	----	----	<50	<50	----
1,1-Dichloroethene	75-35-4	5	µg/L	----	----	<5	<5	----
Iodomethane	74-88-4	5	µg/L	----	----	<5	<5	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	----	----	<5	<5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP BLANK	TRIP SPIKE	R01_031213_NH	BG_MW06	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:54	03-DEC-2013 15:54	----
Compound	CAS Number	LOR	Unit	ES1326994-006	ES1326994-007	ES1326994-008	ES1326994-009	----
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1-Dichloroethane	75-34-3	5	µg/L	----	----	<5	<5	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	----	----	<5	<5	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	----	----	<5	<5	----
1.1-Dichloropropylene	563-58-6	5	µg/L	----	----	<5	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L	----	----	<5	<5	----
1.2-Dichloroethane	107-06-2	5	µg/L	----	----	<5	<5	----
Trichloroethene	79-01-6	5	µg/L	----	----	<5	<5	----
Dibromomethane	74-95-3	5	µg/L	----	----	<5	<5	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	----	----	<5	<5	----
1.3-Dichloropropane	142-28-9	5	µg/L	----	----	<5	<5	----
Tetrachloroethene	127-18-4	5	µg/L	----	----	<5	<5	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	----	----	<5	<5	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	----	----	<5	<5	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	----	----	<5	<5	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	----	----	<5	<5	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	----	----	<5	<5	----
Pentachloroethane	76-01-7	5	µg/L	----	----	<5	<5	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	----	----	<5	<5	----
Hexachlorobutadiene	87-68-3	5	µg/L	----	----	<5	<5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	----	----	<5	<5	----
Bromobenzene	108-86-1	5	µg/L	----	----	<5	<5	----
2-Chlorotoluene	95-49-8	5	µg/L	----	----	<5	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	----	----	<5	<5	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	----	----	<5	<5	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	----	----	<5	<5	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	----	----	<5	<5	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	----	----	<5	<5	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	----	----	<5	<5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	----	----	<5	<5	----
Bromodichloromethane	75-27-4	5	µg/L	----	----	<5	<5	----
Dibromochloromethane	124-48-1	5	µg/L	----	----	<5	<5	----
Bromoform	75-25-2	5	µg/L	----	----	<5	<5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP BLANK	TRIP SPIKE	R01_031213_NH	BG_MW06	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:54	03-DEC-2013 15:54	----
Compound	CAS Number	LOR	Unit	ES1326994-006	ES1326994-007	ES1326994-008	ES1326994-009	----
EP074G: Trihalomethanes - Continued								
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	----	----	<7	<7	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	----	----	----	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L	----	----	----	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L	----	----	----	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	----	----	----	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	----	----	----	<1.0	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	----	----	----	<1.0	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	----	----	----	<1.0	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	----	----	----	<1.0	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	----	----	----	<1.0	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	----	----	----	<1.0	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	----	----	----	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	----	----	----	<2.0	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	----	----	----	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	----	----	----	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	----	----	----	<1.0	----
Fluorene	86-73-7	1.0	µg/L	----	----	----	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	----	----	----	<1.0	----
Anthracene	120-12-7	1.0	µg/L	----	----	----	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	----	----	----	<1.0	----
Pyrene	129-00-0	1.0	µg/L	----	----	----	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	----	<1.0	----
Chrysene	218-01-9	1.0	µg/L	----	----	----	<1.0	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	----	----	----	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	----	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	----	----	<1.0	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	----	----	<1.0	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	----	----	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	----	----	<0.5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TRIP BLANK	TRIP SPIKE	R01_031213_NH	BG_MW06	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:54	03-DEC-2013 15:54	----
Compound	CAS Number	LOR	Unit	ES1326994-006	ES1326994-007	ES1326994-008	ES1326994-009	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	----	----	<0.5	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	<20	----
C10 - C14 Fraction	----	50	µg/L	----	----	----	<50	----
C15 - C28 Fraction	----	100	µg/L	----	----	----	<100	----
C29 - C36 Fraction	----	50	µg/L	----	----	----	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	----	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	----	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	----	----	----	<100	----
>C16 - C34 Fraction	----	100	µg/L	----	----	----	<100	----
>C34 - C40 Fraction	----	100	µg/L	----	----	----	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	----	----	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	----	----	<100	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	17	----	<1	----
Toluene	108-88-3	2	µg/L	<2	17	----	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	16	----	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	17	----	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	18	----	<2	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	35	----	<2	----
^ Sum of BTEX	----	1	µg/L	<1	85	----	<1	----
Naphthalene	91-20-3	5	µg/L	<5	18	----	<5	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	83.3	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	109	96.6	----
Toluene-D8	2037-26-5	0.1	%	----	----	98.8	90.8	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	112	95.1	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	----	----	----	37.0	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				TRIP BLANK	TRIP SPIKE	R01_031213_NH	BG_MW06	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:54	03-DEC-2013 15:54	----
				ES1326994-006	ES1326994-007	ES1326994-008	ES1326994-009	----
Compound	CAS Number	LOR	Unit					
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	----	73.6	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	----	80.8	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	----	75.1	----
Anthracene-d10	1719-06-8	0.1	%	----	----	----	66.9	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	----	76.5	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	101	95.2	----	95.6	----
Toluene-D8	2037-26-5	0.1	%	91.0	94.2	----	93.1	----
4-Bromofluorobenzene	460-00-4	0.1	%	92.7	97.4	----	96.2	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	28.5	129
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1326994	Page	: 1 of 21
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYWATER	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: NH	No. of samples received	: 9
Order number	: 0224193	No. of samples analysed	: 9
Quote number	: SY/794/13		

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

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

Celine Conceicao
Pabi Subba

Position

Senior Spectroscopist
Senior Organic Chemist

Accreditation Category

Sydney Inorganics
Sydney 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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3210613)									
ES1326784-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	0.0	No Limit
ES1326784-011	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3210612)									
ES1326707-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1326784-009	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3212881)									
ES1326637-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1326994-005	BG_MW05	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3214403)									
ES1326994-001	BG_MW01	EG093A-F: Beryllium	7440-41-7	0.1	µg/L	24.4	24.1	1.1	0% - 20%
		EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG093A-F: Thallium	7440-28-0	0.1	µg/L	0.6	0.5	0.0	No Limit
		EG093A-F: Cadmium	7440-43-9	0.2	µg/L	0.8	0.7	0.0	No Limit
		EG093A-F: Cobalt	7440-48-4	0.2	µg/L	393	393	0.1	0% - 20%
		EG093A-F: Lead	7439-92-1	0.2	µg/L	61.5	61.2	0.5	0% - 20%
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	9.9	9.6	2.9	0% - 50%
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	5.6	5.7	0.0	0% - 50%
		EG093A-F: Manganese	7439-96-5	0.5	µg/L	1340	1360	1.1	0% - 20%
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	650	633	2.8	0% - 20%
		EG093A-F: Vanadium	7440-62-2	0.5	µg/L	4.5	4.8	6.0	No Limit
		EG093A-F: Barium	7440-39-3	1	µg/L	36	35	0.0	0% - 20%
		EG093A-F: Copper	7440-50-8	1	µg/L	45	44	0.0	0% - 20%
		EG093A-F: Boron	7440-42-8	100	µg/L	<100	<100	0.0	No Limit
		EG093A-F: Zinc	7440-66-6	5	µg/L	2440	2380	2.3	0% - 20%



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3214404)									
ES1326994-001	BG_MW01	EG093B-F: Selenium	7782-49-2	2	µg/L	71	70	2.5	0% - 20%
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3214690)									
ES1327030-001	Anonymous	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.06	0.05	0.0	No Limit
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.20	0.18	7.9	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	1.0	0.9	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	26.9	24.6	9.2	0% - 20%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	5.4	4.9	8.7	0% - 20%
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	29.8	26.1	13.2	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	1.2	1.1	12.4	No Limit
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	256	232	9.7	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	33.1	30.2	9.1	0% - 20%
		EG094A-F: Zinc	7440-66-6	1	µg/L	56	51	9.1	0% - 20%
EG094A-F: Boron	7440-42-8	5	µg/L	<5	<5	0.0	No Limit		
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3214691)									
ES1327030-001	Anonymous	EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3206973)									
ES1326994-002	BG_MW02	EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3209301)									
ES1326994-001	BG_MW01	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1327009-001	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3209301) - continued									
ES1327009-001	Anonymous	EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit		
EP074B: Oxygenated Compounds (QC Lot: 3209301)									
ES1326994-001	BG_MW01	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1327009-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3209301)									
ES1326994-001	BG_MW01	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1327009-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3209301)									
ES1326994-001	BG_MW01	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1327009-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3209301)									
ES1326994-001	BG_MW01	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3209301) - continued									
ES1326994-001	BG_MW01	EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES1327009-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3209301) - continued									
ES1327009-001	Anonymous	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3209301)									
ES1326994-001	BG_MW01	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1327009-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3209301)									
ES1326994-001	BG_MW01	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1327009-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3209301)									



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074H: Naphthalene (QC Lot: 3209301) - continued									
ES1326994-001	BG_MW01	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1327009-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3206975)									
ES1326994-002	BG_MW02	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
ES1326996-005	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit		
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3206975)									
ES1326994-002	BG_MW02	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3206975) - continued									
ES1326994-002	BG_MW02	EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
ES1326996-005	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3206974)									
ES1326994-002	BG_MW02	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1326996-005	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3209302)									
ES1326994-001	BG_MW01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327009-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3209306)									
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327009-009	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3206974)									
ES1326994-002	BG_MW02	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
ES1326996-005	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3209302)									
ES1326994-001	BG_MW01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327009-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3209306)									
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327009-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 3209302)									
ES1326994-001	BG_MW01	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1327009-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 3209306)									
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1327009-009	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



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 (%)		Recovery Limits (%)	
						LCS	Low	High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 3210613)									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.5	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	103	81	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	106	80	112	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	91.8	83	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	111	80	116	
EG035F: Dissolved Mercury by FIMS (QCLot: 3210612)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	88.9	78	114	
EG035F: Dissolved Mercury by FIMS (QCLot: 3212881)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	102	78	114	
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3214403)									
EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	102	76	134	
EG093A-F: Barium	7440-39-3	1	µg/L	<1	10 µg/L	85.5	72	128	
EG093A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	80.5	74	124	
EG093A-F: Boron	7440-42-8	100	µg/L	<100	----	----	----	----	
EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	98.8	71	125	
EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	96.5	74	126	
EG093A-F: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	96.0	72	126	
EG093A-F: Copper	7440-50-8	1	µg/L	<1	10 µg/L	108	71	129	
EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	95.4	74	126	
EG093A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	90.8	75	127	
EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	94.7	71	131	
EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	103	75	133	
EG093A-F: Thallium	7440-28-0	0.1	µg/L	<0.1	10 µg/L	96.6	72	128	
EG093A-F: Vanadium	7440-62-2	0.5	µg/L	<0.5	10 µg/L	99.6	72	112	
EG093A-F: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	88.4	75	129	
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3214404)									
EG093B-F: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	110	74	130	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214690)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	101	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	110	76	120	
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	106	74	130	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	10 µg/L	104	79	129	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214690) - continued									
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	106	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	106	71	123	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	111	79	121	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	110	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	100	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	110	79	119	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	88.5	69	127	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	110	72	128	
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	103	71	121	
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	108	78	116	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	110	76	134	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214691)									
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	90.4	75	125	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3206973)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	82.7	61.6	107	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3209301)									
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	104	78	116	
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	107	68	128	
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	102	74	118	
EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	20 µg/L	103	74	122	
	106-42-3								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	103	74	118	
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	77	121	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	100	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	101	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	101	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	101	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	104	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	99.9	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	100	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	103	62	126	
EP074B: Oxygenated Compounds (QCLot: 3209301)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	128	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	# 132	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	136	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	136	65	137	
EP074C: Sulfonated Compounds (QCLot: 3209301)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	86.2	72.8	127	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074D: Fumigants (QCLot: 3209301)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	97.1	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	108	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	101	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	107	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	# 117	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209301)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	73.8	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	88.0	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	81.7	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	96.3	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	88.3	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	94.1	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	97.8	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	89.8	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	103	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	102	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	105	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	93.7	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	102	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	88.6	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	111	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	104	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	114	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	119	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	119	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	96.0	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	96.2	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	118	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	123	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	124	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	127	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	107	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	119	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	85.4	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3209301)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	108	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	109	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	103	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	105	71	121	



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
EP074F: Halogenated Aromatic Compounds (QCLot: 3209301) - continued								
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	109	74	120
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	108	72	120
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	110	77	117
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	97.6	60	126
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	100	67	125
EP074G: Trihalomethanes (QCLot: 3209301)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	104	76	118
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	95.4	64	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	103	65	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	114	73.5	126
EP074H: Naphthalene (QCLot: 3209301)								
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	111	61	125
EP075(SIM)A: Phenolic Compounds (QCLot: 3206975)								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	41.7	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	83.8	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	60.0	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	53.2	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	65.5	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	70.9	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	62.5	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	68.3	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	76.4	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	85.3	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	83.0	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	# 124	8.7	95
		2	µg/L	<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206975)								



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206975) - continued									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	75.9	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	74.3	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	63.2	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	67.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	64.2	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	66.6	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	74.0	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	72.4	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	67.7	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	66.0	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	68.3	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	64.0	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	73.6	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	65.9	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	69.0	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	73.0	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206974)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	96.7	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	91.0	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	93.3	62	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209302)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	106	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306) - continued									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	84.2	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206974)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	90.4	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	99.8	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	96.2	67	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209302)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	105	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.7	75	127	
EP080: BTEXN (QCLot: 3209302)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	100	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.0	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	98.1	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	99.4	70	124	
EP080: BTEXN (QCLot: 3209306)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.8	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.2	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	96.3	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	110	70	124	

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.

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 3210613)								
ES1326784-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	108	70	130	
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	86.2	70	130	
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	98.0	70	130	



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 3210613) - continued							
ES1326784-001	Anonymous	EG020A-F: Copper	7440-50-8	0.2 mg/L	105	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	86.8	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	78.9	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	106	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3210612)							
ES1326707-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	84.9	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3212881)							
ES1326637-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	83.3	70	130
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214690)							
ES1327030-002	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	113	70	130
		EG094A-F: Barium	7440-39-3	50 µg/L	127	70	130
		EG094A-F: Beryllium	7440-41-7	50 µg/L	72.6	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	119	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	121	70	130
		EG094A-F: Cobalt	7440-48-4	50 µg/L	115	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	126	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	109	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	127	70	130
		EG094A-F: Vanadium	7440-62-2	50 µg/L	126	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	127	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3206973)							
ES1326994-001	BG_MW01	EP066: Total Polychlorinated biphenyls	---	10 µg/L	93.2	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3209301)							
ES1326994-001	BG_MW01	EP074: Benzene	71-43-2	25 µg/L	101	70	130
		EP074: Toluene	108-88-3	25 µg/L	108	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209301)							
ES1326994-001	BG_MW01	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	87.1	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	108	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3209301)							
ES1326994-001	BG_MW01	EP074: Chlorobenzene	108-90-7	25 µg/L	112	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3206975)							
ES1326994-001	BG_MW01	EP075(SIM): Phenol	108-95-2	20 µg/L	45.6	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	74.9	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	99.0	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	# 70.0	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3206975) - continued								
ES1326994-001	BG_MW01	EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	117	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206975)								
ES1326994-001	BG_MW01	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	# 70.0	70	130	
		EP075(SIM): Pyrene	129-00-0	20 µg/L	72.7	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206974)								
ES1326994-001	BG_MW01	EP071: C10 - C14 Fraction	----	200 µg/L	103	74	150	
		EP071: C15 - C28 Fraction	----	300 µg/L	110	77	153	
		EP071: C29 - C36 Fraction	----	200 µg/L	82.9	67	153	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209302)								
ES1326994-001	BG_MW01	EP080: C6 - C9 Fraction	----	325 µg/L	123	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)								
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206974)								
ES1326994-001	BG_MW01	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	109	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	95.0	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	90.2	67	153	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209302)								
ES1326994-001	BG_MW01	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	118	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)								
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70	130	
EP080: BTEXN (QCLot: 3209302)								
ES1326994-001	BG_MW01	EP080: Benzene	71-43-2	25 µg/L	98.8	70	130	
		EP080: Toluene	108-88-3	25 µg/L	99.4	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	95.8	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	95.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	96.0	70	130	
EP080: Naphthalene	91-20-3	25 µg/L	76.2	70	130			
EP080: BTEXN (QCLot: 3209306)								
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	102	70	130	
		EP080: Toluene	108-88-3	25 µg/L	118	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70	130	
EP080: Naphthalene	91-20-3	25 µg/L	113	70	130			



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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3206973)										
ES1326994-001	BG_MW01	EP066: Total Polychlorinated biphenyls	----	10 µg/L	93.2	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206974)										
ES1326994-001	BG_MW01	EP071: C10 - C14 Fraction	----	200 µg/L	103	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	110	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	82.9	----	67	153	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206974)										
ES1326994-001	BG_MW01	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	109	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	95.0	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	90.2	----	67	153	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3206975)										
ES1326994-001	BG_MW01	EP075(SIM): Phenol	108-95-2	20 µg/L	45.6	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	74.9	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	99.0	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	# 70.0	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	117	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206975)										
ES1326994-001	BG_MW01	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	# 70.0	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	72.7	----	70	130	----	----
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3209301)										
ES1326994-001	BG_MW01	EP074: Benzene	71-43-2	25 µg/L	101	----	70	130	----	----
		EP074: Toluene	108-88-3	25 µg/L	108	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209301)										
ES1326994-001	BG_MW01	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	87.1	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	108	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3209301)										
ES1326994-001	BG_MW01	EP074: Chlorobenzene	108-90-7	25 µg/L	112	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209302)										
ES1326994-001	BG_MW01	EP080: C6 - C9 Fraction	----	325 µg/L	123	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209302)										
ES1326994-001	BG_MW01	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	118	----	70	130	----	----
EP080: BTEXN (QCLot: 3209302)										
ES1326994-001	BG_MW01	EP080: Benzene	71-43-2	25 µg/L	98.8	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	99.4	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP080: BTEXN (QCLot: 3209302) - continued										
ES1326994-001	BG_MW01	EP080: Ethylbenzene	100-41-4	25 µg/L	95.8	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	95.4	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	96.0	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	76.2	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)										
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)										
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	----	70	130	----	----
EP080: BTEXN (QCLot: 3209306)										
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	102	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	118	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	118	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	113	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3210612)										
ES1326707-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	84.9	----	70	130	----	----
EG020F: Dissolved Metals by ICP-MS (QCLot: 3210613)										
ES1326784-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	108	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	86.2	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	98.0	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	105	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	86.8	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	78.9	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	106	----	70	130	----	----
		EG035F: Dissolved Mercury by FIMS (QCLot: 3212881)								
ES1326637-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	83.3	----	70	130	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214690)										
ES1327030-002	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	113	----	70	130	----	----
		EG094A-F: Barium	7440-39-3	50 µg/L	127	----	70	130	----	----
		EG094A-F: Beryllium	7440-41-7	50 µg/L	72.6	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	119	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	121	----	70	130	----	----
		EG094A-F: Cobalt	7440-48-4	50 µg/L	115	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	126	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	109	----	70	130	----	----



Sub-Matrix: **WATER**

				<i>Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report</i>						
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Spike</i>	<i>Spike Recovery (%)</i>		<i>Recovery Limits (%)</i>		<i>RPDs (%)</i>	
				<i>Concentration</i>	<i>MS</i>	<i>MSD</i>	<i>Low</i>	<i>High</i>	<i>Value</i>	<i>Control Limit</i>
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214690) - continued										
ES1327030-002	Anonymous	EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	127	----	70	130	----	----
		EG094A-F: Vanadium	7440-62-2	50 µg/L	126	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	127	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326994	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYWATER	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: NH	No. of samples received	: 9
Order number	: 0224193	No. of samples analysed	: 9
Quote number	: SY/794/13		

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) R01_031213_NH	03-DEC-2013	---	01-JUN-2014	----	13-DEC-2013	01-JUN-2014	✓
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BG_MW02, BG_MW04, BG_MW06 BG_MW03, BG_MW05	03-DEC-2013	---	31-DEC-2013	----	14-DEC-2013	31-DEC-2013	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) BG_MW01, R01_031213_NH	03-DEC-2013	---	31-DEC-2013	----	13-DEC-2013	31-DEC-2013	✓
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG093A-F) BG_MW01, BG_MW06	03-DEC-2013	---	01-JUN-2014	----	16-DEC-2013	01-JUN-2014	✓
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG093B-F) BG_MW01, BG_MW06	03-DEC-2013	---	01-JUN-2014	----	16-DEC-2013	01-JUN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BG_MW02, BG_MW04, BG_MW05 BG_MW03, BG_MW05	03-DEC-2013	---	01-JUN-2014	----	16-DEC-2013	01-JUN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) BG_MW02, BG_MW04, BG_MW05 BG_MW03, BG_MW05	03-DEC-2013	---	01-JUN-2014	----	16-DEC-2013	01-JUN-2014	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) BG_MW01, BG_MW03, BG_MW05 BG_MW02, BG_MW04, BG_MW05	03-DEC-2013	11-DEC-2013	10-DEC-2013	*	14-DEC-2013	20-JAN-2014	✓



Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) BG_MW01, BG_MW03, BG_MW05, BG_MW02, BG_MW04, BG_MW06	03-DEC-2013	11-DEC-2013	10-DEC-2013	*	13-DEC-2013	20-JAN-2014	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW01, BG_MW03, BG_MW05, BG_MW06, BG_MW02, BG_MW04, R01_031213_NH,	03-DEC-2013	14-DEC-2013	17-DEC-2013	✓	14-DEC-2013	17-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW01, BG_MW03, BG_MW05, BG_MW06, BG_MW02, BG_MW04, R01_031213_NH,	03-DEC-2013	14-DEC-2013	17-DEC-2013	✓	14-DEC-2013	17-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW01, BG_MW03, BG_MW05, BG_MW06, BG_MW02, BG_MW04, R01_031213_NH,	03-DEC-2013	14-DEC-2013	17-DEC-2013	✓	14-DEC-2013	17-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW01, BG_MW03, BG_MW05, BG_MW06, BG_MW02, BG_MW04, R01_031213_NH,	03-DEC-2013	14-DEC-2013	17-DEC-2013	✓	14-DEC-2013	17-DEC-2013	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW01, BG_MW03, BG_MW05, BG_MW06, BG_MW02, BG_MW04, R01_031213_NH,	03-DEC-2013	14-DEC-2013	17-DEC-2013	✓	14-DEC-2013	17-DEC-2013	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW01, BG_MW03, BG_MW05, BG_MW06, BG_MW02, BG_MW04, R01_031213_NH,	03-DEC-2013	14-DEC-2013	17-DEC-2013	✓	14-DEC-2013	17-DEC-2013	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW01, BG_MW03, BG_MW05, BG_MW06	BG_MW02, BG_MW04, R01_031213_NH,	03-DEC-2013	14-DEC-2013	17-DEC-2013	✔	14-DEC-2013	17-DEC-2013	✔
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW01, BG_MW03, BG_MW05, BG_MW06	BG_MW02, BG_MW04, R01_031213_NH,	03-DEC-2013	14-DEC-2013	17-DEC-2013	✔	14-DEC-2013	17-DEC-2013	✔
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BG_MW01, BG_MW03, BG_MW05,	BG_MW02, BG_MW04, BG_MW06	03-DEC-2013	11-DEC-2013	10-DEC-2013	✖	13-DEC-2013	20-JAN-2014	✔
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BG_MW01, BG_MW03, BG_MW05,	BG_MW02, BG_MW04, BG_MW06	03-DEC-2013	11-DEC-2013	10-DEC-2013	✖	13-DEC-2013	20-JAN-2014	✔
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) BG_MW01, BG_MW03, BG_MW05, TRIP SPIKE,	BG_MW02, BG_MW04, TRIP BLANK, BG_MW06	03-DEC-2013	14-DEC-2013	17-DEC-2013	✔	14-DEC-2013	17-DEC-2013	✔
EP080/071: Total Petroleum Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP080) BG_MW01, BG_MW03, BG_MW05, BG_MW06	BG_MW02, BG_MW04, TRIP BLANK,	03-DEC-2013	14-DEC-2013	17-DEC-2013	✔	14-DEC-2013	17-DEC-2013	✔



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	4	36	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	16	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	13	7.7	10.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	12	8.3	10.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	2	50.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	2	50.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	13	15.4	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	13	15.4	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	38	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	2	36	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	2	50.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	2	50.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	2	36	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	2	50.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	2	50.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Dissolved Mercury by FIMS	EG035F	2	36	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatle Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP074B: Oxygenated Compounds	3830872-002	----	2-Butanone (MEK)	78-93-3	132 %	73.6-130%	Recovery greater than upper control limit
EP074D: Fumigants	3830872-002	----	1,2-Dibromoethane (EDB)	106-93-4	117 %	69-117%	Recovery greater than upper control limit
EP075(SIM)A: Phenolic Compounds	3827936-011	----	Pentachlorophenol	87-86-5	124 %	8.7-95%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1327030-002	Anonymous	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP075(SIM)A: Phenolic Compounds	ES1326994-001	BG_MW01	4-Chloro-3-methylphenol	59-50-7	70.0 %	70-130%	Recovery less than lower data quality objective
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	ES1326994-001	BG_MW01	Acenaphthene	83-32-9	70.0 %	70-130%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **WATER**

Method	Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved							
BG_MW01,	BG_MW02,	11-DEC-2013	10-DEC-2013	1	----	----	----
BG_MW03,	BG_MW04,						
BG_MW05,	BG_MW06,						
EP075(SIM)A: Phenolic Compounds							



Matrix: **WATER**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP075(SIM)A: Phenolic Compounds - Analysis Holding Time Compliance						
Amber Glass Bottle - Unpreserved BG_MW01, BG_MW03, BG_MW05, BG_MW02, BG_MW04, BG_MW06	11-DEC-2013	10-DEC-2013	1	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved BG_MW01, BG_MW03, BG_MW05, BG_MW02, BG_MW04, BG_MW06	11-DEC-2013	10-DEC-2013	1	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved BG_MW01, BG_MW03, BG_MW05, BG_MW02, BG_MW04, BG_MW06	11-DEC-2013	10-DEC-2013	1	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013						
Amber Glass Bottle - Unpreserved BG_MW01, BG_MW03, BG_MW05, BG_MW02, BG_MW04, BG_MW06	11-DEC-2013	10-DEC-2013	1	----	----	----

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	1	13	7.7	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	1	12	8.3	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

& Jo Ferring 0424 970 462
Joseph.Ferring@erm.com



CHAIN OF CUSTODY

ALS Laboratory
please tick →

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LABORATORY 11 Danks Road, Mascot, NSW 1585
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CLIENT: NSW Treasury / ERM	TURNAROUND REQUIREMENTS : <input checked="" type="checkbox"/> Standard TAT (List due date): (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	FOR LABORATORY USE ONLY (Circle)	
OFFICE:	<input type="checkbox"/> Non Standard or urgent TAT (List due date):	Custody Seal intact? Yes No N/A	Free ice / frozen ice bricks present upon receipt? Yes No N/A
PROJECT: Project Symphony	ALS QUOTE NO.: SY794/13	Random Sample Temperature on Receipt: °C	
ORDER NUMBER:	SITE: BAYSWATER / LIDDELL	Other comment:	
PROJECT MANAGER: Hamish Campbell	CONTACT PH: 0421457280		
SAMPLER: C. Henning + K Fox	SAMPLER MOBILE: 0410367411	RECEIVED BY: <i>Keylyn W</i>	RECEIVED BY: <i>Keylyn W</i>
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	DATE/TIME: 10/12/13 17:50	DATE/TIME: 10/12/13 17:00
Email Reports to (will default to PM if no other addresses are listed): Project managers S			RECEIVED BY: <i>KAL</i>
Email Invoice to (will default to PM if no other addresses are listed):			DATE/TIME: 10/12/13 19:00

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information	
	MATRIX: SOLID (S) WATER (W)	LAB ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti)	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PFOS/PFOA		W-24 TRHICs: C40/BTEX/N, PAH, Phenols
		BP-MW01	3/12/13	W		8				X			X	X
		BP-MW02				7								
		BP-MW03				8								
		BP-MW04				7								
		BP-MW05				7								
		BP-MW06				7								
		DOL-031213				8								
		TRIP BLANK	25/11	L		1								
		TRIP SPIKE	25/11	L		1								TRH + BTEX BTEX

Environmental Division
Sydney
Work Order
ES1326996



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Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Vial Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Freight Unpreserved Plastic
Iceation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;

Jacob Waugh

From: Barbara Hanna
Sent: Thursday, 19 December 2013 4:31 PM
To: Jacob Waugh
Subject: FW: ES1326996 - metals analysis
Attachments: ES1326996_COC.pdf; ES1326996_0_SRN_131211152541.pdf

Importance: High

Hi Jacob,

Could you please arrange for this workorder to be amended and the total metals switched off and dissolved metals added.

Thanks!!

Kind Regards

Barbara Hanna

Client Services Manager
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

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From: Clea Henderson [mailto:Clea.Henderson@erm.com]
Sent: Thursday, 19 December 2013 4:14 PM
To: Barbara Hanna
Cc: ERM Australia Project Symphony MacGen; Joseph Ferring
Subject: ES1326996 - metals analysis

Hi Barbara,

I have found another batch for which total metals have been reported, when dissolved metals should have been specified.

This batch has already had results come through. The samples were collected December 3rd.

Would it still be possible to analyse the following samples for dissolved metals?

002
003
004
005
006
007

Let me know. Thanks Barbara.

Clea Henderson
Chemical Engineer

Environmental Resources Management
Level 3, Tower 3, 13-38 Siddeley Street,
World Trade Centre, Docklands Victoria 3005

Tel: +61 3 8606 4188 (Direct)
Tel: +61 3 9696 8011 (switchboard)
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clea.henderson@erm.com

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ALS Group: Click [here](#) to report this email as spam.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1326996	
Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : PROJECT SYMPHONY Order number : ---- C-O-C number : ---- Site : BAYSWATER/LIDDELL Sampler : C.H/K.D
E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800	E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 Page : 1 of 3 Quote number : ES2013ENVRES0369 (SY/794/13) QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 10-DEC-2013 Client Requested Due Date : 18-DEC-2013	Issue Date : 11-DEC-2013 14:25 Scheduled Reporting Date : 18-DEC-2013
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Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 1 HARD Security Seal : Intact.	Temperature : 5°C - Ice present No. of samples received : 9 No. of samples analysed : 9
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method	Sample Container Received	Preferred Sample Container for Analysis
EG035T : Total Mercury by FIMS		
BP_MW04	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Unfiltered

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG035T Total Mercury by FIMS	WATER - EG094A-T Total Metals in Fresh water Suite A by ORC-ICPMS	WATER - EG094B-T Total Metals in Fresh Water Suite B by ORC-ICPMS	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1326996-001	03-DEC-2013 15:00	BP_MW01	✓				✓			
ES1326996-002	03-DEC-2013 15:00	BP_MW02		✓	✓	✓	✓			✓
ES1326996-003	03-DEC-2013 15:00	BP_MW03		✓	✓	✓	✓			✓
ES1326996-004	03-DEC-2013 15:00	BP_MW04		✓	✓	✓	✓			✓
ES1326996-005	03-DEC-2013 15:00	BP_MW05		✓	✓	✓	✓			✓
ES1326996-006	03-DEC-2013 15:00	BP_MW06		✓	✓	✓	✓			✓
ES1326996-007	03-DEC-2013 15:00	D01_031213		✓	✓	✓	✓			✓
ES1326996-008	25-NOV-2013 15:00	TRIP BLANK							✓	
ES1326996-009	25-NOV-2013 15:00	TRIP SPIKE						✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES1326996-001	03-DEC-2013 15:00	BP_MW01	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method	Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
					Date	Evaluation	Date	Evaluation
EP080: TPH Volatiles/BTEX								
TRIP BLANK		Amber VOC Vial - Sulfuric Acid	09-DEC-2013	----	10-DEC-2013	✗	10-DEC-2013	✗
TRIP SPIKE		Amber VOC Vial - Sulfuric Acid	09-DEC-2013	----	10-DEC-2013	✗	10-DEC-2013	✗



Requested Deliverables

MR HAMISH CAMPBELL

- *AU Certificate of Analysis - NATA (COA)	Email	hamish.campbell@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	hamish.campbell@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	hamish.campbell@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	hamish.campbell@erm.com
- Chain of Custody (CoC) (COC)	Email	hamish.campbell@erm.com
- EDI Format - ENMRG (ENMRG)	Email	hamish.campbell@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	hamish.campbell@erm.com
- EDI Format - ESDAT (ESDAT)	Email	hamish.campbell@erm.com
- EDI Format - XTab (XTAB)	Email	hamish.campbell@erm.com

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1326996 Amendment : 1 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : PROJECT SYMPHONY Order number : ---- C-O-C number : ---- Sampler : C.H/K.D Site : BAYSWATER/LIDDELL Quote number : SY/794/13	Page : 1 of 14 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 10-DEC-2013 Issue Date : 24-DEC-2013 No. of samples received : 9 No. of samples analysed : 9
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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

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>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**
- **This report has been amended and re-released to allow the reporting of additional analytical data (Dissolved ORC metals on samples 002 to 007).**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW01	BP_MW02	BP_MW03	BP_MW04	BP_MW05
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326996-001	ES1326996-002	ES1326996-003	ES1326996-004	ES1326996-005
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L	0.001	----	----	----	----
Barium	7440-39-3	0.001	mg/L	0.033	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	0.020	----	----	----	----
Copper	7440-50-8	0.001	mg/L	0.004	----	----	----	----
Lead	7439-92-1	0.001	mg/L	0.005	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	0.730	----	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	0.002	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	0.021	----	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	----	----	----
Thallium	7440-28-0	0.001	mg/L	<0.001	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	0.091	----	----	----	----
Boron	7440-42-8	0.05	mg/L	0.31	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	----	1.4	2.0	0.8	2.0
Arsenic	7440-38-2	0.2	µg/L	----	0.5	2.3	0.4	6.2
Barium	7440-39-3	0.5	µg/L	----	52.2	118	27.0	37.5
Beryllium	7440-41-7	0.1	µg/L	----	0.3	0.2	0.5	<0.1
Boron	7440-42-8	5	µg/L	----	93	229	84	117
Cadmium	7440-43-9	0.05	µg/L	----	1.14	0.32	0.63	0.15
Chromium	7440-47-3	0.2	µg/L	----	0.3	0.6	0.7	1.0
Cobalt	7440-48-4	0.1	µg/L	----	123	53.1	382	237
Copper	7440-50-8	0.5	µg/L	----	0.5	5.4	0.7	1.2
Lead	7439-92-1	0.1	µg/L	----	31.7	38.5	0.4	9.2
Manganese	7439-96-5	0.5	µg/L	----	3240	1020	3980	10800
Molybdenum	7439-98-7	0.1	µg/L	----	0.8	1.2	0.1	3.4
Nickel	7440-02-0	0.5	µg/L	----	99.9	36.2	148	163
Thallium	7440-28-0	0.02	µg/L	----	0.14	0.19	0.07	0.41
Vanadium	7440-62-2	0.2	µg/L	----	0.5	4.7	<0.2	2.4



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BP_MW01	BP_MW02	BP_MW03	BP_MW04	BP_MW05
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
				ES1326996-001	ES1326996-002	ES1326996-003	ES1326996-004	ES1326996-005
Compound	CAS Number	LOR	Unit					
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS - Continued								
Zinc	7440-66-6	1	µg/L	----	72	52	135	112
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW01	BP_MW02	BP_MW03	BP_MW04	BP_MW05
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326996-001	ES1326996-002	ES1326996-003	ES1326996-004	ES1326996-005
EP074E: Halogenated Aliphatic Compounds - Continued								
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW01	BP_MW02	BP_MW03	BP_MW04	BP_MW05
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326996-001	ES1326996-002	ES1326996-003	ES1326996-004	ES1326996-005
EP074G: Trihalomethanes - Continued								
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BP_MW01	BP_MW02	BP_MW03	BP_MW04	BP_MW05
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326996-001	ES1326996-002	ES1326996-003	ES1326996-004	ES1326996-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.1	90.2	98.6	117	125
Toluene-D8	2037-26-5	0.1	%	93.4	94.3	101	120	122
4-Bromofluorobenzene	460-00-4	0.1	%	95.5	96.6	102	110	110
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	33.7	37.2	35.2	37.5	40.5
2-Chlorophenol-D4	93951-73-6	0.1	%	67.2	72.0	70.3	76.0	78.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW01	BP_MW02	BP_MW03	BP_MW04	BP_MW05
				03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00	03-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1326996-001	ES1326996-002	ES1326996-003	ES1326996-004	ES1326996-005
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2,4,6-Tribromophenol	118-79-6	0.1	%	91.2	91.5	89.8	84.1	88.8
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	78.2	79.0	79.6	70.2	75.3
Anthracene-d10	1719-06-8	0.1	%	70.8	79.4	71.6	67.0	75.6
4-Terphenyl-d14	1718-51-0	0.1	%	78.8	83.2	82.9	75.9	79.7
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	127	133	135	118	126
Toluene-D8	2037-26-5	0.1	%	118	119	126	114	117
4-Bromofluorobenzene	460-00-4	0.1	%	116	119	127	109	110



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BP_MW06	D01_031213	TRIP BLANK	TRIP SPIKE	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	25-NOV-2013 15:00	25-NOV-2013 15:00	----
				ES1326996-006	ES1326996-007	ES1326996-008	ES1326996-009	----
Compound	CAS Number	LOR	Unit	Client sampling date / time				
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	0.4	1.9	----	----	----
Arsenic	7440-38-2	0.2	µg/L	0.6	2.1	----	----	----
Barium	7440-39-3	0.5	µg/L	28.0	109	----	----	----
Beryllium	7440-41-7	0.1	µg/L	0.1	0.2	----	----	----
Boron	7440-42-8	5	µg/L	88	188	----	----	----
Cadmium	7440-43-9	0.05	µg/L	0.10	0.24	----	----	----
Chromium	7440-47-3	0.2	µg/L	2.8	0.6	----	----	----
Cobalt	7440-48-4	0.1	µg/L	4.1	56.0	----	----	----
Copper	7440-50-8	0.5	µg/L	3.9	3.5	----	----	----
Lead	7439-92-1	0.1	µg/L	47.9	36.8	----	----	----
Manganese	7439-96-5	0.5	µg/L	510	1030	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	1.7	0.8	----	----	----
Nickel	7440-02-0	0.5	µg/L	8.3	37.3	----	----	----
Thallium	7440-28-0	0.02	µg/L	0.13	0.14	----	----	----
Vanadium	7440-62-2	0.2	µg/L	5.3	4.3	----	----	----
Zinc	7440-66-6	1	µg/L	13	50	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW06	D01_031213	TRIP BLANK	TRIP SPIKE	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	25-NOV-2013 15:00	25-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326996-006	ES1326996-007	ES1326996-008	ES1326996-009	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BP_MW06	D01_031213	TRIP BLANK	TRIP SPIKE	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	25-NOV-2013 15:00	25-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326996-006	ES1326996-007	ES1326996-008	ES1326996-009	----
EP074E: Halogenated Aliphatic Compounds - Continued								
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	----	----	----
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	----	----	----
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW06	D01_031213	TRIP BLANK	TRIP SPIKE	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	25-NOV-2013 15:00	25-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326996-006	ES1326996-007	ES1326996-008	ES1326996-009	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BP_MW06	D01_031213	TRIP BLANK	TRIP SPIKE	----
				03-DEC-2013 15:00	03-DEC-2013 15:00	25-NOV-2013 15:00	25-NOV-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1326996-006	ES1326996-007	ES1326996-008	ES1326996-009	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	17	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	15	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	15	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	16	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	15	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	31	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	78	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	18	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	122	121	----	----	----
Toluene-D8	2037-26-5	0.1	%	123	121	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	111	107	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	37.1	31.5	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	71.9	63.3	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	92.4	77.5	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	74.3	67.6	----	----	----
Anthracene-d10	1719-06-8	0.1	%	74.1	60.0	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	82.6	70.8	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	124	122	87.6	88.9	----
Toluene-D8	2037-26-5	0.1	%	117	115	83.1	81.0	----
4-Bromofluorobenzene	460-00-4	0.1	%	113	108	83.8	81.6	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1326996	Page	: 1 of 20
Amendment	: 1		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
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E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
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Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER/LIDDELL		
C-O-C number	: ----	Date Samples Received	: 10-DEC-2013
Sampler	: C.H/K.D	Issue Date	: 24-DEC-2013
Order number	: ----		
Quote number	: SY/794/13	No. of samples received	: 9
		No. of samples analysed	: 9

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

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>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney 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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3211082)									
ES1326913-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.027	0.025	5.9	0% - 20%
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.831	0.825	0.7	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.010	0.010	0.0	0% - 50%
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	0.014	0.014	0.0	0% - 50%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.25	0.24	0.0	No Limit		
ES1326974-011	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
EG035F: Dissolved Mercury by FIMS (QC Lot: 3211080)									
ES1326913-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3225662)									
EP1309662-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG035F: Dissolved Mercury by FIMS (QC Lot: 3225662) - continued									
ES1327849-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3227203)									
ES1326996-003	BP_MW03	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.19	0.19	0.0	No Limit
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.32	0.29	10.8	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	0.2	0.2	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	53.1	53.5	0.7	0% - 20%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	38.5	36.4	5.7	0% - 20%
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	1.2	1.1	0.0	0% - 50%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	2.3	2.3	0.0	0% - 50%
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	0.6	0.6	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	4.7	4.8	0.0	0% - 20%
		EG094A-F: Barium	7440-39-3	0.5	µg/L	118	118	0.3	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	5.4	5.3	0.0	0% - 50%
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	1020	964	5.3	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	36.2	35.9	0.6	0% - 20%
EG094A-F: Zinc	7440-66-6	1	µg/L	52	52	0.0	0% - 20%		
EG094A-F: Boron	7440-42-8	5	µg/L	229	222	3.1	0% - 20%		
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3227204)									
ES1326996-003	BP_MW03	EG094B-F: Selenium	7782-49-2	0.2	µg/L	2.0	2.0	0.0	0% - 50%
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1327008-008	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<20	<20	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	74	73	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	211	215	2.0	0% - 50%
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	406	413	1.8	0% - 20%
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<20	<20	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	1390	1430	2.4	0% - 20%
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<20	<20	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<20	<20	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<20	<20	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074B: Oxygenated Compounds (QC Lot: 3212031) - continued									
ES1326996-001	BP_MW01	EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1327008-008	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<200	<200	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<200	<200	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<200	<200	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<200	<200	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1327008-008	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<20	<20	0.0	No Limit
EP074D: Fumigants (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1327008-008	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<20	<20	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<20	<20	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<20	<20	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<20	<20	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3212031) - continued											
ES1326996-001	BP_MW01	EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1327008-008	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Iodomethane	74-88-4	5	µg/L	<20	<20	0.0	No Limit		
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<20	<20	0.0	No Limit		
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Dibromomethane	74-95-3	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<20	<20	0.0	No Limit		
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<20	<20	0.0	No Limit		
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<20	<20	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<20	<20	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<200	<200	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<200	<200	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<200	<200	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<200	<200	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<200	<200	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<200	<200	0.0	No Limit		
		EP074F: Halogenated Aromatic Compounds (QC Lot: 3212031)									
		ES1326996-001	BP_MW01	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 3212031) - continued									
ES1326996-001	BP_MW01	EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1327008-008	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<20	<20	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<20	<20	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<20	<20	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<20	<20	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<20	<20	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<20	<20	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<20	<20	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<20	<20	0.0	No Limit
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<20	<20	0.0	No Limit		
EP074G: Trihalomethanes (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1327008-008	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<20	<20	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<20	<20	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<20	<20	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<20	<20	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3212031)									
ES1326996-001	BP_MW01	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1327008-008	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	242	221	9.0	0% - 50%
EP075(SIM)A: Phenolic Compounds (QC Lot: 3206975)									
ES1326994-002	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3206975) - continued									
ES1326994-002	Anonymous	EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
ES1326996-005	BP_MW05	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3206975)							
ES1326994-002	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		ES1326996-005	BP_MW05	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5
EP075(SIM): Naphthalene	91-20-3			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Acenaphthylene	208-96-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Acenaphthene	83-32-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Fluorene	86-73-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Phenanthrene	85-01-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Anthracene	120-12-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Fluoranthene	206-44-0			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3206975) - continued									
ES1326996-005	BP_MW05	EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3206974)									
ES1326994-002	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1326996-005	BP_MW05	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3207923)									
ES1326561-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1326561-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3212032)									
ES1326996-001	BP_MW01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327008-008	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	18800	18600	1.6	0% - 20%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3206974)									
ES1326994-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
ES1326996-005	BP_MW05	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3207923)									
ES1326561-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1326561-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3212032)									
ES1326996-001	BP_MW01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327008-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	21900	21500	1.7	0% - 20%
EP080: BTEXN (QC Lot: 3207923)									
ES1326561-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080: BTEXN (QC Lot: 3207923) - continued										
ES1326561-001	Anonymous	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1326561-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
EP080: BTEXN (QC Lot: 3212032)										
ES1326996-001	BP_MW01	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1327008-008	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	1880	1870	0.7	0% - 20%	
		EP080: Toluene	108-88-3	2	µg/L	3170	3150	0.6	0% - 20%	
		EP080: Ethylbenzene	100-41-4	2	µg/L	999	978	2.1	0% - 20%	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	3790	3740	1.3	0% - 20%	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	1360	1340	1.2	0% - 20%	
EP080: Naphthalene	91-20-3	5	µg/L	215	196	9.2	0% - 50%			



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 (%)		Recovery Limits (%)	
						LCS	Low	High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 3211082)									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.7	80	118	
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	106	78	116	
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.5	81	111	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.7	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.3	81	111	
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	87.1	80	112	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.1	83	111	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	93.8	82	116	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	81	113	
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	93.0	73	125	
EG020A-F: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	88.7	83	113	
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	96.9	82	110	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	85.1	80	116	
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	100	69	123	
EG035F: Dissolved Mercury by FIMS (QCLot: 3211080)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	102	78	114	
EG035F: Dissolved Mercury by FIMS (QCLot: 3225662)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	92.4	78	114	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3227203)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	105	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	91.9	76	120	
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	98.5	74	130	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	100 µg/L	111	79	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	102	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	91.2	71	123	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	106	79	121	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	103	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	98.8	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	91.9	79	119	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	100	69	127	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	106	72	128	
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	106	71	121	



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
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3227203) - continued								
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	94.4	78	116
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	103	76	134
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3227204)								
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	101	75	125
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3212031)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	94.6	74	118
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	103	75	121
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	105	67	123
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	103	70	122
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	105	69	123
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	103	71	121
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	102	70	122
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	105	67	123
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	102	62	126
EP074B: Oxygenated Compounds (QCLot: 3212031)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	82.9	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	112	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	107	61	139
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	106	65	137
EP074C: Sulfonated Compounds (QCLot: 3212031)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	88.1	72.8	127
EP074D: Fumigants (QCLot: 3212031)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	98.1	61	119
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	101	76	120
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	90.0	62	120
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	88.4	61	119
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	96.0	69	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 3212031)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	70.1	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	89.0	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	104	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	102	56	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	105	63	135
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	105	65	131
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	102	69	123
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	91.9	70.2	128
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	93.0	71	119
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	99.4	75	119



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3212031) - continued									
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	103	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	94.2	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	97.9	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	89.2	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	103	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	105	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	96.5	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	102	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	108	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	104	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	85.5	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	94.9	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	98.9	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	105	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	109	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	85.4	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	84.5	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	98.3	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3212031)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	99.3	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	106	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	104	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	104	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	104	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	106	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	106	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	96.4	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	97.6	67	125	
EP074G: Trihalomethanes (QCLot: 3212031)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	104	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	81.5	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	87.7	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	89.9	73.5	126	
EP074H: Naphthalene (QCLot: 3212031)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	98.0	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3206975)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	41.7	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 3206975) - continued								
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	83.8	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	60.0	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	53.2	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	65.5	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	70.9	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	62.5	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	68.3	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	76.4	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	85.3	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	83.0	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	# 124	8.7	95
		2	µg/L	<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206975)								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	75.9	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	74.3	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	63.2	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	67.1	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	64.2	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	66.6	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	74.0	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	72.4	63.1	118
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206975) - continued									
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	67.7	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	66.0	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	68.3	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	64.0	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	73.6	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	65.9	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	69.0	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	73.0	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206974)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	96.7	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	91.0	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	93.3	62	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207923)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	97.5	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3212032)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	93.3	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206974)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	90.4	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	99.8	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	96.2	67	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207923)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	95.6	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3212032)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	94.7	75	127	
EP080: BTEXN (QCLot: 3207923)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	113	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	105	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	99.0	70	120	



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
EP080: BTEXN (QCLot: 3207923) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	98.0	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	101	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	82.9	70	124
EP080: BTEXN (QCLot: 3212032)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	108	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	115	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.0	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	91.4	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	70	124

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.

Sub-Matrix: WATER				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
EG020F: Dissolved Metals by ICP-MS (QCLot: 3211082)							
ES1326913-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	116	70	130
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	103	70	130
		EG020A-F: Barium	7440-39-3	0.2 mg/L	# Not Determined	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	103	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	104	70	130
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	104	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	100	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	102	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	99.6	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	102	70	130
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	126	70	130
EG020A-F: Zinc	7440-66-6	0.2 mg/L	104	70	130		
EG035F: Dissolved Mercury by FIMS (QCLot: 3211080)							
ES1326913-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	89.7	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3225662)							
EP1309662-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	92.3	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3227203)							
ES1326996-007	D01_031213	EG094A-F: Arsenic	7440-38-2	50 µg/L	122	70	130
		EG094A-F: Barium	7440-39-3	50 µg/L	115	70	130
		EG094A-F: Beryllium	7440-41-7	50 µg/L	81.7	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	113	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	93.2	70	130
		EG094A-F: Cobalt	7440-48-4	50 µg/L	128	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	117	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	110	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	121	70	130
EG094A-F: Vanadium	7440-62-2	50 µg/L	99.3	70	130		
EG094A-F: Zinc	7440-66-6	50 µg/L	116	70	130		
EP074E: Halogenated Aliphatic Compounds (QCLot: 3212031)							
ES1326996-001	BP_MW01	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	82.8	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	108	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3212031)							
ES1326996-001	BP_MW01	EP074: Chlorobenzene	108-90-7	25 µg/L	118	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3206975)							
ES1326994-001	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	45.6	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	74.9	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	99.0	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	# 70.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	117	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206975)							
ES1326994-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	# 70.0	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	72.7	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206974)							
ES1326994-001	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	103	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	110	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	82.9	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207923)							
ES1326561-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	127	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3212032)							
ES1326996-001	BP_MW01	EP080: C6 - C9 Fraction	----	325 µg/L	112	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206974)							
ES1326994-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	109	74	150



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206974) - continued								
ES1326994-001	Anonymous	EP071: >C16 - C34 Fraction	----	350 µg/L	95.0	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	90.2	67	153	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207923)								
ES1326561-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3212032)								
ES1326996-001	BP_MW01	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	113	70	130	
EP080: BTEXN (QCLot: 3207923)								
ES1326561-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	126	70	130	
		EP080: Toluene	108-88-3	25 µg/L	114	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	107	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	114	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	122	70	130		
EP080: BTEXN (QCLot: 3212032)								
ES1326996-001	BP_MW01	EP080: Benzene	71-43-2	25 µg/L	114	70	130	
		EP080: Toluene	108-88-3	25 µg/L	106	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	104	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	102	70	130		

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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3206974)										
ES1326994-001	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	103	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	110	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	82.9	----	67	153	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3206974)										
ES1326994-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	109	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	95.0	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	90.2	----	67	153	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP075(SIM)A: Phenolic Compounds (QCLot: 3206975)										
ES1326994-001	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	45.6	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	74.9	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	99.0	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	# 70.0	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	117	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3206975)										
ES1326994-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	# 70.0	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	72.7	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3207923)										
ES1326561-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	127	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3207923)										
ES1326561-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	----	70	130	----	----
EP080: BTEXN (QCLot: 3207923)										
ES1326561-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	126	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	114	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	107	----	70	130	----	----
		EP080: ortho-Xylene	106-42-3	25 µg/L	114	----	70	130	----	----
		EP080: Naphthalene	95-47-6	25 µg/L	114	----	70	130	----	----
EP080: Naphthalene	91-20-3	25 µg/L	122	----	70	130	----	----		
EG035F: Dissolved Mercury by FIMS (QCLot: 3211080)										
ES1326913-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	89.7	----	70	130	----	----
EG020F: Dissolved Metals by ICP-MS (QCLot: 3211082)										
ES1326913-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	116	----	70	130	----	----
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	103	----	70	130	----	----
		EG020A-F: Barium	7440-39-3	0.2 mg/L	# Not Determined	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	103	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	104	----	70	130	----	----
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	104	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	100	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	99.6	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	126	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	104	----	70	130	----	----
		EP074E: Halogenated Aliphatic Compounds (QCLot: 3212031)								
ES1326996-001	BP_MW01	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	82.8	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3212031) - continued											
ES1326996-001	BP_MW01	EP074: Trichloroethene	79-01-6	25 µg/L	108	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3212031)											
ES1326996-001	BP_MW01	EP074: Chlorobenzene	108-90-7	25 µg/L	118	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3212032)											
ES1326996-001	BP_MW01	EP080: C6 - C9 Fraction	----	325 µg/L	112	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3212032)											
ES1326996-001	BP_MW01	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	113	----	70	130	----	----	
EP080: BTEXN (QCLot: 3212032)											
ES1326996-001	BP_MW01	EP080: Benzene	71-43-2	25 µg/L	114	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	106	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	104	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	102	----	70	130	----	----	
EG035F: Dissolved Mercury by FIMS (QCLot: 3225662)											
EP1309662-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	92.3	----	70	130	----	----	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3227203)											
ES1326996-007	D01_031213	EG094A-F: Arsenic	7440-38-2	50 µg/L	122	----	70	130	----	----	
		EG094A-F: Barium	7440-39-3	50 µg/L	115	----	70	130	----	----	
		EG094A-F: Beryllium	7440-41-7	50 µg/L	81.7	----	70	130	----	----	
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	113	----	70	130	----	----	
		EG094A-F: Chromium	7440-47-3	50 µg/L	93.2	----	70	130	----	----	
		EG094A-F: Cobalt	7440-48-4	50 µg/L	128	----	70	130	----	----	
		EG094A-F: Copper	7440-50-8	50 µg/L	117	----	70	130	----	----	
		EG094A-F: Lead	7439-92-1	50 µg/L	110	----	70	130	----	----	
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----	
		EG094A-F: Nickel	7440-02-0	50 µg/L	121	----	70	130	----	----	
		EG094A-F: Vanadium	7440-62-2	50 µg/L	99.3	----	70	130	----	----	
		EG094A-F: Zinc	7440-66-6	50 µg/L	116	----	70	130	----	----	

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1326996	Page	: 1 of 9
Amendment	: 1		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER/LIDDELL		
C-O-C number	: ----	Date Samples Received	: 10-DEC-2013
Sampler	: C.H/K.D	Issue Date	: 24-DEC-2013
Order number	: ----		
Quote number	: SY/794/13	No. of samples received	: 9
		No. of samples analysed	: 9

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) BP_MW01	03-DEC-2013	---	01-JUN-2014	----	13-DEC-2013	01-JUN-2014	✓
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BP_MW02, BP_MW04, BP_MW06, BP_MW03, BP_MW05, D01_031213	03-DEC-2013	---	31-DEC-2013	----	23-DEC-2013	31-DEC-2013	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) BP_MW01	03-DEC-2013	---	31-DEC-2013	----	14-DEC-2013	31-DEC-2013	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG035T) BP_MW04	03-DEC-2013	----	----	----	16-DEC-2013	17-DEC-2013	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BP_MW02, BP_MW04, BP_MW06, BP_MW03, BP_MW05, D01_031213	03-DEC-2013	---	01-JUN-2014	----	23-DEC-2013	01-JUN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) BP_MW02, BP_MW04, BP_MW06, BP_MW03, BP_MW05, D01_031213	03-DEC-2013	---	01-JUN-2014	----	23-DEC-2013	01-JUN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber Glass Bottle - Unpreserved (EP071) BP_MW01, BP_MW03, BP_MW05, D01_031213, BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	11-DEC-2013	10-DEC-2013	*	13-DEC-2013	20-JAN-2014	✓



Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓	
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓	
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓	
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓	
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓	
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓	
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✓	15-DEC-2013	17-DEC-2013	✓	



Matrix: WATER

Evaluation: ✘ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) BP_MW01, BP_MW03, BP_MW05, D01_031213	BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✔	15-DEC-2013	17-DEC-2013	✔
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BP_MW01, BP_MW03, BP_MW05, D01_031213	BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	11-DEC-2013	10-DEC-2013	✘	13-DEC-2013	20-JAN-2014	✔
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BP_MW01, BP_MW03, BP_MW05, D01_031213	BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	11-DEC-2013	10-DEC-2013	✘	13-DEC-2013	20-JAN-2014	✔
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) BP_MW01, BP_MW03, BP_MW05, D01_031213	BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✔	15-DEC-2013	17-DEC-2013	✔
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK,	TRIP SPIKE	25-NOV-2013	13-DEC-2013	09-DEC-2013	✘	13-DEC-2013	09-DEC-2013	✘
EP080/071: Total Petroleum Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP080) BP_MW01, BP_MW03, BP_MW05, D01_031213	BP_MW02, BP_MW04, BP_MW06,	03-DEC-2013	15-DEC-2013	17-DEC-2013	✔	15-DEC-2013	17-DEC-2013	✔
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK		25-NOV-2013	13-DEC-2013	09-DEC-2013	✘	13-DEC-2013	09-DEC-2013	✘



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	3	29	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	32	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	2	29	6.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	32	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

Page : 7 of 9
Work Order : ES1326996 Amendment 1
Client : ENVIRO RESOURCES MANAGEMENT
Project : PROJECT SYMPHONY



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Lab Acidification of Metals	EN80	WATER	USEPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	3827936-011	----	Pentachlorophenol	87-86-5	124 %	8.7-95%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
EG020F: Dissolved Metals by ICP-MS	ES1326913-002	Anonymous	Barium	7440-39-3	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1326996-007	D01_031213	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP075(SIM)A: Phenolic Compounds	ES1326994-001	Anonymous	4-Chloro-3-methylphenol	59-50-7	70.0 %	70-130%	Recovery less than lower data quality objective
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	ES1326994-001	Anonymous	Acenaphthene	83-32-9	70.0 %	70-130%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **WATER**

Method	Extraction / Preparation			Analysis			
	Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved							
BP_MW01, BP_MW03, BP_MW05, D01_031213	BP_MW02, BP_MW04, BP_MW06,	11-DEC-2013	10-DEC-2013	1	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							



Matrix: **WATER**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Analysis Holding Time Compliance						
Amber Glass Bottle - Unpreserved BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	11-DEC-2013	10-DEC-2013	1	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	11-DEC-2013	10-DEC-2013	1	----	----	----
Amber VOC Vial - Sulfuric Acid TRIP BLANK	13-DEC-2013	09-DEC-2013	4	13-DEC-2013	09-DEC-2013	4
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013						
Amber Glass Bottle - Unpreserved BP_MW01, BP_MW03, BP_MW05, D01_031213 BP_MW02, BP_MW04, BP_MW06,	11-DEC-2013	10-DEC-2013	1	----	----	----
Amber VOC Vial - Sulfuric Acid TRIP BLANK	13-DEC-2013	09-DEC-2013	4	13-DEC-2013	09-DEC-2013	4
EP080: BTEXN						
Amber VOC Vial - Sulfuric Acid TRIP BLANK, TRIP SPIKE	13-DEC-2013	09-DEC-2013	4	13-DEC-2013	09-DEC-2013	4

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



CHAIN OF CUSTODY

ALS Laboratory: please tick →

DADELAIDE 21 Burma Road Pozzara QLD 4065
Ph: 08 9359 9800 E: adelaide@alsglobal.com

BRISBANE 32 Shand Street Stafford QLD 4053
Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GLADSTONE 46 Callamondah Drive Clinton QLD 4680
Ph: 07 7471 5000 E: gladstone@alsglobal.com

MACKAY 76 Harbour Road Mackay QLD 4740
Ph: 07 4044 0177 E: mackay@alsglobal.com

MELBOURNE 2-4 Westall Road Springvale VIC 3171
Ph: 03 8549 9000 E: samples.melbourne@alsglobal.com

MUDGEES 27 Sydney Road Mudgee NSW 2850
Ph: 02 6372 0735 E: mudgee@mail@alsglobal.com

NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304
Ph: 02 4969 9433 E: samples.newcastle@alsglobal.com

NOWRA 4/13 Quay Place North Nowra NSW 2541
Ph: 02 4423 2063 E: nowra@alsglobal.com

PERTH 10 Hod Way Malsga WA 6009
Ph: 08 9208 7655 E: samples.perth@alsglobal.com


SYDNEY 277-299 Woodpark Road Smithfield NSW 2104
Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bethle QLD 4818
Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

WOLLONGONG 90 Kenny Street Wollongong NSW 2500
Ph: 02 4226 3125 E: portkembla@alsglobal.com

CLIENT: ERM	TURNAROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (List due date):	FOR LABORATORY/USE ONLY (Circle)
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input checked="" type="checkbox"/> Non Standard or urgent TAT (List due date): 3 day turn around	
PROJECT: Project Symphony	ALS QUOTE NO.: SY7794113	COC SEQUENCE NUMBER (Circle)
ORDER NUMBER: 0224193	SITE: BAYSWATER LIDDELL	COC: 1 2 3 4 5 6 7
PROJECT MANAGER: Joe Ferrary	CONTACT PH: 0424 970 468 / 8584 8890	OF: 1 2 3 4 5 6 7
SAMPLER: Nathan Hegarty	SAMPLER MOBILE: 0488 627876	RECEIVED BY: Hayley W
COC emailed to ALS? (YES/NO) (NO)	EDD FORMAT (or default):	RECEIVED BY: Frank AS
Email Reports to (will default to PM if no other addresses are listed): Symphony@erm.com	DATE/TIME: 18:00	DATE/TIME: 10/12/13 17:00
Email Invoice to (will default to PM if no other addresses are listed): Symphony.macgen@erm.com		DATE/TIME: 10-12-13 19:00

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information
	MATRIX	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti)	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PROSPPHA Cations/Anions	W-24 TRHICG, C40/BTEX, PAH, Phenols	ORC - ultra trace metals - W2			
	BU_MW01	4/12/13 09:55	w	3xAG, 4xVS, 1xORC (unpreserved)	8				X	X		X	X		Environmental Division Sydney Work Order ES1327009  Telephone: +61-2-8784 8555	
	BH_MW03	11:05		2xAG, 4xVS, 1xP, 1xORC (unpreserved)	8				X	X	X	X	X			
	BH_MW04	12:30		↓	8				X	X	X	X	X			
	BV_MW11	13:55		3xAG, 4xVS, 1xORC (unpreserved)	8				X	X		X	X			
	BV_MW12	14:45		↓	↓				X	X		X	X			
	BV_MW13	15:55		↓	↓				X	X		X	X			
	DO1_041213_NH	12:30		2xAG, 4xVS, 1xP, 1xORC (unpreserved)	8				X	X	X	X	X			
	RO1_041213_NH	11:05	↓	2xAG, 3xVS, 1xP, 1xORC (unpreserved)	7				X	X	X	X	X			
	Trip Blank			1xVS	1											
	Trip Spike		↓	1xVS	1											
TOTAL																

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

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1327009	
Client : ENVIRO RESOURCES MANAGEMENT	Laboratory : Environmental Division Sydney
Contact : MR JOSEPH FERRING	Contact : Barbara Hanna
Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail : joseph.ferring@erm.com	E-mail : Barbara.Hanna@alsglobal.com
Telephone : +61 02 8584 8888	Telephone : +61 2 8784 8555
Facsimile : +61 02 8584 8800	Facsimile : +61 2 8784 8555
Project : Project Symphony	Page : 1 of 3
Order number : 0224193	
C-O-C number : ----	Quote number : ES2013ENVRES0369 (SY/794/13)
Site : BAYSWATER	
Sampler : NH	QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 10-DEC-2013	Issue Date : 11-DEC-2013 10:31
Client Requested Due Date : 16-DEC-2013	Scheduled Reporting Date : 16-DEC-2013

Delivery Details

Mode of Delivery : Carrier	Temperature : 3.7°C SYD - Ice present
No. of coolers/boxes : 1 HARD	No. of samples received : 10
Security Seal : Intact.	No. of samples analysed : 10

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG03A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EN055 - PG Ionic Balance by ED037P, ED041G, ED045G &	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - NT-01 Major Cations (Ca, Mg, Na, K)	WATER - NT-02 Major Anions (Chloride, Sulphate, Alkalinity)
ES1327009-001	04-DEC-2013 09:55	BU_MW01	✓	✓		✓	✓			
ES1327009-002	04-DEC-2013 11:05	BH_MW03	✓	✓	✓		✓		✓	✓
ES1327009-003	04-DEC-2013 12:30	BH_MW04	✓	✓	✓		✓		✓	✓
ES1327009-004	04-DEC-2013 13:55	BV_MW11	✓	✓		✓	✓			
ES1327009-005	04-DEC-2013 14:45	BV_MW12	✓	✓		✓	✓			
ES1327009-006	04-DEC-2013 15:55	BV_MW13	✓	✓		✓	✓			
ES1327009-007	04-DEC-2013 12:30	D01_041213_NH	✓	✓	✓		✓		✓	✓
ES1327009-008	04-DEC-2013 11:05	R01_041213_NH			✓		✓		✓	✓
ES1327009-010	04-DEC-2013 15:00	TRIP SPIKE						✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-02T 8 metals (Total)	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1327009-001	04-DEC-2013 09:55	BU_MW01			✓
ES1327009-002	04-DEC-2013 11:05	BH_MW03			✓
ES1327009-003	04-DEC-2013 12:30	BH_MW04			✓
ES1327009-004	04-DEC-2013 13:55	BV_MW11			✓
ES1327009-005	04-DEC-2013 14:45	BV_MW12			✓
ES1327009-006	04-DEC-2013 15:55	BV_MW13			✓
ES1327009-007	04-DEC-2013 12:30	D01_041213_NH			✓
ES1327009-008	04-DEC-2013 11:05	R01_041213_NH	✓		✓
ES1327009-009	04-DEC-2013 15:00	TRIP BLANK		✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA)	Email	symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	symphony.macgen@erm.com
- Chain of Custody (CoC) (COC)	Email	symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG)	Email	symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT)	Email	symphony.macgen@erm.com
- EDI Format - XTab (XTAB)	Email	symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1327009 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 0224193 C-O-C number : ---- Sampler : NH Site : BAYSWATER Quote number : SY/794/13	Page : 1 of 15 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 10-DEC-2013 Issue Date : 16-DEC-2013 No. of samples received : 10 No. of samples analysed : 10
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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

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>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EG035: Poor matrix spike recovery was obtained for Mercury on sample ES1327009-#5. Results have been confirmed by re-extraction and reanalysis**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BU_MW01	BH_MW03	BH_MW04	BV_MW11	BV_MW12
				04-DEC-2013 09:55	04-DEC-2013 11:05	04-DEC-2013 12:30	04-DEC-2013 13:55	04-DEC-2013 14:45
Compound	CAS Number	LOR	Unit	ES1327009-001	ES1327009-002	ES1327009-003	ES1327009-004	ES1327009-005
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	88	385	----	----
Total Alkalinity as CaCO3	----	1	mg/L	----	88	385	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	4550	4890	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	----	2780	2610	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	620	586	----	----
Magnesium	7439-95-4	1	mg/L	----	527	565	----	----
Sodium	7440-23-5	1	mg/L	----	2480	2610	----	----
Potassium	7440-09-7	1	mg/L	----	59	37	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	0.0002
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	3.7	1.3	0.6	1.3	15.4
Cadmium	7440-43-9	0.05	µg/L	0.70	2.92	0.38	0.06	2.60
Chromium	7440-47-3	0.2	µg/L	0.7	0.3	<0.2	0.8	7.9
Copper	7440-50-8	0.5	µg/L	10.4	5.3	3.0	8.6	13.5
Lead	7439-92-1	0.1	µg/L	30.9	62.4	3.4	<0.1	21.3
Nickel	7440-02-0	0.5	µg/L	157	341	59.3	93.9	781
Zinc	7440-66-6	1	µg/L	423	448	37	47	2750
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	----	175	183	----	----
Total Cations	----	0.01	meq/L	----	184	190	----	----
Ionic Balance	----	0.01	%	----	2.44	1.88	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	----	----	<1	<1
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BU_MW01	BH_MW03	BH_MW04	BV_MW11	BV_MW12
				04-DEC-2013 09:55	04-DEC-2013 11:05	04-DEC-2013 12:30	04-DEC-2013 13:55	04-DEC-2013 14:45
Compound	CAS Number	LOR	Unit	ES1327009-001	ES1327009-002	ES1327009-003	ES1327009-004	ES1327009-005
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BU_MW01	BH_MW03	BH_MW04	BV_MW11	BV_MW12
				04-DEC-2013 09:55	04-DEC-2013 11:05	04-DEC-2013 12:30	04-DEC-2013 13:55	04-DEC-2013 14:45
Compound	CAS Number	LOR	Unit	ES1327009-001	ES1327009-002	ES1327009-003	ES1327009-004	ES1327009-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BU_MW01	BH_MW03	BH_MW04	BV_MW11	BV_MW12
				04-DEC-2013 09:55	04-DEC-2013 11:05	04-DEC-2013 12:30	04-DEC-2013 13:55	04-DEC-2013 14:45
Compound	CAS Number	LOR	Unit	ES1327009-001	ES1327009-002	ES1327009-003	ES1327009-004	ES1327009-005
EP075(SIM)A: Phenolic Compounds - Continued								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BU_MW01	BH_MW03	BH_MW04	BV_MW11	BV_MW12
				04-DEC-2013 09:55	04-DEC-2013 11:05	04-DEC-2013 12:30	04-DEC-2013 13:55	04-DEC-2013 14:45
Compound	CAS Number	LOR	Unit	ES1327009-001	ES1327009-002	ES1327009-003	ES1327009-004	ES1327009-005
EP080/071: Total Petroleum Hydrocarbons - Continued								
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	88.9	----	----	88.8	82.8
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	98.7	106	102	103	96.7
Toluene-D8	2037-26-5	0.1	%	93.9	98.7	94.4	101	103
4-Bromofluorobenzene	460-00-4	0.1	%	101	107	102	110	103
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	34.1	25.6	27.6	35.7	33.5
2-Chlorophenol-D4	93951-73-6	0.1	%	63.3	50.0	53.4	66.0	63.8
2,4,6-Tribromophenol	118-79-6	0.1	%	85.4	66.1	66.8	89.4	100
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	73.6	59.8	64.0	71.9	74.6



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BU_MW01	BH_MW03	BH_MW04	BV_MW11	BV_MW12
				04-DEC-2013 09:55	04-DEC-2013 11:05	04-DEC-2013 12:30	04-DEC-2013 13:55	04-DEC-2013 14:45
				ES1327009-001	ES1327009-002	ES1327009-003	ES1327009-004	ES1327009-005
Compound	CAS Number	LOR	Unit					
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	0.1	%	99.2	95.9	97.2	104	106
4-Terphenyl-d14	1718-51-0	0.1	%	81.3	74.3	75.0	82.8	89.8
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	97.5	105	100	102	115
Toluene-D8	2037-26-5	0.1	%	96.1	101	96.6	103	111
4-Bromofluorobenzene	460-00-4	0.1	%	102	108	102	111	102



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BV_MW13	D01_041213_NH	R01_041213_NH	TRIP BLANK	TRIP SPIKE
				04-DEC-2013 15:55	04-DEC-2013 12:30	04-DEC-2013 11:05	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327009-006	ES1327009-007	ES1327009-008	ES1327009-009	ES1327009-010
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	388	<1	----	----
Total Alkalinity as CaCO3	----	1	mg/L	----	388	<1	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	4890	<1	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	----	2640	<1	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	588	<1	----	----
Magnesium	7439-95-4	1	mg/L	----	570	<1	----	----
Sodium	7440-23-5	1	mg/L	----	2640	<1	----	----
Potassium	7440-09-7	1	mg/L	----	37	<1	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	----	----	0.001	----	----
Nickel	7440-02-0	0.001	mg/L	----	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	----	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	<0.005	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	5.0	0.6	----	----	----
Cadmium	7440-43-9	0.05	µg/L	0.38	0.40	----	----	----
Chromium	7440-47-3	0.2	µg/L	2.8	<0.2	----	----	----
Copper	7440-50-8	0.5	µg/L	17.9	0.8	----	----	----
Lead	7439-92-1	0.1	µg/L	6.6	3.8	----	----	----
Nickel	7440-02-0	0.5	µg/L	362	60.9	----	----	----
Zinc	7440-66-6	1	µg/L	859	8	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BV_MW13	D01_041213_NH	R01_041213_NH	TRIP BLANK	TRIP SPIKE
				04-DEC-2013 15:55	04-DEC-2013 12:30	04-DEC-2013 11:05	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327009-006	ES1327009-007	ES1327009-008	ES1327009-009	ES1327009-010
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	----	184	<0.01	----	----
Total Cations	----	0.01	meq/L	----	192	<0.01	----	----
Ionic Balance	----	0.01	%	----	2.11	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BV_MW13	D01_041213_NH	R01_041213_NH	TRIP BLANK	TRIP SPIKE
				04-DEC-2013 15:55	04-DEC-2013 12:30	04-DEC-2013 11:05	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327009-006	ES1327009-007	ES1327009-008	ES1327009-009	ES1327009-010
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BV_MW13	D01_041213_NH	R01_041213_NH	TRIP BLANK	TRIP SPIKE
				04-DEC-2013 15:55	04-DEC-2013 12:30	04-DEC-2013 11:05	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327009-006	ES1327009-007	ES1327009-008	ES1327009-009	ES1327009-010
EP074F: Halogenated Aromatic Compounds - Continued								
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BV_MW13	D01_041213_NH	R01_041213_NH	TRIP BLANK	TRIP SPIKE
				04-DEC-2013 15:55	04-DEC-2013 12:30	04-DEC-2013 11:05	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327009-006	ES1327009-007	ES1327009-008	ES1327009-009	ES1327009-010
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	14
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	14
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	15
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	15
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	16
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	31
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	74
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	17
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	84.8	----	----	----	----
EP074S: VOC Surrogates								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BV_MW13	D01_041213_NH	R01_041213_NH	TRIP BLANK	TRIP SPIKE
				04-DEC-2013 15:55	04-DEC-2013 12:30	04-DEC-2013 11:05	04-DEC-2013 15:00	04-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327009-006	ES1327009-007	ES1327009-008	ES1327009-009	ES1327009-010
EP074S: VOC Surrogates - Continued								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	93.2	96.9	96.3	----	----
Toluene-D8	2037-26-5	0.1	%	111	101	102	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	83.3	102	103	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	31.7	23.9	27.5	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	62.8	45.0	52.0	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	95.9	72.8	77.8	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	74.8	54.8	62.3	----	----
Anthracene-d10	1719-06-8	0.1	%	99.3	93.0	105	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	79.4	76.6	84.5	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	91.6	115	114	98.2	92.7
Toluene-D8	2037-26-5	0.1	%	92.8	109	109	88.4	97.3
4-Bromofluorobenzene	460-00-4	0.1	%	80.2	101	101	90.5	100



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	28.5	129
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1327009	Page	: 1 of 20
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: NH	No. of samples received	: 10
Order number	: 0224193	No. of samples analysed	: 10
Quote number	: SY/794/13		

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

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>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney 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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 3206156)									
ES1326993-005	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	334	335	0.3	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	334	335	0.3	0% - 20%
ES1327010-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1110	1110	0.1	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1110	1110	0.1	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 3206465)									
ES1326657-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	49	49	0.0	0% - 20%
ES1326817-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	84	85	0.0	0% - 20%
ED045G: Chloride Discrete analyser (QC Lot: 3206472)									
ES1326993-007	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	516	520	0.9	0% - 20%
ES1327010-004	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	4070	4100	0.9	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 3206473)									
ES1326993-008	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	141	141	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	118	118	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	351	352	0.5	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	27	27	0.0	0% - 20%
ES1327010-006	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	539	531	1.5	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	2110	2060	2.1	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	5640	5530	2.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	48	47	3.0	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 3210753)									
ES1326710-008	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.019	0.019	0.0	0% - 50%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	1.52	1.54	1.8	0% - 20%
ES1326863-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.010	0.010	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EG020T: Total Metals by ICP-MS (QC Lot: 3210753) - continued											
ES1326863-002	Anonymous	EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.001	0.0	No Limit		
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.006	0.007	0.0	No Limit		
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.006	0.0	No Limit		
EG035F: Dissolved Mercury by FIMS (QC Lot: 3210612)											
ES1326707-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
ES1326784-009	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
EG035F: Dissolved Mercury by FIMS (QC Lot: 3210614)											
ES1327009-005	BV_MW12	EG035F: Mercury	7439-97-6	0.0001	mg/L	0.0002	0.0001	0.0	No Limit		
ES1327010-008	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
EG035F: Dissolved Mercury by FIMS (QC Lot: 3212881)											
ES1326637-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
ES1326994-005	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3210269)											
ES1326914-008	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3214720)											
ES1327009-001	BU_MW01	EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.70	0.73	3.4	0% - 50%		
		EG094A-F: Lead	7439-92-1	0.1	µg/L	30.9	29.1	5.8	0% - 20%		
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	3.7	3.5	4.4	0% - 50%		
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	0.7	0.7	0.0	No Limit		
		EG094A-F: Copper	7440-50-8	0.5	µg/L	10.4	9.9	4.8	0% - 20%		
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	157	154	2.0	0% - 20%		
		EG094A-F: Zinc	7440-66-6	1	µg/L	423	409	3.2	0% - 20%		
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3208038)											
ES1327009-001	BU_MW01	EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	0.0	No Limit		
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3209301)											
ES1326994-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit		
		ES1327009-001	BU_MW01	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
				EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
EP074: n-Propylbenzene	103-65-1			5	µg/L	<5	<5	0.0	No Limit		
EP074: 1.3.5-Trimethylbenzene	108-67-8			5	µg/L	<5	<5	0.0	No Limit		
EP074: sec-Butylbenzene	135-98-8			5	µg/L	<5	<5	0.0	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3209301) - continued									
ES1327009-001	BU_MW01	EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3209301)									
ES1326994-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1327009-001	BU_MW01	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3209301)									
ES1326994-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1327009-001	BU_MW01	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3209301)									
ES1326994-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1327009-001	BU_MW01	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3209301)									
ES1326994-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3209301) - continued									
ES1326994-001	Anonymous	EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1327009-001	BU_MW01	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3209301) - continued											
ES1327009-001	BU_MW01	EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3209301)											
ES1326994-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit		
ES1327009-001	BU_MW01	EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit		
ES1327009-001	BU_MW01	EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074G: Trihalomethanes (QC Lot: 3209301)									
		ES1326994-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
				EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
				EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
				EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
		ES1327009-001	BU_MW01	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
EP074: Bromodichloromethane	75-27-4			5	µg/L	<5	<5	0.0	No Limit		
EP074: Dibromochloromethane	124-48-1			5	µg/L	<5	<5	0.0	No Limit		
EP074: Bromoform	75-25-2			5	µg/L	<5	<5	0.0	No Limit		
EP074H: Naphthalene (QC Lot: 3209301)											
ES1326994-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit		
ES1327009-001	BU_MW01	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit		
EP075(SIM)A: Phenolic Compounds (QC Lot: 3208037)											
ES1327009-001	BU_MW01	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit		



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3208037) - continued									
ES1327009-001	BU_MW01	EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
ES1327010-002	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3208037)							
ES1327009-001	BU_MW01	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		ES1327010-002	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5
EP075(SIM): Naphthalene	91-20-3			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Acenaphthylene	208-96-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Acenaphthene	83-32-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3208037) - continued									
ES1327010-002	Anonymous	EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3208036)									
ES1327009-001	BU_MW01	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1327010-002	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	470	490	3.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3209302)									
ES1326994-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327009-001	BU_MW01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3209306)									
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327009-009	TRIP BLANK	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3208036)									
ES1327009-001	BU_MW01	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
ES1327010-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	400	420	6.2	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3209302)									
ES1326994-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327009-001	BU_MW01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3209306)									
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327009-009	TRIP BLANK	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 3209302)									



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 3209302) - continued									
ES1326994-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1327009-001	BU_MW01	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 3209306)									
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1327009-009	TRIP BLANK	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



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 (%)		Recovery Limits (%)	
						LCS	Low	High	
ED037P: Alkalinity by PC Titrator (QCLot: 3206156)									
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	95.7	81	111	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206465)									
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	109	86	122	
ED045G: Chloride Discrete analyser (QCLot: 3206472)									
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	91.2	77	123	
ED093F: Dissolved Major Cations (QCLot: 3206473)									
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	110	87	113	
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	106	89	113	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.6	79	113	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	102	87	115	
EG020T: Total Metals by ICP-MS (QCLot: 3210753)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.9	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.4	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.6	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.2	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	88.6	76	118	
EG035F: Dissolved Mercury by FIMS (QCLot: 3210612)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	88.9	78	114	
EG035F: Dissolved Mercury by FIMS (QCLot: 3210614)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	89.4	78	114	
EG035F: Dissolved Mercury by FIMS (QCLot: 3212881)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	102	78	114	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210269)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	87.4	77	115	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214720)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	101	75	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	106	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	106	71	123	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	110	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	100	74	118	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	110	72	128	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214720) - continued									
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	110	76	134	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3208038)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	80.4	61.6	107	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3209301)									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	103	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	100	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	101	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	101	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	101	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	104	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	99.9	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	100	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	103	62	126	
EP074B: Oxygenated Compounds (QCLot: 3209301)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	128	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	# 132	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	136	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	136	65	137	
EP074C: Sulfonated Compounds (QCLot: 3209301)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	86.2	72.8	127	
EP074D: Fumigants (QCLot: 3209301)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	97.1	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	108	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	101	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	107	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	# 117	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209301)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	73.8	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	88.0	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	81.7	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	96.3	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	88.3	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	94.1	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	97.8	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	89.8	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	103	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	102	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	105	77	117	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209301) - continued									
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	93.7	61	119	
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	102	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	88.6	63	121	
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	111	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	104	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	114	74	118	
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	119	75	123	
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	119	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	96.0	72	124	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	96.2	66	114	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	118	60	120	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	123	70.6	128	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	124	70	124	
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	127	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	107	71.8	126	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	119	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	85.4	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3209301)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	108	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	109	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	103	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	105	71	121	
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	109	74	120	
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	108	72	120	
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	110	77	117	
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	97.6	60	126	
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	100	67	125	
EP074G: Trihalomethanes (QCLot: 3209301)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	104	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	95.4	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	103	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	114	73.5	126	
EP074H: Naphthalene (QCLot: 3209301)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	111	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3208037)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	35.4	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	63.9	63.8	110	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3208037) - continued									
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	66.8	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	68.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	74.7	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	89.4	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	75.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	75.2	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	98.7	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	68.3	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	92.3	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	86.0	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208037)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	62.3	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	78.8	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	70.8	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	88.2	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	79.1	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	104	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	102	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	86.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	88.5	64.1	117	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208037) - continued									
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	90.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	63.6	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	95.9	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	99.0	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	87.2	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	81.3	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	86.3	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208036)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	82.9	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	93.1	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	103	62	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209302)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	106	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	84.2	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208036)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	91.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.2	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	104	67	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209302)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	105	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.7	75	127	
EP080: BTEXN (QCLot: 3209302)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	100	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.0	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	98.1	69	121	
	106-42-3								



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
EP080: BTEXN (QCLot: 3209302) - continued								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	99.4	70	124
EP080: BTEXN (QCLot: 3209306)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.8	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.2	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	96.3	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	110	70	124

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.

Sub-Matrix: WATER				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206465)							
ES1326817-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70	130
ED045G: Chloride Discrete analyser (QCLot: 3206472)							
ES1326993-007	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	76.9	70	130
EG020T: Total Metals by ICP-MS (QCLot: 3210753)							
ES1326710-009	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	90.9	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	85.3	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	88.3	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	89.4	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	82.5	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	85.5	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	85.1	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3210612)							
ES1326707-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	84.9	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3210614)							
ES1327009-005	BV_MW12	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 20.7	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3212881)							
ES1326637-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	83.3	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210269)							
ES1327009-008	R01_041213_NH	EG035T: Mercury	7439-97-6	0.010 mg/L	97.4	70	130
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214720)							
ES1327009-002	BH_MW03	EG094A-F: Arsenic	7440-38-2	50 µg/L	119	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	83.6	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	74.2	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	93.3	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	95.1	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	# Not Determined	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	# Not Determined	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3208038)							
ES1327009-004	BV_MW11	EP066: Total Polychlorinated biphenyls	----	10 µg/L	90.1	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209301)							
ES1326994-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	87.1	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	108	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3209301)							
ES1326994-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	112	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3208037)							
ES1327009-004	BV_MW11	EP075(SIM): Phenol	108-95-2	20 µg/L	43.3	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	81.2	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	70.8	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	83.1	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	106	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208037)							
ES1327009-004	BV_MW11	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	79.2	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	79.7	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208036)							
ES1327009-004	BV_MW11	EP071: C10 - C14 Fraction	----	200 µg/L	115	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	105	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	84.3	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209302)							
ES1326994-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	123	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)							
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208036)							



Sub-Matrix: WATER

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208036) - continued								
ES1327009-004	BV_MW11	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	108	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	94.5	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.4	67	153	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209302)								
ES1326994-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	118	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)								
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70	130	
EP080: BTEXN (QCLot: 3209302)								
ES1326994-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	98.8	70	130	
		EP080: Toluene	108-88-3	25 µg/L	99.4	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	95.8	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	95.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	96.0	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	76.2	70	130		
EP080: BTEXN (QCLot: 3209306)								
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	102	70	130	
		EP080: Toluene	108-88-3	25 µg/L	118	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	113	70	130		

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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206465)										
ES1326817-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	----	70	130	----	----
ED045G: Chloride Discrete analyser (QCLot: 3206472)										
ES1326993-007	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	76.9	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208036)										



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208036) - continued											
ES1327009-004	BV_MW11	EP071: C10 - C14 Fraction	----	200 µg/L	115	----	74	150	----	----	
		EP071: C15 - C28 Fraction	----	300 µg/L	105	----	77	153	----	----	
		EP071: C29 - C36 Fraction	----	200 µg/L	84.3	----	67	153	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208036)											
ES1327009-004	BV_MW11	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	108	----	74	150	----	----	
		EP071: >C16 - C34 Fraction	----	350 µg/L	94.5	----	77	153	----	----	
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.4	----	67	153	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3208037)											
ES1327009-004	BV_MW11	EP075(SIM): Phenol	108-95-2	20 µg/L	43.3	----	20	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	81.2	----	60	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	70.8	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	83.1	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	106	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208037)											
ES1327009-004	BV_MW11	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	79.2	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	20 µg/L	79.7	----	70	130	----	----	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3208038)											
ES1327009-004	BV_MW11	EP066: Total Polychlorinated biphenyls	----	10 µg/L	90.1	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209301)											
ES1326994-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	87.1	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	25 µg/L	108	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3209301)											
ES1326994-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	112	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209302)											
ES1326994-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	123	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209302)											
ES1326994-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	118	----	70	130	----	----	
EP080: BTEXN (QCLot: 3209302)											
ES1326994-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	98.8	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	99.4	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	95.8	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	95.4	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	96.0	----	70	130	----	----	
EP080: Naphthalene	91-20-3	25 µg/L	76.2	----	70	130	----	----			
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)											
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	----	70	130	----	----	



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)										
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	----	70	130	----	----
EP080: BTEXN (QCLot: 3209306)										
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	102	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	118	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	----	70	130	----	----
		EP080: ortho-Xylene	106-42-3	25 µg/L	106	----	70	130	----	----
		EP080: Naphthalene	95-47-6	25 µg/L	113	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210269)										
ES1327009-008	R01_041213_NH	EG035T: Mercury	7439-97-6	0.010 mg/L	97.4	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3210612)										
ES1326707-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	84.9	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3210614)										
ES1327009-005	BV_MW12	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 20.7	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 3210753)										
ES1326710-009	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	90.9	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	85.3	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	88.3	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	89.4	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	82.5	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	85.5	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	85.1	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3212881)										
ES1326637-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	83.3	----	70	130	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214720)										
ES1327009-002	BH_MW03	EG094A-F: Arsenic	7440-38-2	50 µg/L	119	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	83.6	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	74.2	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	93.3	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	95.1	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	# Not Determined	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327009	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: NH	No. of samples received	: 10
Order number	: 0224193	No. of samples analysed	: 10
Quote number	: SY/794/13		

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) BH_MW03, D01_041213_NH,	BH_MW04, R01_041213_NH	04-DEC-2013	---	18-DEC-2013	----	11-DEC-2013	18-DEC-2013	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) BH_MW03, D01_041213_NH,	BH_MW04, R01_041213_NH	04-DEC-2013	---	01-JAN-2014	----	11-DEC-2013	01-JAN-2014	✓
ED045G: Chloride Discrete analyser								
Clear Plastic Bottle - Natural (ED045G) BH_MW03, D01_041213_NH,	BH_MW04, R01_041213_NH	04-DEC-2013	---	01-JAN-2014	----	11-DEC-2013	01-JAN-2014	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F) BH_MW03, D01_041213_NH,	BH_MW04, R01_041213_NH	04-DEC-2013	---	11-DEC-2013	----	11-DEC-2013	11-DEC-2013	✓
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_041213_NH		04-DEC-2013	13-DEC-2013	02-JUN-2014	✓	13-DEC-2013	02-JUN-2014	✓
EG035F: Dissolved Mercury by FIMS								
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BU_MW01, BH_MW04, BV_MW13,	BH_MW03, BV_MW12, D01_041213_NH	04-DEC-2013	---	01-JAN-2014	----	13-DEC-2013	01-JAN-2014	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BV_MW11		04-DEC-2013	---	01-JAN-2014	----	14-DEC-2013	01-JAN-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_041213_NH		04-DEC-2013	----	----	----	15-DEC-2013	01-JAN-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BU_MW01, BH_MW03, BH_MW04, BV_MW11, BV_MW12, BV_MW13, D01_041213_NH	04-DEC-2013	---	02-JUN-2014	----	16-DEC-2013	02-JUN-2014	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) BU_MW01, BV_MW11, BV_MW12, BV_MW13	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber Glass Bottle - Unpreserved (EP071) BU_MW01, BH_MW03, BH_MW04, BV_MW11, BV_MW12, BV_MW13, D01_041213_NH, R01_041213_NH	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW01, BH_MW03, BH_MW04, BV_MW11, BV_MW12, BV_MW13, D01_041213_NH, R01_041213_NH	04-DEC-2013	14-DEC-2013	18-DEC-2013	✓	14-DEC-2013	18-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW01, BH_MW03, BH_MW04, BV_MW11, BV_MW12, BV_MW13, D01_041213_NH, R01_041213_NH	04-DEC-2013	14-DEC-2013	18-DEC-2013	✓	14-DEC-2013	18-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW01, BH_MW03, BH_MW04, BV_MW11, BV_MW12, BV_MW13, D01_041213_NH, R01_041213_NH	04-DEC-2013	14-DEC-2013	18-DEC-2013	✓	14-DEC-2013	18-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW01, BH_MW03, BH_MW04, BV_MW11, BV_MW12, BV_MW13, D01_041213_NH, R01_041213_NH	04-DEC-2013	14-DEC-2013	18-DEC-2013	✓	14-DEC-2013	18-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW01, BH_MW04, BV_MW12, D01_041213_NH, BH_MW03, BV_MW11, BV_MW13, R01_041213_NH	04-DEC-2013	14-DEC-2013	18-DEC-2013	✓	14-DEC-2013	18-DEC-2013	✓	
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW01, BH_MW04, BV_MW12, D01_041213_NH, BH_MW03, BV_MW11, BV_MW13, R01_041213_NH	04-DEC-2013	14-DEC-2013	18-DEC-2013	✓	14-DEC-2013	18-DEC-2013	✓	
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW01, BH_MW04, BV_MW12, D01_041213_NH, BH_MW03, BV_MW11, BV_MW13, R01_041213_NH	04-DEC-2013	14-DEC-2013	18-DEC-2013	✓	14-DEC-2013	18-DEC-2013	✓	
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) BU_MW01, BH_MW04, BV_MW12, D01_041213_NH, BH_MW03, BV_MW11, BV_MW13, R01_041213_NH	04-DEC-2013	14-DEC-2013	18-DEC-2013	✓	14-DEC-2013	18-DEC-2013	✓	
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BU_MW01, BH_MW04, BV_MW12, D01_041213_NH, BH_MW03, BV_MW11, BV_MW13, R01_041213_NH	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BU_MW01, BH_MW04, BV_MW12, D01_041213_NH, BH_MW03, BV_MW11, BV_MW13, R01_041213_NH	04-DEC-2013	11-DEC-2013	11-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓	



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
BU_MW01, BH_MW04, BV_MW12, D01_041213_NH, TRIP BLANK,	BH_MW03, BV_MW11, BV_MW13, R01_041213_NH, TRIP SPIKE	04-DEC-2013	14-DEC-2013	18-DEC-2013	✓	14-DEC-2013	18-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP080)								
BU_MW01, BH_MW04, BV_MW12, D01_041213_NH, TRIP BLANK	BH_MW03, BV_MW11, BV_MW13, R01_041213_NH,	04-DEC-2013	14-DEC-2013	18-DEC-2013	✓	14-DEC-2013	18-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	6	56	10.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	3	56	5.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	3	56	5.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	3	56	5.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Sulfate (Turbidimetric) as SO ₄ ²⁻ by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO ₄ Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ ²⁻ concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	APHA 21st Ed. 1030F. The Ionic Balance is calculated based on the major Anions and Cations. The major anions include Alkalinity, Chloride and Sulfate which determined by PCT and DA. The Cations are determined by Turbi SO4 by DA. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatle Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP074B: Oxygenated Compounds	3830872-002	----	2-Butanone (MEK)	78-93-3	132 %	73.6-130%	Recovery greater than upper control limit
EP074D: Fumigants	3830872-002	----	1,2-Dibromoethane (EDB)	106-93-4	117 %	69-117%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES1326817-001	Anonymous	Sulfate as SO4 - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG035F: Dissolved Mercury by FIMS	ES1327009-005	BV_MW12	Mercury	7439-97-6	20.7 %	70-130%	Recovery less than lower data quality objective
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1327009-002	BH_MW03	Nickel	7440-02-0	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1327009-002	BH_MW03	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



CHAIN OF CUSTODY

ALS Laboratory
please tick →


UNDESIRABLE: 21. Drinking Water Preserved in Amber Glass (AG) or Air-tight Unpreserved Plastic (AP) or VOA Vial HCl Preserved (VH) or VOA Vial Sodium Bisulfate Preserved (VSB) or VOA Vial Sulfuric Preserved Amber Glass (VSG) or Air-tight Unpreserved Plastic (AV) or Sulfuric Preserved Amber Glass (H) or HCl Preserved Plastic (HS) or Sulfuric Preserved Plastic (SP) or Formaldehyde Preserved (F) or Zinc Acetate Preserved Bottle (E) or EDTA Preserved Bottle (ST) or Sterile Bottle (ASS) or Plastic Bag for Acid Sulphate Soils (S) or Unpreserved Bag.

UNDESIRABLE: 22. Drinking Water Preserved in Amber Glass (AG) or Air-tight Unpreserved Plastic (AP) or VOA Vial HCl Preserved (VH) or VOA Vial Sodium Bisulfate Preserved (VSB) or VOA Vial Sulfuric Preserved Amber Glass (VSG) or Air-tight Unpreserved Plastic (AV) or Sulfuric Preserved Amber Glass (H) or HCl Preserved Plastic (HS) or Sulfuric Preserved Plastic (SP) or Formaldehyde Preserved (F) or Zinc Acetate Preserved Bottle (E) or EDTA Preserved Bottle (ST) or Sterile Bottle (ASS) or Plastic Bag for Acid Sulphate Soils (S) or Unpreserved Bag.

UNDESIRABLE: 23. Drinking Water Preserved in Amber Glass (AG) or Air-tight Unpreserved Plastic (AP) or VOA Vial HCl Preserved (VH) or VOA Vial Sodium Bisulfate Preserved (VSB) or VOA Vial Sulfuric Preserved Amber Glass (VSG) or Air-tight Unpreserved Plastic (AV) or Sulfuric Preserved Amber Glass (H) or HCl Preserved Plastic (HS) or Sulfuric Preserved Plastic (SP) or Formaldehyde Preserved (F) or Zinc Acetate Preserved Bottle (E) or EDTA Preserved Bottle (ST) or Sterile Bottle (ASS) or Plastic Bag for Acid Sulphate Soils (S) or Unpreserved Bag.

UNDESIRABLE: 24. Drinking Water Preserved in Amber Glass (AG) or Air-tight Unpreserved Plastic (AP) or VOA Vial HCl Preserved (VH) or VOA Vial Sodium Bisulfate Preserved (VSB) or VOA Vial Sulfuric Preserved Amber Glass (VSG) or Air-tight Unpreserved Plastic (AV) or Sulfuric Preserved Amber Glass (H) or HCl Preserved Plastic (HS) or Sulfuric Preserved Plastic (SP) or Formaldehyde Preserved (F) or Zinc Acetate Preserved Bottle (E) or EDTA Preserved Bottle (ST) or Sterile Bottle (ASS) or Plastic Bag for Acid Sulphate Soils (S) or Unpreserved Bag.

CLIENT: <u>NSW Treasury TERM</u>		TURNAROUND REQUIREMENTS: <input type="checkbox"/> Standard TAT (List due date): <u>3 day TAT</u>		FOR LABORATORY USE ONLY (Circle)	
OFFICE:		<input type="checkbox"/> Non Standard or urgent TAT (List due date):		Custody Seal intact? Yes No I/A	
PROJECT: Project Symphony		ALS QUOTE NO.: SY7794/13		Free ice / frozen ice bricks present upon receipt? Yes No I/A	
ORDER NUMBER:		SITE: BAYSWATER / LIDDELL		Random Sample Temperature on Receipt: °C	
PROJECT MANAGER: <u>Joseph Ferring</u>		CONTACT PH: <u>(02) 8584 8885</u>		Other comment:	
SAMPLER: <u>C. Henry + K. Fook</u>		SAMPLER MOBILE: <u>0410 367411</u>		RECEIVED BY: <u>Frank AUS</u>	
COC emailed to ALS? (YES / NO)		EDD FORMAT (or default):		DATE/TIME: <u>10-12-13 (900)</u>	
Email Reports to (will default to PM if no other addresses are listed): <u>Project manager</u>		RELINQUISHED BY: <u>C. Henry emf</u>		RECEIVED BY: <u>Ray W</u>	
Email Invoice to (will default to PM if no other addresses are listed):		DATE/TIME: <u>5/12/13</u>		DATE/TIME: <u>10/12/13 15:30</u>	
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:		RECEIVED BY: <u>Ray W</u>		DATE/TIME: <u>10/12/13 1700</u>	

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)				CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
	LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <i>codes below</i>	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	ORC 17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti)	Selenium (Freshwater: ORC)	VOC Target Scan	PCB	PFOS/PFOA	W-24 TRH(C6-14)BTEXN, PAH, Phenols	CAUTIONS & COMMENTS	
	1	BB-MW01	5/12/13	W		8		X		X			X	X	Comments on likely contaminant levels, dilutions, or samples requiring specific analysis etc. ORC also analyze metals: Se + Hg Environmental Division Sydney Work Order ES1327010  Telephone: + 61-2-8784 8555 TRH + BTEX TRH + BTEX
	2	BB-MW02				8									
	3	BB-MW03				8									
	4	BB-MW04				8									
	5	BB-MW05				8									
	6	BWGMWID10				8									
	7	BE-MW08				7									
	8	ROI-051213-CH				7	X	X		X			X		
	9	ROI-051213-KF				7	X	X		X			X		
	10	TRIP BLANK													
	11	TRIP SPIKE													

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Air-tight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Air-tight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Special bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved; G = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; S = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1327010

<p>Client : ENVIRO RESOURCES MANAGEMENT</p> <p>Contact : MR JOSEPH FERRING</p> <p>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</p>	<p>Laboratory : Environmental Division Sydney</p> <p>Contact : Barbara Hanna</p> <p>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</p>
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<p>E-mail : joseph.ferring@erm.com</p> <p>Telephone : +61 02 8584 8888</p> <p>Facsimile : +61 02 8584 8800</p>	<p>E-mail : Barbara.Hanna@alsglobal.com</p> <p>Telephone : +61 2 8784 8555</p> <p>Facsimile : +61 2 8784 8555</p>
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<p>Project : Project Symphony</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Site : ----</p> <p>Sampler : CH, KF</p>	<p>Page : 1 of 3</p> <p>Quote number : ES2013ENVRES0369 (SY/794/13)</p> <p>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</p>
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Dates

<p>Date Samples Received : 10-DEC-2013</p> <p>Client Requested Due Date : 16-DEC-2013</p>	<p>Issue Date : 11-DEC-2013 09:54</p> <p>Scheduled Reporting Date : 16-DEC-2013</p>
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Delivery Details

<p>Mode of Delivery : Carrier</p> <p>No. of coolers/boxes : 1 HARD</p> <p>Security Seal : Intact.</p>	<p>Temperature : 5.2°C SYD - Ice present</p> <p>No. of samples received : 11</p> <p>No. of samples analysed : 11</p>
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG03A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EG03B-F Dissolved Metals in Saline Water Suite B by	WATER - EN055 - PG Ionic Balance by ED037P, ED041G, ED045G &	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - NT-01 Major Cations (Ca, Mg, Na, K)	WATER - NT-02 Major Anions (Chloride, Sulphate, Alkalinity)
ES1327010-001	05-DEC-2013 15:00	BB_MW01	✓	✓	✓	✓	✓		✓	✓
ES1327010-002	05-DEC-2013 15:00	BB_MW02	✓	✓	✓	✓	✓		✓	✓
ES1327010-003	05-DEC-2013 15:00	BB_MW03	✓	✓	✓	✓	✓		✓	✓
ES1327010-004	05-DEC-2013 15:00	BB_MW04	✓	✓	✓	✓	✓		✓	✓
ES1327010-005	05-DEC-2013 15:00	BB_MW05	✓	✓	✓	✓	✓		✓	✓
ES1327010-006	05-DEC-2013 15:00	BW6MW1D10	✓	✓	✓	✓	✓		✓	✓
ES1327010-007	05-DEC-2013 15:00	BE_MW08	✓	✓			✓			
ES1327010-008	05-DEC-2013 15:00	R01_051213_CH					✓			
ES1327010-009	05-DEC-2013 15:00	R01_051213_KF					✓			
ES1327010-011	05-DEC-2013 15:00	TRIP SPIKE						✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-02 & Metals	WATER - W-18 TRH/C9 - C9/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1327010-001	05-DEC-2013 15:00	BB_MW01			✓
ES1327010-002	05-DEC-2013 15:00	BB_MW02			✓
ES1327010-003	05-DEC-2013 15:00	BB_MW03			✓
ES1327010-004	05-DEC-2013 15:00	BB_MW04			✓
ES1327010-005	05-DEC-2013 15:00	BB_MW05			✓
ES1327010-006	05-DEC-2013 15:00	BW6MW1D10			✓
ES1327010-007	05-DEC-2013 15:00	BE_MW08			✓
ES1327010-008	05-DEC-2013 15:00	R01_051213_CH	✓		✓
ES1327010-009	05-DEC-2013 15:00	R01_051213_KF	✓		✓
ES1327010-010	05-DEC-2013 15:00	TRIP BLANK		✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

MR JOSEPH FERRING

- | | | |
|--|-------|------------------------|
| - *AU Certificate of Analysis - NATA (COA) | Email | joseph.ferring@erm.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) | Email | joseph.ferring@erm.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) | Email | joseph.ferring@erm.com |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | joseph.ferring@erm.com |
| - Chain of Custody (CoC) (COC) | Email | joseph.ferring@erm.com |
| - EDI Format - ENMRG (ENMRG) | Email | joseph.ferring@erm.com |
| - EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) | Email | joseph.ferring@erm.com |
| - EDI Format - ESDAT (ESDAT) | Email | joseph.ferring@erm.com |
| - EDI Format - XTab (XTAB) | Email | joseph.ferring@erm.com |

THE ACCOUNTS PAYABLE

- | | | |
|-------------------------------|-------|---------------------|
| - A4 - AU Tax Invoice (INV) | Email | au.accounts@erm.com |
|-------------------------------|-------|---------------------|
-

CERTIFICATE OF ANALYSIS

Work Order : ES1327010 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : ---- C-O-C number : ---- Sampler : CH, KF Site : ---- Quote number : SY/794/13	Page : 1 of 16 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 10-DEC-2013 Issue Date : 16-DEC-2013 No. of samples received : 11 No. of samples analysed : 11
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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

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>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EG035: Poor matrix spike recovery was obtained for Mercury on sample ES1327009-#5. Results have been confirmed by re-extraction and reanalysis**
- **EG093: Some samples were run (X2) dilutions due to matrix interference and LOR's have been raised accordingly.**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**
- **Ionic Balance out of acceptable limits for sample BB_MW04 due to analytes not quantified in this report.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BB_MW01	BB_MW02	BB_MW03	BB_MW04	BB_MW05
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327010-001	ES1327010-002	ES1327010-003	ES1327010-004	ES1327010-005
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	944	1110	694	<1	761
Total Alkalinity as CaCO3	----	1	mg/L	944	1110	694	<1	761
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	30700	34200	3940	3600	6310
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	31800	39100	9890	4070	7620
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	644	625	1120	656	512
Magnesium	7439-95-4	1	mg/L	7910	9340	1680	520	1800
Sodium	7440-23-5	1	mg/L	21700	26200	4660	1840	4880
Potassium	7440-09-7	1	mg/L	200	232	134	36	52
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS								
Selenium	7782-49-2	2	µg/L	13	19	2	----	<2
Arsenic	7440-38-2	0.5	µg/L	6.9	9.8	0.6	----	1.0
Barium	7440-39-3	1	µg/L	53	74	43	----	30
Beryllium	7440-41-7	0.1	µg/L	<0.2	<0.2	<0.1	----	<0.1
Boron	7440-42-8	100	µg/L	<200	<200	<100	----	173
Cadmium	7440-43-9	0.2	µg/L	1.9	0.5	3.2	----	0.4
Chromium	7440-47-3	0.5	µg/L	<1.0	<1.0	<0.5	----	<0.5
Cobalt	7440-48-4	0.2	µg/L	101	57.1	25.8	----	11.1
Copper	7440-50-8	1	µg/L	23	17	3	----	3
Lead	7439-92-1	0.2	µg/L	89.9	24.3	4.9	----	1.6
Manganese	7439-96-5	0.5	µg/L	30900	21000	1010	----	6340
Molybdenum	7439-98-7	0.1	µg/L	3.1	5.2	0.4	----	2.9
Nickel	7440-02-0	0.5	µg/L	976	857	256	----	300
Thallium	7440-28-0	0.1	µg/L	1.0	7.0	0.8	----	0.2
Vanadium	7440-62-2	0.5	µg/L	6.3	6.1	0.5	----	2.6
Zinc	7440-66-6	5	µg/L	43	31	24	----	18
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BB_MW01	BB_MW02	BB_MW03	BB_MW04	BB_MW05
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327010-001	ES1327010-002	ES1327010-003	ES1327010-004	ES1327010-005
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS - Continued								
Selenium	7782-49-2	0.2	µg/L	----	----	----	19.0	----
Arsenic	7440-38-2	0.2	µg/L	----	----	----	5.7	----
Barium	7440-39-3	0.5	µg/L	----	----	----	41.2	----
Beryllium	7440-41-7	0.1	µg/L	----	----	----	16.4	----
Boron	7440-42-8	5	µg/L	----	----	----	129	----
Cadmium	7440-43-9	0.05	µg/L	----	----	----	28.9	----
Chromium	7440-47-3	0.2	µg/L	----	----	----	1.4	----
Cobalt	7440-48-4	0.1	µg/L	----	----	----	1820	----
Copper	7440-50-8	0.5	µg/L	----	----	----	14.1	----
Lead	7439-92-1	0.1	µg/L	----	----	----	5.2	----
Manganese	7439-96-5	0.5	µg/L	----	----	----	16700	----
Molybdenum	7439-98-7	0.1	µg/L	----	----	----	0.2	----
Nickel	7440-02-0	0.5	µg/L	----	----	----	2390	----
Thallium	7440-28-0	0.02	µg/L	----	----	----	1.29	----
Vanadium	7440-62-2	0.2	µg/L	----	----	----	1.7	----
Zinc	7440-66-6	1	µg/L	----	----	----	5780	----
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	1560	1840	375	190	362
Total Cations	----	0.01	meq/L	1630	1940	400	----	387
Total Cations	----	0.01	meq/L	----	----	----	161	----
Ionic Balance	----	0.01	%	2.39	2.84	3.27	----	3.42
Ionic Balance	----	0.01	%	----	----	----	8.18	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BB_MW01	BB_MW02	BB_MW03	BB_MW04	BB_MW05
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327010-001	ES1327010-002	ES1327010-003	ES1327010-004	ES1327010-005
EP074B: Oxygenated Compounds - Continued								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BB_MW01	BB_MW02	BB_MW03	BB_MW04	BB_MW05
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327010-001	ES1327010-002	ES1327010-003	ES1327010-004	ES1327010-005
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BB_MW01	BB_MW02	BB_MW03	BB_MW04	BB_MW05
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327010-001	ES1327010-002	ES1327010-003	ES1327010-004	ES1327010-005
EP075(SIM)A: Phenolic Compounds - Continued								
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	470	440	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	470	440	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BB_MW01	BB_MW02	BB_MW03	BB_MW04	BB_MW05
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327010-001	ES1327010-002	ES1327010-003	ES1327010-004	ES1327010-005
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	400	380	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	400	380	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.1	77.5	102	103	105
Toluene-D8	2037-26-5	0.1	%	97.5	85.6	92.8	95.8	92.2
4-Bromofluorobenzene	460-00-4	0.1	%	94.5	80.0	96.2	97.1	95.5
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	29.8	46.5	39.1	31.7	30.7
2-Chlorophenol-D4	93951-73-6	0.1	%	62.4	68.0	53.9	61.3	54.8
2,4,6-Tribromophenol	118-79-6	0.1	%	76.6	116	97.4	91.9	85.2
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	71.5	78.8	61.8	76.1	67.9
Anthracene-d10	1719-06-8	0.1	%	105	88.1	97.1	105	96.8
4-Terphenyl-d14	1718-51-0	0.1	%	85.0	87.7	76.5	88.9	90.8
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	116	96.5	126	128	131
Toluene-D8	2037-26-5	0.1	%	119	105	113	117	108
4-Bromofluorobenzene	460-00-4	0.1	%	112	98.1	115	115	109



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BW6MW1D10	BE_MW08	R01_051213_CH	R01_051213_KF	TRIP BLANK
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327010-006	ES1327010-007	ES1327010-008	ES1327010-009	ES1327010-010
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	540	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	540	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	6910	----	----	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	8940	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	539	----	----	----	----
Magnesium	7439-95-4	1	mg/L	2110	----	----	----	----
Sodium	7440-23-5	1	mg/L	5640	----	----	----	----
Potassium	7440-09-7	1	mg/L	48	----	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	----	<0.001	<0.001	----
Nickel	7440-02-0	0.001	mg/L	----	----	<0.001	<0.001	----
Lead	7439-92-1	0.001	mg/L	----	----	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L	----	----	<0.005	<0.005	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS								
Selenium	7782-49-2	2	µg/L	<2	----	----	----	----
Arsenic	7440-38-2	0.5	µg/L	1.2	----	----	----	----
Barium	7440-39-3	1	µg/L	21	----	----	----	----
Beryllium	7440-41-7	0.1	µg/L	<0.1	----	----	----	----
Boron	7440-42-8	100	µg/L	113	----	----	----	----
Cadmium	7440-43-9	0.2	µg/L	<0.2	----	----	----	----
Chromium	7440-47-3	0.5	µg/L	<0.5	----	----	----	----
Cobalt	7440-48-4	0.2	µg/L	5.3	----	----	----	----
Copper	7440-50-8	1	µg/L	3	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BW6MW1D10	BE_MW08	R01_051213_CH	R01_051213_KF	TRIP BLANK
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327010-006	ES1327010-007	ES1327010-008	ES1327010-009	ES1327010-010
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS - Continued								
Lead	7439-92-1	0.2	µg/L	<0.2	----	----	----	----
Manganese	7439-96-5	0.5	µg/L	3930	----	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	1.1	----	----	----	----
Nickel	7440-02-0	0.5	µg/L	300	----	----	----	----
Thallium	7440-28-0	0.1	µg/L	0.1	----	----	----	----
Vanadium	7440-62-2	0.5	µg/L	1.3	----	----	----	----
Zinc	7440-66-6	5	µg/L	22	----	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	----	9.5	----	----	----
Cadmium	7440-43-9	0.05	µg/L	----	1.36	----	----	----
Chromium	7440-47-3	0.2	µg/L	----	1.0	----	----	----
Copper	7440-50-8	0.5	µg/L	----	6.1	----	----	----
Lead	7439-92-1	0.1	µg/L	----	4.2	----	----	----
Nickel	7440-02-0	0.5	µg/L	----	344	----	----	----
Zinc	7440-66-6	1	µg/L	----	697	----	----	----
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	407	----	----	----	----
Total Cations	----	0.01	meq/L	447	----	----	----	----
Ionic Balance	----	0.01	%	4.70	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BW6MW1D10	BE_MW08	R01_051213_CH	R01_051213_KF	TRIP BLANK
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327010-006	ES1327010-007	ES1327010-008	ES1327010-009	ES1327010-010
EP074B: Oxygenated Compounds - Continued								
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BW6MW1D10	BE_MW08	R01_051213_CH	R01_051213_KF	TRIP BLANK
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327010-006	ES1327010-007	ES1327010-008	ES1327010-009	ES1327010-010
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BW6MW1D10	BE_MW08	R01_051213_CH	R01_051213_KF	TRIP BLANK
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327010-006	ES1327010-007	ES1327010-008	ES1327010-009	ES1327010-010
EP075(SIM)A: Phenolic Compounds - Continued								
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BW6MW1D10	BE_MW08	R01_051213_CH	R01_051213_KF	TRIP BLANK
				05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00	05-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327010-006	ES1327010-007	ES1327010-008	ES1327010-009	ES1327010-010
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	111	106	99.3	101	----
Toluene-D8	2037-26-5	0.1	%	106	97.3	83.8	88.2	----
4-Bromofluorobenzene	460-00-4	0.1	%	106	97.8	87.5	92.4	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	28.6	33.3	32.6	32.0	----
2-Chlorophenol-D4	93951-73-6	0.1	%	51.5	65.0	64.9	62.3	----
2.4.6-Tribromophenol	118-79-6	0.1	%	78.7	75.6	74.3	77.5	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	65.5	75.9	75.8	75.4	----
Anthracene-d10	1719-06-8	0.1	%	102	83.4	106	91.7	----
4-Terphenyl-d14	1718-51-0	0.1	%	86.1	92.4	93.2	93.6	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	134	132	123	126	93.4
Toluene-D8	2037-26-5	0.1	%	130	118	100	107	89.4
4-Bromofluorobenzene	460-00-4	0.1	%	126	116	104	107	95.2



Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

				TRIP SPIKE	----	----	----	----
				05-DEC-2013 15:00	----	----	----	----
				ES1327010-011	----	----	----	----
Compound	CAS Number	LOR	Unit					
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	16	----	----	----	----
Toluene	108-88-3	2	µg/L	16	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	16	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	16	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	18	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	34	----	----	----	----
^ Sum of BTEX	----	1	µg/L	82	----	----	----	----
Naphthalene	91-20-3	5	µg/L	19	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	101	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	97.3	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	102	----	----	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1327010	Page	: 1 of 23
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: CH, KF	No. of samples received	: 11
Order number	: ----	No. of samples analysed	: 11
Quote number	: SY/794/13		

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

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

Ankit Joshi
Celine Conceicao
Pabi Subba

Position

Inorganic Chemist
Senior Spectroscopist
Senior Organic Chemist

Accreditation Category

Sydney Inorganics
Sydney Inorganics
Sydney 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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 3206156)									
ES1326993-005	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	334	335	0.3	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	334	335	0.3	0% - 20%
ES1327010-002	BB_MW02	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1110	1110	0.1	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1110	1110	0.1	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 3206465)									
ES1326657-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	49	49	0.0	0% - 20%
ES1326817-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	84	85	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 3206474)									
ES1326993-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2150	2160	0.5	0% - 20%
ED045G: Chloride Discrete analyser (QC Lot: 3206472)									
ES1326993-007	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	516	520	0.9	0% - 20%
ES1327010-004	BB_MW04	ED045G: Chloride	16887-00-6	1	mg/L	4070	4100	0.9	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 3206473)									
ES1326993-008	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	141	141	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	118	118	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	351	352	0.5	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	27	27	0.0	0% - 20%
ES1327010-006	BW6MW1D10	ED093F: Calcium	7440-70-2	1	mg/L	539	531	1.5	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	2110	2060	2.1	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	5640	5530	2.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	48	47	3.0	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3210613)									
ES1326784-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	0.0	No Limit
ES1326784-011	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3210613) - continued									
ES1326784-011	Anonymous	EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3210614)									
ES1327009-005	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	0.0002	0.0001	0.0	No Limit
ES1327010-008	R01_051213_CH	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3213601)									
ES1327010-001	BB_MW01	EG093A-F: Beryllium	7440-41-7	0.1	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	3.1	2.5	19.9	0% - 50%
		EG093A-F: Thallium	7440-28-0	0.1	µg/L	1.0	0.9	0.0	No Limit
		EG093A-F: Cadmium	7440-43-9	0.2	µg/L	1.9	2.0	5.9	No Limit
		EG093A-F: Cobalt	7440-48-4	0.2	µg/L	101	100	1.0	0% - 20%
		EG093A-F: Lead	7439-92-1	0.2	µg/L	89.9	90.5	0.7	0% - 20%
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	6.9	7.1	3.3	No Limit
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	<1.0	<1.0	0.0	No Limit
		EG093A-F: Manganese	7439-96-5	0.5	µg/L	30900	30500	1.3	0% - 20%
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	976	977	0.1	0% - 20%
		EG093A-F: Vanadium	7440-62-2	0.5	µg/L	6.3	7.5	17.6	No Limit
		EG093A-F: Barium	7440-39-3	1	µg/L	53	53	0.0	0% - 20%
		EG093A-F: Copper	7440-50-8	1	µg/L	23	24	0.0	0% - 50%
		EG093A-F: Boron	7440-42-8	100	µg/L	<200	<200	0.0	No Limit
EG093A-F: Zinc	7440-66-6	5	µg/L	43	43	0.0	No Limit		
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3213602)									
ES1327010-001	BB_MW01	EG093B-F: Selenium	7782-49-2	2	µg/L	13	12	0.0	No Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3214690)									
ES1327030-001	Anonymous	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.06	0.05	0.0	No Limit
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.20	0.18	7.9	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	1.0	0.9	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	26.9	24.6	9.2	0% - 20%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	5.4	4.9	8.7	0% - 20%
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	29.8	26.1	13.2	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	1.2	1.1	12.4	No Limit
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	256	232	9.7	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	33.1	30.2	9.1	0% - 20%



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3214690) - continued									
ES1327030-001	Anonymous	EG094A-F: Zinc	7440-66-6	1	µg/L	56	51	9.1	0% - 20%
		EG094A-F: Boron	7440-42-8	5	µg/L	<5	<5	0.0	No Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3214691)									
ES1327030-001	Anonymous	EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3209308)									
ES1327010-001	BB_MW01	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
ES1327010-007	BE_MW08	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
ES1327010-007	BE_MW08	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
ES1327010-001	BB_MW01	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
ES1327010-007	BE_MW08	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3209308)									
ES1327010-001	BB_MW01	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1327010-007	BE_MW08	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3209308)									
ES1327010-001	BB_MW01	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074D: Fumigants (QC Lot: 3209308) - continued									
ES1327010-001	BB_MW01	EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1327010-007	BE_MW08	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3209308)									
ES1327010-001	BB_MW01	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES1327010-007	BE_MW08	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3209308) - continued									
ES1327010-007	BE_MW08	EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3209308)									
ES1327010-001	BB_MW01	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
		ES1327010-007	BE_MW08	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5
EP074: Bromobenzene	108-86-1			5	µg/L	<5	<5	0.0	No Limit
EP074: 2-Chlorotoluene	95-49-8			5	µg/L	<5	<5	0.0	No Limit
EP074: 4-Chlorotoluene	106-43-4			5	µg/L	<5	<5	0.0	No Limit
EP074: 1,3-Dichlorobenzene	541-73-1			5	µg/L	<5	<5	0.0	No Limit
EP074: 1,4-Dichlorobenzene	106-46-7			5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 3209308) - continued									
ES1327010-007	BE_MW08	EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3209308)									
ES1327010-001	BB_MW01	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1327010-007	BE_MW08	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3209308)									
ES1327010-001	BB_MW01	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1327010-007	BE_MW08	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3208037)									
ES1327009-001	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		ES1327010-002	BB_MW02	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0
EP075(SIM): 2-Chlorophenol	95-57-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5			2.0	µg/L	<2.0	<2.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3208037)									
ES1327009-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
ES1327010-002	BB_MW02	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3208036)									
ES1327009-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1327010-002	BB_MW02	EP071: C15 - C28 Fraction	----	100	µg/L	470	490	3.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3209306)									



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3209306) - continued										
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1327009-009	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3209309)										
ES1327010-001	BB_MW01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES1327010-007	BE_MW08	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3208036)										
ES1327009-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
ES1327010-002	BB_MW02	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	400	420	6.2	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3209306)										
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1327009-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3209309)										
ES1327010-001	BB_MW01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1327010-007	BE_MW08	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 3209306)										
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1327009-009	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			
EP080: BTEXN (QC Lot: 3209309)										
ES1327010-001	BB_MW01	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
	106-42-3									

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 Project : Project Symphony



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080: BTEXN (QC Lot: 3209309) - continued										
ES1327010-001	BB_MW01	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1327010-007	BE_MW08	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit		



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 (%)		Recovery Limits (%)	
						LCS	Low	High	
ED037P: Alkalinity by PC Titrator (QCLot: 3206156)									
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	95.7	81	111	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206465)									
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	109	86	122	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206474)									
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	115	86	122	
ED045G: Chloride Discrete analyser (QCLot: 3206472)									
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	91.2	77	123	
ED093F: Dissolved Major Cations (QCLot: 3206473)									
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	110	87	113	
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	106	89	113	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.6	79	113	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	102	87	115	
EG020F: Dissolved Metals by ICP-MS (QCLot: 3210613)									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	80	118	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.5	82	112	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	103	81	111	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	106	80	112	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	91.8	83	111	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	81	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	111	80	116	
EG035F: Dissolved Mercury by FIMS (QCLot: 3210614)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	89.4	78	114	
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3213601)									
EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	91.9	76	134	
EG093A-F: Barium	7440-39-3	1	µg/L	<1	10 µg/L	84.8	72	128	
EG093A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	105	74	124	
EG093A-F: Boron	7440-42-8	100	µg/L	<100	----	----	----	----	
EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	108	71	125	
EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	114	74	126	
EG093A-F: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	118	72	126	
EG093A-F: Copper	7440-50-8	1	µg/L	<1	10 µg/L	122	71	129	
EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	105	74	126	
EG093A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	111	75	127	
EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	86.1	71	131	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3213601) - continued									
EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	103	75	133	
EG093A-F: Thallium	7440-28-0	0.1	µg/L	<0.1	10 µg/L	107	72	128	
EG093A-F: Vanadium	7440-62-2	0.5	µg/L	<0.5	10 µg/L	106	72	112	
EG093A-F: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	103	75	129	
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3213602)									
EG093B-F: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	108	74	130	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214690)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	101	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	110	76	120	
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	106	74	130	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	10 µg/L	104	79	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	106	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	106	71	123	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	111	79	121	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	110	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	100	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	110	79	119	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	88.5	69	127	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	110	72	128	
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	103	71	121	
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	108	78	116	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	110	76	134	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214691)									
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	90.4	75	125	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3209308)									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	98.1	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	95.2	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	90.5	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	91.7	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	89.9	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	94.0	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	93.8	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	92.9	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	87.3	62	126	
EP074B: Oxygenated Compounds (QCLot: 3209308)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	103	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	128	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	131	61	139	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074B: Oxygenated Compounds (QCLot: 3209308) - continued									
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	132	65	137	
EP074C: Sulfonated Compounds (QCLot: 3209308)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	73.4	72.8	127	
EP074D: Fumigants (QCLot: 3209308)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	92.4	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	97.7	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	82.0	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	85.6	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	112	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209308)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	63.4	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	80.3	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	72.3	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	70.0	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	81.3	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	80.5	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	86.2	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	87.9	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	99.4	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	98.3	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	99.5	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	93.4	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	94.7	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	75.0	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	102	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	104	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	109	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	111	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	104	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	97.7	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	101	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	98.7	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	96.4	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	119	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	113	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	93.0	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	106	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	77.2	58	132	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074F: Halogenated Aromatic Compounds (QCLot: 3209308)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	97.4	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	98.8	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	93.5	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	94.3	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	96.5	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	97.2	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	96.4	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	81.7	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	86.2	67	125	
EP074G: Trihalomethanes (QCLot: 3209308)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	96.7	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	90.5	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	105	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	118	73.5	126	
EP074H: Naphthalene (QCLot: 3209308)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	91.1	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3208037)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	35.4	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	63.9	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	66.8	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	68.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	74.7	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	89.4	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	75.5	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	75.2	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	98.7	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	68.3	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	92.3	50	108	
		1	µg/L	<1.0	----	----	----	----	



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		
EP075(SIM)A: Phenolic Compounds (QCLot: 3208037) - continued									
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	86.0	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208037)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	62.3	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	78.8	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	70.8	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	88.2	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	79.1	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	104	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	102	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	86.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	88.5	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	90.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	63.6	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	95.9	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	99.0	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	87.2	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	81.3	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	86.3	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208036)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	82.9	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	93.1	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	103	62	120	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	84.2	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209309)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	108	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208036)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	91.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.2	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	104	67	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.7	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209309)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	109	75	127	
EP080: BTEXN (QCLot: 3209306)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.8	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.2	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	96.3	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	110	70	124	
EP080: BTEXN (QCLot: 3209309)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	118	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	115	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	108	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	102	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	96.3	70	124	

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
					MS	Low	High	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206465)								
ES1326817-001	Anonymous							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report					
				Spike	SpikeRecovery(%)	Recovery Limits (%)			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High		
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206465) - continued									
ES1326817-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70	130		
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206474)									
ES1326993-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70	130		
ED045G: Chloride Discrete analyser (QCLot: 3206472)									
ES1326993-007	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	76.9	70	130		
EG020F: Dissolved Metals by ICP-MS (QCLot: 3210613)									
ES1326784-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	108	70	130		
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	86.2	70	130		
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	98.0	70	130		
		EG020A-F: Copper	7440-50-8	0.2 mg/L	105	70	130		
		EG020A-F: Lead	7439-92-1	0.2 mg/L	86.8	70	130		
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	78.9	70	130		
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	106	70	130		
EG035F: Dissolved Mercury by FIMS (QCLot: 3210614)									
ES1327009-005	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 20.7	70	130		
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3213601)									
ES1327010-002	BB_MW02	EG093A-F: Arsenic	7440-38-2	50 µg/L	102	70	130		
		EG093A-F: Barium	7440-39-3	50 µg/L	113	70	130		
		EG093A-F: Beryllium	7440-41-7	50 µg/L	75.5	70	130		
		EG093A-F: Cadmium	7440-43-9	12.5 µg/L	71.2	70	130		
		EG093A-F: Chromium	7440-47-3	50 µg/L	97.2	70	130		
		EG093A-F: Cobalt	7440-48-4	50 µg/L	93.2	70	130		
		EG093A-F: Copper	7440-50-8	50 µg/L	86.8	70	130		
		EG093A-F: Lead	7439-92-1	50 µg/L	98.6	70	130		
		EG093A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130		
		EG093A-F: Nickel	7440-02-0	50 µg/L	# Not Determined	70	130		
		EG093A-F: Vanadium	7440-62-2	50 µg/L	112	70	130		
		EG093A-F: Zinc	7440-66-6	50 µg/L	71.0	70	130		
		EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214690)							
		ES1327030-002	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	113	70	130
EG094A-F: Barium	7440-39-3			50 µg/L	127	70	130		
EG094A-F: Beryllium	7440-41-7			50 µg/L	72.6	70	130		
EG094A-F: Cadmium	7440-43-9			12.5 µg/L	119	70	130		
EG094A-F: Chromium	7440-47-3			50 µg/L	121	70	130		



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214690) - continued							
ES1327030-002	Anonymous	EG094A-F: Cobalt	7440-48-4	50 µg/L	115	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	126	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	109	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	127	70	130
		EG094A-F: Vanadium	7440-62-2	50 µg/L	126	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	127	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209308)							
ES1327010-001	BB_MW01	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	94.6	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	120	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3209308)							
ES1327010-001	BB_MW01	EP074: Chlorobenzene	108-90-7	25 µg/L	117	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3208037)							
ES1327009-004	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	43.3	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	81.2	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	70.8	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	83.1	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	106	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208037)							
ES1327009-004	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	79.2	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	79.7	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208036)							
ES1327009-004	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	115	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	105	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	84.3	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)							
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209309)							
ES1327010-001	BB_MW01	EP080: C6 - C9 Fraction	----	325 µg/L	108	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208036)							
ES1327009-004	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	108	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	94.5	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.4	67	153
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)							
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209309)							
ES1327010-001	BB_MW01	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	104	70	130
EP080: BTEXN (QCLot: 3209306)							
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	102	70	130
		EP080: Toluene	108-88-3	25 µg/L	118	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	113	70	130
EP080: BTEXN (QCLot: 3209309)							
ES1327010-001	BB_MW01	EP080: Benzene	71-43-2	25 µg/L	103	70	130
		EP080: Toluene	108-88-3	25 µg/L	99.5	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	101	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	94.4	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	92.9	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	70.8	70	130

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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206465)										
ES1326817-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	----	70	130	----	----
ED045G: Chloride Discrete analyser (QCLot: 3206472)										
ES1326993-007	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	76.9	----	70	130	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3206474)										
ES1326993-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3208036)										
ES1327009-004	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	115	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	105	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	84.3	----	67	153	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208036)										



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3208036) - continued											
ES1327009-004	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	108	----	74	150	----	----	
		EP071: >C16 - C34 Fraction	----	350 µg/L	94.5	----	77	153	----	----	
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.4	----	67	153	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3208037)											
ES1327009-004	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	43.3	----	20	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	81.2	----	60	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	70.8	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	83.1	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	106	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3208037)											
ES1327009-004	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	79.2	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	20 µg/L	79.7	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)											
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)											
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	----	70	130	----	----	
EP080: BTEXN (QCLot: 3209306)											
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	102	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	118	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	----	70	130	----	----	
	EP080: Naphthalene	91-20-3	25 µg/L	113	----	70	130	----	----		
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209308)											
ES1327010-001	BB_MW01	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	94.6	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	25 µg/L	120	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3209308)											
ES1327010-001	BB_MW01	EP074: Chlorobenzene	108-90-7	25 µg/L	117	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209309)											
ES1327010-001	BB_MW01	EP080: C6 - C9 Fraction	----	325 µg/L	108	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209309)											
ES1327010-001	BB_MW01	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	104	----	70	130	----	----	
EP080: BTEXN (QCLot: 3209309)											
ES1327010-001	BB_MW01	EP080: Benzene	71-43-2	25 µg/L	103	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	99.5	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	101	----	70	130	----	----	



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP080: BTEXN (QCLot: 3209309) - continued										
ES1327010-001	BB_MW01	EP080: meta- & para-Xylene	108-38-3	25 µg/L	94.4	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	92.9	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	70.8	----	70	130	----	----
EG020F: Dissolved Metals by ICP-MS (QCLot: 3210613)										
ES1326784-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	108	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	86.2	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	98.0	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	105	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	86.8	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	78.9	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	106	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3210614)										
ES1327009-005	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 20.7	----	70	130	----	----
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3213601)										
ES1327010-002	BB_MW02	EG093A-F: Arsenic	7440-38-2	50 µg/L	102	----	70	130	----	----
		EG093A-F: Barium	7440-39-3	50 µg/L	113	----	70	130	----	----
		EG093A-F: Beryllium	7440-41-7	50 µg/L	75.5	----	70	130	----	----
		EG093A-F: Cadmium	7440-43-9	12.5 µg/L	71.2	----	70	130	----	----
		EG093A-F: Chromium	7440-47-3	50 µg/L	97.2	----	70	130	----	----
		EG093A-F: Cobalt	7440-48-4	50 µg/L	93.2	----	70	130	----	----
		EG093A-F: Copper	7440-50-8	50 µg/L	86.8	----	70	130	----	----
		EG093A-F: Lead	7439-92-1	50 µg/L	98.6	----	70	130	----	----
		EG093A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----
		EG093A-F: Nickel	7440-02-0	50 µg/L	# Not Determined	----	70	130	----	----
		EG093A-F: Vanadium	7440-62-2	50 µg/L	112	----	70	130	----	----
EG093A-F: Zinc	7440-66-6	50 µg/L	71.0	----	70	130	----	----		
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214690)										
ES1327030-002	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	113	----	70	130	----	----
		EG094A-F: Barium	7440-39-3	50 µg/L	127	----	70	130	----	----
		EG094A-F: Beryllium	7440-41-7	50 µg/L	72.6	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	119	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	121	----	70	130	----	----
		EG094A-F: Cobalt	7440-48-4	50 µg/L	115	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	126	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	109	----	70	130	----	----



Sub-Matrix: **WATER**

				<i>Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report</i>						
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Spike</i>	<i>Spike Recovery (%)</i>		<i>Recovery Limits (%)</i>		<i>RPDs (%)</i>	
				<i>Concentration</i>	<i>MS</i>	<i>MSD</i>	<i>Low</i>	<i>High</i>	<i>Value</i>	<i>Control Limit</i>
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3214690) - continued										
ES1327030-002	Anonymous	EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	127	----	70	130	----	----
		EG094A-F: Vanadium	7440-62-2	50 µg/L	126	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	127	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327010	Page	: 1 of 11
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 10-DEC-2013
C-O-C number	: ----	Issue Date	: 16-DEC-2013
Sampler	: CH, KF	No. of samples received	: 11
Order number	: ----	No. of samples analysed	: 11
Quote number	: SY/794/13		

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) BB_MW01, BB_MW03, BB_MW05, BB_MW02, BB_MW04, BW6MW1D10	05-DEC-2013	---	19-DEC-2013	----	11-DEC-2013	19-DEC-2013	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) BB_MW01, BB_MW03, BB_MW05, BB_MW02, BB_MW04, BW6MW1D10	05-DEC-2013	---	02-JAN-2014	----	11-DEC-2013	02-JAN-2014	✓
ED045G: Chloride Discrete analyser							
Clear Plastic Bottle - Natural (ED045G) BB_MW01, BB_MW03, BB_MW05, BB_MW02, BB_MW04, BW6MW1D10	05-DEC-2013	---	02-JAN-2014	----	11-DEC-2013	02-JAN-2014	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F) BB_MW01, BB_MW03, BB_MW05, BB_MW02, BB_MW04, BW6MW1D10	05-DEC-2013	---	12-DEC-2013	----	11-DEC-2013	12-DEC-2013	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) R01_051213_CH, R01_051213_KF	05-DEC-2013	---	03-JUN-2014	----	13-DEC-2013	03-JUN-2014	✓
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BB_MW01, BB_MW03, BB_MW05, BE_MW08, BB_MW02, BB_MW04, BW6MW1D10,	05-DEC-2013	---	02-JAN-2014	----	13-DEC-2013	02-JAN-2014	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) R01_051213_CH, R01_051213_KF	05-DEC-2013	---	02-JAN-2014	----	13-DEC-2013	02-JAN-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG093A-F) BB_MW01, BB_MW03, BW6MW1D10 BB_MW02, BB_MW05,	05-DEC-2013	---	03-JUN-2014	----	16-DEC-2013	03-JUN-2014	✓
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG093B-F) BB_MW01, BB_MW03, BW6MW1D10 BB_MW02, BB_MW05,	05-DEC-2013	---	03-JUN-2014	----	16-DEC-2013	03-JUN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BB_MW04, BE_MW08	05-DEC-2013	---	03-JUN-2014	----	16-DEC-2013	03-JUN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) BB_MW04	05-DEC-2013	---	03-JUN-2014	----	16-DEC-2013	03-JUN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber Glass Bottle - Unpreserved (EP071) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH,	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH,	05-DEC-2013	14-DEC-2013	19-DEC-2013	✓	14-DEC-2013	19-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH,	05-DEC-2013	14-DEC-2013	19-DEC-2013	✓	14-DEC-2013	19-DEC-2013	✓



Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH,	05-DEC-2013	14-DEC-2013	19-DEC-2013	✓	14-DEC-2013	19-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH,	05-DEC-2013	14-DEC-2013	19-DEC-2013	✓	14-DEC-2013	19-DEC-2013	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH,	05-DEC-2013	14-DEC-2013	19-DEC-2013	✓	14-DEC-2013	19-DEC-2013	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH,	05-DEC-2013	14-DEC-2013	19-DEC-2013	✓	14-DEC-2013	19-DEC-2013	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH,	05-DEC-2013	14-DEC-2013	19-DEC-2013	✓	14-DEC-2013	19-DEC-2013	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH,	05-DEC-2013	14-DEC-2013	19-DEC-2013	✓	14-DEC-2013	19-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH,	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH,	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	13-DEC-2013	21-JAN-2014	✓	
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF, TRIP SPIKE BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH, TRIP BLANK,	05-DEC-2013	14-DEC-2013	19-DEC-2013	✓	14-DEC-2013	19-DEC-2013	✓	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Amber VOC Vial - Sulfuric Acid (EP080) BB_MW01, BB_MW03, BB_MW05, BE_MW08, R01_051213_KF, BB_MW02, BB_MW04, BW6MW1D10, R01_051213_CH, TRIP BLANK	05-DEC-2013	14-DEC-2013	19-DEC-2013	✓	14-DEC-2013	19-DEC-2013	✓	



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	12	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	16	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	13	7.7	10.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	12	8.3	10.0	✖	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	5	20.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	5	20.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	11	18.2	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	18	11.1	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	25	12.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	39	10.3	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	19	10.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	12	16.7	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	5	20.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	5	20.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	11	9.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	25	8.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	13	7.7	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	12	8.3	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	5	20.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	25	8.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	25	8.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	39	5.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Sulfate (Turbidimetric) as SO ₄ ²⁻ by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO ₄ Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ ²⁻ concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	APHA 21st Ed. 1030F. The Ionic Balance is calculated based on the major Anions and Cations. The major anions include Alkalinity, Chloride and Sulfate which determined by PCT and DA. The Cations are determined by Turbi SO4 by DA. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES1326993-007	Anonymous	Sulfate as SO4 - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES1326817-001	Anonymous	Sulfate as SO4 - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG035F: Dissolved Mercury by FIMS	ES1327009-005	Anonymous	Mercury	7439-97-6	20.7 %	70-130%	Recovery less than lower data quality objective
EG093F: Dissolved Metals in Saline Water by ORC-ICP	ES1327010-002	BB_MW02	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG093F: Dissolved Metals in Saline Water by ORC-ICP	ES1327010-002	BB_MW02	Nickel	7440-02-0	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1327030-002	Anonymous	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP074S: VOC Surrogates	ES1327010-002	BB_MW02	1,2-Dichloroethane-D4	17060-07-0	77.5 %	78.3-133.2 %	Recovery less than lower data quality objective
EP074S: VOC Surrogates	ES1327010-002	BB_MW02	4-Bromofluorobenzene	460-00-4	80.0 %	80.8-123.7 %	Recovery less than lower data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1327010-002	BB_MW02	Phenol-d6	13127-88-3	46.5 %	10.0-44 %	Recovery greater than upper data quality objective

Outliers : Analysis Holding Time Compliance



This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- **No Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	1	13	7.7	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	1	12	8.3	10.0	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

16/12



CHAIN OF CUSTODY

ALS Laboratory
please tick →

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WOLLONGONG 69 Kooka Street Wollongong NSW 2500
Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: ELM	TURNAROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input type="checkbox"/> Non Standard or urgent TAT (List due date):	Custody Seal Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Freezers / Frozen Ice bricks present upon receipt? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
PROJECT: Project Symphony	ALS QUOTE NO.: SY794/13	Random Sample Temperature on Receipt: 5°C	
ORDER NUMBER: 0224193	SITE: BAYSWATER MODEL	Other comment:	
PROJECT MANAGER: Joe Ferring	CONTACT PH: 0424 910 468	RECEIVED BY: Hayley W	
AMPLIFIER: Nathan Hegarty	SAMPLER MOBILE: 0488 621876	RELINQUISHED BY: Nathan Hegarty	RECEIVED BY: Hayley W
EMAIL: symphony.margen@elm.com	EDD FORMAT (or default):	DATE/TIME: 3/12/13 13:00	DATE/TIME: 10/12/13 12:00
<input type="checkbox"/> emailed to ALS? (YES / NO) <input checked="" type="checkbox"/> YES / <input type="checkbox"/> NO <input type="checkbox"/> Reports to (will default to PM if no other addresses are listed): <input type="checkbox"/> Invoice to (will default to PM if no other addresses are listed):		RELINQUISHED BY: Nathan W	RECEIVED BY: Hayley W
		DATE/TIME: 10/12/13 12:00	DATE/TIME: 10/12/13 19:00

REMARKS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information	
	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti)	Selenium (Freshwater ORC)	VOC Target Scan	CATIONS + ANIONS	PFOS/PFOA	W-24 TRH(C6-C40)/BTEXN, PAH, Phenols		ORC ultra trace metals
	BI.MW01	02/12/13 10:20	W	4xVS, 2xAG, 3xORC, 1xN	10	X			X	X		X	X	2 ORC bottles (unpreserved) were used for cation + anions in lieu of standard unpreserved plastic. Confirmed with Barbara Hannan over phone 02/12/13
	BI.MW02	13:30				X			X	X		X	X	
	BI.MW03	13:30				X			X	X		X	X	
	BH.MW01	15:45				X			X	X		X	X	
	BH.MW02	15:50				X			X	X		X	X	
	Rinsate_021213_NH	02/12/13 15:50		2xVS, 2xAG, 3xORC, 1xN, 1xP	7	X			X	X		X	X	
	Trip Blank													TRH/BTEXN
	Trip Spike													BTEXN
	BV.MW06	5/12/13												
					TOTAL									

Environmental Division
Sydney
Work Order
ES1327011



Telephone: + 61-2-8784 8555

Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl in Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

lastic
ulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;

Clea Henderson

From: Clea Henderson
Sent: Monday, 16 December 2013 12:10 PM
To: 'Barbara Hanna'
Cc: ERM Australia Project Symphony MacGen; John Ewing; Joseph Ferring
Subject: ES1327011 - additional analysis
Attachments: ES1327011_0_SRN_131212183316.pdf; ES1327011_COC.PDF

Hi Barbara,

For the attached batch, sample 009 was incorrectly placed on hold by our field staff.

Can you please arrange for the following analysis for this sample (BV_MW06) on fast tat?

- 8 metals
- TRH/BTEXN, PAH, Phenols
- VOCs
- PCBs

Thanks kindly,

Clea Henderson
Chemical Engineer

Environmental Resources Management
Level 3, Tower 3, 13-38 Siddeley Street,
World Trade Centre, Docklands Victoria 3005

Tel: +61 3 8606 4188 (Direct)
Tel: +61 3 9696 8011 (switchboard)
Fax: +61 3 9696 8022

www.erm.com
clea.henderson@erm.com

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1327011

Amendment : 1

Client : ENVIRO RESOURCES MANAGEMENT
Laboratory : Environmental Division Sydney

Contact : MR JOSEPH FERRING
Address : GROUND FLOOR
 33 SAUNDERS STREET, PYRMONT
 NSW 2009
 LOCKED BAG 24
 BROADWAY NSW, AUSTRALIA 2007

Contact : Barbara Hanna
Address : 277-289 Woodpark Road Smithfield
 NSW Australia 2164

E-mail : joseph.ferring@erm.com
Telephone : +61 02 8584 8888
Facsimile : +61 02 8584 8800

E-mail : Barbara.Hanna@alsglobal.com
Telephone : +61 2 8784 8555
Facsimile : +61 2 8784 8555

Project : PROJECT SYMPHONY
Order number : 0224193
C-O-C number : ----
Site : ----

Page : 1 of 4
Quote number : ES2013ENVRES0369 (SY/794/13)

Sampler : NATHAN.H
QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 10-DEC-2013
Client Requested Due Date : 23-DEC-2013
Issue Date : 20-DEC-2013 13:31
Scheduled Reporting Date : **23-DEC-2013**

Delivery Details

Mode of Delivery : Carrier
No. of coolers/boxes : 1 HARD
Security Seal : Intact.

Temperature : 5'C SYD - Ice present
No. of samples received : 9
No. of samples analysed : 9

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.
- Sample BV_MW06 5/12/2013 was received extra and conducted analysis on 16/12/13 as per Clea Henderson
- Natural bottle not supplied for samples BI_MW01, BI_MW02, BI_MW03, BH_MW01, BH_MW02, lab will use the 1x 60ml red/green metal unpreserved bottle for Cations and Anions analysis.
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Breaches in recommended extraction / analysis holding times may occur. Please refer to the 'Proactive Holding Time Report' below for further details. Please contact ALS if further information is required.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
ED037-P : Alkalinity by PC Titrator		
BI_MW01	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
BI_MW02	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
BI_MW03	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
BH_MW01	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Natural
BH_MW02	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
ED041G : Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser		
BI_MW01	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
BI_MW02	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
BI_MW03	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
BH_MW01	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Natural
BH_MW02	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
ED045G : Chloride by Discrete Analyser		
BI_MW01	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
BI_MW02	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
BI_MW03	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
BH_MW01	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Natural
BH_MW02	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
ED093F : Major Cations - Dissolved		
BI_MW01	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
BI_MW02	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
BI_MW03	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
BH_MW01	- Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified	- Clear Plastic Bottle - Natural
BH_MW02	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Natural
EG035F : Dissolved Mercury by FIMS		
BI_MW03	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
BH_MW01	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
BV_MW06	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear Plastic Bottle - Nitric Acid; Filtered
EG093B-F : Dissolved Metals in Saline Water -Suite B by ORC-ICPMS		
BV_MW06	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
EG094A-F : Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS		
BI_MW03	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
BH_MW01	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
EG094B-F : Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS		
BI_MW03	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered
BH_MW01	- Clear HDPE (U-T ORC) - Unspecified; Lab-acidified	- Clear HDPE (U-T ORC) - UHP Nitric Acid; Filtered



Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG093A-F Dissolved metals in saline water by	WATER - EG093B-F Dissolved Metals in Saline Water Suite	WATER - EG094A-F Dissolved Metals in Fresh Water Suite	WATER - EG094B-F Dissolved Metals in fresh water	WATER - EN055 - PG Ionic Balance by ED037P, ED041G,	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds
ES1327011-001	02-DEC-2013 10:20	BI_MW01	✓			✓	✓	✓		✓
ES1327011-002	02-DEC-2013 13:30	BI_MW02	✓			✓	✓	✓		✓
ES1327011-003	02-DEC-2013 13:30	BI_MW03	✓			✓	✓	✓		✓
ES1327011-004	02-DEC-2013 15:45	BH_MW01	✓			✓	✓	✓		✓
ES1327011-005	02-DEC-2013 15:50	BH_MW02	✓			✓	✓	✓		✓
ES1327011-006	02-DEC-2013 15:50	RINSATE_021213_NH						✓		✓
ES1327011-009	05-DEC-2013 15:00	BV_MW06	✓	✓	✓				✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP080 BTEXN	WATER - NT-01 Major Cations (Ca, Mg, Na, K)	WATER - NT-02 Major Anions (Chloride, Sulphate,	WATER - W-02T 8 metals (Total)	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1327011-001	02-DEC-2013 10:20	BI_MW01		✓	✓			✓
ES1327011-002	02-DEC-2013 13:30	BI_MW02		✓	✓			✓
ES1327011-003	02-DEC-2013 13:30	BI_MW03		✓	✓			✓
ES1327011-004	02-DEC-2013 15:45	BH_MW01		✓	✓			✓
ES1327011-005	02-DEC-2013 15:50	BH_MW02		✓	✓			✓
ES1327011-006	02-DEC-2013 15:50	RINSATE_021213_NH		✓	✓	✓		✓
ES1327011-007	02-DEC-2013 15:00	TRIP BLANK					✓	
ES1327011-008	02-DEC-2013 15:00	TRIP SPIKE	✓					
ES1327011-009	05-DEC-2013 15:00	BV_MW06						✓



Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Due for extraction	Due for analysis	Samples Received		Instructions Received	
Client Sample ID(s)	Container			Date	Evaluation	Date	Evaluation
ED093F: Major Cations - Dissolved							
RINSATE_021213_N	Clear Plastic Bottle - Natural	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖
EP071: TPH - Semivolatile Fraction							
BH_MW01	Amber Glass Bottle - Unpreserv	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖
BH_MW02	Amber Glass Bottle - Unpreserv	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖
BI_MW01	Amber Glass Bottle - Unpreserv	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖
BI_MW02	Amber Glass Bottle - Unpreserv	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖
BI_MW03	Amber Glass Bottle - Unpreserv	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖
RINSATE_021213_N	Amber Glass Bottle - Unpreserv	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖
EP075(SIM): PAH/Phenols (GC/MS - SIM)							
BH_MW01	Amber Glass Bottle - Unpreserv	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖
BH_MW02	Amber Glass Bottle - Unpreserv	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖
BI_MW01	Amber Glass Bottle - Unpreserv	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖
BI_MW02	Amber Glass Bottle - Unpreserv	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖
BI_MW03	Amber Glass Bottle - Unpreserv	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖
RINSATE_021213_N	Amber Glass Bottle - Unpreserv	09-DEC-2013	----	10-DEC-2013	✖	10-DEC-2013	✖

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA)	Email	symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	symphony.macgen@erm.com
- Chain of Custody (CoC) (COC)	Email	symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG)	Email	symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT)	Email	symphony.macgen@erm.com
- EDI Format - XTab (XTAB)	Email	symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order	: ES1327011	Page	: 1 of 15
Amendment	: 1		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0224193		
C-O-C number	: ----	Date Samples Received	: 10-DEC-2013
Sampler	: NATHAN.H	Issue Date	: 23-DEC-2013
Site	: ----		
Quote number	: SY/794/13	No. of samples received	: 9
		No. of samples analysed	: 9

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



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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**
- **This report has been amended and re-released to allow the reporting of additional analytical data.**



NATA Accredited Laboratory 825

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	Sydney Organics
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BI_MW01	BI_MW02	BI_MW03	BH_MW01	BH_MW02
				02-DEC-2013 10:20	02-DEC-2013 13:30	02-DEC-2013 13:30	02-DEC-2013 15:45	02-DEC-2013 15:50
Compound	CAS Number	LOR	Unit	ES1327011-001	ES1327011-002	ES1327011-003	ES1327011-004	ES1327011-005
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	968	<1	204
Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	968	<1	204
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3210	2240	4860	4950	5070
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	916	819	1820	1060	1070
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	532	148	550	454	462
Magnesium	7439-95-4	1	mg/L	338	184	900	568	572
Sodium	7440-23-5	1	mg/L	1010	1130	1960	1660	1690
Potassium	7440-09-7	1	mg/L	25	30	41	47	47
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	4.1	4.6	2.6	4.6	10.5
Arsenic	7440-38-2	0.2	µg/L	4.9	5.8	6.2	3.4	10.7
Barium	7440-39-3	0.5	µg/L	26.8	34.2	58.9	30.8	41.3
Beryllium	7440-41-7	0.1	µg/L	2.4	5.2	<0.1	2.5	3.1
Boron	7440-42-8	5	µg/L	137	62	261	28	182
Cadmium	7440-43-9	0.05	µg/L	0.25	0.62	0.11	0.30	1.37
Chromium	7440-47-3	0.2	µg/L	2.3	6.4	0.6	5.6	4.8
Cobalt	7440-48-4	0.1	µg/L	143	116	116	142	426
Copper	7440-50-8	0.5	µg/L	3.2	9.8	2.7	23.1	37.9
Lead	7439-92-1	0.1	µg/L	1.4	9.7	0.5	7.8	7.2
Manganese	7439-96-5	0.5	µg/L	5170	890	10100	128	6880
Molybdenum	7439-98-7	0.1	µg/L	0.2	0.2	0.8	0.2	0.6
Nickel	7440-02-0	0.5	µg/L	137	144	79.0	159	379
Thallium	7440-28-0	0.02	µg/L	0.19	0.14	0.36	0.16	0.32
Vanadium	7440-62-2	0.2	µg/L	1.0	2.4	1.6	0.3	2.9
Zinc	7440-66-6	1	µg/L	202	373	36	417	1200
EN055: Ionic Balance								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BI_MW01	BI_MW02	BI_MW03	BH_MW01	BH_MW02
				02-DEC-2013 10:20	02-DEC-2013 13:30	02-DEC-2013 13:30	02-DEC-2013 15:45	02-DEC-2013 15:50
Compound	CAS Number	LOR	Unit	ES1327011-001	ES1327011-002	ES1327011-003	ES1327011-004	ES1327011-005
EN055: Ionic Balance - Continued								
Total Anions	----	0.01	meq/L	92.7	69.7	172	133	140
Total Cations	----	0.01	meq/L	98.9	72.4	188	143	145
Ionic Balance	----	0.01	%	3.26	1.88	4.42	3.55	1.75
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BI_MW01	BI_MW02	BI_MW03	BH_MW01	BH_MW02
				02-DEC-2013 10:20	02-DEC-2013 13:30	02-DEC-2013 13:30	02-DEC-2013 15:45	02-DEC-2013 15:50
				ES1327011-001	ES1327011-002	ES1327011-003	ES1327011-004	ES1327011-005
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	BI_MW01	BI_MW02	BI_MW03	BH_MW01	BH_MW02
				02-DEC-2013 10:20	02-DEC-2013 13:30	02-DEC-2013 13:30	02-DEC-2013 15:45	02-DEC-2013 15:50
				ES1327011-001	ES1327011-002	ES1327011-003	ES1327011-004	ES1327011-005
EP074G: Trihalomethanes - Continued								
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BI_MW01	BI_MW02	BI_MW03	BH_MW01	BH_MW02
				02-DEC-2013 10:20	02-DEC-2013 13:30	02-DEC-2013 13:30	02-DEC-2013 15:45	02-DEC-2013 15:50
Compound	CAS Number	LOR	Unit	ES1327011-001	ES1327011-002	ES1327011-003	ES1327011-004	ES1327011-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	87.7	86.3	91.6	88.3	87.8
Toluene-D8	2037-26-5	0.1	%	94.8	91.8	98.4	95.5	95.5
4-Bromofluorobenzene	460-00-4	0.1	%	93.2	88.7	81.6	93.1	94.2
EP075(SIM)S: Phenolic Compound Surrogates								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BI_MW01	BI_MW02	BI_MW03	BH_MW01	BH_MW02
				02-DEC-2013 10:20	02-DEC-2013 13:30	02-DEC-2013 13:30	02-DEC-2013 15:45	02-DEC-2013 15:50
Compound	CAS Number	LOR	Unit	ES1327011-001	ES1327011-002	ES1327011-003	ES1327011-004	ES1327011-005
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
Phenol-d6	13127-88-3	0.1	%	24.6	24.8	29.9	23.0	23.1
2-Chlorophenol-D4	93951-73-6	0.1	%	55.7	55.7	67.0	48.2	54.6
2,4,6-Tribromophenol	118-79-6	0.1	%	80.2	81.0	86.2	87.2	72.4
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	65.5	66.4	76.3	64.3	59.9
Anthracene-d10	1719-06-8	0.1	%	67.4	67.9	73.6	70.7	60.8
4-Terphenyl-d14	1718-51-0	0.1	%	58.2	72.8	72.0	69.6	64.2
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	128	126	108	129	129
Toluene-D8	2037-26-5	0.1	%	118	115	109	119	119
4-Bromofluorobenzene	460-00-4	0.1	%	110	106	95.0	110	112



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				RINSATE_021213_NH	TRIP BLANK	TRIP SPIKE	BV_MW06	----
				02-DEC-2013 15:50	02-DEC-2013 15:00	02-DEC-2013 15:00	05-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327011-006	ES1327011-007	ES1327011-008	ES1327011-009	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	1	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	----	----	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS								
Selenium	7782-49-2	2	µg/L	----	----	----	<2	----
Arsenic	7440-38-2	0.5	µg/L	----	----	----	<0.5	----
Barium	7440-39-3	1	µg/L	----	----	----	18	----
Beryllium	7440-41-7	0.1	µg/L	----	----	----	0.2	----
Boron	7440-42-8	100	µg/L	----	----	----	215	----
Cadmium	7440-43-9	0.2	µg/L	----	----	----	0.7	----
Chromium	7440-47-3	0.5	µg/L	----	----	----	<0.5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				RINSATE_021213_NH	TRIP BLANK	TRIP SPIKE	BV_MW06	----
				02-DEC-2013 15:50	02-DEC-2013 15:00	02-DEC-2013 15:00	05-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327011-006	ES1327011-007	ES1327011-008	ES1327011-009	----
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS - Continued								
Cobalt	7440-48-4	0.2	µg/L	----	----	----	41.0	----
Copper	7440-50-8	1	µg/L	----	----	----	<1	----
Lead	7439-92-1	0.2	µg/L	----	----	----	1.2	----
Manganese	7439-96-5	0.5	µg/L	----	----	----	5820	----
Molybdenum	7439-98-7	0.1	µg/L	----	----	----	1.7	----
Nickel	7440-02-0	0.5	µg/L	----	----	----	78.8	----
Thallium	7440-28-0	0.1	µg/L	----	----	----	0.4	----
Vanadium	7440-62-2	0.5	µg/L	----	----	----	<0.5	----
Zinc	7440-66-6	5	µg/L	----	----	----	31	----
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	0.06	----	----	----	----
Total Cations	----	0.01	meq/L	<0.01	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	----	----	----	<1	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	----	----	<5	----
Isopropylbenzene	98-82-8	5	µg/L	<5	----	----	<5	----
n-Propylbenzene	103-65-1	5	µg/L	<5	----	----	<5	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	----	----	<5	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	----	----	<5	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	----	----	<5	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	----	----	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	----	----	<5	----
n-Butylbenzene	104-51-8	5	µg/L	<5	----	----	<5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	----	----	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	----	----	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	----	----	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	----	----	<50	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	----	----	<5	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	----	----	<5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

RINSATE_021213_NH	TRIP BLANK	TRIP SPIKE	BV_MW06	----
02-DEC-2013 15:50	02-DEC-2013 15:00	02-DEC-2013 15:00	05-DEC-2013 15:00	----
ES1327011-006	ES1327011-007	ES1327011-008	ES1327011-009	----

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1327011-006	ES1327011-007	ES1327011-008	ES1327011-009	----
EP074D: Fumigants - Continued								
1.2-Dichloropropane	78-87-5	5	µg/L	<5	----	----	<5	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	----	----	<5	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	----	----	<5	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	----	----	<5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	----	----	<50	----
Chloromethane	74-87-3	50	µg/L	<50	----	----	<50	----
Vinyl chloride	75-01-4	50	µg/L	<50	----	----	<50	----
Bromomethane	74-83-9	50	µg/L	<50	----	----	<50	----
Chloroethane	75-00-3	50	µg/L	<50	----	----	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	----	----	<50	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	----	----	<5	----
Iodomethane	74-88-4	5	µg/L	<5	----	----	<5	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	----	----	<5	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	----	----	<5	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	----	----	<5	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	----	----	<5	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	----	----	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	----	----	<5	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	----	----	<5	----
Trichloroethene	79-01-6	5	µg/L	<5	----	----	<5	----
Dibromomethane	74-95-3	5	µg/L	<5	----	----	<5	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	----	----	<5	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	----	----	<5	----
Tetrachloroethene	127-18-4	5	µg/L	<5	----	----	<5	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	<5	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	----	----	<5	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	----	----	<5	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	----	----	<5	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	----	----	<5	----
Pentachloroethane	76-01-7	5	µg/L	<5	----	----	<5	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	----	----	<5	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	----	----	<5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				RINSATE_021213_NH	TRIP BLANK	TRIP SPIKE	BV_MW06	----
				02-DEC-2013 15:50	02-DEC-2013 15:00	02-DEC-2013 15:00	05-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327011-006	ES1327011-007	ES1327011-008	ES1327011-009	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	----	----	<5	----
Bromobenzene	108-86-1	5	µg/L	<5	----	----	<5	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	----	----	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	----	----	<5	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	----	----	<5	----
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	----	----	<5	----
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	----	----	<5	----
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	----	----	<5	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	----	----	<5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	----	----	<5	----
Bromodichloromethane	75-27-4	5	µg/L	<5	----	----	<5	----
Dibromochloromethane	124-48-1	5	µg/L	<5	----	----	<5	----
Bromoform	75-25-2	5	µg/L	<5	----	----	<5	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	----	----	<7	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	----	----	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	----	----	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	----	----	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	----	----	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	----	----	<1.0	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	----	----	<1.0	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	----	----	<1.0	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	----	----	<1.0	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	----	----	<1.0	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	----	----	<1.0	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	----	----	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	----	----	<2.0	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	----	----	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	----	----	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	----	----	<1.0	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

RINSATE_021213_NH	TRIP BLANK	TRIP SPIKE	BV_MW06	----
02-DEC-2013 15:50	02-DEC-2013 15:00	02-DEC-2013 15:00	05-DEC-2013 15:00	----
ES1327011-006	ES1327011-007	ES1327011-008	ES1327011-009	----

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1327011-006	ES1327011-007	ES1327011-008	ES1327011-009	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Fluorene	86-73-7	1.0	µg/L	<1.0	----	----	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	----	----	<1.0	----
Anthracene	120-12-7	1.0	µg/L	<1.0	----	----	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	----	----	<1.0	----
Pyrene	129-00-0	1.0	µg/L	<1.0	----	----	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	----	----	<1.0	----
Chrysene	218-01-9	1.0	µg/L	<1.0	----	----	<1.0	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	----	----	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	----	----	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	----	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	----	----	<1.0	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	----	----	<1.0	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	----	----	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	----	----	<0.5	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	<50	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	----	----	<100	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	----	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	----	<100	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	18	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	17	<2	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

RINSATE_021213_NH	TRIP BLANK	TRIP SPIKE	BV_MW06	----
02-DEC-2013 15:50	02-DEC-2013 15:00	02-DEC-2013 15:00	05-DEC-2013 15:00	----
ES1327011-006	ES1327011-007	ES1327011-008	ES1327011-009	----

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1327011-006	ES1327011-007	ES1327011-008	ES1327011-009	----
EP080: BTEXN - Continued								
Ethylbenzene	100-41-4	2	µg/L	<2	<2	16	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	15	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	16	<2	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	31	<2	----
^ Sum of BTEX	----	1	µg/L	<1	<1	82	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	18	<5	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	94.6	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	83.8	----	----	106	----
Toluene-D8	2037-26-5	0.1	%	90.1	----	----	104	----
4-Bromofluorobenzene	460-00-4	0.1	%	89.3	----	----	97.1	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	25.2	----	----	30.0	----
2-Chlorophenol-D4	93951-73-6	0.1	%	59.8	----	----	60.1	----
2,4,6-Tribromophenol	118-79-6	0.1	%	70.6	----	----	80.6	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	61.9	----	----	69.6	----
Anthracene-d10	1719-06-8	0.1	%	68.5	----	----	97.7	----
4-Terphenyl-d14	1718-51-0	0.1	%	71.3	----	----	97.0	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	122	93.7	99.6	112	----
Toluene-D8	2037-26-5	0.1	%	112	82.4	84.4	113	----
4-Bromofluorobenzene	460-00-4	0.1	%	105	93.1	100	112	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	28.5	129
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1327011	Page	: 1 of 31
Amendment	: 1		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 10-DEC-2013
Sampler	: NATHAN.H	Issue Date	: 23-DEC-2013
Order number	: 0224193		
Quote number	: SY/794/13	No. of samples received	: 9
		No. of samples analysed	: 9

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



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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC



NATA Accredited
Laboratory 825

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	Sydney Organics
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 3209441)									
ES1327190-003	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	26	27	4.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	26	27	4.0	0% - 20%
ES1327190-004	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	109	112	3.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	109	112	3.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 3209574)									
ES1327011-006	RINSATE_021213_NH	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	<1	69.0	No Limit
ES1327105-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	478	478	0.0	0% - 20%
ED045G: Chloride Discrete analyser (QC Lot: 3209573)									
ES1327011-006	RINSATE_021213_NH	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
ES1327187-006	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	2	<1	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 3209572)									
ES1327011-006	RINSATE_021213_NH	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ES1327190-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	15	15	0.0	0% - 50%
		ED093F: Potassium	7440-09-7	1	mg/L	3	3	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 3210753)									
ES1326710-008	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.019	0.019	0.0	0% - 50%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	1.52	1.54	1.8	0% - 20%
ES1326863-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.010	0.010	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 3210753) - continued									
ES1326863-002	Anonymous	EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.006	0.007	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.006	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3212881)									
ES1326637-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1326994-005	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3218696)									
ES1327011-003	BI_MW03	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3225452)									
ES1327011-009	BV_MW06	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1327890-005	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3210269)									
ES1326914-008	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3219115)									
ES1327011-009	BV_MW06	EG093A-F: Beryllium	7440-41-7	0.1	µg/L	0.2	0.2	0.0	No Limit
		EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	1.7	1.4	14.5	0% - 50%
		EG093A-F: Thallium	7440-28-0	0.1	µg/L	0.4	0.4	0.0	No Limit
		EG093A-F: Cadmium	7440-43-9	0.2	µg/L	0.7	0.6	24.0	No Limit
		EG093A-F: Cobalt	7440-48-4	0.2	µg/L	41.0	40.7	0.8	0% - 20%
		EG093A-F: Lead	7439-92-1	0.2	µg/L	1.2	1.1	9.9	No Limit
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-F: Manganese	7439-96-5	0.5	µg/L	5820	5740	1.5	0% - 20%
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	78.8	71.8	9.3	0% - 20%
		EG093A-F: Vanadium	7440-62-2	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-F: Barium	7440-39-3	1	µg/L	18	17	8.0	0% - 50%
		EG093A-F: Copper	7440-50-8	1	µg/L	<1	<1	0.0	No Limit
		EG093A-F: Boron	7440-42-8	100	µg/L	215	189	12.8	No Limit
EG093A-F: Zinc	7440-66-6	5	µg/L	31	27	12.2	No Limit		
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 3219116)									
ES1327011-009	BV_MW06	EG093B-F: Selenium	7782-49-2	2	µg/L	<2	<2	0.0	No Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3215875)									
ES1327011-001	BI_MW01	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.19	0.20	0.0	No Limit
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.25	0.22	12.0	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	2.4	2.3	4.8	0% - 20%
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	143	148	2.9	0% - 20%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	1.4	1.3	9.4	0% - 50%
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	0.2	0.2	0.0	No Limit
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	4.9	4.8	0.0	0% - 20%



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3215875) - continued									
ES1327011-001	BI_MW01	EG094A-F: Chromium	7440-47-3	0.2	µg/L	2.3	2.3	0.0	0% - 50%
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	1.0	1.0	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	26.8	26.2	2.2	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	3.2	3.4	4.6	No Limit
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	5170	5180	0.06	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	137	140	1.6	0% - 20%
		EG094A-F: Zinc	7440-66-6	1	µg/L	202	203	0.0	0% - 20%
		EG094A-F: Boron	7440-42-8	5	µg/L	137	134	2.1	0% - 20%
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3215876)									
ES1327011-001	BI_MW01	EG094B-F: Selenium	7782-49-2	0.2	µg/L	4.1	4.0	0.0	0% - 20%
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3209308)									
ES1327010-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1327010-007	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3216106)									
ES1327444-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1327444-013	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3216106) - continued									
ES1327444-013	Anonymous	EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3209308)									
ES1327010-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1327010-007	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3216106)									
ES1327444-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1327444-013	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3209308)									
ES1327010-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1327010-007	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3216106)									
ES1327444-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1327444-013	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3209308)									
ES1327010-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1327010-007	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074D: Fumigants (QC Lot: 3209308) - continued									
ES1327010-007	Anonymous	EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3216106)									
ES1327444-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1327444-013	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3209308)									
ES1327010-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3209308) - continued									
ES1327010-001	Anonymous	EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES1327010-007	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3216106)									
ES1327444-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3216106) - continued									
ES1327444-001	Anonymous	EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1327444-013	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3216106) - continued									
ES1327444-013	Anonymous	EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 3209308)									
ES1327010-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1327010-007	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 3216106)									
ES1327444-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1327444-013	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 3216106) - continued									
ES1327444-013	Anonymous	EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3209308)									
ES1327010-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1327010-007	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3216106)									
ES1327444-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1327444-013	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3209308)									
ES1327010-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1327010-007	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3216106)									
ES1327444-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1327444-013	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3211088)									
ES1327011-001	BI_MW01	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3211088) - continued									
ES1327011-001	BI_MW01	EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
ES1327011-004	BH_MW01	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3211088)									
ES1327011-001	BI_MW01	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
ES1327011-004	BH_MW01	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3211088) - continued									
ES1327011-004	BH_MW01	EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3209306)									
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327009-009	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3209309)									
ES1327010-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327010-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3211089)									
ES1327011-001	BI_MW01	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1327011-004	BH_MW01	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3216107)									
ES1327444-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327444-013	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3209306)									
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327009-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3209309)									
ES1327010-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327010-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3211089)									
ES1327011-001	BI_MW01	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
ES1327011-004	BH_MW01	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3216107)									



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3216107) - continued									
ES1327444-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327444-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 3209306)									
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1327009-009	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 3209309)									
ES1327010-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1327010-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 3216107)									
ES1327444-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



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 (%)		Recovery Limits (%)	
						LCS	Low	High	
ED037P: Alkalinity by PC Titrator (QCLot: 3209441)									
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	88.2	81	111	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3209574)									
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	111	86	122	
ED045G: Chloride Discrete analyser (QCLot: 3209573)									
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	99.6	77	123	
ED093F: Dissolved Major Cations (QCLot: 3209572)									
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	105	87	113	
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	89	113	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	109	79	113	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	105	87	115	
EG020T: Total Metals by ICP-MS (QCLot: 3210753)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.9	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.4	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.6	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.2	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	88.6	76	118	
EG035F: Dissolved Mercury by FIMS (QCLot: 3212881)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	102	78	114	
EG035F: Dissolved Mercury by FIMS (QCLot: 3218696)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.3	78	114	
EG035F: Dissolved Mercury by FIMS (QCLot: 3225452)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	95.6	78	114	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210269)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	87.4	77	115	
EG093A-F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3219115)									
EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	87.2	76	134	
EG093A-F: Barium	7440-39-3	1	µg/L	<1	10 µg/L	92.6	72	128	
EG093A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	110	74	124	
EG093A-F: Boron	7440-42-8	100	µg/L	<100	----	----	----	----	
EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	91.0	71	125	
EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	99.1	74	126	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3219115) - continued									
EG093A-F: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	95.4	72	126	
EG093A-F: Copper	7440-50-8	1	µg/L	<1	10 µg/L	99.1	71	129	
EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	95.0	74	126	
EG093A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	104	75	127	
EG093A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	84.2	71	131	
EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	92.1	75	133	
EG093A-F: Thallium	7440-28-0	0.1	µg/L	<0.1	10 µg/L	96.6	72	128	
EG093A-F: Vanadium	7440-62-2	0.5	µg/L	<0.5	10 µg/L	92.5	72	112	
EG093A-F: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	95.5	75	129	
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 3219116)									
EG093B-F: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	89.4	74	130	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3215875)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	91.2	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	90.5	76	120	
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	95.1	74	130	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	10 µg/L	114	79	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	89.5	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	90.3	71	123	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	92.7	79	121	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	87.4	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	87.6	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	91.3	79	119	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	82.4	69	127	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	93.3	72	128	
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	85.2	71	121	
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	93.1	78	116	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	92.0	76	134	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3215876)									
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	75.0	75	125	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3219113)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	91.0	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	90.5	76	120	
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	118	74	130	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	10 µg/L	89.3	79	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	89.0	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	88.7	71	123	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	92.7	79	121	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	93.1	77	125	



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	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3219113) - continued									
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	87.5	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	91.7	79	119	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	86.0	69	127	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	93.2	72	128	
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	85.2	71	121	
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	93.0	78	116	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	88.0	76	134	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3219114)									
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	75.1	75	125	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3214559)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	74.0	61.6	107	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3209308)									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	98.1	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	95.2	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	90.5	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	91.7	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	89.9	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	94.0	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	93.8	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	92.9	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	87.3	62	126	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3216106)									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	87.6	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	92.5	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	93.8	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	90.4	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	95.1	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	95.6	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	93.8	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	90.1	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	92.2	62	126	
EP074B: Oxygenated Compounds (QCLot: 3209308)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	103	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	128	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	131	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	132	65	137	
EP074B: Oxygenated Compounds (QCLot: 3216106)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	93.8	61.4	134	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074B: Oxygenated Compounds (QCLot: 3216106) - continued									
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	99.6	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	95.6	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	98.0	65	137	
EP074C: Sulfonated Compounds (QCLot: 3209308)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	73.4	72.8	127	
EP074C: Sulfonated Compounds (QCLot: 3216106)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	83.8	72.8	127	
EP074D: Fumigants (QCLot: 3209308)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	92.4	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	97.7	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	82.0	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	85.6	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	112	69	117	
EP074D: Fumigants (QCLot: 3216106)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	89.6	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	97.3	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	79.0	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	83.0	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	93.4	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209308)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	63.4	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	80.3	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	72.3	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	70.0	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	81.3	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	80.5	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	86.2	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	87.9	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	99.4	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	98.3	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	99.5	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	93.4	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	94.7	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	75.0	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	102	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	104	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	109	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	111	75	123	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209308) - continued									
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	104	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	97.7	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	101	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	98.7	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	96.4	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	119	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	113	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	93.0	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	106	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	77.2	58	132	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3216106)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	92.9	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	103	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	111	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	106	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	107	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	103	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	96.2	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	105	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	94.6	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	98.1	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	97.6	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	89.7	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	94.0	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	82.2	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	99.1	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	99.6	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	90.9	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	106	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	104	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	91.5	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	80.6	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	94.0	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	93.7	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	93.8	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	100	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	73.3	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	79.4	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	94.9	58	132	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 3209308)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	97.4	80	118
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	98.8	76	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	93.5	71	121
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	94.3	71	121
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	96.5	74	120
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	97.2	72	120
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	96.4	77	117
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	81.7	60	126
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	86.2	67	125
EP074F: Halogenated Aromatic Compounds (QCLot: 3216106)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	98.9	80	118
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	91.1	76	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	96.7	71	121
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	95.2	71	121
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	94.9	74	120
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	96.8	72	120
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	95.0	77	117
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	90.1	60	126
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	97.8	67	125
EP074G: Trihalomethanes (QCLot: 3209308)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	96.7	76	118
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	90.5	64	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	105	65	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	118	73.5	126
EP074G: Trihalomethanes (QCLot: 3216106)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	98.8	76	118
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	81.8	64	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	85.7	65	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	86.9	73.5	126
EP074H: Naphthalene (QCLot: 3209308)								
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	91.1	61	125
EP074H: Naphthalene (QCLot: 3216106)								
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	98.4	61	125
EP075(SIM)A: Phenolic Compounds (QCLot: 3211088)								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	# 62.3	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	69.2	63.8	110
		1	µg/L	<1.0	----	----	----	----



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 3211088) - continued								
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	# 44.8	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	56.9	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	82.7	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	98.7	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	77.9	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	75.9	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	89.4	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	72.2	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	71.7	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	81.0	8.7	95
		2	µg/L	<2.0	----	----	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3214560)								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	37.8	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	64.1	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	73.0	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	64.4	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	73.0	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	69.6	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	67.5	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	79.7	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	76.1	63	119
		1	µg/L	<1.0	----	----	----	----



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
EP075(SIM)A: Phenolic Compounds (QCLot: 3214560) - continued								
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	97.9	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	89.7	50	108
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	# 95.8	8.7	95
		2	µg/L	<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3211088)								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	70.6	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	72.6	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	64.0	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	72.1	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	80.7	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	76.9	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	89.9	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	90.0	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	91.3	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	88.5	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	85.3	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	78.0	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	92.9	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	94.1	59.9	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	91.9	61.2	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	92.5	59.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3214560)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	62.6	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	79.4	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	73.1	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	79.1	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	109	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	109	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	102	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	98.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	85.5	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	87.8	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	85.7	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	95.8	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	76.7	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	71.1	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	70.9	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	72.6	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	84.2	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209309)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	108	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3211089)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	97.6	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	98.2	71	131	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3211089) - continued									
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	96.8	62	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3214558)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	102	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	101	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	102	62	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216107)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	121	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.7	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209309)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	109	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3211089)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	102	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	93.6	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	95.6	67	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3214558)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	96.8	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	101	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	99.1	67	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216107)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	122	75	127	
EP080: BTEXN (QCLot: 3209306)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.8	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.2	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	96.3	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	110	70	124	
EP080: BTEXN (QCLot: 3209309)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	118	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	115	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	108	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	102	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	72	122	



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
EP080: BTEXN (QCLot: 3209309) - continued								
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	96.3	70	124
EP080: BTEXN (QCLot: 3216107)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	119	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	117	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	114	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	107	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	110	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	104	70	124

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.

Sub-Matrix: WATER				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3209574)							
ES1327011-001	BI_MW01	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70	130
ED045G: Chloride Discrete analyser (QCLot: 3209573)							
ES1327011-001	BI_MW01	ED045G: Chloride	16887-00-6	250 mg/L	127	70	130
EG020T: Total Metals by ICP-MS (QCLot: 3210753)							
ES1326710-009	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	90.9	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	85.3	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	88.3	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	89.4	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	82.5	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	85.5	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	85.1	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3212881)							
ES1326637-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	83.3	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3218696)							
ES1327431-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	78.4	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3225452)							
ES1327805-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	86.7	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210269)							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210269) - continued							
ES1327009-008	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	97.4	70	130
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3215875)							
ES1327011-001	BI_MW01	EG094A-F: Arsenic	7440-38-2	50 µg/L	116	70	130
		EG094A-F: Barium	7440-39-3	50 µg/L	91.4	70	130
		EG094A-F: Beryllium	7440-41-7	50 µg/L	70.8	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	87.7	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	79.2	70	130
		EG094A-F: Cobalt	7440-48-4	50 µg/L	113	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	91.8	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	84.8	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	81.4	70	130
EG094A-F: Vanadium	7440-62-2	50 µg/L	82.6	70	130		
EG094A-F: Zinc	7440-66-6	50 µg/L	# Not Determined	70	130		
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209308)							
ES1327010-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	94.6	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	120	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3216106)							
ES1327444-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	125	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	121	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3209308)							
ES1327010-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	117	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3216106)							
ES1327444-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	128	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3211088)							
ES1327011-002	BI_MW02	EP075(SIM): Phenol	108-95-2	20 µg/L	38.0	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	73.0	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	92.4	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	76.8	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	119	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3211088)							
ES1327011-002	BI_MW02	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	71.9	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	# 70.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)							
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	70	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209309)								
ES1327010-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	108	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3211089)								
ES1327011-002	BI_MW02	EP071: C10 - C14 Fraction	----	200 µg/L	100	74	150	
		EP071: C15 - C28 Fraction	----	300 µg/L	94.9	77	153	
		EP071: C29 - C36 Fraction	----	200 µg/L	86.8	67	153	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216107)								
ES1327444-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	119	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)								
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209309)								
ES1327010-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	104	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3211089)								
ES1327011-002	BI_MW02	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	101	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	90.4	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.0	67	153	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216107)								
ES1327444-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	120	70	130	
EP080: BTEXN (QCLot: 3209306)								
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	102	70	130	
		EP080: Toluene	108-88-3	25 µg/L	118	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	118	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70	130	
EP080: Naphthalene	91-20-3	25 µg/L	113	70	130			
EP080: BTEXN (QCLot: 3209309)								
ES1327010-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	103	70	130	
		EP080: Toluene	108-88-3	25 µg/L	99.5	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	101	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	94.4	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	92.9	70	130	
EP080: Naphthalene	91-20-3	25 µg/L	70.8	70	130			
EP080: BTEXN (QCLot: 3216107)								
ES1327444-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	121	70	130	
		EP080: Toluene	108-88-3	25 µg/L	113	70	130	



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 3216107) - continued							
ES1327444-001	Anonymous	EP080: Ethylbenzene	100-41-4	25 µg/L	118	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	108	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	115	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	110	70	130

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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209306)										
ES1326809-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	125	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209306)										
ES1326809-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	123	----	70	130	----	----
EP080: BTEXN (QCLot: 3209306)										
ES1326809-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	102	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	118	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	118	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	113	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3209308)										
ES1327010-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	94.6	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	120	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3209308)										
ES1327010-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	117	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3209309)										
ES1327010-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	108	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3209309)										
ES1327010-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	104	----	70	130	----	----
EP080: BTEXN (QCLot: 3209309)										
ES1327010-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	103	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	99.5	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	101	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP080: BTEXN (QCLot: 3209309) - continued										
ES1327010-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	25 µg/L	94.4	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	92.9	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	70.8	----	70	130	----	----
ED045G: Chloride Discrete analyser (QCLot: 3209573)										
ES1327011-001	BI_MW01	ED045G: Chloride	16887-00-6	250 mg/L	127	----	70	130	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3209574)										
ES1327011-001	BI_MW01	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3210269)										
ES1327009-008	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	97.4	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 3210753)										
ES1326710-009	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	90.9	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	85.3	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	88.3	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	89.4	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	82.5	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	85.5	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	85.1	----	70	130	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3211088)										
ES1327011-002	BI_MW02	EP075(SIM): Phenol	108-95-2	20 µg/L	38.0	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	73.0	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	92.4	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	76.8	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	119	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3211088)										
ES1327011-002	BI_MW02	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	71.9	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	# 70.0	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3211089)										
ES1327011-002	BI_MW02	EP071: C10 - C14 Fraction	----	200 µg/L	100	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	94.9	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	86.8	----	67	153	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3211089)										
ES1327011-002	BI_MW02	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	101	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	90.4	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.0	----	67	153	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3212881)										
ES1326637-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	83.3	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3215875)										
ES1327011-001	BI_MW01	EG094A-F: Arsenic	7440-38-2	50 µg/L	116	----	70	130	----	----
		EG094A-F: Barium	7440-39-3	50 µg/L	91.4	----	70	130	----	----
		EG094A-F: Beryllium	7440-41-7	50 µg/L	70.8	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	87.7	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	79.2	----	70	130	----	----
		EG094A-F: Cobalt	7440-48-4	50 µg/L	113	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	91.8	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	84.8	----	70	130	----	----
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	81.4	----	70	130	----	----
EG094A-F: Vanadium	7440-62-2	50 µg/L	82.6	----	70	130	----	----		
EG094A-F: Zinc	7440-66-6	50 µg/L	# Not Determined	----	70	130	----	----		
EP074E: Halogenated Aliphatic Compounds (QCLot: 3216106)										
ES1327444-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	125	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	121	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3216106)										
ES1327444-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	128	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216107)										
ES1327444-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	119	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216107)										
ES1327444-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	120	----	70	130	----	----
EP080: BTEXN (QCLot: 3216107)										
ES1327444-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	121	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	113	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	118	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	108	----	70	130	----	----
		EP080: ortho-Xylene	106-42-3	25 µg/L	115	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	110	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3218696)										
ES1327431-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	78.4	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3225452)										
ES1327805-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	86.7	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327011	Page	: 1 of 13
Amendment	: 1		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 10-DEC-2013
Sampler	: NATHAN.H	Issue Date	: 23-DEC-2013
Order number	: 0224193		
Quote number	: SY/794/13	No. of samples received	: 9
		No. of samples analysed	: 9

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (ED037-P) BH_MW01	02-DEC-2013	---	16-DEC-2013	----	12-DEC-2013	16-DEC-2013	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (ED037-P) BI_MW01, BI_MW02, BI_MW03, BH_MW02	02-DEC-2013	---	16-DEC-2013	----	12-DEC-2013	16-DEC-2013	✓
Clear Plastic Bottle - Natural (ED037-P) RINSATE_021213_NH	02-DEC-2013	---	16-DEC-2013	----	12-DEC-2013	16-DEC-2013	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (ED041G) BH_MW01	02-DEC-2013	---	30-DEC-2013	----	12-DEC-2013	30-DEC-2013	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (ED041G) BI_MW01, BI_MW02, BI_MW03, BH_MW02	02-DEC-2013	---	30-DEC-2013	----	12-DEC-2013	30-DEC-2013	✓
Clear Plastic Bottle - Natural (ED041G) RINSATE_021213_NH	02-DEC-2013	---	30-DEC-2013	----	12-DEC-2013	30-DEC-2013	✓
ED045G: Chloride Discrete analyser							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (ED045G) BH_MW01	02-DEC-2013	---	30-DEC-2013	----	12-DEC-2013	30-DEC-2013	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (ED045G) BI_MW01, BI_MW02, BI_MW03, BH_MW02	02-DEC-2013	---	30-DEC-2013	----	12-DEC-2013	30-DEC-2013	✓
Clear Plastic Bottle - Natural (ED045G) RINSATE_021213_NH	02-DEC-2013	---	30-DEC-2013	----	12-DEC-2013	30-DEC-2013	✓
ED093F: Dissolved Major Cations							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (ED093F) BH_MW01	02-DEC-2013	---	30-DEC-2013	----	12-DEC-2013	30-DEC-2013	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (ED093F) BI_MW01, BI_MW02, BI_MW03, BH_MW02	02-DEC-2013	---	30-DEC-2013	----	12-DEC-2013	30-DEC-2013	✓
Clear Plastic Bottle - Natural (ED093F) RINSATE_021213_NH	02-DEC-2013	---	09-DEC-2013	----	12-DEC-2013	09-DEC-2013	*



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) RINSATE_021213_NH	02-DEC-2013	13-DEC-2013	31-MAY-2014	✓	13-DEC-2013	31-MAY-2014	✓
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BI_MW01, BI_MW02	02-DEC-2013	---	30-DEC-2013	----	14-DEC-2013	30-DEC-2013	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG035F) BH_MW01	02-DEC-2013	---	16-DEC-2013	----	14-DEC-2013	16-DEC-2013	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG035F) BI_MW03	02-DEC-2013	---	16-DEC-2013	----	18-DEC-2013	16-DEC-2013	*
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG035F) BV_MW06	05-DEC-2013	---	19-DEC-2013	----	21-DEC-2013	19-DEC-2013	*
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RINSATE_021213_NH	02-DEC-2013	----	----	----	15-DEC-2013	30-DEC-2013	✓
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG093A-F) BV_MW06	05-DEC-2013	---	03-JUN-2014	----	18-DEC-2013	03-JUN-2014	✓
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG093B-F) BV_MW06	05-DEC-2013	---	03-JUN-2014	----	18-DEC-2013	03-JUN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BI_MW01, BI_MW02	02-DEC-2013	---	31-MAY-2014	----	17-DEC-2013	31-MAY-2014	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG094A-F) BH_MW01	02-DEC-2013	---	31-MAY-2014	----	17-DEC-2013	31-MAY-2014	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG094A-F) BI_MW03	02-DEC-2013	---	31-MAY-2014	----	18-DEC-2013	31-MAY-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) BI_MW01, BI_MW02	02-DEC-2013	---	31-MAY-2014	----	17-DEC-2013	31-MAY-2014	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG094B-F) BH_MW01	02-DEC-2013	---	31-MAY-2014	----	17-DEC-2013	31-MAY-2014	✓
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified (EG094B-F) BI_MW03	02-DEC-2013	---	31-MAY-2014	----	18-DEC-2013	31-MAY-2014	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) BV_MW06	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	18-DEC-2013	25-JAN-2014	✓



Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	02-DEC-2013	13-DEC-2013	09-DEC-2013	*	13-DEC-2013	22-JAN-2014	✓
Amber Glass Bottle - Unpreserved (EP071) BV_MW06	05-DEC-2013	12-DEC-2013	12-DEC-2013	✓	18-DEC-2013	25-JAN-2014	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	02-DEC-2013	14-DEC-2013	16-DEC-2013	✓	14-DEC-2013	16-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW06	05-DEC-2013	17-DEC-2013	19-DEC-2013	✓	17-DEC-2013	19-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	02-DEC-2013	14-DEC-2013	16-DEC-2013	✓	14-DEC-2013	16-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW06	05-DEC-2013	17-DEC-2013	19-DEC-2013	✓	17-DEC-2013	19-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	02-DEC-2013	14-DEC-2013	16-DEC-2013	✓	14-DEC-2013	16-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW06	05-DEC-2013	17-DEC-2013	19-DEC-2013	✓	17-DEC-2013	19-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	02-DEC-2013	14-DEC-2013	16-DEC-2013	✓	14-DEC-2013	16-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW06	05-DEC-2013	17-DEC-2013	19-DEC-2013	✓	17-DEC-2013	19-DEC-2013	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	02-DEC-2013	14-DEC-2013	16-DEC-2013	✓	14-DEC-2013	16-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW06	05-DEC-2013	17-DEC-2013	19-DEC-2013	✓	17-DEC-2013	19-DEC-2013	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	02-DEC-2013	14-DEC-2013	16-DEC-2013	✔	14-DEC-2013	16-DEC-2013	✔	
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW06	05-DEC-2013	17-DEC-2013	19-DEC-2013	✔	17-DEC-2013	19-DEC-2013	✔	
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	02-DEC-2013	14-DEC-2013	16-DEC-2013	✔	14-DEC-2013	16-DEC-2013	✔	
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW06	05-DEC-2013	17-DEC-2013	19-DEC-2013	✔	17-DEC-2013	19-DEC-2013	✔	
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	02-DEC-2013	14-DEC-2013	16-DEC-2013	✔	14-DEC-2013	16-DEC-2013	✔	
Amber VOC Vial - Sulfuric Acid (EP074) BV_MW06	05-DEC-2013	17-DEC-2013	19-DEC-2013	✔	17-DEC-2013	19-DEC-2013	✔	
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	02-DEC-2013	13-DEC-2013	09-DEC-2013	✖	14-DEC-2013	22-JAN-2014	✔	
Amber Glass Bottle - Unpreserved (EP075(SIM)) BV_MW06	05-DEC-2013	12-DEC-2013	12-DEC-2013	✔	18-DEC-2013	25-JAN-2014	✔	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	02-DEC-2013	13-DEC-2013	09-DEC-2013	✖	14-DEC-2013	22-JAN-2014	✔	
Amber Glass Bottle - Unpreserved (EP075(SIM)) BV_MW06	05-DEC-2013	12-DEC-2013	12-DEC-2013	✔	18-DEC-2013	25-JAN-2014	✔	
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) BI_MW01, BI_MW03, BH_MW02, TRIP BLANK, BI_MW02, BH_MW01, RINSATE_021213_NH, TRIP SPIKE	02-DEC-2013	14-DEC-2013	16-DEC-2013	✔	14-DEC-2013	16-DEC-2013	✔	
Amber VOC Vial - Sulfuric Acid (EP080) BV_MW06	05-DEC-2013	17-DEC-2013	19-DEC-2013	✔	17-DEC-2013	19-DEC-2013	✔	

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 Project : PROJECT SYMPHONY



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Amber VOC Vial - Sulfuric Acid (EP080) BI_MW01, BI_MW03, BH_MW02, TRIP BLANK	BI_MW02, BH_MW01, RINSATE_021213_NH,	02-DEC-2013	14-DEC-2013	16-DEC-2013	✓	14-DEC-2013	16-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BV_MW06		05-DEC-2013	17-DEC-2013	19-DEC-2013	✓	17-DEC-2013	19-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	5	41	12.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	1	100.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	1	100.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	6	57	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	4	37	10.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	3	41	7.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	5	40.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	2	5	40.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	19	10.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	57	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	37	5.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	3	41	7.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	5	40.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	2	5	40.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	19	10.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	57	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	37	5.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	3	41	7.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	57	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	37	5.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Sulfate (Turbidimetric) as SO ₄ ²⁻ by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO ₄ Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ ²⁻ concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	APHA 21st Ed. 1030F. The Ionic Balance is calculated based on the major Anions and Cations. The major anions include Alkalinity, Chloride and Sulfate which determined by PCT and DA. The Cations are determined by Turbi SO4 by DA. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
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<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	3832841-002	----	Phenol	108-95-2	62.3 %	24.5-61.9%	Recovery greater than upper control limit
EP075(SIM)A: Phenolic Compounds	3832841-002	----	2-Methylphenol	95-48-7	44.8 %	55.9-112%	Recovery less than lower control limit
EP075(SIM)A: Phenolic Compounds	3837213-012	----	Pentachlorophenol	87-86-5	95.8 %	8.7-95%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES1327011-001	BI_MW01	Sulfate as SO4 - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1327011-001	BI_MW01	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1327011-001	BI_MW01	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	ES1327011-002	BI_MW02	Pyrene	129-00-0	70.0 %	70-130%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **WATER**

Method	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED093F: Dissolved Major Cations						
Clear Plastic Bottle - Natural RINSATE_021213_NH	----	----	----	12-DEC-2013	09-DEC-2013	3
EG035F: Dissolved Mercury by FIMS						



Matrix: **WATER**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EG035F: Dissolved Mercury by FIMS - Analysis Holding Time Compliance						
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified BI_MW03	----	----	----	18-DEC-2013	16-DEC-2013	2
Clear HDPE (U-T ORC) - Unspecified; Lab-acidified BV_MW06	----	----	----	21-DEC-2013	19-DEC-2013	2
EP075(SIM)A: Phenolic Compounds						
Amber Glass Bottle - Unpreserved BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	13-DEC-2013	09-DEC-2013	4	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	13-DEC-2013	09-DEC-2013	4	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	13-DEC-2013	09-DEC-2013	4	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013						
Amber Glass Bottle - Unpreserved BI_MW01, BI_MW03, BH_MW02, BI_MW02, BH_MW01, RINSATE_021213_NH	13-DEC-2013	09-DEC-2013	4	----	----	----

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



CHAIN OF CUSTODY

ALS Laboratory
please tick →

CHLORIDE OF Bromine Residual Chlorine
Ph: 07 4397 0137 Email: info@als.com.au

CHLORIDE OF Lead Residual Chloride
Ph: 07 4397 0137 Email: info@als.com.au

CHLORIDE OF Mercury Residual Chloride
Ph: 07 4397 0137 Email: info@als.com.au

CHLORIDE OF Nickel Residual Chloride
Ph: 07 4397 0137 Email: info@als.com.au

CHLORIDE OF Copper Residual Chloride
Ph: 07 4397 0137 Email: info@als.com.au

CHLORIDE OF Zinc Residual Chloride
Ph: 07 4397 0137 Email: info@als.com.au

CHLORIDE OF Iron Residual Chloride
Ph: 07 4397 0137 Email: info@als.com.au

CHLORIDE OF Manganese Residual Chloride
Ph: 07 4397 0137 Email: info@als.com.au

CHLORIDE OF Cadmium Residual Chloride
Ph: 07 4397 0137 Email: info@als.com.au

CHLORIDE OF Arsenic Residual Chloride
Ph: 07 4397 0137 Email: info@als.com.au

CHLORIDE OF Selenium Residual Chloride
Ph: 07 4397 0137 Email: info@als.com.au

CHLORIDE OF Vanadium Residual Chloride
Ph: 07 4397 0137 Email: info@als.com.au

CLIENT: ERM	TURNAROUND REQUIREMENTS: <input type="checkbox"/> Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: SYDNEY	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input checked="" type="checkbox"/> Non Standard or urgent TAT (List due date): 48hr TAT	Custody Seal intact? Yes No H.A
PROJECT: Project Symphony	ALS QUOTE NO.: SY794/13	Free ice / frozen ice bricks present upon receipt? Yes No H.A
ORDER NUMBER: 224193	SITE: BAYSWATER / DDELL	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: SOE PERRING	CONTACT PH: 0424970468	Other comment:
SAMPLER: KATE FOX	SAMPLER MOBILE: 0452411815	RECEIVED BY: R
COC emailed to ALS? (YES / NO) <input checked="" type="checkbox"/>	EDD FORMAT (or default):	RELINQUISHED BY: R
Email Reports to (will default to PM if no other addresses are listed): Symphony.maccgen@erm.com	DATE/TIME: 10/12/13	RECEIVED BY: R
Email Invoice to (will default to PM if no other addresses are listed):		DATE/TIME: 13/12/13 1700

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information
	LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below (refer to)	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, Bi, Mo, Tl)	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PFOS/PFOA	W-24 TRHCs-C40/BTEXN, PAH, Phenols	Cation / Anions	Conduct anal	
	1	BQ_MW11	10/12/13	W	(4xVS, 2xAG, 1xP, 1xORC-unpreserved)	8		X		X			X	X		
	2	BQ_EW_MW01														
	3	BQ_EW_MW02														
	4	BQ_EW_MW03														
	5	BQ_MW13														
	6	BQ_MW10														
	7	R01_101213_KF			(1xW) ↓											
	8	TS_101213			1xVS	1									BTEXN	
	9	TB_101213			1xVS	1									BTEXN+TRH	

TAT

Subcon / Forward Lab / Split WO
 Lab / Analysis: _____
 Organised By / Date: _____
 Relinquished By / Date: _____
 Connote / Courier: _____

Environmental Division
 Sydney
 Work Order
ES1327421



Telephone : +61-2-8784 8555

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

WO No: _____
 Attach By PO / Internal Sheet: _____

CLIENT: **ERM** OFFICE: **SYDNEY**

PROJECT: Project Symphony ORDER NUMBER: **224193**

PROJECT MANAGER: **Joe Ferring** CONTACT PH: **0424970463**

SAMPLER: **Kate Fox** SAMPLER MOBILE: **0852411815**

COC emailed to ALS? (YES NO)

EDD FORMAT (or default):

Relinquished By: **M. Ector** DATE/TIME: **10/12/13**

Received By: **Lo** DATE/TIME: **13/12/13 1645**

Relinquished By: **Ry** DATE/TIME: **13/12/13 1700**

Received By:

TURNAROUND REQUIREMENTS: Standard TAT (List due date): Non Standard or urgent TAT (List due date): **48hr TAT**

ALS QUOTE NO.: SY794113 SITE: **BAYSWATER / LIDDELL**

COC SEQUENCE NUMBER (Circle):

COC #	1	2	3	4	5	6	7
OF:	1	2	3	4	5	6	7

FOR LABORATORY USE ONLY (Circle):

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comment:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NR, Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below (refer to)	TOTAL CONTAINERS	W-24 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti)	Hg-5e	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PFOS/PFOA	W-24 TRH(C6-C40)/BTEXN, PAH, Phenols	Cations/Anions		
	T01-101213-1CF	10/12/13	w	(4xVS, 2xAG, 1xP, 1xORC unpreserved)	8	X	X		X			X	X	Forward to EnviroLab		
TAT																
TOTAL																

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

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1327421

<p>Client : ENVIRO RESOURCES MANAGEMENT</p> <p>Contact : MR JOSEPH FERRING</p> <p>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</p>	<p>Laboratory : Environmental Division Sydney</p> <p>Contact : Barbara Hanna</p> <p>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</p>
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<p>E-mail : joseph.ferring@erm.com</p> <p>Telephone : +61 02 8584 8888</p> <p>Facsimile : +61 02 8584 8800</p>	<p>E-mail : Barbara.Hanna@alsglobal.com</p> <p>Telephone : +61 2 8784 8555</p> <p>Facsimile : +61 2 8784 8555</p>
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<p>Project : Project Symphony</p> <p>Order number : 224193</p> <p>C-O-C number : ----</p> <p>Site : BAYSWATER</p> <p>Sampler : KF</p>	<p>Page : 1 of 3</p> <p>Quote number : ES2013ENVRES0369 (SY/794/13)</p> <p>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</p>
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Dates

<p>Date Samples Received : 13-DEC-2013</p> <p>Client Requested Due Date : 18-DEC-2013</p>	<p>Issue Date : 14-DEC-2013 12:44</p> <p>Scheduled Reporting Date : 18-DEC-2013</p>
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Delivery Details

<p>Mode of Delivery : Carrier</p> <p>No. of coolers/boxes : 1 HARD</p> <p>Security Seal : Intact.</p>	<p>Temperature : 5.8°C - Ice present</p> <p>No. of samples received : 9</p> <p>No. of samples analysed : 9</p>
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample T01 send to Envirolab**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exist.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including WATER - EG035F Dissolved Mercury by FIMS WATER - EG093A-F Dissolved metals in saline water by ORC-ICPMS WATER - EG093B-F Dissolved Metals in Saline Water Suite B by WATER - EN055 - PG Ionic Balance by ED037P, ED041G, ED045G & WATER - EP074 (water) Volatile Organic Compounds WATER - EP080 BTEXN WATER - NT-01 Major Cations (Ca, Mg, Na, K)
ES1327421-001	10-DEC-2013 15:00	BQ_MW11	✓
	14-DEC-2013 15:00	BQ_MW11	✓
ES1327421-002	10-DEC-2013 15:00	BQ_EW_MW01	✓
	14-DEC-2013 15:00	BQ_EW_MW01	✓
ES1327421-003	10-DEC-2013 15:00	BQ_EW_MW02	✓
	14-DEC-2013 15:00	BQ_EW_MW02	✓
ES1327421-004	10-DEC-2013 15:00	BQ_EW_MW03	✓
	14-DEC-2013 15:00	BQ_EW_MW03	✓
ES1327421-005	10-DEC-2013 15:00	BQ_MW13	✓
	14-DEC-2013 15:00	BQ_MW13	✓
ES1327421-006	10-DEC-2013 15:00	BQ_MW10	✓
	14-DEC-2013 15:00	BQ_MW10	✓
ES1327421-007	10-DEC-2013 15:00	R01_101213_KF	✓
ES1327421-008	10-DEC-2013 15:00	TS_101213	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - NT-02 Major Anions (Chloride, Sulphate, Alkalinity) WATER - W-03T 15 Metals (Total) (NEPM) WATER - W-18 TRH(C6 - C9)/BTEXN WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1327421-001	10-DEC-2013 15:00	BQ_MW11	✓
ES1327421-002	10-DEC-2013 15:00	BQ_EW_MW01	✓
ES1327421-003	10-DEC-2013 15:00	BQ_EW_MW02	✓
ES1327421-004	10-DEC-2013 15:00	BQ_EW_MW03	✓
ES1327421-005	10-DEC-2013 15:00	BQ_MW13	✓
ES1327421-006	10-DEC-2013 15:00	BQ_MW10	✓
ES1327421-007	10-DEC-2013 15:00	R01_101213_KF	✓
ES1327421-009	10-DEC-2013 15:00	TB_101213	✓



Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY ERARING

- *AU Certificate of Analysis - NATA (COA)	Email	Symphony.Eraring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Symphony.Eraring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Symphony.Eraring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Symphony.Eraring@erm.com
- Chain of Custody (CoC) (COC)	Email	Symphony.Eraring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	Symphony.Eraring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	Symphony.Eraring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	Symphony.Eraring@erm.com
- EDI Format - XTab (XTAB)	Email	Symphony.Eraring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1327421 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 224193 C-O-C number : ---- Sampler : KF Site : BAYSWATER Quote number : SY/794/13	Page : 1 of 16 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 13-DEC-2013 Issue Date : 19-DEC-2013 No. of samples received : 9 No. of samples analysed : 9
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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

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>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EG020A: Positive results for sample ES1327421 #007 have been confirmed**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW11	BQ_EW_MW01	BQ_EW_MW02	BQ_EW_MW03	BQ_MW13
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327421-001	ES1327421-002	ES1327421-003	ES1327421-004	ES1327421-005
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	490	233	454	361	455
Total Alkalinity as CaCO3	----	1	mg/L	490	233	454	361	455
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4900	1840	2990	3520	1570
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	1080	750	1460	1160	769
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	300	234	557	536	298
Magnesium	7439-95-4	1	mg/L	543	177	329	364	166
Sodium	7440-23-5	1	mg/L	2130	944	1310	1370	799
Potassium	7440-09-7	1	mg/L	12	13	15	18	6
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	0.4	<0.2	0.5	0.3	0.3
Arsenic	7440-38-2	0.2	µg/L	0.6	0.4	0.4	1.8	0.4
Barium	7440-39-3	0.5	µg/L	19.9	17.8	11.7	24.8	42.4
Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	7440-42-8	5	µg/L	373	2550	814	1040	1620
Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.25	<0.05	<0.05
Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Cobalt	7440-48-4	0.1	µg/L	0.2	0.7	0.5	0.9	1.7
Copper	7440-50-8	0.5	µg/L	2.1	3.4	2.5	0.5	3.2
Lead	7439-92-1	0.1	µg/L	1.2	0.1	<0.1	<0.1	17.3
Manganese	7439-96-5	0.5	µg/L	57.7	17.8	9.2	359	111
Molybdenum	7439-98-7	0.1	µg/L	4.9	16.8	0.7	0.4	1.2
Nickel	7440-02-0	0.5	µg/L	4.9	12.9	17.5	14.0	7.9
Thallium	7440-28-0	0.02	µg/L	0.03	<0.02	0.07	<0.02	0.03
Vanadium	7440-62-2	0.2	µg/L	1.7	0.5	0.2	0.3	0.7
Zinc	7440-66-6	1	µg/L	18	26	12	18	25
EN055: Ionic Balance								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW11	BQ_EW_MW01	BQ_EW_MW02	BQ_EW_MW03	BQ_MW13
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327421-001	ES1327421-002	ES1327421-003	ES1327421-004	ES1327421-005
EN055: Ionic Balance - Continued								
Total Anions	----	0.01	meq/L	142	64.1	112	113	63.5
Total Cations	----	0.01	meq/L	153	67.6	112	117	63.4
Ionic Balance	----	0.01	%	3.48	2.65	0.13	1.52	0.04
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW11	BQ_EW_MW01	BQ_EW_MW02	BQ_EW_MW03	BQ_MW13
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327421-001	ES1327421-002	ES1327421-003	ES1327421-004	ES1327421-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW11	BQ_EW_MW01	BQ_EW_MW02	BQ_EW_MW03	BQ_MW13
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327421-001	ES1327421-002	ES1327421-003	ES1327421-004	ES1327421-005
EP074F: Halogenated Aromatic Compounds - Continued								
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BQ_MW11	BQ_EW_MW01	BQ_EW_MW02	BQ_EW_MW03	BQ_MW13
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
				ES1327421-001	ES1327421-002	ES1327421-003	ES1327421-004	ES1327421-005
Compound	CAS Number	LOR	Unit	Client sampling date / time				
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW11	BQ_EW_MW01	BQ_EW_MW02	BQ_EW_MW03	BQ_MW13
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327421-001	ES1327421-002	ES1327421-003	ES1327421-004	ES1327421-005
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	113	108	107	105	108
Toluene-D8	2037-26-5	0.1	%	124	113	112	118	107
4-Bromofluorobenzene	460-00-4	0.1	%	100	91.4	91.2	91.6	89.0
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	28.5	39.8	27.6	32.0	17.6
2-Chlorophenol-D4	93951-73-6	0.1	%	60.6	81.9	57.7	60.1	48.8
2,4,6-Tribromophenol	118-79-6	0.1	%	68.8	98.6	59.1	68.6	66.8
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	74.2	100	71.9	77.5	73.6
Anthracene-d10	1719-06-8	0.1	%	94.3	108	82.9	89.1	91.2
4-Terphenyl-d14	1718-51-0	0.1	%	84.2	109	84.1	88.9	82.6
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	122	117	115	114	116
Toluene-D8	2037-26-5	0.1	%	124	122	120	128	116
4-Bromofluorobenzene	460-00-4	0.1	%	108	97.2	96.6	99.4	96.6



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW10	R01_101213_KF	TS_101213	TB_101213	----
				14-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327421-006	ES1327421-007	ES1327421-008	ES1327421-009	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	2	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	<1	2	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	1790	<1	----	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	548	<1	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	608	<1	----	----	----
Magnesium	7439-95-4	1	mg/L	43	<1	----	----	----
Sodium	7440-23-5	1	mg/L	429	<1	----	----	----
Potassium	7440-09-7	1	mg/L	23	<1	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	----	----	----
Boron	7440-42-8	0.05	mg/L	----	<0.05	----	----	----
Barium	7440-39-3	0.001	mg/L	----	0.008	----	----	----
Beryllium	7440-41-7	0.001	mg/L	----	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	----	----	----
Cobalt	7440-48-4	0.001	mg/L	----	<0.001	----	----	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	----	0.002	----	----	----
Manganese	7439-96-5	0.001	mg/L	----	0.021	----	----	----
Nickel	7440-02-0	0.001	mg/L	----	0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L	----	<0.01	----	----	----
Vanadium	7440-62-2	0.01	mg/L	----	<0.01	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	0.008	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	----	<0.001	----	----	----
Thallium	7440-28-0	0.001	mg/L	----	<0.001	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW10	R01_101213_KF	TS_101213	TB_101213	----
				14-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327421-006	ES1327421-007	ES1327421-008	ES1327421-009	----
EG035T: Total Recoverable Mercury by FIMS - Continued								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	2.1	----	----	----	----
Arsenic	7440-38-2	0.2	µg/L	1.6	----	----	----	----
Barium	7440-39-3	0.5	µg/L	12.0	----	----	----	----
Beryllium	7440-41-7	0.1	µg/L	2.7	----	----	----	----
Boron	7440-42-8	5	µg/L	3230	----	----	----	----
Cadmium	7440-43-9	0.05	µg/L	0.64	----	----	----	----
Chromium	7440-47-3	0.2	µg/L	0.3	----	----	----	----
Cobalt	7440-48-4	0.1	µg/L	113	----	----	----	----
Copper	7440-50-8	0.5	µg/L	7.1	----	----	----	----
Lead	7439-92-1	0.1	µg/L	1.2	----	----	----	----
Manganese	7439-96-5	0.5	µg/L	646	----	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	0.6	----	----	----	----
Nickel	7440-02-0	0.5	µg/L	227	----	----	----	----
Thallium	7440-28-0	0.02	µg/L	0.19	----	----	----	----
Vanadium	7440-62-2	0.2	µg/L	0.3	----	----	----	----
Zinc	7440-66-6	1	µg/L	272	----	----	----	----
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	52.7	0.04	----	----	----
Total Cations	----	0.01	meq/L	53.1	<0.01	----	----	----
Ionic Balance	----	0.01	%	0.41	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
Styrene	100-42-5	5	µg/L	<5	<5	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

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				BQ_MW10	R01_101213_KF	TS_101213	TB_101213	----
				14-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327421-006	ES1327421-007	ES1327421-008	ES1327421-009	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW10	R01_101213_KF	TS_101213	TB_101213	----
				14-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327421-006	ES1327421-007	ES1327421-008	ES1327421-009	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW10	R01_101213_KF	TS_101213	TB_101213	----
				14-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327421-006	ES1327421-007	ES1327421-008	ES1327421-009	----
EP075(SIM)A: Phenolic Compounds - Continued								
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW10	R01_101213_KF	TS_101213	TB_101213	----
				14-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327421-006	ES1327421-007	ES1327421-008	ES1327421-009	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	16	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	16	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	15	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	15	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	18	<2	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	33	<2	----
^ Sum of BTEX	----	1	µg/L	<1	<1	80	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	18	<5	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	104	104	----	----	----
Toluene-D8	2037-26-5	0.1	%	99.6	101	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	83.2	88.1	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	27.2	24.7	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	53.4	53.3	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	57.1	65.1	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	70.1	71.4	----	----	----
Anthracene-d10	1719-06-8	0.1	%	93.0	84.6	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	83.4	87.1	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	112	113	94.8	77.4	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	BQ_MW10	R01_101213_KF	TS_101213	TB_101213	----
Client sampling date / time	14-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	10-DEC-2013 15:00	----
Compound	ES1327421-006	ES1327421-007	ES1327421-008	ES1327421-009	----

Compound	CAS Number	LOR	Unit	ES1327421-006	ES1327421-007	ES1327421-008	ES1327421-009	----
EP080S: TPH(V)/BTEX Surrogates - Continued								
Toluene-D8	2037-26-5	0.1	%	108	109	86.0	81.5	----
4-Bromofluorobenzene	460-00-4	0.1	%	88.3	95.4	90.2	79.2	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1327421	Page	: 1 of 21
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 19-DEC-2013
Sampler	: KF	No. of samples received	: 9
Order number	: 224193	No. of samples analysed	: 9
Quote number	: SY/794/13		

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

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>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney 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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 3214334)									
ES1327416-004	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	5	4	33.8	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	5	4	33.8	No Limit
ES1327421-001	BQ_MW11	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	490	493	0.5	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	490	493	0.5	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 3214276)									
ES1327235-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	9750	10200	4.2	0% - 20%
ES1327421-004	BQ_EW_MW03	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3520	3540	0.6	0% - 20%
ED045G: Chloride Discrete analyser (QC Lot: 3214275)									
ES1327235-007	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	81600	81900	0.4	0% - 20%
ES1327421-004	BQ_EW_MW03	ED045G: Chloride	16887-00-6	1	mg/L	1160	1160	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 3214274)									
ES1327235-007	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	675	680	0.7	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	5960	5900	1.1	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	68900	56500	19.8	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	1900	1580	19.0	0% - 20%
ES1327421-005	BQ_MW13	ED093F: Calcium	7440-70-2	1	mg/L	298	304	2.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	166	170	2.9	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	799	830	3.8	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 3215707)									
ES1326945-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.018	0.018	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.065	0.065	0.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 3215707) - continued									
ES1326945-002	Anonymous	EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.013	0.013	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES1327207-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.082	0.076	8.6	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.073	0.070	5.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.013	0.012	8.2	0% - 50%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.052	0.046	10.2	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	0.38	0.35	7.8	No Limit		
EG035F: Dissolved Mercury by FIMS (QC Lot: 3215703)									
ES1327421-001	BQ_MW11	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1327436-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3213226)									
ES1326945-003	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1326996-007	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3218295)									
ES1327421-001	BQ_MW11	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.03	0.03	0.0	No Limit
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	0.2	0.3	0.0	No Limit
		EG094A-F: Lead	7439-92-1	0.1	µg/L	1.2	1.1	0.0	0% - 50%
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	4.9	4.9	0.0	0% - 20%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	0.6	0.6	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	1.7	1.6	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	19.9	20.1	1.1	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	2.1	2.4	15.2	No Limit
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	57.7	56.5	2.0	0% - 20%



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3218295) - continued										
ES1327421-001	BQ_MW11	EG094A-F: Nickel	7440-02-0	0.5	µg/L	4.9	5.1	4.3	0% - 50%	
		EG094A-F: Zinc	7440-66-6	1	µg/L	18	21	16.0	0% - 20%	
		EG094A-F: Boron	7440-42-8	5	µg/L	373	363	2.8	0% - 20%	
ES1327436-001	Anonymous	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.75	0.71	5.5	0% - 20%	
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.19	0.17	9.6	No Limit	
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit	
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	3.1	2.9	6.2	0% - 20%	
		EG094A-F: Lead	7439-92-1	0.1	µg/L	159	148	7.6	0% - 20%	
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	4.1	3.8	7.0	0% - 20%	
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	1.3	1.3	0.0	No Limit	
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	1.2	1.1	0.0	No Limit	
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	4.8	4.4	8.4	0% - 20%	
		EG094A-F: Barium	7440-39-3	0.5	µg/L	53.6	49.3	8.4	0% - 20%	
		EG094A-F: Copper	7440-50-8	0.5	µg/L	6.3	5.8	8.8	0% - 50%	
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	567	517	9.3	0% - 20%	
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	10.0	9.0	9.8	0% - 50%	
		EG094A-F: Zinc	7440-66-6	1	µg/L	25	23	8.0	0% - 20%	
		EG094A-F: Boron	7440-42-8	5	µg/L	163	149	9.1	0% - 20%	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3218296)										
ES1327421-001	BQ_MW11	EG094B-F: Selenium	7782-49-2	0.2	µg/L	0.4	0.3	0.0	No Limit	
ES1327436-001	Anonymous	EG094B-F: Selenium	7782-49-2	0.2	µg/L	1.3	0.9	35.5	No Limit	
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3213679)										
ES1327421-001	BQ_MW11	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit	
EP074B: Oxygenated Compounds (QC Lot: 3213679)										
ES1327421-001	BQ_MW11	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit	



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074B: Oxygenated Compounds (QC Lot: 3213679) - continued									
ES1327421-001	BQ_MW11	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3213679)									
ES1327421-001	BQ_MW11	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3213679)									
ES1327421-001	BQ_MW11	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3213679)									
ES1327421-001	BQ_MW11	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3213679)									



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 3213679) - continued									
ES1327421-001	BQ_MW11	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3213679)									
ES1327421-001	BQ_MW11	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3213679)									
ES1327421-001	BQ_MW11	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3213904)									
ES1327431-001	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		ES1327435-006	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0
EP075(SIM): 2-Chlorophenol	95-57-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			2.0	µg/L	<2.0	<2.0	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3213904) - continued									
ES1327435-006	Anonymous	EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3213904)									
ES1327431-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
ES1327435-006	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3213661)									
ES1326977-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1326977-010	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3213680)									
ES1327421-001	BQ_MW11	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327437-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3213903)										
ES1327431-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
ES1327435-006	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3213661)										
ES1326977-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1326977-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3213680)										
ES1327421-001	BQ_MW11	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES1327437-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3213903)										
ES1327431-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
ES1327435-006	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
EP080: BTEXN (QC Lot: 3213661)										
ES1326977-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
ES1326977-010	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			
EP080: BTEXN (QC Lot: 3213680)										
ES1327421-001	BQ_MW11	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP080: BTEXN (QC Lot: 3213680) - continued										
ES1327421-001	BQ_MW11	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1327437-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	



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 (%)		Recovery Limits (%)	
						LCS	Low	High	
ED037P: Alkalinity by PC Titrator (QCLot: 3214334)									
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	88.5	81	111	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3214276)									
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	117	86	122	
ED045G: Chloride Discrete analyser (QCLot: 3214275)									
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	99.7	77	123	
ED093F: Dissolved Major Cations (QCLot: 3214274)									
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	105	87	113	
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	103	89	113	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	112	79	113	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	107	87	115	
EG020T: Total Metals by ICP-MS (QCLot: 3215707)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	102	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	110	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	106	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	108	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	110	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	111	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	106	83	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	120	81	125	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	115	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	103	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	101	86	116	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	110	84	114	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	110	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	115	73	127	
EG035F: Dissolved Mercury by FIMS (QCLot: 3215703)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	97.7	78	114	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3213226)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	106	77	115	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218295)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	91.0	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	90.5	76	120	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218295) - continued									
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	118	74	130	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	10 µg/L	89.3	79	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	89.0	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	88.7	71	123	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	92.7	79	121	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	93.1	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	87.5	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	91.7	79	119	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	86.0	69	127	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	93.2	72	128	
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	85.2	71	121	
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	93.0	78	116	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	88.0	76	134	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218296)									
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	75.1	75	125	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3213679)									
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	102	78	116	
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	68	128	
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	101	74	118	
EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	20 µg/L	103	74	122	
	106-42-3								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	97.3	74	118	
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	107	77	121	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	96.1	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	93.4	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	92.6	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	98.3	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	96.4	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	91.5	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	94.6	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	98.2	62	126	
EP074B: Oxygenated Compounds (QCLot: 3213679)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	102	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	99.2	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	105	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	97.8	65	137	
EP074C: Sulfonated Compounds (QCLot: 3213679)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	96.2	72.8	127	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074D: Fumigants (QCLot: 3213679)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	99.7	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	102	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	93.5	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	88.8	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	96.5	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3213679)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	65.8	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	75.2	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	97.5	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	82.4	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	89.5	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	98.3	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	96.9	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	74.1	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	103	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	105	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	109	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	100	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	102	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	90.4	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	107	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	101	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	110	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	100	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	104	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	91.0	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	98.4	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	90.0	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	94.7	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	108	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	101	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	117	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	104	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	118	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3213679)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	106	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	100	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	106	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	105	71	121	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074F: Halogenated Aromatic Compounds (QCLot: 3213679) - continued									
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	106	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	104	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	105	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	109	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	106	67	125	
EP074G: Trihalomethanes (QCLot: 3213679)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	105	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	100	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	82.7	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	87.8	73.5	126	
EP074H: Naphthalene (QCLot: 3213679)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	104	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3213904)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	39.8	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	66.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	70.7	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	59.7	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	84.8	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	86.0	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	82.2	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	89.5	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	85.9	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	73.8	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	79.6	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	76.8	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213904)									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213904) - continued									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	88.2	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	76.9	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	72.5	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	82.7	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	84.6	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	88.8	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	94.4	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	90.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	74.1	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	80.1	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	73.5	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	84.5	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	75.1	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	77.5	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	75.8	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	79.7	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213661)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	108	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213680)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	81.7	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213903)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	88.3	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	98.6	71	131	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213903) - continued									
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	102	62	120	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213661)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	109	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213680)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	82.4	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213903)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	91.4	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	101	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	104	67	127	
EP080: BTEXN (QCLot: 3213661)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	102	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	115	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	116	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	107	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	118	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	104	70	124	
EP080: BTEXN (QCLot: 3213680)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	89.4	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.7	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	85.0	70	120	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	85.4	69	121	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	85.8	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	84.7	70	124	

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery(%)		Recovery Limits (%)	
					MS	Low	High	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3214276)								
ES1327235-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70	130	
ED045G: Chloride Discrete analyser (QCLot: 3214275)								



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED045G: Chloride Discrete analyser (QCLot: 3214275) - continued							
ES1327235-007	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	70	130
EG020T: Total Metals by ICP-MS (QCLot: 3215707)							
ES1326945-003	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	114	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	107	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	111	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	110	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	110	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	113	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	114	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	109	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	112	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	110	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	112	70	130
EG020A-T: Zinc	7440-66-6	1 mg/L	110	70	130		
EG035F: Dissolved Mercury by FIMS (QCLot: 3215703)							
ES1327421-002	BQ_EW_MW01	EG035F: Mercury	7439-97-6	0.0100 mg/L	79.6	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3213226)							
ES1326945-004	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	87.2	70	130
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218295)							
ES1327421-002	BQ_EW_MW01	EG094A-F: Arsenic	7440-38-2	50 µg/L	125	70	130
		EG094A-F: Barium	7440-39-3	50 µg/L	114	70	130
		EG094A-F: Beryllium	7440-41-7	50 µg/L	98.6	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	104	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	70	130
		EG094A-F: Cobalt	7440-48-4	50 µg/L	128	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	117	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	102	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	98.1	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	116	70	130
		EG094A-F: Vanadium	7440-62-2	50 µg/L	107	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	111	70	130
		EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3213679)					
ES1327421-001	BQ_MW11	EP074: Benzene	71-43-2	25 µg/L	113	70	130
		EP074: Toluene	108-88-3	25 µg/L	122	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3213679)							
ES1327421-001	BQ_MW11	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	115	70	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3213679) - continued								
ES1327421-001	BQ_MW11	EP074: Trichloroethene	79-01-6	25 µg/L	110	70	130	
EP074F: Halogenated Aromatic Compounds (QCLot: 3213679)								
ES1327421-001	BQ_MW11	EP074: Chlorobenzene	108-90-7	25 µg/L	121	70	130	
EP075(SIM)A: Phenolic Compounds (QCLot: 3213904)								
ES1327431-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	39.4	20	130	
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	76.3	60	130	
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	75.2	60	130	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	81.3	70	130	
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	85.4	20	130	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213904)								
ES1327431-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	79.5	70	130	
		EP075(SIM): Pyrene	129-00-0	20 µg/L	83.8	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213661)								
ES1326977-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	118	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213680)								
ES1327421-001	BQ_MW11	EP080: C6 - C9 Fraction	----	325 µg/L	119	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213903)								
ES1327431-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	102	74	150	
		EP071: C15 - C28 Fraction	----	300 µg/L	95.0	77	153	
		EP071: C29 - C36 Fraction	----	200 µg/L	106	67	153	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213661)								
ES1326977-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	115	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213680)								
ES1327421-001	BQ_MW11	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	118	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213903)								
ES1327431-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	99.2	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	95.2	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	95.6	67	153	
EP080: BTEXN (QCLot: 3213661)								
ES1326977-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	105	70	130	
		EP080: Toluene	108-88-3	25 µg/L	105	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	98.7	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	110	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	113	70	130	
EP080: Naphthalene	91-20-3	25 µg/L	115	70	130			



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	Spike Recovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080: BTEXN (QCLot: 3213680)								
ES1327421-001	BQ_MW11	EP080: Benzene	71-43-2	25 µg/L	113	70	130	
		EP080: Toluene	108-88-3	25 µg/L	112	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	102	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	99.8	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	99.3	70	130		

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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3213226)											
ES1326945-004	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	87.2	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213661)											
ES1326977-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	118	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213661)											
ES1326977-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	115	----	70	130	----	----	
EP080: BTEXN (QCLot: 3213661)											
ES1326977-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	105	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	105	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	98.7	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	110	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	113	----	70	130	----	----	
	EP080: Naphthalene	91-20-3	25 µg/L	115	----	70	130	----	----		
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3213679)											
ES1327421-001	BQ_MW11	EP074: Benzene	71-43-2	25 µg/L	113	----	70	130	----	----	
		EP074: Toluene	108-88-3	25 µg/L	122	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3213679)											
ES1327421-001	BQ_MW11	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	115	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	25 µg/L	110	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3213679)											
ES1327421-001	BQ_MW11	EP074: Chlorobenzene	108-90-7	25 µg/L	121	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213680)											



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213680) - continued											
ES1327421-001	BQ_MW11	EP080: C6 - C9 Fraction	----	325 µg/L	119	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213680)											
ES1327421-001	BQ_MW11	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	118	----	70	130	----	----	
EP080: BTEXN (QCLot: 3213680)											
ES1327421-001	BQ_MW11	EP080: Benzene	71-43-2	25 µg/L	113	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	112	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	102	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	99.8	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	99.3	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213903)											
ES1327431-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	102	----	74	150	----	----	
		EP071: C15 - C28 Fraction	----	300 µg/L	95.0	----	77	153	----	----	
		EP071: C29 - C36 Fraction	----	200 µg/L	106	----	67	153	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213903)											
ES1327431-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	99.2	----	74	150	----	----	
		EP071: >C16 - C34 Fraction	----	350 µg/L	95.2	----	77	153	----	----	
		EP071: >C34 - C40 Fraction	----	150 µg/L	95.6	----	67	153	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3213904)											
ES1327431-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	39.4	----	20	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	76.3	----	60	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	75.2	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	81.3	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	85.4	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213904)											
ES1327431-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	79.5	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	20 µg/L	83.8	----	70	130	----	----	
ED045G: Chloride Discrete analyser (QCLot: 3214275)											
ES1327235-007	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	----	70	130	----	----	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3214276)											
ES1327235-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	----	70	130	----	----	
EG035F: Dissolved Mercury by FIMS (QCLot: 3215703)											
ES1327421-002	BQ_EW_MW01	EG035F: Mercury	7439-97-6	0.0100 mg/L	79.6	----	70	130	----	----	
EG020T: Total Metals by ICP-MS (QCLot: 3215707)											



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG020T: Total Metals by ICP-MS (QCLot: 3215707) - continued										
ES1326945-003	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	114	----	70	130	----	----
		EG020A-T: Beryllium	7440-41-7	1 mg/L	107	----	70	130	----	----
		EG020A-T: Barium	7440-39-3	1 mg/L	111	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	110	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	110	----	70	130	----	----
		EG020A-T: Cobalt	7440-48-4	1 mg/L	113	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	114	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	109	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	112	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	110	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	112	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	110	----	70	130	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218295)										
ES1327421-002	BQ_EW_MW01	EG094A-F: Arsenic	7440-38-2	50 µg/L	125	----	70	130	----	----
		EG094A-F: Barium	7440-39-3	50 µg/L	114	----	70	130	----	----
		EG094A-F: Beryllium	7440-41-7	50 µg/L	98.6	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	104	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	----	70	130	----	----
		EG094A-F: Cobalt	7440-48-4	50 µg/L	128	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	117	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	102	----	70	130	----	----
		EG094A-F: Manganese	7439-96-5	50 µg/L	98.1	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	116	----	70	130	----	----
		EG094A-F: Vanadium	7440-62-2	50 µg/L	107	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	111	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327421	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 19-DEC-2013
Sampler	: KF	No. of samples received	: 9
Order number	: 224193	No. of samples analysed	: 9
Quote number	: SY/794/13		

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	---	24-DEC-2013	----	16-DEC-2013	24-DEC-2013	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	---	07-JAN-2014	----	16-DEC-2013	07-JAN-2014	✓
ED045G: Chloride Discrete analyser							
Clear Plastic Bottle - Natural (ED045G) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	---	07-JAN-2014	----	16-DEC-2013	07-JAN-2014	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	---	17-DEC-2013	----	16-DEC-2013	17-DEC-2013	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_101213_KF	10-DEC-2013	17-DEC-2013	08-JUN-2014	✓	17-DEC-2013	08-JUN-2014	✓
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BQ_MW11, BQ_EW_MW02, BQ_MW13, BQ_EW_MW01, BQ_EW_MW03, BQ_MW10	14-DEC-2013	---	11-JAN-2014	----	17-DEC-2013	11-JAN-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_101213_KF	10-DEC-2013	----	----	----	16-DEC-2013	07-JAN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BQ_MW11, BQ_EW_MW01, BQ_EW_MW02, BQ_EW_MW03, BQ_MW13, BQ_MW10	14-DEC-2013	---	12-JUN-2014	----	18-DEC-2013	12-JUN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) BQ_MW11, BQ_EW_MW01, BQ_EW_MW02, BQ_EW_MW03, BQ_MW13, BQ_MW10	14-DEC-2013	---	12-JUN-2014	----	18-DEC-2013	12-JUN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber Glass Bottle - Unpreserved (EP071) BQ_MW11, BQ_EW_MW01, BQ_EW_MW02, BQ_EW_MW03, BQ_MW13, BQ_MW10, R01_101213_KF	10-DEC-2013	16-DEC-2013	17-DEC-2013	✓	17-DEC-2013	25-JAN-2014	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW11, BQ_EW_MW01, BQ_EW_MW02, BQ_EW_MW03, BQ_MW13, BQ_MW10, R01_101213_KF	10-DEC-2013	17-DEC-2013	24-DEC-2013	✓	17-DEC-2013	24-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW11, BQ_EW_MW01, BQ_EW_MW02, BQ_EW_MW03, BQ_MW13, BQ_MW10, R01_101213_KF	10-DEC-2013	17-DEC-2013	24-DEC-2013	✓	17-DEC-2013	24-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW11, BQ_EW_MW01, BQ_EW_MW02, BQ_EW_MW03, BQ_MW13, BQ_MW10, R01_101213_KF	10-DEC-2013	17-DEC-2013	24-DEC-2013	✓	17-DEC-2013	24-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	17-DEC-2013	24-DEC-2013	✓	17-DEC-2013	24-DEC-2013	✓	
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	17-DEC-2013	24-DEC-2013	✓	17-DEC-2013	24-DEC-2013	✓	
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	17-DEC-2013	24-DEC-2013	✓	17-DEC-2013	24-DEC-2013	✓	
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	17-DEC-2013	24-DEC-2013	✓	17-DEC-2013	24-DEC-2013	✓	
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	17-DEC-2013	24-DEC-2013	✓	17-DEC-2013	24-DEC-2013	✓	
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	16-DEC-2013	17-DEC-2013	✓	17-DEC-2013	25-JAN-2014	✓	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	16-DEC-2013	17-DEC-2013	✓	17-DEC-2013	25-JAN-2014	✓	



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) TS_101213,	TB_101213	10-DEC-2013	16-DEC-2013	24-DEC-2013	✓	16-DEC-2013	24-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF	BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	17-DEC-2013	24-DEC-2013	✓	17-DEC-2013	24-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP080) TB_101213		10-DEC-2013	16-DEC-2013	24-DEC-2013	✓	16-DEC-2013	24-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BQ_MW11, BQ_EW_MW02, BQ_MW13, R01_101213_KF	BQ_EW_MW01, BQ_EW_MW03, BQ_MW10,	10-DEC-2013	17-DEC-2013	24-DEC-2013	✓	17-DEC-2013	24-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Sulfate (Turbidimetric) as SO ₄ ²⁻ by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO ₄ Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ ²⁻ concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	APHA 21st Ed. 1030F. The Ionic Balance is calculated based on the major Anions and Cations. The major anions include Alkalinity, Chloride and Sulfate which determined by PCT and DA. The Cations are determined by Turbi SO4 by DA. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES1327235-007	Anonymous	Sulfate as SO4 - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
ED045G: Chloride Discrete analyser	ES1327235-007	Anonymous	Chloride	16887-00-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



CHAIN OF CUSTODY

ALS Laboratory, please tick →

DADELAIDE 21 Barina Road Moorooka SA 5005
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DRACKAY 78 Harbour Road Mackay QLD 4740
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MUDGEE 27 Sydney Road Mudgie NSW 2350
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PERTH 10 Holt Way Malaga WA 6099
Ph: 08 9259 7658 E: samples.perth@alsglobal.com

WOLLONGONG 69 Kenny Street Wollongong NSW 2522
Ph: 02 4225 2125 E: wollongong@alsglobal.com

Ravi
ACB Syd
13/12/13

CLIENT: ERM	TURNAROUND REQUIREMENTS : <input type="checkbox"/> Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: SYDNEY	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input checked="" type="checkbox"/> Non Standard or urgent TAT (List due date): 48hr TAT	Custody Seal Intact? Yes No NA
PROJECT: Project Symphony	ALS QUOTE NO.: SY7794/13	Free ice / frozen ice bricks present upon receipt? Yes No NA
ORDER NUMBER: 224193	SITE: BAYSWATER / BIDDLE	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: JOE FERRING	CONTACT PH: 0424 970 668	Other comment:
SAMPLER: KATE FOX	SAMPLER MOBILE: 0452 411815	RECEIVED BY: [Signature]
COC emailed to ALS? (YES / NO) <input checked="" type="checkbox"/>	EDD FORMAT (or default):	RELINQUISHED BY: [Signature]
Email Reports to (will default to PM if no other addresses are listed): Symphony.Macgiver@erm.com	DATE/TIME: 12/12/13	RECEIVED BY: [Signature]
Email Invoice to (will default to PM if no other addresses are listed):	DATE/TIME: 13/12/13 1645	RELINQUISHED BY: [Signature]
DATE/TIME: 13/12/13 170		

Environmental Division
Sydney
Work Order
ES1327434



Telephone : + 61-2-8784 8555

ALS USE	SAMPLE DETAILS			CONTAINER INFORMATION		ANALYSIS REQUIRED Including SUITES (NB, Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).									
	LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below (refer to)	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	ORC 17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti) SEE P. 52	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PFOA/FOA	W-24 TRHIC6-C40/BTEXN, PAH, Phenols	Carbons/Anions	
	1	BO_MWφ1	12/12/13	w	(4xVS, 2xAG, 1xP, 1xORC unpreserved)	8	X	X					X	X	
	2	BO_MWφ2													
	3	BO_MWφ3													
	4	BO_MWφ4													
	5	BO_MWφ5													
	6	Dφ1-121213-KF													
	7	Rφ1-121213-KF			(4xVS, 2xAG, 1xP, 1xN)	2									
	8	TSE 121213			2xVS	2								BTEXN	
	9	TBS 121213			2xVS	2								BTEXN + TRM	
	TOTAL														

TAT

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Specialion bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)**Comprehensive Report**

Work Order : **ES1327434**

Client : **ENVIRO RESOURCES MANAGEMENT** **Laboratory** : Environmental Division Sydney

Contact : MR JOSEPH FERRING **Contact** : Barbara Hanna
Address : GROUND FLOOR **Address** : 277-289 Woodpark Road Smithfield
33 SAUNDERS STREET, PYRMONT NSW Australia 2164
NSW 2009
LOCKED BAG 24
BROADWAY NSW, AUSTRALIA 2007

E-mail : joseph.ferring@erm.com **E-mail** : Barbara.Hanna@alsglobal.com
Telephone : +61 02 8584 8888 **Telephone** : +61 2 8784 8555
Facsimile : +61 02 8584 8800 **Facsimile** : +61 2 8784 8555

Project : Project Symphony **Page** : 1 of 3
Order number : 0224193
C-O-C number : ---- **Quote number** : ES2013ENVRES0369 (SY/794/13)
Site : BAYSWATER
Sampler : KF **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 13-DEC-2013 **Issue Date** : 17-DEC-2013 12:10
Client Requested Due Date : 18-DEC-2013 **Scheduled Reporting Date** : **18-DEC-2013**

Delivery Details

Mode of Delivery : Carrier **Temperature** : 4.4°C SYD - Ice present
No. of coolers/boxes : 1 HARD **No. of samples received** : 9
Security Seal : Intact. **No. of samples analysed** : 9

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exist.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG093A-F Dissolved metals in saline water by ORC-ICPMS	WATER - EG093B-F Dissolved Metals in Saline Water Suite B by	WATER - EN055 - PG Ionic Balance by ED037P, ED041G, ED045G &	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - NT-01 Major Cations (Ca, Mg, Na, K)
ES1327434-001	12-DEC-2013 15:00	BO_MW01					✓	✓		✓
	14-DEC-2013 15:00	BO_MW01		✓	✓	✓				
ES1327434-002	12-DEC-2013 15:00	BO_MW02					✓	✓		✓
	14-DEC-2013 15:00	BO_MW02		✓	✓	✓				
ES1327434-003	12-DEC-2013 15:00	BO_MW03					✓	✓		✓
	14-DEC-2013 15:00	BO_MW03		✓	✓	✓				
ES1327434-004	12-DEC-2013 15:00	BO_MW04					✓	✓		✓
	14-DEC-2013 15:00	BO_MW04		✓	✓	✓				
ES1327434-005	12-DEC-2013 15:00	BO_MW05					✓	✓		✓
	14-DEC-2013 15:00	BO_MW05		✓	✓	✓				
ES1327434-006	12-DEC-2013 15:00	D01_121213_KF					✓	✓		✓
	14-DEC-2013 15:00	D01_121213_KF		✓	✓	✓				
ES1327434-007	12-DEC-2013 15:00	R01_121213_KF	✓				✓	✓		✓
ES1327434-008	12-DEC-2013 15:00	TS7_121213							✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - NT-02 Major Anions (Chloride, Sulphate, Alkalinity)	WATER - W-02T 8 metals (Total)	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1327434-001	12-DEC-2013 15:00	BO_MW01	✓			✓
ES1327434-002	12-DEC-2013 15:00	BO_MW02	✓			✓
ES1327434-003	12-DEC-2013 15:00	BO_MW03	✓			✓
ES1327434-004	12-DEC-2013 15:00	BO_MW04	✓			✓
ES1327434-005	12-DEC-2013 15:00	BO_MW05	✓			✓
ES1327434-006	12-DEC-2013 15:00	D01_121213_KF	✓			✓
ES1327434-007	12-DEC-2013 15:00	R01_121213_KF	✓	✓		✓
ES1327434-009	12-DEC-2013 15:00	TB5_121213			✓	



Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY ERARING

- *AU Certificate of Analysis - NATA (COA)	Email	Symphony.Eraring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Symphony.Eraring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Symphony.Eraring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Symphony.Eraring@erm.com
- Chain of Custody (CoC) (COC)	Email	Symphony.Eraring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	Symphony.Eraring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	Symphony.Eraring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	Symphony.Eraring@erm.com
- EDI Format - XTab (XTAB)	Email	Symphony.Eraring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1327434 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 0224193 C-O-C number : ---- Sampler : KF Site : BAYSWATER Quote number : SY/794/13	Page : 1 of 16 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 13-DEC-2013 Issue Date : 19-DEC-2013 No. of samples received : 9 No. of samples analysed : 9
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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

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>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EG020: Positive result for sample ES1327434-7 has been confirmed by reanalysis.**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BO_MW01	BO_MW02	BO_MW03	BO_MW04	BO_MW05
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327434-001	ES1327434-002	ES1327434-003	ES1327434-004	ES1327434-005
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	597	305	509	560	577
Total Alkalinity as CaCO3	----	1	mg/L	597	305	509	560	577
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4260	3710	4930	3220	2070
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	2780	6930	3160	1460	741
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	581	727	297	299	187
Magnesium	7439-95-4	1	mg/L	694	1280	506	521	232
Sodium	7440-23-5	1	mg/L	2060	2870	3040	1440	1170
Potassium	7440-09-7	1	mg/L	48	10	25	12	13
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	14.1	2.3	0.4	0.5	<0.2
Arsenic	7440-38-2	0.2	µg/L	5.1	0.9	4.3	1.1	0.5
Barium	7440-39-3	0.5	µg/L	86.1	64.8	19.0	45.7	23.7
Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	7440-42-8	5	µg/L	141	111	164	205	165
Cadmium	7440-43-9	0.05	µg/L	0.09	0.10	<0.05	<0.05	<0.05
Chromium	7440-47-3	0.2	µg/L	0.2	0.3	<0.2	0.4	<0.2
Cobalt	7440-48-4	0.1	µg/L	125	1.4	37.4	0.8	2.5
Copper	7440-50-8	0.5	µg/L	3.2	2.9	1.5	2.9	3.0
Lead	7439-92-1	0.1	µg/L	3.6	61.2	1.0	47.5	6.4
Manganese	7439-96-5	0.5	µg/L	478	220	1190	87.3	472
Molybdenum	7439-98-7	0.1	µg/L	19.2	1.1	1.4	2.5	1.9
Nickel	7440-02-0	0.5	µg/L	171	9.8	16.2	5.3	8.9
Thallium	7440-28-0	0.02	µg/L	0.67	0.14	<0.02	0.08	<0.02
Vanadium	7440-62-2	0.2	µg/L	1.9	1.4	0.2	3.3	1.0
Zinc	7440-66-6	1	µg/L	13	16	23	20	21
EN055: Ionic Balance								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BO_MW01	BO_MW02	BO_MW03	BO_MW04	BO_MW05
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327434-001	ES1327434-002	ES1327434-003	ES1327434-004	ES1327434-005
EN055: Ionic Balance - Continued								
Total Anions	----	0.01	meq/L	179	279	202	119	75.5
Total Cations	----	0.01	meq/L	177	267	189	121	79.6
Ionic Balance	----	0.01	%	0.60	2.22	3.25	0.53	2.63
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BO_MW01	BO_MW02	BO_MW03	BO_MW04	BO_MW05
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327434-001	ES1327434-002	ES1327434-003	ES1327434-004	ES1327434-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BO_MW01	BO_MW02	BO_MW03	BO_MW04	BO_MW05
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327434-001	ES1327434-002	ES1327434-003	ES1327434-004	ES1327434-005
EP074F: Halogenated Aromatic Compounds - Continued								
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BO_MW01	BO_MW02	BO_MW03	BO_MW04	BO_MW05
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
				ES1327434-001	ES1327434-002	ES1327434-003	ES1327434-004	ES1327434-005
Compound	CAS Number	LOR	Unit					
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	30	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	30	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	2	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BO_MW01	BO_MW02	BO_MW03	BO_MW04	BO_MW05
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327434-001	ES1327434-002	ES1327434-003	ES1327434-004	ES1327434-005
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	114	114	113	109	111
Toluene-D8	2037-26-5	0.1	%	117	121	115	115	117
4-Bromofluorobenzene	460-00-4	0.1	%	104	97.3	99.6	97.5	99.5
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	19.9	18.1	28.9	20.0	20.5
2-Chlorophenol-D4	93951-73-6	0.1	%	41.8	38.0	61.6	43.3	44.0
2,4,6-Tribromophenol	118-79-6	0.1	%	52.0	40.4	83.0	58.2	62.2
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	44.1	36.0	79.7	57.8	56.6
Anthracene-d10	1719-06-8	0.1	%	68.3	78.8	90.1	82.0	67.4
4-Terphenyl-d14	1718-51-0	0.1	%	73.8	72.4	109	79.4	68.8
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	123	123	122	119	120
Toluene-D8	2037-26-5	0.1	%	126	126	125	125	127
4-Bromofluorobenzene	460-00-4	0.1	%	111	106	107	106	106



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				D01_121213_KF	R01_121213_KF	TS7_121213	TB5_121213	----
				14-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327434-006	ES1327434-007	ES1327434-008	ES1327434-009	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	306	1	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	306	1	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3650	<1	----	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	6900	<1	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	722	<1	----	----	----
Magnesium	7439-95-4	1	mg/L	1280	<1	----	----	----
Sodium	7440-23-5	1	mg/L	2890	<1	----	----	----
Potassium	7440-09-7	1	mg/L	10	<1	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	----	----	----
Beryllium	7440-41-7	0.001	mg/L	----	<0.001	----	----	----
Barium	7440-39-3	0.001	mg/L	----	0.011	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	----	0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	----	0.002	----	----	----
Cobalt	7440-48-4	0.001	mg/L	----	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	----	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	0.012	----	----	----
Manganese	7439-96-5	0.001	mg/L	----	0.035	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	----	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L	----	<0.01	----	----	----
Thallium	7440-28-0	0.001	mg/L	----	<0.001	----	----	----
Vanadium	7440-62-2	0.01	mg/L	----	<0.01	----	----	----
Boron	7440-42-8	0.05	mg/L	----	<0.05	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time	D01_121213_KF	R01_121213_KF	TS7_121213	TB5_121213	---
14-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	---
	ES1327434-006	ES1327434-007	ES1327434-008	ES1327434-009	---

EG035T: Total Recoverable Mercury by FIMS - Continued

Compound	CAS Number	LOR	Unit	ES1327434-006	ES1327434-007	ES1327434-008	ES1327434-009	---
Mercury	7439-97-6	0.0001	mg/L	---	<0.0001	---	---	---

EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS

Compound	CAS Number	LOR	Unit	D01_121213_KF	R01_121213_KF	TS7_121213	TB5_121213	---
Selenium	7782-49-2	0.2	µg/L	2.3	---	---	---	---
Arsenic	7440-38-2	0.2	µg/L	1.1	---	---	---	---
Barium	7440-39-3	0.5	µg/L	63.5	---	---	---	---
Beryllium	7440-41-7	0.1	µg/L	<0.1	---	---	---	---
Boron	7440-42-8	5	µg/L	102	---	---	---	---
Cadmium	7440-43-9	0.05	µg/L	0.08	---	---	---	---
Chromium	7440-47-3	0.2	µg/L	0.3	---	---	---	---
Cobalt	7440-48-4	0.1	µg/L	1.6	---	---	---	---
Copper	7440-50-8	0.5	µg/L	2.7	---	---	---	---
Lead	7439-92-1	0.1	µg/L	61.5	---	---	---	---
Manganese	7439-96-5	0.5	µg/L	215	---	---	---	---
Molybdenum	7439-98-7	0.1	µg/L	0.8	---	---	---	---
Nickel	7440-02-0	0.5	µg/L	10.6	---	---	---	---
Thallium	7440-28-0	0.02	µg/L	0.13	---	---	---	---
Vanadium	7440-62-2	0.2	µg/L	1.4	---	---	---	---
Zinc	7440-66-6	1	µg/L	20	---	---	---	---

EN055: Ionic Balance

Parameter	Value	LOR	Unit	D01_121213_KF	R01_121213_KF	TS7_121213	TB5_121213	---
Total Anions	---	0.01	meq/L	277	0.02	---	---	---
Total Cations	---	0.01	meq/L	267	<0.01	---	---	---
Ionic Balance	---	0.01	%	1.74	---	---	---	---

EP074A: Monocyclic Aromatic Hydrocarbons

Compound	CAS Number	LOR	Unit	D01_121213_KF	R01_121213_KF	TS7_121213	TB5_121213	---
Benzene	71-43-2	1	µg/L	<1	<1	---	---	---
Toluene	108-88-3	2	µg/L	<2	<2	---	---	---
Ethylbenzene	100-41-4	2	µg/L	<2	<2	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	---	---	---
Styrene	100-42-5	5	µg/L	<5	<5	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	<2	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	---	---	---
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				D01_121213_KF	R01_121213_KF	TS7_121213	TB5_121213	----
				14-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327434-006	ES1327434-007	ES1327434-008	ES1327434-009	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				D01_121213_KF	R01_121213_KF	TS7_121213	TB5_121213	----
				14-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327434-006	ES1327434-007	ES1327434-008	ES1327434-009	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				D01_121213_KF	R01_121213_KF	TS7_121213	TB5_121213	----
				14-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327434-006	ES1327434-007	ES1327434-008	ES1327434-009	----
EP075(SIM)A: Phenolic Compounds - Continued								
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				D01_121213_KF	R01_121213_KF	TS7_121213	TB5_121213	----
				14-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327434-006	ES1327434-007	ES1327434-008	ES1327434-009	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	15	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	16	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	16	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	15	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	15	<2	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	30	<2	----
^ Sum of BTEX	----	1	µg/L	<1	<1	77	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	17	<5	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	104	104	----	----	----
Toluene-D8	2037-26-5	0.1	%	109	96.5	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	92.8	87.0	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	19.9	20.1	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	41.6	45.6	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	65.8	51.4	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	55.1	57.2	----	----	----
Anthracene-d10	1719-06-8	0.1	%	97.2	86.0	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	107	79.7	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	112	113	84.2	116	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	D01_121213_KF	R01_121213_KF	TS7_121213	TB5_121213	----
Client sampling date / time	14-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	----
Compound	ES1327434-006	ES1327434-007	ES1327434-008	ES1327434-009	----

Compound	CAS Number	LOR	Unit	ES1327434-006	ES1327434-007	ES1327434-008	ES1327434-009	----
EP080S: TPH(V)/BTEX Surrogates - Continued								
Toluene-D8	2037-26-5	0.1	%	119	105	103	111	----
4-Bromofluorobenzene	460-00-4	0.1	%	101	94.6	73.9	96.8	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1327434	Page	: 1 of 17
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 19-DEC-2013
Sampler	: KF	No. of samples received	: 9
Order number	: 0224193	No. of samples analysed	: 9
Quote number	: SY/794/13		

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

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>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney 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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 3217025)									
ES1327434-001	BO_MW01	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	597	595	0.2	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	597	595	0.2	0% - 20%
ES1327546-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	36	36	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	36	36	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 3217191)									
ES1327434-001	BO_MW01	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4260	4230	0.7	0% - 20%
ES1327444-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3930	3860	1.8	0% - 20%
ED045G: Chloride Discrete analyser (QC Lot: 3217190)									
ES1327434-001	BO_MW01	ED045G: Chloride	16887-00-6	1	mg/L	2780	2800	0.6	0% - 20%
ES1327444-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1980	1990	0.9	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 3217189)									
ES1327434-001	BO_MW01	ED093F: Calcium	7440-70-2	1	mg/L	581	571	1.8	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	694	682	1.7	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	2060	2040	0.9	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	48	46	2.9	0% - 20%
ES1327444-009	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	242	242	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	179	179	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1480	1500	1.1	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	4	4	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 3218600)									
ES1327434-007	R01_121213_KF	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.011	0.011	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.035	0.033	7.8	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.001	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EG020T: Total Metals by ICP-MS (QC Lot: 3218600) - continued										
ES1327434-007	R01_121213_KF	EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.012	0.011	12.8	No Limit	
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit	
EG035F: Dissolved Mercury by FIMS (QC Lot: 3218696)										
ES1327011-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3216480)										
ES1327434-007	R01_121213_KF	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3221387)										
ES1327170-005	Anonymous	EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit	
ES1327170-012	Anonymous	EG094B-F: Selenium	7782-49-2	0.2	µg/L	0.8	0.6	34.4	No Limit	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3221388)										
ES1327434-002	BO_MW02	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.14	0.16	13.0	No Limit	
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.10	0.09	0.0	No Limit	
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit	
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	1.4	1.4	0.0	0% - 50%	
		EG094A-F: Lead	7439-92-1	0.1	µg/L	61.2	59.8	2.3	0% - 20%	
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	1.1	1.0	15.0	0% - 50%	
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	0.9	1.1	18.8	No Limit	
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	0.3	0.3	0.0	No Limit	
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	1.4	1.4	0.0	No Limit	
		EG094A-F: Barium	7440-39-3	0.5	µg/L	64.8	64.4	0.5	0% - 20%	
		EG094A-F: Copper	7440-50-8	0.5	µg/L	2.9	3.0	0.0	No Limit	
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	220	215	2.3	0% - 20%	
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	9.8	9.9	0.0	0% - 50%	
		EG094A-F: Zinc	7440-66-6	1	µg/L	16	15	0.0	0% - 50%	
EG094A-F: Boron	7440-42-8	5	µg/L	111	105	6.1	0% - 20%			
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3218260)										
ES1327434-001	BO_MW01	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP074: Toluene	108-88-3	2	µg/L	2	3	0.0	No Limit	
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit	



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3218260) - continued									
ES1327434-001	BO_MW01	EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3218260)									
ES1327434-001	BO_MW01	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3218260)									
ES1327434-001	BO_MW01	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3218260)									
ES1327434-001	BO_MW01	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3218260)									
ES1327434-001	BO_MW01	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3218260) - continued									
ES1327434-001	BO_MW01	EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 3218260)									
ES1327434-001	BO_MW01	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3218260)									
ES1327434-001	BO_MW01	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3218260)									
ES1327434-001	BO_MW01	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3216651)									
ES1327434-001	BO_MW01	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3216651)							
ES1327434-001	BO_MW01	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3216651) - continued										
ES1327434-001	BO_MW01	EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3216649)										
ES1327434-001	BO_MW01	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3218261)										
ES1327434-001	BO_MW01	EP080: C6 - C9 Fraction	----	20	µg/L	20	20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3216649)										
ES1327434-001	BO_MW01	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3218261)										
ES1327434-001	BO_MW01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	30	30	0.0	No Limit	
EP080: BTEXN (QC Lot: 3218261)										
ES1327434-001	BO_MW01	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	2	3	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
	91-20-3	5	µg/L	<5	<5	0.0	No Limit			



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	
ED037P: Alkalinity by PC Titrator (QCLot: 3217025)								
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	90.8	81	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3217191)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	108	86	122
ED045G: Chloride Discrete analyser (QCLot: 3217190)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	93.5	77	123
ED093F: Dissolved Major Cations (QCLot: 3217189)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	103	87	113
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	89	113
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	91.3	79	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	94.9	87	115
EG020T: Total Metals by ICP-MS (QCLot: 3218600)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	83.7	79	121
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	88.4	76	120
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	97.5	84	116
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	91.4	82	114
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	84.4	83	115
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	84.5	84	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	89.8	83	117
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	89.2	85	115
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	92.4	83	115
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	95.8	81	125
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	89.1	83	117
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	88.8	68	128
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	86.4	86	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	85.4	84	114
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	85.5	76	118
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	106	73	127
EG035F: Dissolved Mercury by FIMS (QCLot: 3218696)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.3	78	114
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3216480)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	88.2	77	115
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3221387)								
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	100 µg/L	112	75	125



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3221388)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	109	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	96.6	76	120	
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	97.6	74	130	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	100 µg/L	86.0	79	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	109	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	100 µg/L	118	71	123	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	117	79	121	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	109	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	110	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	104	79	119	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	94.3	69	127	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	113	72	128	
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	109	71	121	
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	113	78	116	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	111	76	134	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3218260)									
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	94.3	78	116	
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	89.5	68	128	
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	96.9	74	118	
EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	20 µg/L	99.3	74	122	
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	88.8	74	118	
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	106	77	121	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	90.6	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	87.8	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	90.6	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	93.0	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	92.8	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	91.6	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	90.5	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	91.1	62	126	
EP074B: Oxygenated Compounds (QCLot: 3218260)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	85.1	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	93.1	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	98.9	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	95.9	65	137	
EP074C: Sulfonated Compounds (QCLot: 3218260)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	87.6	72.8	127	
EP074D: Fumigants (QCLot: 3218260)									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074D: Fumigants (QCLot: 3218260) - continued									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	86.7	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	95.0	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	83.9	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	81.7	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	99.9	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3218260)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	92.1	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	81.2	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	106	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	95.6	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	94.9	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	93.6	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	86.0	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	74.9	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	92.0	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	97.5	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	93.5	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	92.3	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	90.7	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	81.7	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	102	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	95.3	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	101	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	94.6	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	94.9	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	94.3	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	94.2	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	95.6	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	95.2	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	101	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	102	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	101	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	110	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	109	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3218260)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	101	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	97.4	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	101	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	101	71	121	



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	
EP074F: Halogenated Aromatic Compounds (QCLot: 3218260) - continued									
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	99.6	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	100	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	101	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	91.6	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	97.6	67	125	
EP074G: Trihalomethanes (QCLot: 3218260)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	95.6	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	92.0	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	84.3	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	84.8	73.5	126	
EP074H: Naphthalene (QCLot: 3218260)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	94.0	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3216651)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	50.3	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	88.0	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	85.3	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	75.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	73.4	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	77.3	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	66.6	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	87.2	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	82.3	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	88.3	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	81.4	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	57.8	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3216651)									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3216651) - continued									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	77.7	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	83.7	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	85.1	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	92.3	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	104	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	108	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	106	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	102	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	92.8	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	87.1	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	84.7	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	106	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	97.5	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	88.5	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	86.5	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	85.4	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216649)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	103	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	94.9	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	97.5	62	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3218261)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	77.7	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216649)									



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)
				LCS		Low	High	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216649) - continued								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	92.9	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	102	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3218261)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	79.5	75	127
EP080: BTEXN (QCLot: 3218261)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	79.4	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	82.1	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	77.8	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	77.1	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	78.2	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	78.2	70	124

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.

Sub-Matrix: WATER				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
				MS	Low	High	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3217191)							
ES1327434-001	BO_MW01	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70	130
ED045G: Chloride Discrete analyser (QCLot: 3217190)							
ES1327434-001	BO_MW01	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3218696)							
ES1327431-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	78.4	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3216480)							
ES1327457-003	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	84.2	70	130
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3221388)							
ES1327434-003	BO_MW03	EG094A-F: Arsenic	7440-38-2	50 µg/L	90.0	70	130
		EG094A-F: Barium	7440-39-3	50 µg/L	109	70	130
		EG094A-F: Beryllium	7440-41-7	50 µg/L	88.0	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	96.7	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3221388) - continued							
ES1327434-003	BO_MW03	EG094A-F: Chromium	7440-47-3	50 µg/L	97.4	70	130
		EG094A-F: Cobalt	7440-48-4	50 µg/L	80.2	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	106	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	94.2	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	76.1	70	130
		EG094A-F: Vanadium	7440-62-2	50 µg/L	101	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	110	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3218260)							
ES1327434-001	BO_MW01	EP074: Benzene	71-43-2	25 µg/L	102	70	130
		EP074: Toluene	108-88-3	25 µg/L	114	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3218260)							
ES1327434-001	BO_MW01	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	103	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	103	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3218260)							
ES1327434-001	BO_MW01	EP074: Chlorobenzene	108-90-7	25 µg/L	113	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3216651)							
ES1327434-002	BO_MW02	EP075(SIM): Phenol	108-95-2	20 µg/L	37.9	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	78.5	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	75.3	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	78.4	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	57.2	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3216651)							
ES1327434-002	BO_MW02	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	76.0	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	90.4	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216649)							
ES1327434-002	BO_MW02	EP071: C10 - C14 Fraction	----	200 µg/L	88.1	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	102	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	102	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3218261)							
ES1327434-001	BO_MW01	EP080: C6 - C9 Fraction	----	325 µg/L	120	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216649)							
ES1327434-002	BO_MW02	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	84.7	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	103	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	102	67	153



Sub-Matrix: WATER					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	MS		MSD	Low	High	Value	Control Limit	
ED045G: Chloride Discrete analyser (QCLot: 3217190) - continued											
ES1327434-001	BO_MW01	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	----	70	130	----	----	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3217191)											
ES1327434-001	BO_MW01	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	----	70	130	----	----	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3218260)											
ES1327434-001	BO_MW01	EP074: Benzene	71-43-2	25 µg/L	102	----	70	130	----	----	
		EP074: Toluene	108-88-3	25 µg/L	114	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3218260)											
ES1327434-001	BO_MW01	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	103	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	25 µg/L	103	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3218260)											
ES1327434-001	BO_MW01	EP074: Chlorobenzene	108-90-7	25 µg/L	113	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3218261)											
ES1327434-001	BO_MW01	EP080: C6 - C9 Fraction	----	325 µg/L	120	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3218261)											
ES1327434-001	BO_MW01	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	119	----	70	130	----	----	
EP080: BTEXN (QCLot: 3218261)											
ES1327434-001	BO_MW01	EP080: Benzene	71-43-2	25 µg/L	97.2	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	117	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	103	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	106	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	104	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	95.1	----	70	130	----	----	
EG035F: Dissolved Mercury by FIMS (QCLot: 3218696)											
ES1327431-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	78.4	----	70	130	----	----	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3221388)											
ES1327434-003	BO_MW03	EG094A-F: Arsenic	7440-38-2	50 µg/L	90.0	----	70	130	----	----	
		EG094A-F: Barium	7440-39-3	50 µg/L	109	----	70	130	----	----	
		EG094A-F: Beryllium	7440-41-7	50 µg/L	88.0	----	70	130	----	----	
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	96.7	----	70	130	----	----	
		EG094A-F: Chromium	7440-47-3	50 µg/L	97.4	----	70	130	----	----	
		EG094A-F: Cobalt	7440-48-4	50 µg/L	80.2	----	70	130	----	----	
		EG094A-F: Copper	7440-50-8	50 µg/L	106	----	70	130	----	----	
		EG094A-F: Lead	7439-92-1	50 µg/L	94.2	----	70	130	----	----	
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----	

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 Work Order : ES1327434
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Sub-Matrix: **WATER**

					<i>Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report</i>					
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Spike</i>	<i>Spike Recovery (%)</i>		<i>Recovery Limits (%)</i>		<i>RPDs (%)</i>	
				<i>Concentration</i>	<i>MS</i>	<i>MSD</i>	<i>Low</i>	<i>High</i>	<i>Value</i>	<i>Control Limit</i>
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3221388) - continued										
ES1327434-003	BO_MW03	EG094A-F: Nickel	7440-02-0	50 µg/L	76.1	----	70	130	----	----
		EG094A-F: Vanadium	7440-62-2	50 µg/L	101	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	110	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327434	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 19-DEC-2013
Sampler	: KF	No. of samples received	: 9
Order number	: 0224193	No. of samples analysed	: 9
Quote number	: SY/794/13		

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF	BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	---	26-DEC-2013	----	17-DEC-2013	26-DEC-2013	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF	BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	---	09-JAN-2014	----	17-DEC-2013	09-JAN-2014	✓
ED045G: Chloride Discrete analyser								
Clear Plastic Bottle - Natural (ED045G) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF	BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	---	09-JAN-2014	----	17-DEC-2013	09-JAN-2014	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF	BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	---	19-DEC-2013	----	17-DEC-2013	19-DEC-2013	✓
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_121213_KF		12-DEC-2013	18-DEC-2013	10-JUN-2014	✓	18-DEC-2013	10-JUN-2014	✓
EG035F: Dissolved Mercury by FIMS								
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BO_MW01, BO_MW03, BO_MW05,	BO_MW02, BO_MW04, D01_121213_KF	14-DEC-2013	---	11-JAN-2014	----	18-DEC-2013	11-JAN-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_121213_KF	12-DEC-2013	----	----	----	17-DEC-2013	09-JAN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BO_MW01, BO_MW03, BO_MW05, BO_MW02, BO_MW04, D01_121213_KF	14-DEC-2013	---	12-JUN-2014	----	19-DEC-2013	12-JUN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) BO_MW01, BO_MW03, BO_MW05, BO_MW02, BO_MW04, D01_121213_KF	14-DEC-2013	---	12-JUN-2014	----	19-DEC-2013	12-JUN-2014	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber Glass Bottle - Unpreserved (EP071) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF, BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	18-DEC-2013	19-DEC-2013	✓	18-DEC-2013	27-JAN-2014	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF, BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	18-DEC-2013	26-DEC-2013	✓	18-DEC-2013	26-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF, BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	18-DEC-2013	26-DEC-2013	✓	18-DEC-2013	26-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF, BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	18-DEC-2013	26-DEC-2013	✓	18-DEC-2013	26-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF	BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	18-DEC-2013	26-DEC-2013	✓	18-DEC-2013	26-DEC-2013	✓
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid (EP074) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF	BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	18-DEC-2013	26-DEC-2013	✓	18-DEC-2013	26-DEC-2013	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF	BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	18-DEC-2013	26-DEC-2013	✓	18-DEC-2013	26-DEC-2013	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF	BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	18-DEC-2013	26-DEC-2013	✓	18-DEC-2013	26-DEC-2013	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF	BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	18-DEC-2013	26-DEC-2013	✓	18-DEC-2013	26-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF	BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	18-DEC-2013	19-DEC-2013	✓	18-DEC-2013	27-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BO_MW01, BO_MW03, BO_MW05, R01_121213_KF	BO_MW02, BO_MW04, D01_121213_KF,	12-DEC-2013	18-DEC-2013	19-DEC-2013	✓	18-DEC-2013	27-JAN-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
BO_MW01, BO_MW03, BO_MW05, R01_121213_KF, TB5_121213	BO_MW02, BO_MW04, D01_121213_KF, TS7_121213,	12-DEC-2013	18-DEC-2013	26-DEC-2013	✓	18-DEC-2013	26-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Amber VOC Vial - Sulfuric Acid (EP080)								
BO_MW01, BO_MW03, BO_MW05, R01_121213_KF,	BO_MW02, BO_MW04, D01_121213_KF, TB5_121213	12-DEC-2013	18-DEC-2013	26-DEC-2013	✓	18-DEC-2013	26-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	1	100.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Total Metals by ICP-MS - Suite A	EG020A-T	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Sulfate (Turbidimetric) as SO ₄ ²⁻ by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO ₄ Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ ²⁻ concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	APHA 21st Ed. 1030F. The Ionic Balance is calculated based on the major Anions and Cations. The major anions include Alkalinity, Chloride and Sulfate which determined by PCT and DA. The Cations are determined by Turbi SO4 by DA. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES1327434-001	BO_MW01	Sulfate as SO4 - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
ED045G: Chloride Discrete analyser	ES1327434-001	BO_MW01	Chloride	16887-00-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1327434-003	BO_MW03	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



CHAIN OF CUSTODY
ALS Laboratory
Please tick →

LABORATORY ADDRESS:
ALS Laboratory
1000 ...
Sydney NSW 2000

LABORATORY CONTACT:
ALS Laboratory
1000 ...
Sydney NSW 2000

LABORATORY CONTACT:
ALS Laboratory
1000 ...
Sydney NSW 2000

LABORATORY CONTACT:
ALS Laboratory
1000 ...
Sydney NSW 2000

CLIENT: **ERA**
OFFICE: **SYDNEY**
PROJECT: **Project Symphony**
ORDER NUMBER: **224193**
PROJECT MANAGER: **Joe Fering**
SAMPLER: **Kate Fox**
COC emailed to ALS? (YES / NO)
Email Reports to (will default to PM if no other addresses are listed): **Sydney, Macquarie, Cammerm.**
Email Invoice to (will default to PM if no other addresses are listed):
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:
Standard TAT (last due date):
Non Standard or urgent TAT (last due date):
ALS QUOTE NO.: **SV79413**
SITE: **(BAYSWATER) LIDDELL**
CONTACT PH: **0422497046**
SAMPLER MOBILE: **045241815**
RELINQUISHED BY: **[Signature]**
DATE/TIME: **11/12/13**
RECEIVED BY: **[Signature]**
DATE/TIME: **13/12/13**

FOR LABORATORY USE ONLY (Circle)
COC SEQUENCE NUMBER (Circle):
COC: 1 2 3 4 5 6 7
RECEIVED BY: **[Signature]**
DATE/TIME: **13/12/13**

ALS USE	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (codes below)	TOTAL CONTAINERS	ANALYSIS REQUIRED (Where Metals are required, specify total (unfilled bottle required) or Dissolved (field filtered bottle required))	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Tl)	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PFOS/PFOA	W-24 TRH (C6-C40)/BTXN, PAH, Phenols	Additional Information
	1 BG-Mudφ7	11/12/13	W	(4xVS, 3XAG, 1xOCC unpreserved)	8		X	X		X		X		
	2 BL-Mudφ5			(4xVS, 3XAG, 1xOCC unpreserved)	9		X	X		X		X		
	3 BL-Mudφ6			(4xVS, 3XAG, 1xOCC unpreserved) 1x Pros bottle			X	X		X		X		
	4 BL-Mudφ4						X	X		X		X		
	5 BL-Mudφ3						X	X		X		X		
	6 BL-Mudφ1						X	X		X		X		
	7 Rφ1-111213-KF			(4xVS, 3XAG, 1xND)	8		X	X		X		X		
	8 TS11-111213			2xVS	2		X	X		X		X		
	9 TR1-111213				2		X	X		X		X		
TOTAL														

Environmental Division
Sydney
Work Order
ES1327435
Telephone: +61-2-8784 8555



Water Container Codes: P = Unpreserved Plastic, N = Nitric Preserved Plastic, ORC = Nitric Preserved ORC, SH = Sodium Hydroxide Preserved, S = Sodium Hydroxide Preserved Plastic, AG = Amber Glass Unpreserved, AP = Air-tight Unpreserved Plastic
V = VOA Vial HCl Preserved, VB = VOA Vial Sodium Bisulfate Preserved, VS = VOA Vial Sulfuric Preserved, AV = Air-tight Unpreserved Vial SG = Sulfuric Preserved Amber Glass, H = HCl Preserved Plastic, HS = HCl Preserved Specimen Bottle, SP = Sulfuric Preserved Plastic, F = Formaldehyde Preserved Glass
Z = Zinc Acetate Preserved Bottle, E = EDTA Preserved Bottle, ASS = Plastic Bag for Acid Sulfate Soils, B = Unpreserved Bag

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **ES1327435**

Client : **ENVIRO RESOURCES MANAGEMENT** **Laboratory** : Environmental Division Sydney

Contact : MR JOSEPH FERRING **Contact** : Barbara Hanna
Address : GROUND FLOOR **Address** : 277-289 Woodpark Road Smithfield
33 SAUNDERS STREET, PYRMONT NSW Australia 2164
NSW 2009
LOCKED BAG 24
BROADWAY NSW, AUSTRALIA 2007

E-mail : joseph.ferring@erm.com **E-mail** : Barbara.Hanna@alsglobal.com
Telephone : +61 02 8584 8888 **Telephone** : +61 2 8784 8555
Facsimile : +61 02 8584 8800 **Facsimile** : +61 2 8784 8555

Project : Project Symphony **Page** : 1 of 3
Order number : 0224193
C-O-C number : ---- **Quote number** : ES2013ENVRES0369 (SY/794/13)
Site : BAYSWATER
Sampler : KF **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 13-DEC-2013 **Issue Date** : 14-DEC-2013 13:00
Client Requested Due Date : 18-DEC-2013 **Scheduled Reporting Date** : **18-DEC-2013**

Delivery Details

Mode of Delivery : Carrier **Temperature** : 1.5°C - Ice present
No. of coolers/boxes : 1 HARD **No. of samples received** : 9
Security Seal : Intact. **No. of samples analysed** : 9

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-24 TRH/BTEX/NPAH/Phenols
ES1327435-001	11-DEC-2013 15:00	BG_MW07	✓
ES1327435-002	11-DEC-2013 15:00	BL_MW05	✓
ES1327435-003	11-DEC-2013 15:00	BL_MW06	✓
ES1327435-004	11-DEC-2013 15:00	BL_MW04	✓
ES1327435-005	11-DEC-2013 15:00	BL_MW03	✓
ES1327435-006	11-DEC-2013 15:00	BL_MW01	✓
ES1327435-007	11-DEC-2013 15:00	R01_111213_KF	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA) Email joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email joseph.ferring@erm.com
- Chain of Custody (CoC) (COC) Email joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG) Email joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT) Email joseph.ferring@erm.com
- EDI Format - XTab (XTAB) Email joseph.ferring@erm.com

SYMPHONY ERARING

- *AU Certificate of Analysis - NATA (COA) Email Symphony.Eraring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email Symphony.Eraring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email Symphony.Eraring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email Symphony.Eraring@erm.com
- Chain of Custody (CoC) (COC) Email Symphony.Eraring@erm.com
- EDI Format - ENMRG (ENMRG) Email Symphony.Eraring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email Symphony.Eraring@erm.com
- EDI Format - ESDAT (ESDAT) Email Symphony.Eraring@erm.com
- EDI Format - XTab (XTAB) Email Symphony.Eraring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV) Email au.accounts@erm.com

CERTIFICATE OF ANALYSIS

Work Order : ES1327435 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 0224193 C-O-C number : ---- Sampler : KF Site : BAYSWATER Quote number : SY/794/13	Page : 1 of 14 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 13-DEC-2013 Issue Date : 18-DEC-2013 No. of samples received : 9 No. of samples analysed : 9
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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

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>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksono	Laboratory Manager - Organics	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EG020A: Positive results for sample ES1327435 #007 have been confirmed**
- **EG035: Poor matrix spike recovery was obtained for Mercury on sample ES1327215#4. Confirmed by reanalysis.**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**
- **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BG_MW07	BL_MW05	BL_MW06	BL_MW04	BL_MW03
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
				ES1327435-001	ES1327435-002	ES1327435-003	ES1327435-004	ES1327435-005
Compound	CAS Number	LOR	Unit					
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	4.7	0.5	1.6	1.3	1.9
Cadmium	7440-43-9	0.05	µg/L	<0.05	0.12	0.08	0.12	0.09
Chromium	7440-47-3	0.2	µg/L	0.6	12.9	<0.2	<0.2	<0.2
Copper	7440-50-8	0.5	µg/L	1.2	3.8	2.7	4.6	2.0
Lead	7439-92-1	0.1	µg/L	0.3	7.1	18.1	110	0.4
Nickel	7440-02-0	0.5	µg/L	26.6	6.4	55.9	37.0	7.2
Zinc	7440-66-6	1	µg/L	44	12	31	38	9
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	<1
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BG_MW07	BL_MW05	BL_MW06	BL_MW04	BL_MW03
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327435-001	ES1327435-002	ES1327435-003	ES1327435-004	ES1327435-005
EP074D: Fumigants - Continued								
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BG_MW07	BL_MW05	BL_MW06	BL_MW04	BL_MW03
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327435-001	ES1327435-002	ES1327435-003	ES1327435-004	ES1327435-005
EP074F: Halogenated Aromatic Compounds - Continued								
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BG_MW07	BL_MW05	BL_MW06	BL_MW04	BL_MW03
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327435-001	ES1327435-002	ES1327435-003	ES1327435-004	ES1327435-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BG_MW07	BL_MW05	BL_MW06	BL_MW04	BL_MW03
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327435-001	ES1327435-002	ES1327435-003	ES1327435-004	ES1327435-005
EP080: BTEXN - Continued								
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP231: Perfluorinated Compounds								
PFOS	1763-23-1	0.02	µg/L	----	0.12	<0.02	<0.02	<0.02
PFOA	335-67-1	0.02	µg/L	----	<0.02	<0.02	<0.02	<0.02
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	----	<0.1	<0.1	<0.1	<0.1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	74.8	74.1	70.8	72.6	66.3
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	120	125	126	127	132
Toluene-D8	2037-26-5	0.1	%	121	110	108	105	118
4-Bromofluorobenzene	460-00-4	0.1	%	107	99.3	103	102	113
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	27.3	20.8	26.2	26.2	21.8
2-Chlorophenol-D4	93951-73-6	0.1	%	56.2	48.9	53.1	54.1	53.8
2,4,6-Tribromophenol	118-79-6	0.1	%	68.2	64.1	67.2	72.1	65.8
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	61.8	54.9	57.7	62.6	62.3
Anthracene-d10	1719-06-8	0.1	%	70.8	68.5	78.3	78.1	79.6
4-Terphenyl-d14	1718-51-0	0.1	%	77.8	78.4	75.3	78.1	78.6
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	111	112	113	122
Toluene-D8	2037-26-5	0.1	%	112	102	99.8	96.9	110
4-Bromofluorobenzene	460-00-4	0.1	%	100	93.2	95.8	95.9	107



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BL_MW01	R01_111213_KF	TS11_111213	TB1_111213	----
				14-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327435-006	ES1327435-007	ES1327435-008	ES1327435-009	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	----	0.003	----	----	----
Nickel	7440-02-0	0.001	mg/L	----	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	0.005	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	3.5	----	----	----	----
Cadmium	7440-43-9	0.05	µg/L	2.17	----	----	----	----
Chromium	7440-47-3	0.2	µg/L	0.6	----	----	----	----
Copper	7440-50-8	0.5	µg/L	9.6	----	----	----	----
Lead	7439-92-1	0.1	µg/L	35.6	----	----	----	----
Nickel	7440-02-0	0.5	µg/L	501	----	----	----	----
Zinc	7440-66-6	1	µg/L	1070	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BL_MW01	R01_111213_KF	TS11_111213	TB1_111213	----
Client sampling date / time				14-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327435-006	ES1327435-007	ES1327435-008	ES1327435-009	----
EP074B: Oxygenated Compounds - Continued								
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BL_MW01	R01_111213_KF	TS11_111213	TB1_111213	----
				14-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327435-006	ES1327435-007	ES1327435-008	ES1327435-009	----
EP074E: Halogenated Aliphatic Compounds - Continued								
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	----	----	----
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	----	----	----
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BL_MW01	R01_111213_KF	TS11_111213	TB1_111213	----
Client sampling date / time				14-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327435-006	ES1327435-007	ES1327435-008	ES1327435-009	----
EP075(SIM)A: Phenolic Compounds - Continued								
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	----	----	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	----	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BL_MW01	R01_111213_KF	TS11_111213	TB1_111213	----
Client sampling date / time				14-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	----
Compound	CAS Number	LOR	Unit	ES1327435-006	ES1327435-007	ES1327435-008	ES1327435-009	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	18	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	17	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	16	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	16	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	17	<2	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	33	<2	----
^ Sum of BTEX	----	1	µg/L	<1	<1	84	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	18	<5	----
EP231: Perfluorinated Compounds								
PFOS	1763-23-1	0.02	µg/L	<0.02	----	----	----	----
PFOA	335-67-1	0.02	µg/L	<0.02	----	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	83.4	77.9	----	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	131	123	----	----	----
Toluene-D8	2037-26-5	0.1	%	107	107	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	104	100	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	24.9	24.0	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	53.6	50.1	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	75.9	52.5	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	66.3	58.5	----	----	----
Anthracene-d10	1719-06-8	0.1	%	106	68.7	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	87.6	71.1	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	BL_MW01	R01_111213_KF	TS11_111213	TB1_111213	----
Client sampling date / time	14-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	----
Compound	ES1327435-006	ES1327435-007	ES1327435-008	ES1327435-009	----

Compound	CAS Number	LOR	Unit	ES1327435-006	ES1327435-007	ES1327435-008	ES1327435-009	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	116	110	77.7	122	----
Toluene-D8	2037-26-5	0.1	%	99.3	99.2	95.7	106	----
4-Bromofluorobenzene	460-00-4	0.1	%	98.3	93.8	75.7	111	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	28.5	129
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1327435	Page	: 1 of 19
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 18-DEC-2013
Sampler	: KF	No. of samples received	: 9
Order number	: 0224193	No. of samples analysed	: 9
Quote number	: SY/794/13		

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

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

Celine Conceicao
Phalak Inthaksone

Position

Senior Spectroscopist
Laboratory Manager - Organics

Accreditation Category

Sydney Inorganics
Sydney 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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 3215707)									
ES1326945-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.065	0.065	0.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.013	0.013	0.0	No Limit
ES1327207-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.073	0.070	5.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.052	0.046	10.2	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3214006)									
ES1327215-004	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1327435-004	BL_MW04	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3213226)									
ES1326945-003	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1326996-007	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3218295)									
ES1327421-001	Anonymous	EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EG094A-F: Lead	7439-92-1	0.1	µg/L	1.2	1.1	0.0	0% - 50%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	0.6	0.6	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Copper	7440-50-8	0.5	µg/L	2.1	2.4	15.2	No Limit
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	4.9	5.1	4.3	0% - 50%
		EG094A-F: Zinc	7440-66-6	1	µg/L	18	21	16.0	0% - 20%
ES1327436-001	Anonymous	EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.19	0.17	9.6	No Limit
		EG094A-F: Lead	7439-92-1	0.1	µg/L	159	148	7.6	0% - 20%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	1.3	1.3	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	1.2	1.1	0.0	No Limit
		EG094A-F: Copper	7440-50-8	0.5	µg/L	6.3	5.8	8.8	0% - 50%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	10.0	9.0	9.8	0% - 50%
		EG094A-F: Zinc	7440-66-6	1	µg/L	25	23	8.0	0% - 20%



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3213905)									
ES1327431-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	0.0	No Limit
ES1327435-006	BL_MW01	EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3213673)									
ES1327431-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
ES1327435-006	BL_MW01	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
ES1327435-006	BL_MW01	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		EP074B: Oxygenated Compounds (QC Lot: 3213673)							
		ES1327431-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50
EP074: 2-Butanone (MEK)	78-93-3			50	µg/L	<50	<50	0.0	No Limit
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1			50	µg/L	<50	<50	0.0	No Limit
EP074: 2-Hexanone (MBK)	591-78-6			50	µg/L	<50	<50	0.0	No Limit
ES1327435-006	BL_MW01	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3213673)									
ES1327431-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1327435-006	BL_MW01	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3213673)									
ES1327431-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1327435-006	BL_MW01	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP074D: Fumigants (QC Lot: 3213673) - continued											
ES1327435-006	BL_MW01	EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit		
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3213673)											
ES1327431-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	49	50	0.0	0% - 50%		
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	5	µg/L	78	80	2.4	0% - 50%		
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	5	µg/L	343	333	3.0	0% - 20%		
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
		ES1327435-006	BL_MW01	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
				EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
EP074: trans-1,2-Dichloroethene	156-60-5			5	µg/L	<5	<5	0.0	No Limit		
EP074: 1,1-Dichloroethane	75-34-3			5	µg/L	<5	<5	0.0	No Limit		
EP074: cis-1,2-Dichloroethene	156-59-2			5	µg/L	<5	<5	0.0	No Limit		
EP074: 1,1,1-Trichloroethane	71-55-6			5	µg/L	<5	<5	0.0	No Limit		
EP074: 1,1-Dichloropropylene	563-58-6			5	µg/L	<5	<5	0.0	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3213673) - continued									
ES1327435-006	BL_MW01	EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3213673)									
ES1327431-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
		ES1327435-006	BL_MW01	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5
EP074: Bromobenzene	108-86-1			5	µg/L	<5	<5	0.0	No Limit
EP074: 2-Chlorotoluene	95-49-8			5	µg/L	<5	<5	0.0	No Limit
EP074: 4-Chlorotoluene	106-43-4			5	µg/L	<5	<5	0.0	No Limit
EP074: 1,3-Dichlorobenzene	541-73-1			5	µg/L	<5	<5	0.0	No Limit
EP074: 1,4-Dichlorobenzene	106-46-7			5	µg/L	<5	<5	0.0	No Limit
EP074: 1,2-Dichlorobenzene	95-50-1			5	µg/L	<5	<5	0.0	No Limit
EP074: 1,2,4-Trichlorobenzene	120-82-1			5	µg/L	<5	<5	0.0	No Limit
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit		



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP074G: Trihalomethanes (QC Lot: 3213673)											
ES1327431-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit		
ES1327435-006	BL_MW01	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit		
EP074H: Naphthalene (QC Lot: 3213673)											
ES1327431-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit		
ES1327435-006	BL_MW01	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit		
EP075(SIM)A: Phenolic Compounds (QC Lot: 3213904)											
ES1327431-001	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit		
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit		
		ES1327435-006	BL_MW01	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
				EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): 2-Nitrophenol	88-75-5			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): 2,4-Dimethylphenol	105-67-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): 2,4-Dichlorophenol	120-83-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): 2,6-Dichlorophenol	87-65-0			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			2.0	µg/L	<2.0	<2.0	0.0	No Limit		
EP075(SIM): Pentachlorophenol	87-86-5			2.0	µg/L	<2.0	<2.0	0.0	No Limit		
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3213904)											
ES1327431-001	Anonymous			EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit		



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3213904) - continued									
ES1327431-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
ES1327435-006	BL_MW01	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3213674)									
ES1327431-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	600	620	3.8	0% - 20%
ES1327435-006	BL_MW01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3213675)									
ES1327129-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327129-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	41400	40800	1.5	0% - 20%
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3213903)									
ES1327431-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1327435-006	BL_MW01	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3213903) - continued									
ES1327435-006	BL_MW01	EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3213674)									
ES1327431-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	620	640	3.4	0% - 20%
ES1327435-006	BL_MW01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3213675)									
ES1327129-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327129-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	42000	41400	1.4	0% - 20%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3213903)									
ES1327431-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
ES1327435-006	BL_MW01	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080: BTEXN (QC Lot: 3213674)									
ES1327431-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1327435-006	BL_MW01	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
EP080: BTEXN (QC Lot: 3213675)									
ES1327129-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
ES1327129-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	3190	3470	8.6	0% - 20%
		EP080: Toluene	108-88-3	2	µg/L	9720	8880	9.0	0% - 20%

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 Work Order : ES1327435
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 3213675) - continued									
ES1327129-007	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	1660	1670	0.6	0% - 20%
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	7090	7150	0.8	0% - 20%
		EP080: ortho-Xylene	95-47-6	2	µg/L	2210	2190	0.9	0% - 20%
		EP080: Naphthalene	91-20-3	5	µg/L	287	285	0.8	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3213505)									
ES1327431-001	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	0.09	0.10	0.0	No Limit
		EP231: PFOA	335-67-1	0.02	µg/L	0.05	0.05	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit
ES1327435-005	BL_MW03	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit



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 (%)		Recovery Limits (%)	
						LCS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 3215707)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	79	121	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	106	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	108	83	115	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	111	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	85	115	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	115	83	117	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	110	76	118	
EG035F: Dissolved Mercury by FIMS (QCLot: 3214006)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	96.7	78	114	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3213226)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	106	77	115	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218295)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	91.0	75	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	89.0	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	88.7	71	123	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	93.1	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	87.5	74	118	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	93.2	72	128	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	88.0	76	134	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3213905)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	91.0	61.6	107	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3213673)									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	94.1	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	102	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	107	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	103	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	110	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	101	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	105	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	106	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	110	62	126	
EP074B: Oxygenated Compounds (QCLot: 3213673)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	91.3	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	90.8	73.6	130	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074B: Oxygenated Compounds (QCLot: 3213673) - continued									
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	95.7	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	86.7	65	137	
EP074C: Sulfonated Compounds (QCLot: 3213673)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	88.5	72.8	127	
EP074D: Fumigants (QCLot: 3213673)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	104	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	98.1	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	86.9	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	80.8	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	88.1	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3213673)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	70.0	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	75.4	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	82.1	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	82.8	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	88.2	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	90.6	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	97.8	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	77.3	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	104	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	101	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	100	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	101	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	109	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	100	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	95.0	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	104	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	88.5	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	97.2	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	97.6	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	102	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	86.2	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	93.2	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	93.7	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	90.5	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	91.9	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	93.0	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	78.8	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	114	58	132	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074F: Halogenated Aromatic Compounds (QCLot: 3213673)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	106	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	97.3	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	105	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	104	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	104	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	102	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	100	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	99.3	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	100	67	125	
EP074G: Trihalomethanes (QCLot: 3213673)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	101	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	87.6	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	84.8	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	86.5	73.5	126	
EP074H: Naphthalene (QCLot: 3213673)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	102	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3213904)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	39.8	24.5	61.9	
		1	µg/L	<1.0					
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	66.4	63.8	110	
		1	µg/L	<1.0					
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	70.7	55.9	112	
		1	µg/L	<1.0					
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	59.7	42.5	114	
		2	µg/L	<2.0					
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	84.8	62.7	117	
		1	µg/L	<1.0					
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	86.0	59.9	112	
		1	µg/L	<1.0					
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	82.2	59.3	122	
		1	µg/L	<1.0					
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	89.5	64.3	118	
		1	µg/L	<1.0					
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	85.9	63	119	
		1	µg/L	<1.0					
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	73.8	58.7	118	
		1	µg/L	<1.0					
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	79.6	50	108	
		1	µg/L	<1.0					



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3213904) - continued									
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	76.8	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213904)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	88.2	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	76.9	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	72.5	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	82.7	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	84.6	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	88.8	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	94.4	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	90.3	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	74.1	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	80.1	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	73.5	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	84.5	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	75.1	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	77.5	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	75.8	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	79.7	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213674)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	90.0	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213675)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	98.9	75	127	



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	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213903)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	88.3	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	98.6	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	102	62	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213674)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	92.7	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213675)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	102	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213903)								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	91.4	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	101	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	104	67	127
EP080: BTEXN (QCLot: 3213674)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	89.9	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	89.6	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	88.1	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	87.3	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	91.7	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	91.2	70	124
EP080: BTEXN (QCLot: 3213675)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.5	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	92.3	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.0	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	91.4	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	86.8	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	97.6	70	124
EP231: Perfluorinated Compounds (QCLot: 3213505)								
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.25 µg/L	117	70	136
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.25 µg/L	101	72	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	1.25 µg/L	92.2	61	145

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.

Sub-Matrix: WATER

Matrix Spike (MS) Report



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 3215707)							
ES1326945-003	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	114	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	110	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	110	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	114	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	109	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	110	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	110	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3214006)							
ES1327215-004	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 14.2	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3213226)							
ES1326945-004	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	87.2	70	130
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218295)							
ES1327421-002	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	125	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	104	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	117	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	102	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	116	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	111	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3213905)							
ES1327431-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	10 µg/L	86.0	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3213673)							
ES1327431-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	95.9	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	87.1	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3213673)							
ES1327431-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	113	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3213904)							
ES1327431-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	39.4	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	76.3	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	75.2	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	81.3	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	85.4	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213904)							
ES1327431-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	79.5	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	83.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213674)							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213674) - continued								
ES1327431-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	104	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213675)								
ES1327129-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	120	70	130	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213903)								
ES1327431-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	102	74	150	
		EP071: C15 - C28 Fraction	----	300 µg/L	95.0	77	153	
		EP071: C29 - C36 Fraction	----	200 µg/L	106	67	153	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213674)								
ES1327431-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	112	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213675)								
ES1327129-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	119	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213903)								
ES1327431-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	99.2	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	95.2	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	95.6	67	153	
EP080: BTEXN (QCLot: 3213674)								
ES1327431-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	96.4	70	130	
		EP080: Toluene	108-88-3	25 µg/L	95.8	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	97.1	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	97.8	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	96.2	70	130		
EP080: BTEXN (QCLot: 3213675)								
ES1327129-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	107	70	130	
		EP080: Toluene	108-88-3	25 µg/L	95.8	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	94.8	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	95.0	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	93.6	70	130	
	EP080: Naphthalene	91-20-3	25 µg/L	104	70	130		
EP231: Perfluorinated Compounds (QCLot: 3213505)								
ES1327431-001	Anonymous	EP231: PFOS	1763-23-1	0.25 µg/L	114	70	136	
		EP231: PFOA	335-67-1	0.25 µg/L	108	72	134	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	1.25 µg/L	96.8	61	145	



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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
				Concentration	MS	MSD	Low	High	Value	Control Limit	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3213226)											
ES1326945-004	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	87.2	----	70	130	----	----	
EP231: Perfluorinated Compounds (QCLot: 3213505)											
ES1327431-001	Anonymous	EP231: PFOS	1763-23-1	0.25 µg/L	114	----	70	136	----	----	
		EP231: PFOA	335-67-1	0.25 µg/L	108	----	72	134	----	----	
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	1.25 µg/L	96.8	----	61	145	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3213673)											
ES1327431-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	95.9	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	25 µg/L	87.1	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3213673)											
ES1327431-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	113	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213674)											
ES1327431-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	104	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213674)											
ES1327431-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	112	----	70	130	----	----	
EP080: BTEXN (QCLot: 3213674)											
ES1327431-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	96.4	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	95.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	97.1	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	97.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	----	70	130	----	----	
EP080: Naphthalene	91-20-3	25 µg/L	96.2	----	70	130	----	----			
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213675)											
ES1327129-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	120	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213675)											
ES1327129-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	119	----	70	130	----	----	
EP080: BTEXN (QCLot: 3213675)											
ES1327129-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	107	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	95.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	94.8	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	95.0	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	93.6	----	70	130	----	----	



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP080: BTEXN (QCLot: 3213675) - continued										
ES1327129-005	Anonymous	EP080: Naphthalene	91-20-3	25 µg/L	104	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213903)										
ES1327431-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	102	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	95.0	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	106	----	67	153	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213903)										
ES1327431-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	99.2	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	95.2	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	95.6	----	67	153	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3213904)										
ES1327431-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	39.4	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	76.3	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	75.2	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	81.3	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	85.4	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213904)										
ES1327431-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	79.5	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	83.8	----	70	130	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3213905)										
ES1327431-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	10 µg/L	86.0	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3214006)										
ES1327215-004	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 14.2	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 3215707)										
ES1326945-003	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	114	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	110	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	110	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	114	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	109	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	110	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	110	----	70	130	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218295)										
ES1327421-002	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	125	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	104	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	117	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	102	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	116	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	111	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327435	Page	: 1 of 9
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 18-DEC-2013
Sampler	: KF	No. of samples received	: 9
Order number	: 0224193	No. of samples analysed	: 9
Quote number	: SY/794/13		

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_111213_KF	11-DEC-2013	17-DEC-2013	09-JUN-2014	✓	17-DEC-2013	09-JUN-2014	✓
EG035F: Dissolved Mercury by FIMS							
ORC Filtered - REQUIRES ACIDIFICATION (EG035F) BG_MW07, BL_MW05, BL_MW06, BL_MW04, BL_MW03, BL_MW01	11-DEC-2013	---	25-DEC-2013	----	16-DEC-2013	25-DEC-2013	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_111213_KF	11-DEC-2013	----	----	----	16-DEC-2013	08-JAN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BG_MW07, BL_MW05, BL_MW06, BL_MW04, BL_MW03, BL_MW01	14-DEC-2013	---	12-JUN-2014	----	18-DEC-2013	12-JUN-2014	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) BG_MW07, BL_MW05, BL_MW06, BL_MW04, BL_MW03, BL_MW01, R01_111213_KF	11-DEC-2013	16-DEC-2013	18-DEC-2013	✓	17-DEC-2013	25-JAN-2014	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) BG_MW07, BL_MW05, BL_MW06, BL_MW04, BL_MW03, BL_MW01, R01_111213_KF	11-DEC-2013	16-DEC-2013	18-DEC-2013	✓	17-DEC-2013	25-JAN-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW07, BL_MW06, BL_MW03, R01_111213_KF	BL_MW05, BL_MW04, BL_MW01,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW07, BL_MW06, BL_MW03, R01_111213_KF	BL_MW05, BL_MW04, BL_MW01,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW07, BL_MW06, BL_MW03, R01_111213_KF	BL_MW05, BL_MW04, BL_MW01,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW07, BL_MW06, BL_MW03, R01_111213_KF	BL_MW05, BL_MW04, BL_MW01,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW07, BL_MW06, BL_MW03, R01_111213_KF	BL_MW05, BL_MW04, BL_MW01,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW07, BL_MW06, BL_MW03, R01_111213_KF	BL_MW05, BL_MW04, BL_MW01,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW07, BL_MW06, BL_MW03, R01_111213_KF	BL_MW05, BL_MW04, BL_MW01,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) BG_MW07, BL_MW06, BL_MW03, R01_111213_KF BL_MW05, BL_MW04, BL_MW01,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) BG_MW07, BL_MW06, BL_MW03, R01_111213_KF BL_MW05, BL_MW04, BL_MW01,	11-DEC-2013	16-DEC-2013	18-DEC-2013	✓	17-DEC-2013	25-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) BG_MW07, BL_MW06, BL_MW03, R01_111213_KF BL_MW05, BL_MW04, BL_MW01,	11-DEC-2013	16-DEC-2013	18-DEC-2013	✓	17-DEC-2013	25-JAN-2014	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TS11_111213, TB1_111213	11-DEC-2013	16-DEC-2013	25-DEC-2013	✓	16-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BG_MW07, BL_MW06, BL_MW03, R01_111213_KF BL_MW05, BL_MW04, BL_MW01,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber VOC Vial - Sulfuric Acid (EP080) TB1_111213	11-DEC-2013	16-DEC-2013	25-DEC-2013	✓	16-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BG_MW07, BL_MW06, BL_MW03, R01_111213_KF BL_MW05, BL_MW04, BL_MW01,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
EP231: Perfluorinated Compounds							
HDPE (no PTFE) (EP231) BL_MW05, BL_MW04, BL_MW01 BL_MW06, BL_MW03,	11-DEC-2013	---	09-JUN-2014	----	16-DEC-2013	09-JUN-2014	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Matrix Spikes (MS) - Continued							
PFOS and PFOA	EP231	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatle Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG035F: Dissolved Mercury by FIMS	ES1327215-004	Anonymous	Mercury	7439-97-6	14.2 %	70-130%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



CHAIN OF CUSTODY

ALS Laboratory please tick →

LABORATORY: 21 Green St, North Sydney NSW 1585
Ph: (02) 9439 7200 Fax: (02) 9439 7201
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CLIENT: **ERM** OFFICE: **SYDNEY** PROJECT: **Project Symphony** ORDER NUMBER: **224193**

PROJECT MANAGER: **JOE FERRING** CONTACT PH: **0424970468** PROJECT: **SYDNEY**

SAMPLER: **KATE FOX** SAMPLER MOBILE: **0452411815** PROJECT: **SYDNEY**

COC emailed to ALS? (YES / NO) YES / NO EDD FORMAT (or default): **Symphony.molgen@erm.com**

TURNAROUND REQUIREMENTS: Standard TAT (List due date): **48hr TAT**
 Non Standard or urgent TAT (List due date): **~~24hr TAT~~**

ALSO QUOTE NO.: **SY794M3** SITE: **(BAYSWATER) LIDDELL**

RECEIVED BY: **KL** DATE/TIME: **13/12/13 1630**

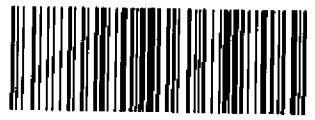
RECEIVED BY: **Rainey** DATE/TIME: **13/12/13 19:00**

FOR LABORATORY USE ONLY (Circle)
 Custody Seal Intact? Yes / No
 Free ice / frozen ice bricks present upon receipt? Yes / No
 Random Sample Temperature on Receipt: **4-2** °C

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information
	LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below (refer to)	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Ti, Mg, Se)	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PFOA/PFOA	W-24 TRH (C6-C40) BTEXN, PAH, Phenols	Carbon/Anions	Comments on likely contaminant to pH, dilutions, or samples requiring specific O&A analysis etc.	
	1	BQ-Mwφ2	09/12/13	w	(4xVS, 2xAG, 1xP, 1x ORC (unpreserved))	8		X		X			X	X	TAT	
	2	BQ-Mwφ3														
	3	BQ-Mwφ4														
	4	BQ-Mwφ5														
	5	BQ-Mwφ7														
	6	BQ-Mwφ8														
	7	Dφ1-091213-KF	09/12/13	w												
	8	Rφ1-091213-KF	09/12/13	w	(1xV) (1xV)	1										
	9	TS-091213			1xVS											
	10	TB-091213			1xVS											

Environmental Division
Sydney
Work Order
ES1327436



Telephone: +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved P&G
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = H
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

red Plastic
P = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass

SAMPLE RECEIPT NOTIFICATION (SRN)**Comprehensive Report**

Work Order : **ES1327436**

Client : **ENVIRO RESOURCES MANAGEMENT** **Laboratory** : Environmental Division Sydney

Contact : MR JOSEPH FERRING **Contact** : Barbara Hanna
Address : GROUND FLOOR **Address** : 277-289 Woodpark Road Smithfield
33 SAUNDERS STREET, PYRMONT NSW Australia 2164
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BROADWAY NSW, AUSTRALIA 2007

E-mail : joseph.ferring@erm.com **E-mail** : Barbara.Hanna@alsglobal.com
Telephone : +61 02 8584 8888 **Telephone** : +61 2 8784 8555
Facsimile : +61 02 8584 8800 **Facsimile** : +61 2 8784 8555

Project : Project Symphony **Page** : 1 of 3

Order number : 0224193

C-O-C number : ---- **Quote number** : ES2013ENVRES0369 (SY/794/13)

Site : BAYSWATER

Sampler : KF **QC Level** : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 13-DEC-2013 **Issue Date** : 14-DEC-2013 13:34
Client Requested Due Date : 18-DEC-2013 **Scheduled Reporting Date** : **18-DEC-2013**

Delivery Details

Mode of Delivery : Carrier **Temperature** : 4.4°C - Ice present
No. of coolers/boxes : 1 HARD **No. of samples received** : 10
Security Seal : Intact. **No. of samples analysed** : 10

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exist.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG093A-F Dissolved metals in saline water by	WATER - EG093B-F Dissolved Metals in Saline Water Suite	WATER - EN055 - PG Ionic Balance by ED037P, ED041G.	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTXN	WATER - NT-01 Major Cations (Ca, Mg, Na, K)
ES1327436-001	09-DEC-2013 15:00	BQ_MW02					✓	✓		✓
	14-DEC-2013 15:00	BQ_MW02		✓	✓	✓				
ES1327436-002	09-DEC-2013 15:00	BQ_MW03					✓	✓		✓
	14-DEC-2013 15:00	BQ_MW03		✓	✓	✓				
ES1327436-003	09-DEC-2013 15:00	BQ_MW04					✓	✓		✓
	14-DEC-2013 15:00	BQ_MW04		✓	✓	✓				
ES1327436-004	09-DEC-2013 15:00	BQ_MW05					✓	✓		✓
	14-DEC-2013 15:00	BQ_MW05		✓	✓	✓				
ES1327436-005	09-DEC-2013 15:00	BQ_MW07					✓	✓		✓
	14-DEC-2013 15:00	BQ_MW07		✓	✓	✓				
ES1327436-006	09-DEC-2013 15:00	BQ_MW08					✓	✓		✓
	14-DEC-2013 15:00	BQ_MW08		✓	✓	✓				
ES1327436-007	09-DEC-2013 15:00	D01_091213_KF					✓	✓		✓
	14-DEC-2013 15:00	D01_091213_KF		✓	✓	✓				
ES1327436-008	09-DEC-2013 15:00	R01_091213_KF	✓				✓	✓		✓
ES1327436-009	09-DEC-2013 15:00	TS_091213						✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - NT-02 Major Anions (Chloride, Sulphate,	WATER - W-02T 8 metals (Total)	WATER - W-18 TRH(C6 - C9)/BTXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1327436-001	09-DEC-2013 15:00	BQ_MW02	✓			✓
ES1327436-002	09-DEC-2013 15:00	BQ_MW03	✓			✓
ES1327436-003	09-DEC-2013 15:00	BQ_MW04	✓			✓
ES1327436-004	09-DEC-2013 15:00	BQ_MW05	✓			✓
ES1327436-005	09-DEC-2013 15:00	BQ_MW07	✓			✓
ES1327436-006	09-DEC-2013 15:00	BQ_MW08	✓			✓
ES1327436-007	09-DEC-2013 15:00	D01_091213_KF	✓			✓
ES1327436-008	09-DEC-2013 15:00	R01_091213_KF	✓	✓		✓



ES1327436-010	09-DEC-2013 15:00	TB_091213	WATER - NT-02	Major Anions (Chloride, Sulphate,					
			WATER - W-02T	8 metals (Total)					
			WATER - W-18	TRH(C6 - C9)/BTEXN	✓				
			WATER - W-24	TRH/BTEXN/PAH/Phenols					

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA) Email joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email joseph.ferring@erm.com
- Chain of Custody (CoC) (COC) Email joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG) Email joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT) Email joseph.ferring@erm.com
- EDI Format - XTab (XTAB) Email joseph.ferring@erm.com

SYMPHONY ERARING

- *AU Certificate of Analysis - NATA (COA) Email Symphony.Eraring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email Symphony.Eraring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email Symphony.Eraring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email Symphony.Eraring@erm.com
- Chain of Custody (CoC) (COC) Email Symphony.Eraring@erm.com
- EDI Format - ENMRG (ENMRG) Email Symphony.Eraring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email Symphony.Eraring@erm.com
- EDI Format - ESDAT (ESDAT) Email Symphony.Eraring@erm.com
- EDI Format - XTab (XTAB) Email Symphony.Eraring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV) Email au.accounts@erm.com

CERTIFICATE OF ANALYSIS

Work Order : ES1327436 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 0224193 C-O-C number : ---- Sampler : KF Site : BAYSWATER Quote number : SY/794/13	Page : 1 of 16 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 13-DEC-2013 Issue Date : 18-DEC-2013 No. of samples received : 10 No. of samples analysed : 10
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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

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>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EG020A: Positive results for sample ES1327436 #008 have been confirmed**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW02	BQ_MW03	BQ_MW04	BQ_MW05	BQ_MW07
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327436-001	ES1327436-002	ES1327436-003	ES1327436-004	ES1327436-005
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	812	143	799	144	280
Total Alkalinity as CaCO3	----	1	mg/L	812	143	799	144	280
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	6330	3290	909	2900	4010
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	3940	693	3660	659	959
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	533	497	219	534	486
Magnesium	7439-95-4	1	mg/L	1100	360	345	265	380
Sodium	7440-23-5	1	mg/L	3280	856	2180	776	1460
Potassium	7440-09-7	1	mg/L	33	15	31	26	35
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	1.3	0.2	0.9	0.3	3.0
Arsenic	7440-38-2	0.2	µg/L	1.3	0.3	0.9	0.2	0.3
Barium	7440-39-3	0.5	µg/L	53.6	20.0	91.6	21.4	26.2
Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	7440-42-8	5	µg/L	163	1830	162	1740	902
Cadmium	7440-43-9	0.05	µg/L	0.19	0.16	0.07	0.08	0.10
Chromium	7440-47-3	0.2	µg/L	1.2	<0.2	<0.2	<0.2	<0.2
Cobalt	7440-48-4	0.1	µg/L	3.1	1.3	1.8	0.3	0.2
Copper	7440-50-8	0.5	µg/L	6.3	2.3	3.6	3.3	2.8
Lead	7439-92-1	0.1	µg/L	159	6.9	46.0	1.8	13.9
Manganese	7439-96-5	0.5	µg/L	567	147	99.3	98.5	47.1
Molybdenum	7439-98-7	0.1	µg/L	4.1	0.8	3.6	2.9	1.8
Nickel	7440-02-0	0.5	µg/L	10.0	10.9	6.7	9.0	7.6
Thallium	7440-28-0	0.02	µg/L	0.75	0.05	0.10	0.04	0.05
Vanadium	7440-62-2	0.2	µg/L	4.8	0.5	3.4	0.3	0.8
Zinc	7440-66-6	1	µg/L	25	17	23	17	24
EN055: Ionic Balance								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW02	BQ_MW03	BQ_MW04	BQ_MW05	BQ_MW07
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327436-001	ES1327436-002	ES1327436-003	ES1327436-004	ES1327436-005
EN055: Ionic Balance - Continued								
Total Anions	----	0.01	meq/L	259	90.9	138	81.8	116
Total Cations	----	0.01	meq/L	261	92.0	135	82.9	120
Ionic Balance	----	0.01	%	0.26	0.62	1.19	0.62	1.59
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW02	BQ_MW03	BQ_MW04	BQ_MW05	BQ_MW07
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327436-001	ES1327436-002	ES1327436-003	ES1327436-004	ES1327436-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW02	BQ_MW03	BQ_MW04	BQ_MW05	BQ_MW07
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327436-001	ES1327436-002	ES1327436-003	ES1327436-004	ES1327436-005
EP074F: Halogenated Aromatic Compounds - Continued								
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW02	BQ_MW03	BQ_MW04	BQ_MW05	BQ_MW07
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327436-001	ES1327436-002	ES1327436-003	ES1327436-004	ES1327436-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW02	BQ_MW03	BQ_MW04	BQ_MW05	BQ_MW07
				14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00	14-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327436-001	ES1327436-002	ES1327436-003	ES1327436-004	ES1327436-005
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	122	126	119	116	116
Toluene-D8	2037-26-5	0.1	%	103	106	105	103	103
4-Bromofluorobenzene	460-00-4	0.1	%	96.8	102	98.1	96.6	94.1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	19.8	23.8	28.6	13.8	25.2
2-Chlorophenol-D4	93951-73-6	0.1	%	41.1	51.9	63.3	33.9	56.8
2,4,6-Tribromophenol	118-79-6	0.1	%	72.7	71.4	79.5	57.2	68.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	35.3	37.0	54.1	34.3	49.5
Anthracene-d10	1719-06-8	0.1	%	62.6	62.6	67.2	47.0	59.5
4-Terphenyl-d14	1718-51-0	0.1	%	71.4	72.3	70.5	67.5	63.3
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	111	105	103	103
Toluene-D8	2037-26-5	0.1	%	95.0	98.2	97.6	95.0	95.2
4-Bromofluorobenzene	460-00-4	0.1	%	91.1	95.2	91.4	90.0	88.9



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW08	D01_091213_KF	R01_091213_KF	TS_091213	TB_091213
				14-DEC-2013 15:00	14-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327436-006	ES1327436-007	ES1327436-008	ES1327436-009	ES1327436-010
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	133	141	<1	----	----
Total Alkalinity as CaCO3	----	1	mg/L	133	141	<1	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2260	3270	<1	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	652	697	<1	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	554	498	<1	----	----
Magnesium	7439-95-4	1	mg/L	144	364	<1	----	----
Sodium	7440-23-5	1	mg/L	739	854	<1	----	----
Potassium	7440-09-7	1	mg/L	17	16	<1	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	----	----
Beryllium	7440-41-7	0.001	mg/L	----	----	<0.001	----	----
Barium	7440-39-3	0.001	mg/L	----	----	0.004	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	----	----	0.002	----	----
Cobalt	7440-48-4	0.001	mg/L	----	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	----	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	----	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	0.013	----	----
Manganese	7439-96-5	0.001	mg/L	----	----	0.008	----	----
Molybdenum	7439-98-7	0.001	mg/L	----	----	<0.001	----	----
Selenium	7782-49-2	0.01	mg/L	----	----	<0.01	----	----
Thallium	7440-28-0	0.001	mg/L	----	----	<0.001	----	----
Vanadium	7440-62-2	0.01	mg/L	----	----	<0.01	----	----
Boron	7440-42-8	0.05	mg/L	----	----	<0.05	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EG035T: Total Recoverable Mercury by FIMS								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW08	D01_091213_KF	R01_091213_KF	TS_091213	TB_091213
				14-DEC-2013 15:00	14-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327436-006	ES1327436-007	ES1327436-008	ES1327436-009	ES1327436-010
EG035T: Total Recoverable Mercury by FIMS - Continued								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	<0.2	0.2	----	----	----
Arsenic	7440-38-2	0.2	µg/L	<0.2	0.3	----	----	----
Barium	7440-39-3	0.5	µg/L	10.3	20.6	----	----	----
Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	----	----	----
Boron	7440-42-8	5	µg/L	2340	1820	----	----	----
Cadmium	7440-43-9	0.05	µg/L	0.13	0.16	----	----	----
Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	----	----	----
Cobalt	7440-48-4	0.1	µg/L	0.2	1.3	----	----	----
Copper	7440-50-8	0.5	µg/L	1.4	2.4	----	----	----
Lead	7439-92-1	0.1	µg/L	2.6	5.6	----	----	----
Manganese	7439-96-5	0.5	µg/L	59.0	145	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	0.4	0.8	----	----	----
Nickel	7440-02-0	0.5	µg/L	8.9	11.4	----	----	----
Thallium	7440-28-0	0.02	µg/L	0.07	0.04	----	----	----
Vanadium	7440-62-2	0.2	µg/L	<0.2	0.4	----	----	----
Zinc	7440-66-6	1	µg/L	9	19	----	----	----
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	68.1	90.6	<0.01	----	----
Total Cations	----	0.01	meq/L	72.1	92.4	<0.01	----	----
Ionic Balance	----	0.01	%	2.84	0.98	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	----	----
Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BQ_MW08	D01_091213_KF	R01_091213_KF	TS_091213	TB_091213
				14-DEC-2013 15:00	14-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00
				ES1327436-006	ES1327436-007	ES1327436-008	ES1327436-009	ES1327436-010
Compound	CAS Number	LOR	Unit	Client sampling date / time				
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW08	D01_091213_KF	R01_091213_KF	TS_091213	TB_091213
				14-DEC-2013 15:00	14-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327436-006	ES1327436-007	ES1327436-008	ES1327436-009	ES1327436-010
EP074E: Halogenated Aliphatic Compounds - Continued								
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW08	D01_091213_KF	R01_091213_KF	TS_091213	TB_091213
				14-DEC-2013 15:00	14-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327436-006	ES1327436-007	ES1327436-008	ES1327436-009	ES1327436-010
EP075(SIM)A: Phenolic Compounds - Continued								
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BQ_MW08	D01_091213_KF	R01_091213_KF	TS_091213	TB_091213
				14-DEC-2013 15:00	14-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327436-006	ES1327436-007	ES1327436-008	ES1327436-009	ES1327436-010
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	19	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	18	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	16	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	16	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	17	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	33	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	86	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	17	<5
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	120	114	110	----	----
Toluene-D8	2037-26-5	0.1	%	107	99.4	98.5	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	99.9	92.3	90.8	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	24.3	27.7	26.4	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	53.5	62.9	60.9	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	77.5	87.7	81.4	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	52.9	64.9	59.4	----	----
Anthracene-d10	1719-06-8	0.1	%	62.7	74.2	70.7	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	75.5	86.3	73.1	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	101	97.4	119	122



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sample ID	BQ_MW08	D01_091213_KF	R01_091213_KF	TS_091213	TB_091213
Client sampling date / time	14-DEC-2013 15:00	14-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00	09-DEC-2013 15:00
Compound	ES1327436-006	ES1327436-007	ES1327436-008	ES1327436-009	ES1327436-010

Client sampling date / time

Compound	CAS Number	LOR	Unit	ES1327436-006	ES1327436-007	ES1327436-008	ES1327436-009	ES1327436-010
EP080S: TPH(V)/BTEX Surrogates - Continued								
Toluene-D8	2037-26-5	0.1	%	99.2	92.3	91.1	117	108
4-Bromofluorobenzene	460-00-4	0.1	%	94.1	86.8	85.3	112	101



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1327436	Page	: 1 of 25
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 18-DEC-2013
Sampler	: KF	No. of samples received	: 10
Order number	: 0224193	No. of samples analysed	: 10
Quote number	: SY/794/13		

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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Laboratory 825

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

Ankit Joshi
Celine Conceicao
Phalak Inthaksone

Position

Inorganic Chemist
Senior Spectroscopist
Laboratory Manager - Organics

Accreditation Category

Sydney Inorganics
Sydney Inorganics
Sydney 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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 3214335)									
ES1327436-001	BQ_MW02	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	812	792	2.5	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	812	792	2.5	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 3214276)									
ES1327235-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	9750	10200	4.2	0% - 20%
ES1327421-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3520	3540	0.6	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 3214279)									
ES1327436-008	R01_091213_KF	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 3214275)									
ES1327235-007	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	81600	81900	0.4	0% - 20%
ES1327421-004	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1160	1160	0.0	0% - 20%
ED045G: Chloride Discrete analyser (QC Lot: 3214278)									
ES1327436-008	R01_091213_KF	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 3214274)									
ES1327235-007	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	675	680	0.7	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	5960	5900	1.1	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	68900	56500	19.8	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	1900	1580	19.0	0% - 20%
ES1327421-005	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	298	304	2.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	166	170	2.9	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	799	830	3.8	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 3214277)									
ES1327436-008	R01_091213_KF	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 3215707)									
ES1326945-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.018	0.018	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 3215707) - continued									
ES1326945-002	Anonymous	EG020A-T: Copper	7440-50-8	0.001	mg/L	0.065	0.065	0.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.013	0.013	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES1327207-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.082	0.076	8.6	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.073	0.070	5.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.013	0.012	8.2	0% - 50%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.052	0.046	10.2	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-T: Boron	7440-42-8	0.05	mg/L	0.38	0.35	7.8	No Limit		
EG035F: Dissolved Mercury by FIMS (QC Lot: 3215703)									
ES1327421-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1327436-003	BQ_MW04	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3213226)									
ES1326945-003	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1326996-007	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3218295)									
ES1327421-001	Anonymous	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.03	0.03	0.0	No Limit
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	0.2	0.3	0.0	No Limit
		EG094A-F: Lead	7439-92-1	0.1	µg/L	1.2	1.1	0.0	0% - 50%
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	4.9	4.9	0.0	0% - 20%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	0.6	0.6	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3218295) - continued										
ES1327421-001	Anonymous	EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit	
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	1.7	1.6	0.0	No Limit	
		EG094A-F: Barium	7440-39-3	0.5	µg/L	19.9	20.1	1.1	0% - 20%	
		EG094A-F: Copper	7440-50-8	0.5	µg/L	2.1	2.4	15.2	No Limit	
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	57.7	56.5	2.0	0% - 20%	
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	4.9	5.1	4.3	0% - 50%	
		EG094A-F: Zinc	7440-66-6	1	µg/L	18	21	16.0	0% - 20%	
		EG094A-F: Boron	7440-42-8	5	µg/L	373	363	2.8	0% - 20%	
ES1327436-001	BQ_MW02	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.75	0.71	5.5	0% - 20%	
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	0.19	0.17	9.6	No Limit	
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit	
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	3.1	2.9	6.2	0% - 20%	
		EG094A-F: Lead	7439-92-1	0.1	µg/L	159	148	7.6	0% - 20%	
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	4.1	3.8	7.0	0% - 20%	
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	1.3	1.3	0.0	No Limit	
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	1.2	1.1	0.0	No Limit	
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	4.8	4.4	8.4	0% - 20%	
		EG094A-F: Barium	7440-39-3	0.5	µg/L	53.6	49.3	8.4	0% - 20%	
		EG094A-F: Copper	7440-50-8	0.5	µg/L	6.3	5.8	8.8	0% - 50%	
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	567	517	9.3	0% - 20%	
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	10.0	9.0	9.8	0% - 50%	
		EG094A-F: Zinc	7440-66-6	1	µg/L	25	23	8.0	0% - 20%	
		EG094A-F: Boron	7440-42-8	5	µg/L	163	149	9.1	0% - 20%	
		EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3218296)								
ES1327421-001	Anonymous	EG094B-F: Selenium	7782-49-2	0.2	µg/L	0.4	0.3	0.0	No Limit	
ES1327436-001	BQ_MW02	EG094B-F: Selenium	7782-49-2	0.2	µg/L	1.3	0.9	35.5	No Limit	
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3213673)										
ES1327431-001	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit	



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3213673) - continued										
ES1327431-001	Anonymous	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit	
ES1327435-006	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit			
EP074B: Oxygenated Compounds (QC Lot: 3213673)										
ES1327431-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit	
ES1327435-006	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit	
EP074C: Sulfonated Compounds (QC Lot: 3213673)										
ES1327431-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit	
ES1327435-006	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit	
EP074D: Fumigants (QC Lot: 3213673)										
ES1327431-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit	
ES1327435-006	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit	



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3213673)									
ES1327431-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	49	50	0.0	0% - 50%
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	78	80	2.4	0% - 50%
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	343	333	3.0	0% - 20%
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1327435-006	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3213673) - continued									
ES1327435-006	Anonymous	EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3213673)									
ES1327431-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1327435-006	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3213673)									
ES1327431-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074G: Trihalomethanes (QC Lot: 3213673) - continued									
ES1327435-006	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3213673)									
ES1327431-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1327435-006	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3213891)									
ES1327437-001	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		ES1327437-005	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0
EP075(SIM): 2-Chlorophenol	95-57-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5			2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3213891)									
ES1327437-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3213891) - continued									
ES1327437-001	Anonymous	EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
ES1327437-005	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3213674)							
ES1327431-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	600	620	3.8	0% - 20%
ES1327435-006	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3213675)									
ES1327129-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327129-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	41400	40800	1.5	0% - 20%
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3213890)									
ES1327437-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1327437-005	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3213674)									
ES1327431-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	620	640	3.4	0% - 20%



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3213674) - continued									
ES1327435-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3213675)									
ES1327129-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327129-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	42000	41400	1.4	0% - 20%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3213890)									
ES1327437-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
ES1327437-005	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080: BTEXN (QC Lot: 3213674)									
ES1327431-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1327435-006	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 3213675)									
ES1327129-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1327129-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	3190	3470	8.6	0% - 20%
		EP080: Toluene	108-88-3	2	µg/L	9720	8880	9.0	0% - 20%
		EP080: Ethylbenzene	100-41-4	2	µg/L	1660	1670	0.6	0% - 20%
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	7090	7150	0.8	0% - 20%
		EP080: ortho-Xylene	95-47-6	2	µg/L	2210	2190	0.9	0% - 20%

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 Work Order : ES1327436
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Sub-Matrix: **WATER**

Laboratory Duplicate (DUP) Report

<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>	<i>Original Result</i>	<i>Duplicate Result</i>	<i>RPD (%)</i>	<i>Recovery Limits (%)</i>
EP080: BTEXN (QC Lot: 3213675) - continued									
ES1327129-007	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	287	285	0.8	No Limit



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 (%)		Recovery Limits (%)	
						LCS	Low	High	
ED037P: Alkalinity by PC Titrator (QCLot: 3214335)									
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	87.9	81	111	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3214276)									
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	117	86	122	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3214279)									
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	114	86	122	
ED045G: Chloride Discrete analyser (QCLot: 3214275)									
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	99.7	77	123	
ED045G: Chloride Discrete analyser (QCLot: 3214278)									
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	97.2	77	123	
ED093F: Dissolved Major Cations (QCLot: 3214274)									
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	105	87	113	
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	103	89	113	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	112	79	113	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	107	87	115	
ED093F: Dissolved Major Cations (QCLot: 3214277)									
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	103	87	113	
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	89	113	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	110	79	113	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	113	87	115	
EG020T: Total Metals by ICP-MS (QCLot: 3215707)									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	79	121	
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	102	76	120	
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	110	84	116	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	106	82	114	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	108	83	115	
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	110	84	116	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	111	83	117	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	85	115	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	106	83	115	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	120	81	125	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	115	83	117	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	103	68	128	
EG020A-T: Thallium	7440-28-0	0.001	mg/L	<0.001	0.1 mg/L	101	86	116	
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	110	84	114	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 3215707) - continued									
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	110	76	118	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	115	73	127	
EG035F: Dissolved Mercury by FIMS (QCLot: 3215703)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	97.7	78	114	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3213226)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	106	77	115	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218295)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	91.0	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	90.5	76	120	
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	118	74	130	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	10 µg/L	89.3	79	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	89.0	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	88.7	71	123	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	92.7	79	121	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	93.1	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	87.5	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	91.7	79	119	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	86.0	69	127	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	93.2	72	128	
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	85.2	71	121	
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	93.0	78	116	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	88.0	76	134	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218296)									
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	75.1	75	125	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218297)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	99.9	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	93.4	76	120	
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	94.8	74	130	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	100 µg/L	89.1	79	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	90.1	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	94.4	71	123	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	102	79	121	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	97.9	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	92.7	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	91.5	79	119	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	90.5	69	127	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	101	72	128	
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	89.2	71	121	



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	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218297) - continued								
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	97.9	78	116
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	97.3	76	134
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3213673)								
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	107	78	116
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	115	68	128
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	108	74	118
EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	20 µg/L	108	74	122
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	94.1	74	118
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	106	77	121
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	102	75	121
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	107	67	123
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	103	70	122
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	110	69	123
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	101	71	121
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	105	70	122
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	106	67	123
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	110	62	126
EP074B: Oxygenated Compounds (QCLot: 3213673)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	91.3	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	90.8	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	95.7	61	139
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	86.7	65	137
EP074C: Sulfonated Compounds (QCLot: 3213673)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	88.5	72.8	127
EP074D: Fumigants (QCLot: 3213673)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	104	61	119
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	98.1	76	120
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	86.9	62	120
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	80.8	61	119
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	88.1	69	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 3213673)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	70.0	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	75.4	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	82.1	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	82.8	56	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	88.2	63	135
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	90.6	65	131



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3213673) - continued									
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	97.8	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	77.3	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	104	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	101	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	100	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	101	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	109	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	100	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	95.0	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	104	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	88.5	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	97.2	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	97.6	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	102	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	86.2	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	93.2	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	93.7	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	90.5	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	91.9	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	93.0	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	78.8	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	114	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3213673)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	106	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	97.3	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	105	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	104	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	104	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	102	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	100	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	99.3	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	100	67	125	
EP074G: Trihalomethanes (QCLot: 3213673)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	101	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	87.6	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	84.8	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	86.5	73.5	126	
EP074H: Naphthalene (QCLot: 3213673)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	102	61	125	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3213891)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	36.9	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	79.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	66.2	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	69.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	73.2	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	76.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	73.2	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	70.7	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	69.1	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	76.4	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	73.8	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	72.3	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213891)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	66.0	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	71.5	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	65.1	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	72.8	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	72.4	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	74.3	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	84.4	63.6	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213891) - continued									
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	79.6	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	74.6	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	72.4	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	74.6	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	82.6	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	79.3	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	73.9	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	74.3	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	74.6	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213674)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	90.0	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213675)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	98.9	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213890)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	97.4	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	97.7	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	101	62	120	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213674)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	92.7	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213675)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	102	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213890)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	89.0	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	90.9	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	98.8	67	127	
EP080: BTEXN (QCLot: 3213674)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	89.9	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	89.6	65	129	



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
EP080: BTEXN (QCLot: 3213674) - continued								
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	88.1	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	87.3	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	91.7	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	91.2	70	124
EP080: BTEXN (QCLot: 3213675)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.5	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	92.3	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.0	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	91.4	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	86.8	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	97.6	70	124

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.

Sub-Matrix: WATER				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3214276)							
ES1327235-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3214279)							
ES1327436-008	R01_091213_KF	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	106	70	130
ED045G: Chloride Discrete analyser (QCLot: 3214275)							
ES1327235-007	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	70	130
ED045G: Chloride Discrete analyser (QCLot: 3214278)							
ES1327436-008	R01_091213_KF	ED045G: Chloride	16887-00-6	250 mg/L	103	70	130
EG020T: Total Metals by ICP-MS (QCLot: 3215707)							
ES1326945-003	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	114	70	130
		EG020A-T: Beryllium	7440-41-7	1 mg/L	107	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	111	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	110	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	110	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	113	70	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report					
				Spike	SpikeRecovery(%)	Recovery Limits (%)			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High		
EG020T: Total Metals by ICP-MS (QCLot: 3215707) - continued									
ES1326945-003	Anonymous	EG020A-T: Copper	7440-50-8	1 mg/L	114	70	130		
		EG020A-T: Lead	7439-92-1	1 mg/L	109	70	130		
		EG020A-T: Manganese	7439-96-5	1 mg/L	112	70	130		
		EG020A-T: Nickel	7440-02-0	1 mg/L	110	70	130		
		EG020A-T: Vanadium	7440-62-2	1 mg/L	112	70	130		
		EG020A-T: Zinc	7440-66-6	1 mg/L	110	70	130		
EG035F: Dissolved Mercury by FIMS (QCLot: 3215703)									
ES1327421-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	79.6	70	130		
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3213226)									
ES1326945-004	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	87.2	70	130		
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218295)									
ES1327421-002	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	125	70	130		
		EG094A-F: Barium	7440-39-3	50 µg/L	114	70	130		
		EG094A-F: Beryllium	7440-41-7	50 µg/L	98.6	70	130		
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	104	70	130		
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	70	130		
		EG094A-F: Cobalt	7440-48-4	50 µg/L	128	70	130		
		EG094A-F: Copper	7440-50-8	50 µg/L	117	70	130		
		EG094A-F: Lead	7439-92-1	50 µg/L	102	70	130		
		EG094A-F: Manganese	7439-96-5	50 µg/L	98.1	70	130		
		EG094A-F: Nickel	7440-02-0	50 µg/L	116	70	130		
		EG094A-F: Vanadium	7440-62-2	50 µg/L	107	70	130		
		EG094A-F: Zinc	7440-66-6	50 µg/L	111	70	130		
		EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218297)							
		ES1327436-002	BQ_MW03	EG094A-F: Arsenic	7440-38-2	50 µg/L	123	70	130
EG094A-F: Barium	7440-39-3			50 µg/L	120	70	130		
EG094A-F: Beryllium	7440-41-7			50 µg/L	91.1	70	130		
EG094A-F: Cadmium	7440-43-9			12.5 µg/L	102	70	130		
EG094A-F: Chromium	7440-47-3			50 µg/L	98.6	70	130		
EG094A-F: Cobalt	7440-48-4			50 µg/L	124	70	130		
EG094A-F: Copper	7440-50-8			50 µg/L	112	70	130		
EG094A-F: Lead	7439-92-1			50 µg/L	105	70	130		
EG094A-F: Manganese	7439-96-5			50 µg/L	90.8	70	130		
EG094A-F: Nickel	7440-02-0			50 µg/L	114	70	130		
EG094A-F: Vanadium	7440-62-2			50 µg/L	106	70	130		
EG094A-F: Zinc	7440-66-6			50 µg/L	111	70	130		
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3213673)									
ES1327431-001	Anonymous			EP074: Benzene	71-43-2	25 µg/L	108	70	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3213673) - continued							
ES1327431-001	Anonymous	EP074: Toluene	108-88-3	25 µg/L	110	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3213673)							
ES1327431-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	95.9	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	87.1	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3213673)							
ES1327431-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	113	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3213891)							
ES1327437-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	60.1	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	73.0	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	70.0	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	77.9	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	77.1	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213891)							
ES1327437-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	79.8	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	76.6	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213674)							
ES1327431-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	104	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213675)							
ES1327129-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	120	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213890)							
ES1327437-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	96.9	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	100	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	108	67	153
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213674)							
ES1327431-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	112	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213675)							
ES1327129-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	119	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213890)							
ES1327437-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	99.8	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	107	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	106	67	153
EP080: BTEXN (QCLot: 3213674)							
ES1327431-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	96.4	70	130
		EP080: Toluene	108-88-3	25 µg/L	95.8	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	97.1	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 3213674) - continued							
ES1327431-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	25 µg/L	97.8	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	96.2	70	130
EP080: BTEXN (QCLot: 3213675)							
ES1327129-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	107	70	130
		EP080: Toluene	108-88-3	25 µg/L	95.8	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	94.8	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	95.0	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	25 µg/L	93.6	70	130
	EP080: Naphthalene	91-20-3	25 µg/L	104	70	130	

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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: **WATER**

						Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3213226)											
ES1326945-004	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	87.2	----	70	130	----	----	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3213673)											
ES1327431-001	Anonymous	EP074: Benzene	71-43-2	25 µg/L	108	----	70	130	----	----	
		EP074: Toluene	108-88-3	25 µg/L	110	----	70	130	----	----	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3213673)											
ES1327431-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	95.9	----	70	130	----	----	
		EP074: Trichloroethene	79-01-6	25 µg/L	87.1	----	70	130	----	----	
EP074F: Halogenated Aromatic Compounds (QCLot: 3213673)											
ES1327431-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	113	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213674)											
ES1327431-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	104	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213674)											
ES1327431-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	112	----	70	130	----	----	
EP080: BTEXN (QCLot: 3213674)											
ES1327431-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	96.4	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	95.8	----	70	130	----	----	



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP080: BTEXN (QCLot: 3213674) - continued											
ES1327431-001	Anonymous	EP080: Ethylbenzene	100-41-4	25 µg/L	97.1	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	97.8	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	96.2	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213675)											
ES1327129-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	120	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213675)											
ES1327129-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	119	----	70	130	----	----	
EP080: BTEXN (QCLot: 3213675)											
ES1327129-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	107	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	95.8	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	94.8	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	95.0	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	93.6	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	104	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3213890)											
ES1327437-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	96.9	----	74	150	----	----	
		EP071: C15 - C28 Fraction	----	300 µg/L	100	----	77	153	----	----	
		EP071: C29 - C36 Fraction	----	200 µg/L	108	----	67	153	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3213890)											
ES1327437-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	99.8	----	74	150	----	----	
		EP071: >C16 - C34 Fraction	----	350 µg/L	107	----	77	153	----	----	
		EP071: >C34 - C40 Fraction	----	150 µg/L	106	----	67	153	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3213891)											
ES1327437-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	60.1	----	20	130	----	----	
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	73.0	----	60	130	----	----	
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	70.0	----	60	130	----	----	
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	77.9	----	70	130	----	----	
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	77.1	----	20	130	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3213891)											
ES1327437-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	79.8	----	70	130	----	----	
		EP075(SIM): Pyrene	129-00-0	20 µg/L	76.6	----	70	130	----	----	
ED045G: Chloride Discrete analyser (QCLot: 3214275)											
ES1327235-007	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	----	70	130	----	----	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3214276)											



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3214276) - continued										
ES1327235-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	----	70	130	----	----
ED045G: Chloride Discrete analyser (QCLot: 3214278)										
ES1327436-008	R01_091213_KF	ED045G: Chloride	16887-00-6	250 mg/L	103	----	70	130	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3214279)										
ES1327436-008	R01_091213_KF	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	106	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3215703)										
ES1327421-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	79.6	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 3215707)										
ES1326945-003	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	114	----	70	130	----	----
		EG020A-T: Beryllium	7440-41-7	1 mg/L	107	----	70	130	----	----
		EG020A-T: Barium	7440-39-3	1 mg/L	111	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	110	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	110	----	70	130	----	----
		EG020A-T: Cobalt	7440-48-4	1 mg/L	113	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	114	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	109	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1 mg/L	112	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	110	----	70	130	----	----
		EG020A-T: Vanadium	7440-62-2	1 mg/L	112	----	70	130	----	----
EG020A-T: Zinc	7440-66-6	1 mg/L	110	----	70	130	----	----		
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218295)										
ES1327421-002	Anonymous	EG094A-F: Arsenic	7440-38-2	50 µg/L	125	----	70	130	----	----
		EG094A-F: Barium	7440-39-3	50 µg/L	114	----	70	130	----	----
		EG094A-F: Beryllium	7440-41-7	50 µg/L	98.6	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	104	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	102	----	70	130	----	----
		EG094A-F: Cobalt	7440-48-4	50 µg/L	128	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	117	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	102	----	70	130	----	----
		EG094A-F: Manganese	7439-96-5	50 µg/L	98.1	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	116	----	70	130	----	----
		EG094A-F: Vanadium	7440-62-2	50 µg/L	107	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	111	----	70	130	----	----
		EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218297)								
ES1327436-002	BQ_MW03	EG094A-F: Arsenic	7440-38-2	50 µg/L	123	----	70	130	----	----
		EG094A-F: Barium	7440-39-3	50 µg/L	120	----	70	130	----	----
		EG094A-F: Beryllium	7440-41-7	50 µg/L	91.1	----	70	130	----	----



Sub-Matrix: **WATER**

				<i>Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report</i>						
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Spike</i>	<i>Spike Recovery (%)</i>		<i>Recovery Limits (%)</i>		<i>RPDs (%)</i>	
				<i>Concentration</i>	<i>MS</i>	<i>MSD</i>	<i>Low</i>	<i>High</i>	<i>Value</i>	<i>Control Limit</i>
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218297) - continued										
ES1327436-002	BQ_MW03	EG094A-F: Cadmium	7440-43-9	12.5 µg/L	102	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	98.6	----	70	130	----	----
		EG094A-F: Cobalt	7440-48-4	50 µg/L	124	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	112	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	105	----	70	130	----	----
		EG094A-F: Manganese	7439-96-5	50 µg/L	90.8	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	114	----	70	130	----	----
		EG094A-F: Vanadium	7440-62-2	50 µg/L	106	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	111	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327436	Page	: 1 of 10
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: BAYSWATER	Date Samples Received	: 13-DEC-2013
C-O-C number	: ----	Issue Date	: 18-DEC-2013
Sampler	: KF	No. of samples received	: 10
Order number	: 0224193	No. of samples analysed	: 10
Quote number	: SY/794/13		

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF, BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	---	23-DEC-2013	----	16-DEC-2013	23-DEC-2013	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF, BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	---	06-JAN-2014	----	16-DEC-2013	06-JAN-2014	✓
ED045G: Chloride Discrete analyser							
Clear Plastic Bottle - Natural (ED045G) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF, BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	---	06-JAN-2014	----	16-DEC-2013	06-JAN-2014	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF, BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	---	16-DEC-2013	----	16-DEC-2013	16-DEC-2013	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) R01_091213_KF	09-DEC-2013	17-DEC-2013	07-JUN-2014	✓	17-DEC-2013	07-JUN-2014	✓
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF, BQ_MW03, BQ_MW05, BQ_MW08,	14-DEC-2013	---	11-JAN-2014	----	17-DEC-2013	11-JAN-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) R01_091213_KF	09-DEC-2013	----	----	----	16-DEC-2013	06-JAN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BQ_MW02, BQ_MW03, BQ_MW04, BQ_MW05, BQ_MW07, BQ_MW08, D01_091213_KF	14-DEC-2013	---	12-JUN-2014	----	18-DEC-2013	12-JUN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) BQ_MW02, BQ_MW03, BQ_MW04, BQ_MW05, BQ_MW07, BQ_MW08, D01_091213_KF	14-DEC-2013	---	12-JUN-2014	----	18-DEC-2013	12-JUN-2014	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) BQ_MW02, BQ_MW03, BQ_MW04, BQ_MW05, BQ_MW07, BQ_MW08, D01_091213_KF, R01_091213_KF	09-DEC-2013	16-DEC-2013	16-DEC-2013	✓	16-DEC-2013	25-JAN-2014	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW02, BQ_MW03, BQ_MW04, BQ_MW05, BQ_MW07, BQ_MW08, D01_091213_KF, R01_091213_KF	09-DEC-2013	17-DEC-2013	23-DEC-2013	✓	17-DEC-2013	23-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW02, BQ_MW03, BQ_MW04, BQ_MW05, BQ_MW07, BQ_MW08, D01_091213_KF, R01_091213_KF	09-DEC-2013	17-DEC-2013	23-DEC-2013	✓	17-DEC-2013	23-DEC-2013	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW02, BQ_MW03, BQ_MW04, BQ_MW05, BQ_MW07, BQ_MW08, D01_091213_KF, R01_091213_KF	09-DEC-2013	17-DEC-2013	23-DEC-2013	✓	17-DEC-2013	23-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF,	BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	17-DEC-2013	23-DEC-2013	✓	17-DEC-2013	23-DEC-2013	✓
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF,	BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	17-DEC-2013	23-DEC-2013	✓	17-DEC-2013	23-DEC-2013	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF,	BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	17-DEC-2013	23-DEC-2013	✓	17-DEC-2013	23-DEC-2013	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF,	BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	17-DEC-2013	23-DEC-2013	✓	17-DEC-2013	23-DEC-2013	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF,	BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	17-DEC-2013	23-DEC-2013	✓	17-DEC-2013	23-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF,	BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	16-DEC-2013	16-DEC-2013	✓	17-DEC-2013	25-JAN-2014	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF,	BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	16-DEC-2013	16-DEC-2013	✓	17-DEC-2013	25-JAN-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TS_091213, TB_091213	09-DEC-2013	16-DEC-2013	23-DEC-2013	✓	16-DEC-2013	23-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF, BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	17-DEC-2013	23-DEC-2013	✓	17-DEC-2013	23-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) TB_091213	09-DEC-2013	16-DEC-2013	23-DEC-2013	✓	16-DEC-2013	23-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BQ_MW02, BQ_MW04, BQ_MW07, D01_091213_KF, BQ_MW03, BQ_MW05, BQ_MW08, R01_091213_KF	09-DEC-2013	17-DEC-2013	23-DEC-2013	✓	17-DEC-2013	23-DEC-2013	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	1	9	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	3	21	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	3	21	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	21	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	9	11.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	4	21	19.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	21	9.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	40	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Sulfate (Turbidimetric) as SO ₄ ²⁻ by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO ₄ Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ ²⁻ concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	APHA 21st Ed. 1030F. The Ionic Balance is calculated based on the major Anions and Cations. The major anions include Alkalinity, Chloride and Sulfate which determined by PCT and DA. The Cations are determined by Turbi SO4 by DA. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES1327235-007	Anonymous	Sulfate as SO4 - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
ED045G: Chloride Discrete analyser	ES1327235-007	Anonymous	Chloride	16887-00-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



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WOLLONGONG 92 Kenley Street (Wollongong) NSW 2520
Ph: 02 4228 3100 E: wollongong@alsglobal.com

CLIENT: ERM	TURNAROUND REQUIREMENTS: <input type="checkbox"/> Standard TAT (List due date):	TAT
OFFICE: SYDNEY	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input checked="" type="checkbox"/> Non Standard or urgent TAT (List due date): 48hrs	
PROJECT: Project Symphony 0224193	ALS QUOTE NO.: SY794/13	FOR LABORATORY USE ONLY (Circle) Custody Seal Intact? Yes No N/A Free ice / frozen ice bricks present upon receipt? Yes No N/A Random Sample Temperature on Receipt: 16 °C Other comment:
ORDER NUMBER:	SITE: BAYSWATER / LIDDELL	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7
PROJECT MANAGER: Joe Ferraro	CONTACT PH: 0424 970 463	RECEIVED BY: RM
SAMPLER: J. Grant	SAMPLER MOBILE: 0432 596 844	REINQUISHED BY: RM
COC emailed to ALS? (YES / NO) (NO)	EDD FORMAT (or default):	RECEIVED BY: Seagull/MS
Email Reports to (will default to PM if no other addresses are listed): Symphony.mmc@erm.com	DATE/TIME:	DATE/TIME: 13/12/13 1700
Email Invoice to (will default to PM if no other addresses are listed):	DATE/TIME:	DATE/TIME: 13/12/13 1900

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information	
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE Codes below	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Bi, Br, Ca, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Tl)	Selenium (Freshwater ORC)	VOC Target Scan	FCB	PFOS/PFOA	W-24 TRH(CF-CAP/BTEX/N, PAH, Phenols)	Cation / Anion	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	BA-MW03	11.12.13	W	Split WO	8	/	/		/			/	/	
2	BA-MW01	11.12.13	W	Split WO	8	/	/		/			/	/	
3	BA-EW-MW01	11.12.13	W	Split WO	8	/	/		/			/	/	
4	BX-MW03	11.12.13	W	Split WO	9	/	/		/	/	/	/	/	
5	BT-MW21	11.12.13	W	Split WO	7	/	/		/			/	/	
6	ROI-111213-J4	11.12.13	W	Split WO	7	/	/		/			/	/	Labelled as ROI-111213 only
7	TS-12	11.12.13	W	Split WO	2	/	/		/			/	/	BTEX
8	TB-11	11.12.13	W	Split WO	2	/	/		/			/	/	BTEX + TRH
9	BQ-MW14	12.12.13	W	Split WO	8	/	/		/			/	/	* Send to EnviroLab
10	ROI-121213-J4	12.12.13	W	Split WO	9	/	/		/			/	/	
11	BE-MW03	12.12.13	W	Split WO	8	/	/		/			/	/	

Forward Lab / Split WO
Lab / Analysis: **Chaviles / FCB**
Organised By / Date: **ES 12/12/13**
Relinquished By / Date: **ES 12/12/13**
C / Note / Courier: **ES 12/12/13**
W / No: **ES 12/12/13**
Attach By PO / Internal Sheet

Environmental Division
Sydney
Work Order
ES1327444



Telephone: +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;



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CLIENT:	TURNAROUND REQUIREMENTS : <input type="checkbox"/> Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE:	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input type="checkbox"/> Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes <input checked="" type="radio"/> No <input type="radio"/> N/A	
PROJECT: Project Symphony	ALS QUOTE NO.: SY794M3	Free Ice / frozen ice bricks present upon receipt? Yes <input checked="" type="radio"/> No <input type="radio"/> N/A	
ORDER NUMBER:	SITE: BAYSWATER / LIDDELL	Random Sample Temperature on Receipt: 16 °C	
PROJECT MANAGER:	CONTACT: <i>See Previous Page</i>	Other comment:	
SAMPLER:	SAMPLER MOBILE:	RECEIVED BY: <i>DL</i>	RELINQUISHED BY: <i>DL</i>
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	DATE/TIME: 13/12/13 1645	DATE/TIME: 13/12/13 1700
Email Reports to (will default to PM if no other addresses are listed):	DATE/TIME:	RECEIVED BY: <i>So</i>	DATE/TIME: 13/12/13 1650
Email Invoice to (will default to PM if no other addresses are listed):			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information	
	LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below) (refer to)	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, Bi, Mo, Tl)	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PPOS/FOA		W-24 TRH(C6-C40)/BTEXN, PAH, Phenols
	12	BE-MW02	12.12.13	w		7	/			/			/	
	13	BE-MW01	12.12.13	W		7	/			/			/	
	14	TS-15	12.12.13	w		2								BTEX
	15	TB-06	12.12.13	W		2								BTEX + TRH
	16	BM-MW05	13.12.13	w		8	/			/	/		/	
	17	BM-EW-MW01	13.12.13	W		8	/			/	/		/	
	18	ROI-131213-24	13.12.13	W		8	/			/	/		/	
	19	BM-MW03	13.12.13	w		8	/			/	/		/	
	20	BM-MW07	13.12.13	W		8	/			/	/		/	
TOTAL														

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Disulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Specialion bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Jacob Waugh

From: Barbara Hanna
Sent: Thursday, 19 December 2013 5:12 PM
To: Jacob Waugh
Subject: FW: es1327444
Attachments: ES1327444_COC_2.pdf; ES1327444_0_SRN_131216204308.pdf

Hi Jacob,

Could you please take care of this.

Kind Regards

Barbara Hanna

Client Services Manager
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

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Please see our latest [EnviroMail 68 - Sampling and Analysis Implications of the new NEPM - July 2013](#)

[EnviroMail 69 - Testing Requirements of the new NEPM - July 2013](#)

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Reduction in Sample Volumes - Improving quality, safety, efficiency and sustainability in environmental practices



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From: Clea Henderson [mailto:Clea.Henderson@erm.com]
Sent: Thursday, 19 December 2013 4:55 PM
To: Barbara Hanna
Cc: Joseph Ferring; ERM Australia Project Symphony MacGen
Subject: es1327444

Hi Barbara,

I'm very sorry, can we please add some additional analysis to batch ES1327444?

005 - TRH/BTEXN/PAH/Phenols
VOCs

Thanks Barbara,

Clea Henderson
Chemical Engineer

Environmental Resources Management
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SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1327444

Amendment : 1

Client : ENVIRO RESOURCES MANAGEMENT
Laboratory : Environmental Division Sydney

Contact : MR JOSEPH FERRING
Address : GROUND FLOOR
 33 SAUNDERS STREET, PYRMONT
 NSW 2009
 LOCKED BAG 24
 BROADWAY NSW, AUSTRALIA 2007

Contact : Barbara Hanna
Address : 277-289 Woodpark Road Smithfield
 NSW Australia 2164

E-mail : joseph.ferring@erm.com
Telephone : +61 02 8584 8888
Facsimile : +61 02 8584 8800

E-mail : Barbara.Hanna@alsglobal.com
Telephone : +61 2 8784 8555
Facsimile : +61 2 8784 8555

Project : Project Symphony
Order number : 0224198
C-O-C number : ----
Site : LIDDELL
Sampler : SP

Page : 1 of 3
Quote number : ES2013ENVRES0369 (SY/794/13)

QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 13-DEC-2013
Client Requested Due Date : 27-DEC-2013
Issue Date : 19-DEC-2013 17:28
Scheduled Reporting Date : **27-DEC-2013**

Delivery Details

Mode of Delivery : Carrier
No. of coolers/boxes : 1 HARD
Security Seal : Intact.

Temperature : 6.8°C SYD - Ice present
No. of samples received : 20
No. of samples analysed : 20

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Additional analysis for sample ES1327444-005 (BY_MW21) was added on 19/12/2013. The holding time for semivolatiles analysis had already expired.**
- **Sample T01_121213_JG to sent to Envirolab.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exist.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG035T Total Mercury by FIMS	WATER - EG094A-F Dissolved Metals in Fresh Water Suite A by	WATER - EG094A-T Total Metals in Fresh water Suite A by ORC-ICPMS	WATER - EG094B-F Dissolved Metals in fresh water Suite B by	WATER - EG094B-T Total Metals in Fresh Water Suite B by ORC-ICPMS	WATER - EN055 - PG Ionic Balance by ED037P, ED041G, ED045G &	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)
ES1327444-001	11-DEC-2013 15:00	BA_MW03	✓		✓		✓		✓	
ES1327444-002	11-DEC-2013 15:00	BA_MW01	✓		✓		✓		✓	
ES1327444-003	11-DEC-2013 15:00	BA_EW_MW01	✓		✓		✓		✓	
ES1327444-004	11-DEC-2013 15:00	BX_MW03	✓		✓					✓
ES1327444-005	11-DEC-2013 15:00	BY_MW21	✓		✓					
ES1327444-006	16-DEC-2013 15:00	R01_111213		✓		✓				
ES1327444-009	12-DEC-2013 15:00	BQ_MW14	✓		✓		✓		✓	
ES1327444-010	12-DEC-2013 15:00	R01_121213_JG		✓		✓		✓	✓	
ES1327444-011		BE_MW03	✓		✓					
ES1327444-012	12-DEC-2013 15:00	BE_MW02	✓		✓					
ES1327444-013	12-DEC-2013 15:00	BE_MW01	✓		✓					
ES1327444-016	13-DEC-2013 15:00	BM_MW05	✓		✓					✓
ES1327444-017	13-DEC-2013 15:00	BM_EW_MW01	✓		✓					✓
ES1327444-018	13-DEC-2013 15:00	R01_131213_JG		✓		✓				✓
ES1327444-019	13-DEC-2013 15:00	BM_MW03	✓		✓					✓
ES1327444-020	13-DEC-2013 15:00	BM_MW07	✓		✓					✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - EP231 Perfluorocetyl Acids and Sulfonates by LC/MS/MS	WATER - NT-01 Major Cations (Ca, Mg, Na, K)	WATER - NT-02 Major Anions (Chloride, Sulphate, Alkalinity)	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1327444-001	11-DEC-2013 15:00	BA_MW03	✓			✓	✓		✓
ES1327444-002	11-DEC-2013 15:00	BA_MW01	✓			✓	✓		✓
ES1327444-003	11-DEC-2013 15:00	BA_EW_MW01	✓			✓	✓		✓
ES1327444-004	11-DEC-2013 15:00	BX_MW03	✓		✓				✓
ES1327444-005	11-DEC-2013 15:00	BY_MW21	✓						✓
ES1327444-006	11-DEC-2013 15:00	R01_111213	✓						✓
ES1327444-007	11-DEC-2013 15:00	TS_12		✓					
ES1327444-008	11-DEC-2013 15:00	TB_11					✓		



			WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - EP231 Perfluorocyl Acids and Sulfonates by LC/MS/MS	WATER - NT-01 Major Cations (Ca, Mg, Na, K)	WATER - NT-02 Major Anions (Chloride, Sulphate, Alkalinity)	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1327444-009	12-DEC-2013 15:00	BQ_MW14	✓			✓	✓		✓
ES1327444-010	12-DEC-2013 15:00	R01_121213_JG	✓			✓	✓		✓
ES1327444-011	12-DEC-2013 15:00	BE_MW03	✓						✓
ES1327444-012	12-DEC-2013 15:00	BE_MW02	✓						✓
ES1327444-013	12-DEC-2013 15:00	BE_MW01	✓						✓
ES1327444-014	12-DEC-2013 15:00	TS_15		✓					
ES1327444-015	12-DEC-2013 15:00	TB_06						✓	
ES1327444-016	13-DEC-2013 15:00	BM_MW05	✓						✓
ES1327444-017	13-DEC-2013 15:00	BM_EW_MW01	✓						✓
ES1327444-018	13-DEC-2013 15:00	R01_131213_JG	✓						✓
ES1327444-019	13-DEC-2013 15:00	BM_MW03	✓						✓
ES1327444-020	13-DEC-2013 15:00	BM_MW07	✓						✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA) Email joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email joseph.ferring@erm.com
- Chain of Custody (CoC) (COC) Email joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG) Email joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT) Email joseph.ferring@erm.com
- EDI Format - XTab (XTAB) Email joseph.ferring@erm.com

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA) Email symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email symphony.macgen@erm.com
- Chain of Custody (CoC) (COC) Email symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG) Email symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM) Email symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT) Email symphony.macgen@erm.com
- EDI Format - XTab (XTAB) Email symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV) Email au.accounts@erm.com

CERTIFICATE OF ANALYSIS

Work Order	: ES1327444	Page	: 1 of 25
Amendment	: 1		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 0224198		
C-O-C number	: ----	Date Samples Received	: 13-DEC-2013
Sampler	: SP	Issue Date	: 27-DEC-2013
Site	: LIDDELL		
Quote number	: SY/794/13	No. of samples received	: 20
		No. of samples analysed	: 20

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



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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**
- **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**
- **This report has been amended and re-released to allow the reporting of additional analytical data on sample ES1327444-005.**



NATA Accredited Laboratory 825

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>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BA_MW03	BA_MW01	BA_EW_MW01	BX_MW03	BY_MW21
				11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-001	ES1327444-002	ES1327444-003	ES1327444-004	ES1327444-005
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	48	45	90	----	----
Total Alkalinity as CaCO3	----	1	mg/L	48	45	90	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4140	4220	3930	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	1910	2000	1980	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	542	553	655	----	----
Magnesium	7439-95-4	1	mg/L	509	641	500	----	----
Sodium	7440-23-5	1	mg/L	1680	1550	1540	----	----
Potassium	7440-09-7	1	mg/L	50	32	47	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	0.3	0.5	1.3	----	----
Arsenic	7440-38-2	0.2	µg/L	0.5	0.9	1.6	1.1	0.8
Barium	7440-39-3	0.5	µg/L	18.5	15.4	36.0	----	----
Beryllium	7440-41-7	0.1	µg/L	0.1	<0.1	<0.1	----	----
Boron	7440-42-8	5	µg/L	787	1930	3320	----	----
Cadmium	7440-43-9	0.05	µg/L	2.10	1.93	0.23	8.94	1.31
Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	<0.2	0.3	0.2
Cobalt	7440-48-4	0.1	µg/L	65.4	19.2	8.4	----	----
Copper	7440-50-8	0.5	µg/L	2.6	4.0	2.6	5.4	4.4
Lead	7439-92-1	0.1	µg/L	0.6	4.3	0.2	2.7	57.2
Manganese	7439-96-5	0.5	µg/L	3200	2460	3220	----	----
Molybdenum	7439-98-7	0.1	µg/L	0.4	0.3	1.4	----	----
Nickel	7440-02-0	0.5	µg/L	216	122	59.9	1150	60.8
Thallium	7440-28-0	0.02	µg/L	0.21	0.30	0.10	----	----
Vanadium	7440-62-2	0.2	µg/L	0.4	0.5	0.3	----	----
Zinc	7440-66-6	1	µg/L	99	60	21	1080	43
EN055: Ionic Balance								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BA_MW03	BA_MW01	BA_EW_MW01	BX_MW03	BY_MW21
				11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00
				ES1327444-001	ES1327444-002	ES1327444-003	ES1327444-004	ES1327444-005
Compound	CAS Number	LOR	Unit					
EN055: Ionic Balance - Continued								
Total Anions	----	0.01	meq/L	141	145	139	----	----
Total Cations	----	0.01	meq/L	143	148	142	----	----
Ionic Balance	----	0.01	%	0.78	1.15	0.90	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	----	----	----	<1	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BA_MW03	BA_MW01	BA_EW_MW01	BX_MW03	BY_MW21
				11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-001	ES1327444-002	ES1327444-003	ES1327444-004	ES1327444-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BA_MW03	BA_MW01	BA_EW_MW01	BX_MW03	BY_MW21
				11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-001	ES1327444-002	ES1327444-003	ES1327444-004	ES1327444-005
EP074F: Halogenated Aromatic Compounds - Continued								
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BA_MW03	BA_MW01	BA_EW_MW01	BX_MW03	BY_MW21
				11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-001	ES1327444-002	ES1327444-003	ES1327444-004	ES1327444-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP231: Perfluorinated Compounds								
PFOS	1763-23-1	0.02	µg/L	----	----	----	<0.02	----
PFOA	335-67-1	0.02	µg/L	----	----	----	<0.02	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BA_MW03	BA_MW01	BA_EW_MW01	BX_MW03	BY_MW21
				11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-001	ES1327444-002	ES1327444-003	ES1327444-004	ES1327444-005
EP231: Perfluorinated Compounds - Continued								
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	----	----	----	<0.1	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	66.0	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	110	109	108	118
Toluene-D8	2037-26-5	0.1	%	101	101	122	117	113
4-Bromofluorobenzene	460-00-4	0.1	%	94.6	92.9	107	104	106
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	33.4	25.4	21.6	24.6	35.8
2-Chlorophenol-D4	93951-73-6	0.1	%	68.6	61.9	51.5	62.7	59.9
2,4,6-Tribromophenol	118-79-6	0.1	%	105	88.9	80.9	97.6	72.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	78.5	68.3	58.5	72.8	70.0
Anthracene-d10	1719-06-8	0.1	%	85.7	71.1	64.4	79.5	62.4
4-Terphenyl-d14	1718-51-0	0.1	%	91.4	74.2	68.0	85.8	68.8
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	117	118	127	126	105
Toluene-D8	2037-26-5	0.1	%	111	110	116	112	105
4-Bromofluorobenzene	460-00-4	0.1	%	107	107	112	109	98.2



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				R01_111213	TS_12	TB_11	BQ_MW14	R01_121213_JG
				16-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-006	ES1327444-007	ES1327444-008	ES1327444-009	ES1327444-010
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	----	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	----	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	----	126	<1
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	126	<1
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	2230	<1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	----	----	----	1250	<1
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	----	242	<1
Magnesium	7439-95-4	1	mg/L	----	----	----	179	<1
Sodium	7440-23-5	1	mg/L	----	----	----	1480	<1
Potassium	7440-09-7	1	mg/L	----	----	----	4	<1
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	<0.0001
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	----	----	----	0.8	----
Arsenic	7440-38-2	0.2	µg/L	----	----	----	0.9	----
Barium	7440-39-3	0.5	µg/L	----	----	----	53.1	----
Beryllium	7440-41-7	0.1	µg/L	----	----	----	<0.1	----
Boron	7440-42-8	5	µg/L	----	----	----	93	----
Cadmium	7440-43-9	0.05	µg/L	----	----	----	0.08	----
Chromium	7440-47-3	0.2	µg/L	----	----	----	<0.2	----
Cobalt	7440-48-4	0.1	µg/L	----	----	----	213	----
Copper	7440-50-8	0.5	µg/L	----	----	----	0.9	----
Lead	7439-92-1	0.1	µg/L	----	----	----	0.1	----
Manganese	7439-96-5	0.5	µg/L	----	----	----	3110	----
Molybdenum	7439-98-7	0.1	µg/L	----	----	----	0.3	----
Nickel	7440-02-0	0.5	µg/L	----	----	----	84.2	----
Thallium	7440-28-0	0.02	µg/L	----	----	----	0.02	----
Vanadium	7440-62-2	0.2	µg/L	----	----	----	0.5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				R01_111213	TS_12	TB_11	BQ_MW14	R01_121213_JG
				16-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-006	ES1327444-007	ES1327444-008	ES1327444-009	ES1327444-010
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS - Continued								
Zinc	7440-66-6	1	µg/L	----	----	----	38	----
EG094T: Total metals in Fresh water by ORC-ICPMS								
Selenium	7782-49-2	0.2	µg/L	----	----	----	----	<0.2
Arsenic	7440-38-2	0.2	µg/L	<0.2	----	----	----	<0.2
Barium	7440-39-3	0.5	µg/L	----	----	----	----	<0.5
Beryllium	7440-41-7	0.1	µg/L	----	----	----	----	<0.1
Boron	7440-42-8	5	µg/L	----	----	----	----	<5
Cadmium	7440-43-9	0.05	µg/L	<0.05	----	----	----	<0.05
Chromium	7440-47-3	0.2	µg/L	<0.2	----	----	----	<0.2
Cobalt	7440-48-4	0.1	µg/L	----	----	----	----	<0.1
Copper	7440-50-8	0.5	µg/L	<0.5	----	----	----	<0.5
Lead	7439-92-1	0.1	µg/L	<0.1	----	----	----	<0.1
Manganese	7439-96-5	0.5	µg/L	----	----	----	----	<0.5
Molybdenum	7439-98-7	0.1	µg/L	----	----	----	----	<0.1
Nickel	7440-02-0	0.5	µg/L	<0.5	----	----	----	<0.5
Thallium	7440-28-0	0.02	µg/L	----	----	----	----	<0.02
Vanadium	7440-62-2	0.2	µg/L	----	----	----	----	<0.2
Zinc	7440-66-6	1	µg/L	<1	----	----	----	<1
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	----	----	----	84.2	<0.01
Total Cations	----	0.01	meq/L	----	----	----	91.3	<0.01
Ionic Balance	----	0.01	%	----	----	----	4.01	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	----	----	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	----	----	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	----	----	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	----	----	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	----	----	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	----	----	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	----	----	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	----	----	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	----	----	<5	<5
EP074B: Oxygenated Compounds								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				R01_111213	TS_12	TB_11	BQ_MW14	R01_121213_JG
				16-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-006	ES1327444-007	ES1327444-008	ES1327444-009	ES1327444-010
EP074B: Oxygenated Compounds - Continued								
Vinyl Acetate	108-05-4	50	µg/L	<50	----	----	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	----	----	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	----	----	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	----	----	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	----	----	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	----	----	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	----	----	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	----	----	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	----	----	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	----	----	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	----	----	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	----	----	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	----	----	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	----	----	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	----	----	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	----	----	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	----	----	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	----	----	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	----	----	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	----	----	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	----	----	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	----	----	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	----	----	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	----	----	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	----	----	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	----	----	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	----	----	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	----	----	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	----	----	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	----	----	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				R01_111213	TS_12	TB_11	BQ_MW14	R01_121213_JG
				16-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-006	ES1327444-007	ES1327444-008	ES1327444-009	ES1327444-010
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	----	----	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	----	----	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	----	----	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	----	----	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	----	----	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	----	----	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	----	----	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	----	----	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	----	----	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	----	----	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	----	----	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	----	----	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	----	----	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	----	----	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	----	----	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	----	----	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	----	----	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	----	----	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	----	----	<5	<5
Bromoform	75-25-2	5	µg/L	<5	----	----	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	----	----	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	----	----	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	----	----	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	----	----	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	----	----	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	----	----	<1.0	<1.0
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	----	----	<1.0	<1.0
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	----	----	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				R01_111213	TS_12	TB_11	BQ_MW14	R01_121213_JG
				16-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-006	ES1327444-007	ES1327444-008	ES1327444-009	ES1327444-010
EP075(SIM)A: Phenolic Compounds - Continued								
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	----	----	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	----	----	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	----	----	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	----	----	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	----	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	----	----	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	----	----	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	----	----	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	----	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	----	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	----	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	<20	<20	<20



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				R01_111213	TS_12	TB_11	BQ_MW14	R01_121213_JG
				16-DEC-2013 15:00	11-DEC-2013 15:00	11-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-006	ES1327444-007	ES1327444-008	ES1327444-009	ES1327444-010
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	----	----	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	----	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	----	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	16	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	14	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	14	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	14	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	15	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	29	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	73	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	17	<5	<5	<5
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	----	----	106	108
Toluene-D8	2037-26-5	0.1	%	120	----	----	116	113
4-Bromofluorobenzene	460-00-4	0.1	%	103	----	----	102	97.6
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	23.7	----	----	24.4	23.0
2-Chlorophenol-D4	93951-73-6	0.1	%	55.8	----	----	57.8	62.9
2,4,6-Tribromophenol	118-79-6	0.1	%	97.4	----	----	92.0	78.6
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	63.4	----	----	58.1	49.0
Anthracene-d10	1719-06-8	0.1	%	80.6	----	----	71.8	64.3
4-Terphenyl-d14	1718-51-0	0.1	%	90.0	----	----	79.4	68.6
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	125	80.1	107	123	125
Toluene-D8	2037-26-5	0.1	%	115	86.6	110	112	109
4-Bromofluorobenzene	460-00-4	0.1	%	109	72.1	102	108	106



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BE_MW03	BE_MW02	BE_MW01	TS_15	TB_06
				12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-011	ES1327444-012	ES1327444-013	ES1327444-014	ES1327444-015
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	2.2	8.3	2.8	----	----
Cadmium	7440-43-9	0.05	µg/L	4.83	0.16	<0.05	----	----
Chromium	7440-47-3	0.2	µg/L	0.8	<0.2	<0.2	----	----
Copper	7440-50-8	0.5	µg/L	10.8	3.8	2.6	----	----
Lead	7439-92-1	0.1	µg/L	25.2	19.4	16.8	----	----
Nickel	7440-02-0	0.5	µg/L	875	46.1	13.8	----	----
Zinc	7440-66-6	1	µg/L	2610	30	23	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BE_MW03	BE_MW02	BE_MW01	TS_15	TB_06
				12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-011	ES1327444-012	ES1327444-013	ES1327444-014	ES1327444-015
EP074E: Halogenated Aliphatic Compounds - Continued								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BE_MW03	BE_MW02	BE_MW01	TS_15	TB_06
				12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-011	ES1327444-012	ES1327444-013	ES1327444-014	ES1327444-015
EP074F: Halogenated Aromatic Compounds - Continued								
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BE_MW03	BE_MW02	BE_MW01	TS_15	TB_06
				12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00
				ES1327444-011	ES1327444-012	ES1327444-013	ES1327444-014	ES1327444-015
Compound	CAS Number	LOR	Unit					
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	18	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	16	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	15	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	15	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	16	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	31	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	80	<1



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BE_MW03	BE_MW02	BE_MW01	TS_15	TB_06
				12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00	12-DEC-2013 15:00
				ES1327444-011	ES1327444-012	ES1327444-013	ES1327444-014	ES1327444-015
Compound	CAS Number	LOR	Unit					
EP080: BTEXN - Continued								
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	18	<5
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	112	108	----	----
Toluene-D8	2037-26-5	0.1	%	116	124	112	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	102	106	97.6	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	25.6	27.6	28.8	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	60.6	61.4	68.4	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	88.1	86.6	84.8	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	51.0	45.0	52.9	----	----
Anthracene-d10	1719-06-8	0.1	%	72.8	71.7	70.6	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	82.1	77.7	74.8	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	125	129	127	129	128
Toluene-D8	2037-26-5	0.1	%	111	119	107	112	113
4-Bromofluorobenzene	460-00-4	0.1	%	107	111	104	107	106



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BM_MW05	BM_EW_MW01	R01_131213_JG	BM_MW03	BM_MW07
				13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-016	ES1327444-017	ES1327444-018	ES1327444-019	ES1327444-020
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	<0.0001	<0.0001
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	<0.2	0.6	----	<0.2	1.0
Cadmium	7440-43-9	0.05	µg/L	0.19	<0.05	----	<0.05	0.98
Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	----	<0.2	<0.2
Copper	7440-50-8	0.5	µg/L	4.6	2.3	----	2.5	4.7
Lead	7439-92-1	0.1	µg/L	10.9	0.1	----	0.6	3.2
Nickel	7440-02-0	0.5	µg/L	58.2	18.1	----	7.7	187
Zinc	7440-66-6	1	µg/L	26	25	----	20	322
EG094T: Total metals in Fresh water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	----	----	<0.2	----	----
Cadmium	7440-43-9	0.05	µg/L	----	----	<0.05	----	----
Chromium	7440-47-3	0.2	µg/L	----	----	<0.2	----	----
Copper	7440-50-8	0.5	µg/L	----	----	<0.5	----	----
Lead	7439-92-1	0.1	µg/L	----	----	<0.1	----	----
Nickel	7440-02-0	0.5	µg/L	----	----	<0.5	----	----
Zinc	7440-66-6	1	µg/L	----	----	<1	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	<1
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BM_MW05	BM_EW_MW01	R01_131213_JG	BM_MW03	BM_MW07
				13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-016	ES1327444-017	ES1327444-018	ES1327444-019	ES1327444-020
EP074B: Oxygenated Compounds - Continued								
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	6	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BM_MW05	BM_EW_MW01	R01_131213_JG	BM_MW03	BM_MW07
				13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-016	ES1327444-017	ES1327444-018	ES1327444-019	ES1327444-020
EP074E: Halogenated Aliphatic Compounds - Continued								
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BM_MW05	BM_EW_MW01	R01_131213_JG	BM_MW03	BM_MW07
				13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-016	ES1327444-017	ES1327444-018	ES1327444-019	ES1327444-020
EP075(SIM)A: Phenolic Compounds - Continued								
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BM_MW05	BM_EW_MW01	R01_131213_JG	BM_MW03	BM_MW07
				13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00	13-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327444-016	ES1327444-017	ES1327444-018	ES1327444-019	ES1327444-020
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	69.0	71.0	64.0	74.0	67.0
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	109	110	109	112
Toluene-D8	2037-26-5	0.1	%	117	116	112	115	115
4-Bromofluorobenzene	460-00-4	0.1	%	102	101	95.7	99.6	99.0
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	27.6	33.5	27.6	28.0	16.4
2-Chlorophenol-D4	93951-73-6	0.1	%	66.4	79.6	65.6	69.3	39.0
2,4,6-Tribromophenol	118-79-6	0.1	%	94.7	106	84.4	102	79.3
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	53.1	62.4	51.1	66.8	44.3
Anthracene-d10	1719-06-8	0.1	%	78.6	86.7	71.0	85.0	65.1
4-Terphenyl-d14	1718-51-0	0.1	%	88.0	92.1	75.9	91.3	71.5
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	128	128	128	126	130
Toluene-D8	2037-26-5	0.1	%	111	111	107	109	109
4-Bromofluorobenzene	460-00-4	0.1	%	103	103	101	102	101



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	28.5	129
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1327444	Page	: 1 of 33
Amendment	: 1		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
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Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: LIDDELL		
C-O-C number	: ----	Date Samples Received	: 13-DEC-2013
Sampler	: SP	Issue Date	: 27-DEC-2013
Order number	: 0224198		
Quote number	: SY/794/13	No. of samples received	: 20
		No. of samples analysed	: 20

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



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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC



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Laboratory 825

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>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 3215241)									
ES1327444-001	BA_MW03	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	48	49	2.1	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	48	49	2.1	0% - 20%
ES1327510-005	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	11	11	0.0	0% - 50%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	11	11	0.0	0% - 50%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 3217191)									
ES1327434-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4260	4230	0.7	0% - 20%
ES1327444-003	BA_EW_MW01	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3930	3860	1.8	0% - 20%
ED045G: Chloride Discrete analyser (QC Lot: 3217190)									
ES1327434-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	2780	2800	0.6	0% - 20%
ES1327444-003	BA_EW_MW01	ED045G: Chloride	16887-00-6	1	mg/L	1980	1990	0.9	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 3217189)									
ES1327434-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	581	571	1.8	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	694	682	1.7	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	2060	2040	0.9	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	48	46	2.9	0% - 20%
ES1327444-009	BQ_MW14	ED093F: Calcium	7440-70-2	1	mg/L	242	242	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	179	179	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1480	1500	1.1	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	4	4	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3218010)									
ES1327444-001	BA_MW03	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1327444-017	BM_EW_MW01	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3218026)									
ES1327444-006	R01_111213	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3218646)									
ES1327444-001	BA_MW03	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.21	0.22	4.6	0% - 50%
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	2.10	2.23	5.8	0% - 20%
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	0.1	0.2	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	65.4	67.6	3.4	0% - 20%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	0.6	0.6	0.0	No Limit
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	0.4	0.3	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3218646) - continued									
ES1327444-001	BA_MW03	EG094A-F: Arsenic	7440-38-2	0.2	µg/L	0.5	0.5	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	0.4	0.4	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	18.5	18.9	1.9	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	2.6	2.6	0.0	No Limit
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	3200	3210	0.2	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	216	222	2.8	0% - 20%
		EG094A-F: Zinc	7440-66-6	1	µg/L	99	104	4.1	0% - 20%
		EG094A-F: Boron	7440-42-8	5	µg/L	787	837	6.1	0% - 20%
ES1327444-017	BM_EW_MW01	EG094A-F: Thallium	7440-28-0	0.02	µg/L	0.04	0.03	0.0	No Limit
		EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-F: Cobalt	7440-48-4	0.1	µg/L	8.7	8.8	0.0	0% - 20%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	0.1	0.1	0.0	No Limit
		EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	0.4	0.4	0.0	No Limit
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	0.6	0.7	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-F: Barium	7440-39-3	0.5	µg/L	26.1	26.5	1.6	0% - 20%
		EG094A-F: Copper	7440-50-8	0.5	µg/L	2.3	2.3	0.0	No Limit
		EG094A-F: Manganese	7439-96-5	0.5	µg/L	1190	1210	1.1	0% - 20%
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	18.1	18.5	2.5	0% - 20%
		EG094A-F: Zinc	7440-66-6	1	µg/L	25	25	0.0	0% - 20%
		EG094A-F: Boron	7440-42-8	5	µg/L	71	64	10.8	0% - 50%
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3218647)									
ES1327444-001	BA_MW03	EG094B-F: Selenium	7782-49-2	0.2	µg/L	0.3	0.4	0.0	No Limit
EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 3218644)									
ES1327444-006	R01_111213	EG094A-T: Thallium	7440-28-0	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EG094A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-T: Cobalt	7440-48-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-T: Lead	7439-92-1	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Vanadium	7440-62-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Barium	7440-39-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-T: Copper	7440-50-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 3218644) - continued									
ES1327444-006	R01_111213	EG094A-T: Zinc	7440-66-6	1	µg/L	<1	<1	0.0	No Limit
		EG094A-T: Boron	7440-42-8	5	µg/L	<5	<5	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3215913)									
ES1327444-004	BX_MW03	EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3216106)									
ES1327444-001	BA_MW03	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
ES1327444-013	BE_MW01	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
ES1327459-005	Anonymous	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
ES1327888-001	Anonymous	EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3223004) - continued									
ES1327888-001	Anonymous	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3216106)									
ES1327444-001	BA_MW03	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1327444-013	BE_MW01	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3223004)									
ES1327459-005	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1327888-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3216106)									
ES1327444-001	BA_MW03	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1327444-013	BE_MW01	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3223004)									
ES1327459-005	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1327888-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3216106)									
ES1327444-001	BA_MW03	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1327444-013	BE_MW01	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3223004)									
ES1327459-005	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074D: Fumigants (QC Lot: 3223004) - continued									
ES1327459-005	Anonymous	EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1327888-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
ES1327444-001	BA_MW03	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1327444-013	BE_MW01	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3216106) - continued									
ES1327444-013	BE_MW01	EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3223004)									
ES1327459-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3223004) - continued									
ES1327459-005	Anonymous	EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1327888-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3223004) - continued									
ES1327888-001	Anonymous	EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 3216106)									
ES1327444-001	BA_MW03	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
ES1327444-013	BE_MW01	EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
ES1327459-005	Anonymous	EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
ES1327888-001	Anonymous	EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074G: Trihalomethanes (QC Lot: 3216106)									
ES1327444-001	BA_MW03	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1327444-013	BE_MW01	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3223004)									
ES1327459-005	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1327888-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3216106)									
ES1327444-001	BA_MW03	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1327444-013	BE_MW01	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3223004)									
ES1327459-005	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1327888-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3215912)									
ES1327444-004	BX_MW03	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
ES1327444-017	BM_EW_MW01	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3215912) - continued									
ES1327444-017	BM_EW_MW01	EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3223323)									
ES1327893-002	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
ES1327890-001	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3215912)									
ES1327444-004	BX_MW03	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3215912) - continued											
ES1327444-004	BX_MW03	EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
ES1327444-017	BM_EW_MW01	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit		
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
		EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3223323)									
		ES1327893-002	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
EP075(SIM): Naphthalene	91-20-3			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Acenaphthylene	208-96-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Acenaphthene	83-32-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Fluorene	86-73-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Phenanthrene	85-01-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Anthracene	120-12-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Fluoranthene	206-44-0			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Pyrene	129-00-0			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Benz(a)anthracene	56-55-3			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Chrysene	218-01-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Benzo(b)fluoranthene	205-99-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP075(SIM): Benzo(k)fluoranthene	207-08-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit		



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3223323) - continued									
ES1327893-002	Anonymous	EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
ES1327890-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3215911)									
ES1327444-004	BX_MW03	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1327444-017	BM_EW_MW01	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3216107)									
ES1327444-001	BA_MW03	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327444-013	BE_MW01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3216129)									
ES1326963-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327521-010	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3223003)									
ES1327459-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327888-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3223322)									
ES1327893-002	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 3216107) - continued									
ES1327444-013	BE_MW01	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 3216129)									
ES1326963-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1327521-010	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 3223003)									
ES1327459-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1327888-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3215784)									
ES1327444-004	BX_MW03	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit



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 (%)		Recovery Limits (%)	
						LCS	Low	High	
ED037P: Alkalinity by PC Titrator (QCLot: 3215241)									
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	96.1	81	111	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3217191)									
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	108	86	122	
ED045G: Chloride Discrete analyser (QCLot: 3217190)									
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	93.5	77	123	
ED093F: Dissolved Major Cations (QCLot: 3217189)									
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	103	87	113	
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	89	113	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	91.3	79	113	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	94.9	87	115	
EG035F: Dissolved Mercury by FIMS (QCLot: 3218010)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	101	78	114	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3218026)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	95.7	77	115	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218646)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	96.9	75	129	
EG094A-F: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	93.0	76	120	
EG094A-F: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	95.3	74	130	
EG094A-F: Boron	7440-42-8	5	µg/L	<5	10 µg/L	110	79	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	90.6	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	96.9	71	123	
EG094A-F: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	101	79	121	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	99.7	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	96.4	74	118	
EG094A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	94.1	79	119	
EG094A-F: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	93.6	69	127	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	102	72	128	
EG094A-F: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	97.0	71	121	
EG094A-F: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	93.2	78	116	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	93.8	76	134	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218647)									
EG094B-F: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	91.8	75	125	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3219130)									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3219130) - continued									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	96.8	75	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	90.6	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	92.3	71	123	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	99.6	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	83.1	74	118	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	102	72	128	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	96.4	76	134	
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3218644)									
EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	98.4	81	125	
EG094A-T: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	92.5	81	117	
EG094A-T: Beryllium	7440-41-7	0.1	µg/L	<0.1	10 µg/L	93.5	71	127	
EG094A-T: Boron	7440-42-8	5	µg/L	<5	10 µg/L	88.4	70	130	
EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	87.4	77	111	
EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	92.9	78	126	
EG094A-T: Cobalt	7440-48-4	0.1	µg/L	<0.1	10 µg/L	101	78	126	
EG094A-T: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	95.4	78	126	
EG094A-T: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	105	75	123	
EG094A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	90.7	81	121	
EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	105	77	127	
EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	100	82	124	
EG094A-T: Thallium	7440-28-0	0.02	µg/L	<0.02	10 µg/L	102	71	125	
EG094A-T: Vanadium	7440-62-2	0.2	µg/L	<0.2	10 µg/L	89.9	82	118	
EG094A-T: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	90.1	75	129	
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3218645)									
EG094B-T: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	82.4	78	124	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3215913)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	86.0	61.6	107	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3216106)									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	87.6	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	92.5	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	93.8	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	90.4	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	95.1	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	95.6	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	93.8	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	90.1	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	92.2	62	126	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3223004)									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3223004) - continued									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	93.8	74	118	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	94.4	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	91.4	67	123	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	92.2	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	94.9	69	123	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	92.6	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	93.8	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	94.4	67	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	91.2	62	126	
EP074B: Oxygenated Compounds (QCLot: 3216106)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	93.8	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	99.6	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	95.6	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	98.0	65	137	
EP074B: Oxygenated Compounds (QCLot: 3223004)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	86.3	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	92.7	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	91.4	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	92.2	65	137	
EP074C: Sulfonated Compounds (QCLot: 3216106)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	83.8	72.8	127	
EP074C: Sulfonated Compounds (QCLot: 3223004)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	86.9	72.8	127	
EP074D: Fumigants (QCLot: 3216106)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	89.6	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	97.3	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	79.0	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	83.0	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	93.4	69	117	
EP074D: Fumigants (QCLot: 3223004)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	85.8	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	97.6	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	74.3	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	69.7	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	92.8	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3216106)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	92.9	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	103	67.4	130	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3216106) - continued									
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	111	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	106	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	107	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	103	65	131	
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	96.2	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	105	70.2	128	
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	94.6	71	119	
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	98.1	75	119	
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	97.6	77	117	
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	89.7	61	119	
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	94.0	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	82.2	63	121	
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	99.1	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	99.6	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	90.9	74	118	
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	106	75	123	
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	104	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	91.5	72	124	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	80.6	66	114	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	94.0	60	120	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	93.7	70.6	128	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	93.8	70	124	
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	100	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	73.3	71.8	126	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	79.4	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	94.9	58	132	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3223004)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	69.4	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	80.1	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	93.2	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	85.9	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	93.0	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	90.7	65	131	
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	88.7	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	90.7	70.2	128	
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	94.9	71	119	
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	97.6	75	119	
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	95.3	77	117	
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	90.2	61	119	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3223004) - continued									
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	91.8	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	91.7	63	121	
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	99.2	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	95.4	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	98.0	74	118	
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	94.1	75	123	
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	98.3	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	92.1	72	124	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	87.0	66	114	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	88.3	60	120	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	85.1	70.6	128	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	92.7	70	124	
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	97.4	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	89.0	71.8	126	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	90.7	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	95.9	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3216106)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	98.9	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	91.1	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	96.7	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	95.2	71	121	
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	94.9	74	120	
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	96.8	72	120	
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	95.0	77	117	
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	90.1	60	126	
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	97.8	67	125	
EP074F: Halogenated Aromatic Compounds (QCLot: 3223004)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	95.6	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	92.7	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	95.1	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	94.4	71	121	
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	94.7	74	120	
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	93.9	72	120	
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	94.9	77	117	
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	88.9	60	126	
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	94.4	67	125	
EP074G: Trihalomethanes (QCLot: 3216106)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	98.8	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	81.8	64	118	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074G: Trihalomethanes (QCLot: 3216106) - continued									
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	85.7	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	86.9	73.5	126	
EP074G: Trihalomethanes (QCLot: 3223004)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	97.0	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	93.0	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	93.6	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	98.7	73.5	126	
EP074H: Naphthalene (QCLot: 3216106)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	98.4	61	125	
EP074H: Naphthalene (QCLot: 3223004)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	107	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3215912)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	53.1	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	87.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	82.4	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	80.1	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	69.6	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	69.7	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	70.0	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	70.2	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	67.6	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	69.7	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	70.8	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	72.8	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 3223323)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	# 71.0	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3223323) - continued									
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	82.9	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	95.6	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	85.9	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	67.4	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	98.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	94.4	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	91.4	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	102	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	99.4	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	97.7	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	68.4	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3215912)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	77.8	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	86.6	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	66.9	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	74.5	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	80.0	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	81.1	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	83.6	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	84.2	63.1	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3215912) - continued									
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	83.1	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	79.0	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	90.7	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	73.5	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	82.1	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	78.2	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	79.3	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	81.9	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3223323)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	67.7	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	95.5	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	83.8	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	101	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	93.0	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	93.0	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	104	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	102	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	115	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	103	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	# 125	61.7	119	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3223323) - continued									
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	110	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	111	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	108	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	111	61.2	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	118	59.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3215911)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	91.4	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	96.8	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	100	62	120	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216107)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	121	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216129)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	98.3	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223003)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	99.7	75	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223322)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	113	59	129	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	122	71	131	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	93.2	62	120	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3215911)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	95.7	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	97.9	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	101	67	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216107)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	122	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216129)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	98.1	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3223003)									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	101	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3223322)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	95.2	58.9	131	



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3217191)							
ES1327434-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70	130
ED045G: Chloride Discrete analyser (QCLot: 3217190)							
ES1327434-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3218010)							
ES1327444-001	BA_MW03	EG035F: Mercury	7439-97-6	0.0100 mg/L	90.4	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3218026)							
ES1327444-010	R01_121213_JG	EG035T: Mercury	7439-97-6	0.010 mg/L	94.1	70	130
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218646)							
ES1327444-002	BA_MW01	EG094A-F: Arsenic	7440-38-2	50 µg/L	93.1	70	130
		EG094A-F: Barium	7440-39-3	50 µg/L	94.2	70	130
		EG094A-F: Beryllium	7440-41-7	50 µg/L	75.3	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	86.4	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	73.9	70	130
		EG094A-F: Cobalt	7440-48-4	50 µg/L	88.0	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	81.4	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	75.0	70	130
		EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	100	70	130
EG094A-F: Vanadium	7440-62-2	50 µg/L	79.3	70	130		
EG094A-F: Zinc	7440-66-6	50 µg/L	78.7	70	130		
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3215913)							
ES1327444-016	BM_MW05	EP066: Total Polychlorinated biphenyls	----	10 µg/L	91.0	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3216106)							
ES1327444-001	BA_MW03	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	125	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	121	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3223004)							
ES1327459-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	75.5	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	82.9	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3216106)							
ES1327444-001	BA_MW03	EP074: Chlorobenzene	108-90-7	25 µg/L	128	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3223004)							
ES1327459-005	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	89.0	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3215912)							



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 3215912) - continued							
ES1327444-016	BM_MW05	EP075(SIM): Phenol	108-95-2	20 µg/L	40.5	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	71.6	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	72.1	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	73.1	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	40 µg/L	47.0	20	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3223323)							
ES1327893-004	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	42.1	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	64.8	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	90.4	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	77.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	91.4	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3215912)							
ES1327444-016	BM_MW05	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	75.2	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	85.5	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3223323)							
ES1327893-004	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	72.4	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	86.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3215911)							
ES1327444-016	BM_MW05	EP071: C10 - C14 Fraction	----	200 µg/L	108	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	95.4	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	99.5	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216107)							
ES1327444-001	BA_MW03	EP080: C6 - C9 Fraction	----	325 µg/L	119	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216129)							
ES1326963-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	120	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223003)							
ES1327459-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	115	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223322)							
ES1327893-004	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	113	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	97.5	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	106	67	153
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3215911)							
ES1327444-016	BM_MW05	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	104	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	98.1	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	99.0	67	153
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216107)							



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216107) - continued							
ES1327444-001	BA_MW03	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	120	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216129)							
ES1326963-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3223003)							
ES1327459-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	114	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3223322)							
ES1327893-004	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	95.2	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	107	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.0	67	153
EP080: BTEXN (QCLot: 3216107)							
ES1327444-001	BA_MW03	EP080: Benzene	71-43-2	25 µg/L	121	70	130
		EP080: Toluene	108-88-3	25 µg/L	113	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	118	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	108	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	115	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	110	70	130
EP080: BTEXN (QCLot: 3216129)							
ES1326963-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	116	70	130
		EP080: Toluene	108-88-3	25 µg/L	109	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	112	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	111	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	115	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	100	70	130
EP080: BTEXN (QCLot: 3223003)							
ES1327459-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	92.7	70	130
		EP080: Toluene	108-88-3	25 µg/L	100	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	95.1	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	94.9	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	97.0	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	93.7	70	130
EP231: Perfluorinated Compounds (QCLot: 3215784)							
ES1327444-004	BX_MW03	EP231: PFOS	1763-23-1	0.25 µg/L	81.2	70	136
		EP231: PFOA	335-67-1	0.25 µg/L	109	72	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	1.25 µg/L	97.0	61	145



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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfluorinated Compounds (QCLot: 3215784)										
ES1327444-004	BX_MW03	EP231: PFOS	1763-23-1	0.25 µg/L	81.2	----	70	136	----	----
		EP231: PFOA	335-67-1	0.25 µg/L	109	----	72	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	1.25 µg/L	97.0	----	61	145	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3215911)										
ES1327444-016	BM_MW05	EP071: C10 - C14 Fraction	----	200 µg/L	108	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	95.4	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	99.5	----	67	153	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3215911)										
ES1327444-016	BM_MW05	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	104	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	98.1	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	99.0	----	67	153	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3215912)										
ES1327444-016	BM_MW05	EP075(SIM): Phenol	108-95-2	20 µg/L	40.5	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	71.6	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	72.1	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	73.1	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	40 µg/L	47.0	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3215912)										
ES1327444-016	BM_MW05	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	75.2	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	85.5	----	70	130	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3215913)										
ES1327444-016	BM_MW05	EP066: Total Polychlorinated biphenyls	----	10 µg/L	91.0	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3216106)										
ES1327444-001	BA_MW03	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	125	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	121	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3216106)										
ES1327444-001	BA_MW03	EP074: Chlorobenzene	108-90-7	25 µg/L	128	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216107)										
ES1327444-001	BA_MW03	EP080: C6 - C9 Fraction	----	325 µg/L	119	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216107)										
ES1327444-001	BA_MW03	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	120	----	70	130	----	----
EP080: BTEXN (QCLot: 3216107)										
ES1327444-001	BA_MW03	EP080: Benzene	71-43-2	25 µg/L	121	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
					MS	MSD	Low	High	Value	Control Limit	
EP080: BTEXN (QCLot: 3216107) - continued											
ES1327444-001	BA_MW03	EP080: Toluene	108-88-3	25 µg/L	113	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	118	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	108	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	115	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	110	----	70	130	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3216129)											
ES1326963-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	120	----	70	130	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3216129)											
ES1326963-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	116	----	70	130	----	----	
EP080: BTEXN (QCLot: 3216129)											
ES1326963-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	116	----	70	130	----	----	
		EP080: Toluene	108-88-3	25 µg/L	109	----	70	130	----	----	
		EP080: Ethylbenzene	100-41-4	25 µg/L	112	----	70	130	----	----	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	111	----	70	130	----	----	
			106-42-3								
		EP080: ortho-Xylene	95-47-6	25 µg/L	115	----	70	130	----	----	
		EP080: Naphthalene	91-20-3	25 µg/L	100	----	70	130	----	----	
ED045G: Chloride Discrete analyser (QCLot: 3217190)											
ES1327434-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	----	70	130	----	----	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 3217191)											
ES1327434-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	----	70	130	----	----	
EG035F: Dissolved Mercury by FIMS (QCLot: 3218010)											
ES1327444-001	BA_MW03	EG035F: Mercury	7439-97-6	0.0100 mg/L	90.4	----	70	130	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3218026)											
ES1327444-010	R01_121213_JG	EG035T: Mercury	7439-97-6	0.010 mg/L	94.1	----	70	130	----	----	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218646)											
ES1327444-002	BA_MW01	EG094A-F: Arsenic	7440-38-2	50 µg/L	93.1	----	70	130	----	----	
		EG094A-F: Barium	7440-39-3	50 µg/L	94.2	----	70	130	----	----	
		EG094A-F: Beryllium	7440-41-7	50 µg/L	75.3	----	70	130	----	----	
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	86.4	----	70	130	----	----	
		EG094A-F: Chromium	7440-47-3	50 µg/L	73.9	----	70	130	----	----	
		EG094A-F: Cobalt	7440-48-4	50 µg/L	88.0	----	70	130	----	----	
		EG094A-F: Copper	7440-50-8	50 µg/L	81.4	----	70	130	----	----	
		EG094A-F: Lead	7439-92-1	50 µg/L	75.0	----	70	130	----	----	



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3218646) - continued										
ES1327444-002	BA_MW01	EG094A-F: Manganese	7439-96-5	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	100	----	70	130	----	----
		EG094A-F: Vanadium	7440-62-2	50 µg/L	79.3	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	78.7	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223003)										
ES1327459-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	115	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3223003)										
ES1327459-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	114	----	70	130	----	----
EP080: BTEXN (QCLot: 3223003)										
ES1327459-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	92.7	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	100	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	95.1	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	94.9	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	97.0	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	93.7	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3223004)										
ES1327459-005	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	75.5	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	82.9	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3223004)										
ES1327459-005	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	89.0	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223322)										
ES1327893-004	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	113	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	97.5	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	106	----	67	153	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3223322)										
ES1327893-004	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	95.2	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	107	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.0	----	67	153	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3223323)										
ES1327893-004	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	42.1	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	64.8	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	90.4	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	77.2	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	91.4	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3223323)										
ES1327893-004	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	72.4	----	70	130	----	----

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 Work Order : ES1327444 Amendment 1
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : Project Symphony



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3223323) - continued										
ES1327893-004	Anonymous	EP075(SIM): Pyrene	129-00-0	20 µg/L	86.0	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327444	Page	: 1 of 17
Amendment	: 1		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: Project Symphony	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: LIDDELL		
C-O-C number	: ----	Date Samples Received	: 13-DEC-2013
Sampler	: SP	Issue Date	: 27-DEC-2013
Order number	: 0224198		
Quote number	: SY/794/13	No. of samples received	: 20
		No. of samples analysed	: 20

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) BA_MW03, BA_EW_MW01	BA_MW01,	11-DEC-2013	---	25-DEC-2013	----	16-DEC-2013	25-DEC-2013	✓
Clear Plastic Bottle - Natural (ED037-P) BQ_MW14,	R01_121213_JG	12-DEC-2013	---	26-DEC-2013	----	16-DEC-2013	26-DEC-2013	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) BA_MW03, BA_EW_MW01	BA_MW01,	11-DEC-2013	---	08-JAN-2014	----	17-DEC-2013	08-JAN-2014	✓
Clear Plastic Bottle - Natural (ED041G) BQ_MW14,	R01_121213_JG	12-DEC-2013	---	09-JAN-2014	----	17-DEC-2013	09-JAN-2014	✓
ED045G: Chloride Discrete analyser								
Clear Plastic Bottle - Natural (ED045G) BA_MW03, BA_EW_MW01	BA_MW01,	11-DEC-2013	---	08-JAN-2014	----	17-DEC-2013	08-JAN-2014	✓
Clear Plastic Bottle - Natural (ED045G) BQ_MW14,	R01_121213_JG	12-DEC-2013	---	09-JAN-2014	----	17-DEC-2013	09-JAN-2014	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F) BA_MW03, BA_EW_MW01	BA_MW01,	11-DEC-2013	---	18-DEC-2013	----	17-DEC-2013	18-DEC-2013	✓
Clear Plastic Bottle - Natural (ED093F) BQ_MW14,	R01_121213_JG	12-DEC-2013	---	19-DEC-2013	----	17-DEC-2013	19-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BE_MW03		---	---	----	18-DEC-2013	----	----
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BA_MW03, BA_MW01, BA_EW_MW01, BX_MW03, BY_MW21	11-DEC-2013	---	08-JAN-2014	----	18-DEC-2013	08-JAN-2014	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BQ_MW14, BE_MW02, BE_MW01	12-DEC-2013	---	09-JAN-2014	----	18-DEC-2013	09-JAN-2014	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BM_MW05, BM_EW_MW01, BM_MW03, BM_MW07	13-DEC-2013	---	10-JAN-2014	----	18-DEC-2013	10-JAN-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) R01_121213_JG	12-DEC-2013	----	----	----	18-DEC-2013	13-JAN-2014	✓
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) R01_131213_JG	13-DEC-2013	----	----	----	18-DEC-2013	13-JAN-2014	✓
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) R01_111213	16-DEC-2013	----	----	----	18-DEC-2013	13-JAN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BE_MW03		---	---	----	18-DEC-2013	----	----
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BA_MW03, BA_MW01, BA_EW_MW01, BX_MW03, BY_MW21	11-DEC-2013	---	09-JUN-2014	----	18-DEC-2013	09-JUN-2014	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BQ_MW14, BE_MW02, BE_MW01	12-DEC-2013	---	10-JUN-2014	----	18-DEC-2013	10-JUN-2014	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BM_MW05, BM_EW_MW01, BM_MW03, BM_MW07	13-DEC-2013	---	11-JUN-2014	----	18-DEC-2013	11-JUN-2014	✓
EG094T: Total metals in Fresh water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094A-T) R01_121213_JG	12-DEC-2013	18-DEC-2013	14-JUN-2014	✓	18-DEC-2013	14-JUN-2014	✓
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094A-T) R01_131213_JG	13-DEC-2013	18-DEC-2013	14-JUN-2014	✓	18-DEC-2013	14-JUN-2014	✓
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094A-T) R01_111213	16-DEC-2013	18-DEC-2013	14-JUN-2014	✓	18-DEC-2013	14-JUN-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) BA_MW03, BA_EW_MW01 BA_MW01	11-DEC-2013	---	09-JUN-2014	----	18-DEC-2013	09-JUN-2014	✓
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F) BQ_MW14	12-DEC-2013	---	10-JUN-2014	----	18-DEC-2013	10-JUN-2014	✓
EG094T: Total metals in Fresh water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094B-T) R01_121213_JG	12-DEC-2013	18-DEC-2013	14-JUN-2014	✓	18-DEC-2013	14-JUN-2014	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) BX_MW03	11-DEC-2013	---	18-DEC-2013	----	17-DEC-2013	18-DEC-2013	✓
Amber Glass Bottle - Unpreserved (EP066) BM_MW05, R01_131213_JG, BM_MW07 BM_EW_MW01, BM_MW03,	13-DEC-2013	---	20-DEC-2013	----	17-DEC-2013	20-DEC-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Amber Glass Bottle - Unpreserved (EP071) BA_MW03, BA_EW_MW01, R01_111213 BA_MW01, BX_MW03,	11-DEC-2013	---	18-DEC-2013	----	17-DEC-2013	18-DEC-2013	✓
Amber Glass Bottle - Unpreserved (EP071) BY_MW21	11-DEC-2013	20-DEC-2013	18-DEC-2013	*	21-DEC-2013	29-JAN-2014	✓
Amber Glass Bottle - Unpreserved (EP071) BQ_MW14, BE_MW03, BE_MW01 R01_121213_JG, BE_MW02,	12-DEC-2013	---	19-DEC-2013	----	17-DEC-2013	19-DEC-2013	✓
Amber Glass Bottle - Unpreserved (EP071) BM_MW05, R01_131213_JG, BM_MW07 BM_EW_MW01, BM_MW03,	13-DEC-2013	---	20-DEC-2013	----	17-DEC-2013	20-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) BA_MW03, BA_EW_MW01, R01_111213	BA_MW01, BX_MW03,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW21		11-DEC-2013	20-DEC-2013	25-DEC-2013	✓	20-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW14, BE_MW03, BE_MW01	R01_121213_JG, BE_MW02,	12-DEC-2013	17-DEC-2013	26-DEC-2013	✓	17-DEC-2013	26-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BM_MW05, R01_131213_JG, BM_MW07	BM_EW_MW01, BM_MW03,	13-DEC-2013	17-DEC-2013	27-DEC-2013	✓	17-DEC-2013	27-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BA_MW03, BA_EW_MW01, R01_111213	BA_MW01, BX_MW03,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW21		11-DEC-2013	20-DEC-2013	25-DEC-2013	✓	20-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW14, BE_MW03, BE_MW01	R01_121213_JG, BE_MW02,	12-DEC-2013	17-DEC-2013	26-DEC-2013	✓	17-DEC-2013	26-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BM_MW05, R01_131213_JG, BM_MW07	BM_EW_MW01, BM_MW03,	13-DEC-2013	17-DEC-2013	27-DEC-2013	✓	17-DEC-2013	27-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BA_MW03, BA_EW_MW01, R01_111213	BA_MW01, BX_MW03,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW21		11-DEC-2013	20-DEC-2013	25-DEC-2013	✓	20-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW14, BE_MW03, BE_MW01	R01_121213_JG, BE_MW02,	12-DEC-2013	17-DEC-2013	26-DEC-2013	✓	17-DEC-2013	26-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BM_MW05, R01_131213_JG, BM_MW07	BM_EW_MW01, BM_MW03,	13-DEC-2013	17-DEC-2013	27-DEC-2013	✓	17-DEC-2013	27-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) BA_MW03, BA_EW_MW01, R01_111213	BA_MW01, BX_MW03,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW21		11-DEC-2013	20-DEC-2013	25-DEC-2013	✓	20-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW14, BE_MW03, BE_MW01	R01_121213_JG, BE_MW02,	12-DEC-2013	17-DEC-2013	26-DEC-2013	✓	17-DEC-2013	26-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BM_MW05, R01_131213_JG, BM_MW07	BM_EW_MW01, BM_MW03,	13-DEC-2013	17-DEC-2013	27-DEC-2013	✓	17-DEC-2013	27-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid (EP074) BA_MW03, BA_EW_MW01, R01_111213	BA_MW01, BX_MW03,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW21		11-DEC-2013	20-DEC-2013	25-DEC-2013	✓	20-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW14, BE_MW03, BE_MW01	R01_121213_JG, BE_MW02,	12-DEC-2013	17-DEC-2013	26-DEC-2013	✓	17-DEC-2013	26-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BM_MW05, R01_131213_JG, BM_MW07	BM_EW_MW01, BM_MW03,	13-DEC-2013	17-DEC-2013	27-DEC-2013	✓	17-DEC-2013	27-DEC-2013	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BA_MW03, BA_EW_MW01, R01_111213	BA_MW01, BX_MW03,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW21		11-DEC-2013	20-DEC-2013	25-DEC-2013	✓	20-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW14, BE_MW03, BE_MW01	R01_121213_JG, BE_MW02,	12-DEC-2013	17-DEC-2013	26-DEC-2013	✓	17-DEC-2013	26-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BM_MW05, R01_131213_JG, BM_MW07	BM_EW_MW01, BM_MW03,	13-DEC-2013	17-DEC-2013	27-DEC-2013	✓	17-DEC-2013	27-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BA_MW03, BA_EW_MW01, R01_111213	BA_MW01, BX_MW03,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW21		11-DEC-2013	20-DEC-2013	25-DEC-2013	✓	20-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW14, BE_MW03, BE_MW01	R01_121213_JG, BE_MW02,	12-DEC-2013	17-DEC-2013	26-DEC-2013	✓	17-DEC-2013	26-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BM_MW05, R01_131213_JG, BM_MW07	BM_EW_MW01, BM_MW03,	13-DEC-2013	17-DEC-2013	27-DEC-2013	✓	17-DEC-2013	27-DEC-2013	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) BA_MW03, BA_EW_MW01, R01_111213	BA_MW01, BX_MW03,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW21		11-DEC-2013	20-DEC-2013	25-DEC-2013	✓	20-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BQ_MW14, BE_MW03, BE_MW01	R01_121213_JG, BE_MW02,	12-DEC-2013	17-DEC-2013	26-DEC-2013	✓	17-DEC-2013	26-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BM_MW05, R01_131213_JG, BM_MW07	BM_EW_MW01, BM_MW03,	13-DEC-2013	17-DEC-2013	27-DEC-2013	✓	17-DEC-2013	27-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BA_MW03, BA_EW_MW01, R01_111213	BA_MW01, BX_MW03,	11-DEC-2013	---	18-DEC-2013	----	17-DEC-2013	18-DEC-2013	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BY_MW21		11-DEC-2013	20-DEC-2013	18-DEC-2013	*	21-DEC-2013	29-JAN-2014	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BQ_MW14, BE_MW03, BE_MW01	R01_121213_JG, BE_MW02,	12-DEC-2013	---	19-DEC-2013	----	17-DEC-2013	19-DEC-2013	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BM_MW05, R01_131213_JG, BM_MW07	BM_EW_MW01, BM_MW03,	13-DEC-2013	---	20-DEC-2013	----	17-DEC-2013	20-DEC-2013	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) BA_MW03, BA_EW_MW01, R01_111213	BA_MW01, BX_MW03,	11-DEC-2013	---	18-DEC-2013	----	17-DEC-2013	18-DEC-2013	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BY_MW21		11-DEC-2013	20-DEC-2013	18-DEC-2013	*	21-DEC-2013	29-JAN-2014	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BQ_MW14, BE_MW03, BE_MW01	R01_121213_JG, BE_MW02,	12-DEC-2013	---	19-DEC-2013	----	17-DEC-2013	19-DEC-2013	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BM_MW05, R01_131213_JG, BM_MW07	BM_EW_MW01, BM_MW03,	13-DEC-2013	---	20-DEC-2013	----	17-DEC-2013	20-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) BA_MW03, BA_EW_MW01, R01_111213, TB_11	BA_MW01, BX_MW03, TS_12,	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BY_MW21		11-DEC-2013	20-DEC-2013	25-DEC-2013	✓	20-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BQ_MW14, BE_MW03, BE_MW01, TB_06	R01_121213_JG, BE_MW02, TS_15,	12-DEC-2013	17-DEC-2013	26-DEC-2013	✓	17-DEC-2013	26-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BM_MW05, R01_131213_JG, BM_MW07	BM_EW_MW01, BM_MW03,	13-DEC-2013	17-DEC-2013	27-DEC-2013	✓	17-DEC-2013	27-DEC-2013	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP080) BA_MW03, BA_EW_MW01, R01_111213,	BA_MW01, BX_MW03, TB_11	11-DEC-2013	17-DEC-2013	25-DEC-2013	✓	17-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BY_MW21		11-DEC-2013	20-DEC-2013	25-DEC-2013	✓	20-DEC-2013	25-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BQ_MW14, BE_MW03, BE_MW01,	R01_121213_JG, BE_MW02, TB_06	12-DEC-2013	17-DEC-2013	26-DEC-2013	✓	17-DEC-2013	26-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BM_MW05, R01_131213_JG, BM_MW07	BM_EW_MW01, BM_MW03,	13-DEC-2013	17-DEC-2013	27-DEC-2013	✓	17-DEC-2013	27-DEC-2013	✓
EP231: Perfluorinated Compounds								
HDPE (no PTFE) (EP231) BX_MW03		11-DEC-2013	---	09-JUN-2014	----	17-DEC-2013	09-JUN-2014	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaural	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	12	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	4	34	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	1	100.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	3	33.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	3	33.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	4	34	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	6	58	10.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	4	30	13.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	13	15.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	58	5.2	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	30	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	13	15.4	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	58	5.2	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	30	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	12	8.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	1	100.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	3	33.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	34	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	58	5.2	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	30	6.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Sulfate (Turbidimetric) as SO ₄ ²⁻ by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO ₄ Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ ²⁻ concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2) Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	APHA 21st Ed. 1030F. The Ionic Balance is calculated based on the major Anions and Cations. The major anions include Alkalinity, Chloride and Sulfate which determined by PCT and DA. The Cations are determined by Turbi SO4 by DA. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatle Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Lab Acidification of Metals	EN80	WATER	USEPA Method 200.8
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	3848114-007	----	Phenol	108-95-2	71.0 %	24.5-61.9%	Recovery greater than upper control limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	3848114-007	----	Benzo(b)fluoranthene	205-99-2	125 %	61.7-119%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES1327434-001	Anonymous	Sulfate as SO4 - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
ED045G: Chloride Discrete analyser	ES1327434-001	Anonymous	Chloride	16887-00-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1327444-002	BA_MW01	Manganese	7439-96-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **WATER**

Method	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP075(SIM)A: Phenolic Compounds						
Amber Glass Bottle - Unpreserved BY_MW21	20-DEC-2013	18-DEC-2013	2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved BY_MW21	20-DEC-2013	18-DEC-2013	2	----	----	----
EP080/071: Total Petroleum Hydrocarbons						



Matrix: **WATER**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP080/071: Total Petroleum Hydrocarbons - Analysis Holding Time Compliance						
Amber Glass Bottle - Unpreserved BY_MW21	20-DEC-2013	18-DEC-2013	2	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013						
Amber Glass Bottle - Unpreserved BY_MW21	20-DEC-2013	18-DEC-2013	2	----	----	----

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- **No Quality Control Sample Frequency Outliers exist.**



CHAIN OF CUSTODY

ALS Laboratory please tick →

ADELAIDE 21 Burma Road Para... Ph: 08 8359 0890 E: adelaide@alsglobal.com

BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GLADSTONE 46 Callamandah Drive Clinton QLD 4680 Ph: 07 7471 5800 E: gladstone@alsglobal.com

MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

MUDGEE 27 Sydney Road Mudgée NSW 2850 Ph: 02 6372 6735 E: mudgee@mail@alsglobal.com

NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

PERTH 10 Hod Way Maida WA 6090 Ph: 08 9209 7855 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Daema Court Bohle QLD 4818 Ph: 07 4786 0800 E: townsville.environmental@alsglobal.com

WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkenble@alsglobal.com

CLIENT: Erm Sydney; TURNAROUND REQUIREMENTS: Non Standard or urgent TAT (List due date): 48 hrs; PROJECT: Project Symphony 0224193; ORDER NUMBER: 0224193; PROJECT MANAGER: Joe Ferraro; CONTACT PH: 0424 970 468; SAMPLER: Jack Grant; SAMPLER MOBILE: 0432 596 844; RELINQUISHED BY: Jack Grant; RECEIVED BY: [Signature]; DATE/TIME: 19/12 14:10; COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

FOR LABORATORY USE ONLY (Strictly): Contaminant Seal Intact? YES; Freezes/frozen ice bricks present upon receipt? YES; Random Sample Temperature on Receipt: 4°C; Other comment: [Signature]

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

Table with columns: LAB ID, SAMPLE ID, DATE / TIME, MATRIX, TYPE & PRESERVATIVE, TOTAL CONTAINERS, W-2 Metals, 17 Metals, Selenium, VOC Target Scan, PCB, PFOS/PPFOA, W-24 TRH/C6-C40/BTEX/PAH, Phenols, Additional Information. Includes handwritten entries for samples 1-7 and a 'TOTAL' row.

Environmental Division Sydney Work Order ES1327890



Telephone : + 61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1327890

<p>Client : ENVIRO RESOURCES MANAGEMENT</p> <p>Contact : MR JOSEPH FERRING</p> <p>Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007</p>	<p>Laboratory : Environmental Division Sydney</p> <p>Contact : Barbara Hanna</p> <p>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</p>
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<p>E-mail : joseph.ferring@erm.com</p> <p>Telephone : +61 02 8584 8888</p> <p>Facsimile : +61 02 8584 8800</p>	<p>E-mail : Barbara.Hanna@alsglobal.com</p> <p>Telephone : +61 2 8784 8555</p> <p>Facsimile : +61 2 8784 8555</p>
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<p>Project : PROJECT SYMPHONY 0224193</p> <p>Order number : 0224193</p> <p>C-O-C number : ----</p> <p>Site : ----</p> <p>Sampler : JG</p>	<p>Page : 1 of 2</p> <p>Quote number : ES2013ENVRES0369 (SY/794/13)</p> <p>QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement</p>
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Dates

<p>Date Samples Received : 19-DEC-2013</p> <p>Client Requested Due Date : 23-DEC-2013</p>	<p>Issue Date : 19-DEC-2013 20:02</p> <p>Scheduled Reporting Date : 23-DEC-2013</p>
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Delivery Details

<p>Mode of Delivery : Carrier</p> <p>No. of coolers/boxes : 1 HARD</p> <p>Security Seal : Intact.</p>	<p>Temperature : 4.8°C - Ice present</p> <p>No. of samples received : 7</p> <p>No. of samples analysed : 7</p>
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Metals bottle not received for sample BK_MW04, unable to conduct metals analysis.**
- **Sample T01 to be forwarded to Envirolab.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG035T Total Mercury by FIMS	WATER - EG094A-F Dissolved Metals in Fresh Water Suite A by	WATER - EG094A-T Total Metals in Fresh water Suite A by ORC-ICPMS	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1327890-001	16-DEC-2013 15:00	BK_MW04					✓			✓
ES1327890-002	17-DEC-2013 15:00	BY_MW12	✓		✓		✓			✓
ES1327890-003	17-DEC-2013 15:00	R01_171213_JG		✓		✓	✓			✓
ES1327890-004	17-DEC-2013 15:00	D01_171213_JG	✓		✓		✓			✓
ES1327890-005	17-DEC-2013 15:00	BY_MK25	✓		✓		✓			✓
ES1327890-006	[19-DEC-2013]	TS1, TS6						✓		
ES1327890-007	[19-DEC-2013]	TB9, TB7							✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA)	Email	symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	symphony.macgen@erm.com
- Chain of Custody (CoC) (COC)	Email	symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG)	Email	symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT)	Email	symphony.macgen@erm.com
- EDI Format - XTab (XTAB)	Email	symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1327890 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : PROJECT SYMPHONY 0224193 Order number : 0224193 C-O-C number : ---- Sampler : JG Site : ---- Quote number : SY/794/13	Page : 1 of 9 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 19-DEC-2013 Issue Date : 23-DEC-2013 No. of samples received : 7 No. of samples analysed : 7
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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

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	Sydney Organics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BK_MW04	BY_MW12	R01_171213_JG	D01_171213_JG	BY_MK25
				16-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327890-001	ES1327890-002	ES1327890-003	ES1327890-004	ES1327890-005
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	----	<0.0001	<0.0001
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	----	0.3	----	0.3	1.0
Cadmium	7440-43-9	0.05	µg/L	----	2.01	----	1.81	2.26
Chromium	7440-47-3	0.2	µg/L	----	0.2	----	0.2	<0.2
Copper	7440-50-8	0.5	µg/L	----	1.9	----	1.8	3.2
Lead	7439-92-1	0.1	µg/L	----	7.3	----	6.4	37.5
Nickel	7440-02-0	0.5	µg/L	----	354	----	332	195
Zinc	7440-66-6	1	µg/L	----	451	----	422	142
EG094T: Total metals in Fresh water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	----	----	<0.2	----	----
Cadmium	7440-43-9	0.05	µg/L	----	----	<0.05	----	----
Chromium	7440-47-3	0.2	µg/L	----	----	<0.2	----	----
Copper	7440-50-8	0.5	µg/L	----	----	<0.5	----	----
Lead	7439-92-1	0.1	µg/L	----	----	<0.1	----	----
Nickel	7440-02-0	0.5	µg/L	----	----	<0.5	----	----
Zinc	7440-66-6	1	µg/L	----	----	<1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BK_MW04	BY_MW12	R01_171213_JG	D01_171213_JG	BY_MK25
				16-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327890-001	ES1327890-002	ES1327890-003	ES1327890-004	ES1327890-005
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BK_MW04	BY_MW12	R01_171213_JG	D01_171213_JG	BY_MK25
				16-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00
				ES1327890-001	ES1327890-002	ES1327890-003	ES1327890-004	ES1327890-005
Compound	CAS Number	LOR	Unit	Client sampling date / time				
EP074E: Halogenated Aliphatic Compounds - Continued								
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BK_MW04	BY_MW12	R01_171213_JG	D01_171213_JG	BY_MK25
				16-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327890-001	ES1327890-002	ES1327890-003	ES1327890-004	ES1327890-005
EP075(SIM)A: Phenolic Compounds - Continued								
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BK_MW04	BY_MW12	R01_171213_JG	D01_171213_JG	BY_MK25
				16-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00	17-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327890-001	ES1327890-002	ES1327890-003	ES1327890-004	ES1327890-005
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	101	107	106	102
Toluene-D8	2037-26-5	0.1	%	114	111	112	112	111
4-Bromofluorobenzene	460-00-4	0.1	%	101	96.9	100	99.2	97.6
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	39.2	34.1	40.6	32.7	45.4
2-Chlorophenol-D4	93951-73-6	0.1	%	68.8	58.8	70.4	55.6	72.8
2,4,6-Tribromophenol	118-79-6	0.1	%	78.4	66.2	80.3	64.1	84.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	75.9	65.3	75.9	63.9	81.3
Anthracene-d10	1719-06-8	0.1	%	66.1	56.9	70.9	56.8	71.7
4-Terphenyl-d14	1718-51-0	0.1	%	72.6	71.0	81.2	65.2	79.2
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	122	114	122	119	116
Toluene-D8	2037-26-5	0.1	%	99.6	97.3	98.9	99.2	97.0
4-Bromofluorobenzene	460-00-4	0.1	%	94.4	91.1	95.1	93.7	91.9



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TS1, TS6	TB9, TB7	---	---	---
				[19-DEC-2013]	[19-DEC-2013]	---	---	---
Compound	CAS Number	LOR	Unit	ES1327890-006	ES1327890-007	---	---	---
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	---	20	µg/L	---	<20	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	---	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	---	<20	---	---	---
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	17	<1	---	---	---
Toluene	108-88-3	2	µg/L	16	<2	---	---	---
Ethylbenzene	100-41-4	2	µg/L	16	<2	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	15	<2	---	---	---
ortho-Xylene	95-47-6	2	µg/L	16	<2	---	---	---
^ Total Xylenes	1330-20-7	2	µg/L	31	<2	---	---	---
^ Sum of BTEX	---	1	µg/L	80	<1	---	---	---
Naphthalene	91-20-3	5	µg/L	17	<5	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	124	125	---	---	---
Toluene-D8	2037-26-5	0.1	%	98.8	101	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	93.3	95.9	---	---	---



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1327890	Page	: 1 of 18
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY 0224193	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 19-DEC-2013
C-O-C number	: ----	Issue Date	: 23-DEC-2013
Sampler	: JG	No. of samples received	: 7
Order number	: 0224193	No. of samples analysed	: 7
Quote number	: SY/794/13		

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

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
Celine Conceicao
Phalak Inthaksone

Position

Organic Chemist
Senior Spectroscopist
Laboratory Manager - Organics

Accreditation Category

Sydney Organics
Sydney Inorganics
Sydney 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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG035F: Dissolved Mercury by FIMS (QC Lot: 3225452)									
ES1327011-009	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1327890-005	BY_MK25	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3223150)									
ES1327890-003	R01_171213_JG	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3225694)									
ES1327890-002	BY_MW12	EG094A-F: Cadmium	7440-43-9	0.05	µg/L	2.01	1.98	1.8	0% - 20%
		EG094A-F: Lead	7439-92-1	0.1	µg/L	7.3	7.0	4.1	0% - 20%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	0.3	0.3	0.0	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	0.2	0.2	0.0	No Limit
		EG094A-F: Copper	7440-50-8	0.5	µg/L	1.9	1.8	0.0	No Limit
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	354	355	0.3	0% - 20%
		EG094A-F: Zinc	7440-66-6	1	µg/L	451	450	0.2	0% - 20%
EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 3225695)									
ES1327893-009	Anonymous	EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EG094A-T: Lead	7439-92-1	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Copper	7440-50-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-T: Zinc	7440-66-6	1	µg/L	<1	<1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3223019)									
ES1327890-001	BK_MW04	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3223019) - continued									
ES1327890-001	BK_MW04	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1327890-002	BY_MW12	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3223019)									
ES1327890-001	BK_MW04	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1327890-002	BY_MW12	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3223019)									
ES1327890-001	BK_MW04	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1327890-002	BY_MW12	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 3223019)									
ES1327890-001	BK_MW04	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1327890-002	BY_MW12	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3223019)									



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3223019) - continued									
ES1327890-001	BK_MW04	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1327890-002	BY_MW12	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3223019) - continued									
ES1327890-002	BY_MW12	EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 3223019)									
ES1327890-001	BK_MW04	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1327890-002	BY_MW12	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 3223019)									
ES1327890-001	BK_MW04	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1327890-002	BY_MW12	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074G: Trihalomethanes (QC Lot: 3223019) - continued									
ES1327890-002	BY_MW12	EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 3223019)									
ES1327890-001	BK_MW04	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1327890-002	BY_MW12	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3223323)									
ES1327893-002	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	0.0	No Limit
		ES1327890-001	BK_MW04	EP075(SIM): Phenol	108-95-2	1.0	µg/L	<1.0	<1.0
EP075(SIM): 2-Chlorophenol	95-57-8			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP075(SIM): 3- & 4-Methylphenol	1319-77-3			2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM): Pentachlorophenol	87-86-5			2.0	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3223323)									
ES1327893-002	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3223323) - continued									
ES1327893-002	Anonymous	EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
ES1327890-001	BK_MW04	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3223020)									
ES1327890-001	BK_MW04	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1327890-002	BY_MW12	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3223322)									
ES1327893-002	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
ES1327890-001	BK_MW04	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3223020)									
ES1327890-001	BK_MW04	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1327890-002	BY_MW12	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3223322)									
ES1327893-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3223322) - continued									
ES1327893-002	Anonymous	EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
ES1327890-001	BK_MW04	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080: BTEXN (QC Lot: 3223020)									
ES1327890-001	BK_MW04	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit		
ES1327890-002	BY_MW12	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit		



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 (%)		Recovery Limits (%)	
						LCS	Low	High	
EG035F: Dissolved Mercury by FIMS (QCLot: 3225452)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	95.6	78	114	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3223150)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	96.0	77	115	
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3225694)									
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	114	75	129	
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	100	78	112	
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	102	71	123	
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	102	77	125	
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	109	74	118	
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	113	72	128	
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	114	76	134	
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3225695)									
EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	107	81	125	
EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	90.2	77	111	
EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	98.6	78	126	
EG094A-T: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	96.0	78	126	
EG094A-T: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	106	75	123	
EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	110	82	124	
EG094A-T: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	103	75	129	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3223019)									
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.7	78	116	
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	95.3	68	128	
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	96.7	74	118	
EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	20 µg/L	95.5	74	122	
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	87.6	74	118	
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.6	77	121	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	95.1	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	98.0	67	123	
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	96.1	70	122	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	97.6	69	123	
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	100	71	121	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	99.1	70	122	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	97.4	67	123	



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	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3223019) - continued									
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	92.1	62	126	
EP074B: Oxygenated Compounds (QCLot: 3223019)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	92.4	61.4	134	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	96.8	73.6	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	98.5	61	139	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	96.6	65	137	
EP074C: Sulfonated Compounds (QCLot: 3223019)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	84.3	72.8	127	
EP074D: Fumigants (QCLot: 3223019)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	92.6	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	92.7	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	79.2	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	73.6	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	92.2	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3223019)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	79.9	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	84.1	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	86.9	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	89.8	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	84.1	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	92.9	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	94.0	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	84.8	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	89.7	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	93.0	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	98.2	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	88.9	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	94.8	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	75.6	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	97.6	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	103	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	96.6	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	94.6	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	94.8	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	89.8	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	83.9	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	80.1	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	79.5	70.6	128	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3223019) - continued									
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	94.4	70	124	
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	85.4	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	93.2	71.8	126	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	104	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	86.4	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3223019)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	97.1	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	93.2	76	116	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	95.9	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	100	71	121	
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	95.6	74	120	
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	94.1	72	120	
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	94.6	77	117	
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	86.7	60	126	
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	84.0	67	125	
EP074G: Trihalomethanes (QCLot: 3223019)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	98.2	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	77.8	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	94.1	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	86.7	73.5	126	
EP074H: Naphthalene (QCLot: 3223019)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	93.0	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3223323)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	# 71.0	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	82.9	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	95.6	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	85.9	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	67.4	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	98.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	94.4	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	91.4	64.3	118	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 3223323) - continued									
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	102	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	99.4	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	97.7	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	68.4	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3223323)									
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	67.7	58.6	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	95.5	63.6	114	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	83.8	62.2	113	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	101	63.9	115	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	93.0	62.6	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	93.0	64.3	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	104	63.6	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	102	63.1	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	115	64.1	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	103	62.5	116	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	# 125	61.7	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	110	61.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	111	63.3	117	
		0.5	µg/L	<0.5	----	----	----	----	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	108	59.9	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	111	61.2	117	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3223323) - continued								
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	118	59.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223020)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	101	75	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223322)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	113	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	122	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	93.2	62	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3223020)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	100	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3223322)								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	95.2	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	113	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	1500 µg/L	89.6	67	127
EP080: BTEXN (QCLot: 3223020)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	110	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	105	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	92.1	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	89.2	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	88.7	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	91.5	70	124

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.

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
						Low	High
EG035F: Dissolved Mercury by FIMS (QCLot: 3225452)							
ES1327805-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	86.7	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3223150)							
ES1327897-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	94.5	70	130
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3225694)							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3225694) - continued							
ES1327890-004	D01_171213_JG	EG094A-F: Arsenic	7440-38-2	50 µg/L	93.4	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	73.7	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	105	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	105	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	70.8	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	# Not Determined	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	# Not Determined	70	130
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3225695)							
ES1327805-006	Anonymous	EG094A-T: Arsenic	7440-38-2	50 µg/L	120	70	130
		EG094A-T: Cadmium	7440-43-9	12.5 µg/L	104	70	130
		EG094A-T: Chromium	7440-47-3	50 µg/L	113	70	130
		EG094A-T: Copper	7440-50-8	50 µg/L	108	70	130
		EG094A-T: Lead	7439-92-1	50 µg/L	118	70	130
		EG094A-T: Nickel	7440-02-0	50 µg/L	121	70	130
		EG094A-T: Zinc	7440-66-6	50 µg/L	116	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3223019)							
ES1327890-001	BK_MW04	EP074: Benzene	71-43-2	25 µg/L	107	70	130
		EP074: Toluene	108-88-3	25 µg/L	106	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3223019)							
ES1327890-001	BK_MW04	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	97.5	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	103	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3223019)							
ES1327890-001	BK_MW04	EP074: Chlorobenzene	108-90-7	25 µg/L	108	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3223323)							
ES1327893-004	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	42.1	20	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	64.8	60	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	90.4	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	77.2	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	91.4	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3223323)							
ES1327893-004	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	72.4	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	86.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223020)							
ES1327890-001	BK_MW04	EP080: C6 - C9 Fraction	----	325 µg/L	110	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223322)							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223322) - continued								
ES1327893-004	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	113	74	150	
		EP071: C15 - C28 Fraction	----	300 µg/L	97.5	77	153	
		EP071: C29 - C36 Fraction	----	200 µg/L	106	67	153	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3223020)								
ES1327890-001	BK_MW04	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	110	70	130	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3223322)								
ES1327893-004	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	95.2	74	150	
		EP071: >C16 - C34 Fraction	----	350 µg/L	107	77	153	
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.0	67	153	
EP080: BTEXN (QCLot: 3223020)								
ES1327890-001	BK_MW04	EP080: Benzene	71-43-2	25 µg/L	108	70	130	
		EP080: Toluene	108-88-3	25 µg/L	100	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	96.1	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	98.6	70	130	
EP080: Naphthalene	91-20-3	25 µg/L	97.1	70	130			

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

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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.

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3223019)										
ES1327890-001	BK_MW04	EP074: Benzene	71-43-2	25 µg/L	107	----	70	130	----	----
		EP074: Toluene	108-88-3	25 µg/L	106	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 3223019)										
ES1327890-001	BK_MW04	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	97.5	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	25 µg/L	103	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 3223019)										
ES1327890-001	BK_MW04	EP074: Chlorobenzene	108-90-7	25 µg/L	108	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223020)										
ES1327890-001	BK_MW04	EP080: C6 - C9 Fraction	----	325 µg/L	110	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3223020)										
ES1327890-001	BK_MW04	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	110	----	70	130	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP080: BTEXN (QCLot: 3223020)										
ES1327890-001	BK_MW04	EP080: Benzene	71-43-2	25 µg/L	108	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	100	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	96.1	----	70	130	----	----
			106-42-3							
		EP080: ortho-Xylene	95-47-6	25 µg/L	98.6	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	97.1	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3223150)										
ES1327897-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	94.5	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3223322)										
ES1327893-004	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	113	----	74	150	----	----
		EP071: C15 - C28 Fraction	----	300 µg/L	97.5	----	77	153	----	----
		EP071: C29 - C36 Fraction	----	200 µg/L	106	----	67	153	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3223322)										
ES1327893-004	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	250 µg/L	95.2	----	74	150	----	----
		EP071: >C16 - C34 Fraction	----	350 µg/L	107	----	77	153	----	----
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.0	----	67	153	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 3223323)										
ES1327893-004	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	42.1	----	20	130	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	64.8	----	60	130	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	90.4	----	60	130	----	----
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	77.2	----	70	130	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	91.4	----	20	130	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3223323)										
ES1327893-004	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	72.4	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	20 µg/L	86.0	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3225452)										
ES1327805-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	86.7	----	70	130	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3225694)										
ES1327890-004	D01_171213_JG	EG094A-F: Arsenic	7440-38-2	50 µg/L	93.4	----	70	130	----	----
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	73.7	----	70	130	----	----
		EG094A-F: Chromium	7440-47-3	50 µg/L	105	----	70	130	----	----
		EG094A-F: Copper	7440-50-8	50 µg/L	105	----	70	130	----	----
		EG094A-F: Lead	7439-92-1	50 µg/L	70.8	----	70	130	----	----
		EG094A-F: Nickel	7440-02-0	50 µg/L	# Not Determined	----	70	130	----	----
		EG094A-F: Zinc	7440-66-6	50 µg/L	# Not Determined	----	70	130	----	----



Sub-Matrix: **WATER**

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

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3225695)										
ES1327805-006	Anonymous	EG094A-T: Arsenic	7440-38-2	50 µg/L	120	----	70	130	----	----
		EG094A-T: Cadmium	7440-43-9	12.5 µg/L	104	----	70	130	----	----
		EG094A-T: Chromium	7440-47-3	50 µg/L	113	----	70	130	----	----
		EG094A-T: Copper	7440-50-8	50 µg/L	108	----	70	130	----	----
		EG094A-T: Lead	7439-92-1	50 µg/L	118	----	70	130	----	----
		EG094A-T: Nickel	7440-02-0	50 µg/L	121	----	70	130	----	----
		EG094A-T: Zinc	7440-66-6	50 µg/L	116	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327890	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY 0224193	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 19-DEC-2013
C-O-C number	: ----	Issue Date	: 23-DEC-2013
Sampler	: JG	No. of samples received	: 7
Order number	: 0224193	No. of samples analysed	: 7
Quote number	: SY/794/13		

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG035F: Dissolved Mercury by FIMS								
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F) BY_MW12, BY_MK25	D01_171213_JG,	17-DEC-2013	---	14-JAN-2014	----	21-DEC-2013	14-JAN-2014	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) R01_171213_JG		17-DEC-2013	----	----	----	20-DEC-2013	14-JAN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094A-F) BY_MW12, BY_MK25	D01_171213_JG,	17-DEC-2013	---	15-JUN-2014	----	22-DEC-2013	15-JUN-2014	✓
EG094T: Total metals in Fresh water by ORC-ICPMS								
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094A-T) R01_171213_JG		17-DEC-2013	22-DEC-2013	15-JUN-2014	✓	22-DEC-2013	15-JUN-2014	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) BK_MW04		16-DEC-2013	20-DEC-2013	23-DEC-2013	✓	21-DEC-2013	29-JAN-2014	✓
Amber Glass Bottle - Unpreserved (EP071) BY_MW12, D01_171213_JG,	R01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	24-DEC-2013	✓	21-DEC-2013	29-JAN-2014	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) BK_MW04		16-DEC-2013	20-DEC-2013	30-DEC-2013	✓	20-DEC-2013	30-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW12, D01_171213_JG,	R01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	31-DEC-2013	✓	20-DEC-2013	31-DEC-2013	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) BK_MW04		16-DEC-2013	20-DEC-2013	30-DEC-2013	✓	20-DEC-2013	30-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW12, D01_171213_JG,	R01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	31-DEC-2013	✓	20-DEC-2013	31-DEC-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BK_MW04	16-DEC-2013	20-DEC-2013	30-DEC-2013	✓	20-DEC-2013	30-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW12, R01_171213_JG, D01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	31-DEC-2013	✓	20-DEC-2013	31-DEC-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) BK_MW04	16-DEC-2013	20-DEC-2013	30-DEC-2013	✓	20-DEC-2013	30-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW12, R01_171213_JG, D01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	31-DEC-2013	✓	20-DEC-2013	31-DEC-2013	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) BK_MW04	16-DEC-2013	20-DEC-2013	30-DEC-2013	✓	20-DEC-2013	30-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW12, R01_171213_JG, D01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	31-DEC-2013	✓	20-DEC-2013	31-DEC-2013	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BK_MW04	16-DEC-2013	20-DEC-2013	30-DEC-2013	✓	20-DEC-2013	30-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW12, R01_171213_JG, D01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	31-DEC-2013	✓	20-DEC-2013	31-DEC-2013	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BK_MW04	16-DEC-2013	20-DEC-2013	30-DEC-2013	✓	20-DEC-2013	30-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW12, R01_171213_JG, D01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	31-DEC-2013	✓	20-DEC-2013	31-DEC-2013	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) BK_MW04	16-DEC-2013	20-DEC-2013	30-DEC-2013	✓	20-DEC-2013	30-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP074) BY_MW12, R01_171213_JG, D01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	31-DEC-2013	✓	20-DEC-2013	31-DEC-2013	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) BK_MW04	16-DEC-2013	20-DEC-2013	23-DEC-2013	✓	21-DEC-2013	29-JAN-2014	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BY_MW12, R01_171213_JG, D01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	24-DEC-2013	✓	21-DEC-2013	29-JAN-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) BK_MW04	16-DEC-2013	20-DEC-2013	23-DEC-2013	✓	21-DEC-2013	29-JAN-2014	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BY_MW12, R01_171213_JG, D01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	24-DEC-2013	✓	21-DEC-2013	29-JAN-2014	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) BK_MW04	16-DEC-2013	20-DEC-2013	30-DEC-2013	✓	20-DEC-2013	30-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BY_MW12, R01_171213_JG, D01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	31-DEC-2013	✓	20-DEC-2013	31-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) TS1, TS6, TB9, TB7	19-DEC-2013	20-DEC-2013	02-JAN-2014	✓	20-DEC-2013	02-JAN-2014	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) BK_MW04	16-DEC-2013	20-DEC-2013	30-DEC-2013	✓	20-DEC-2013	30-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) BY_MW12, R01_171213_JG, D01_171213_JG, BY_MK25	17-DEC-2013	20-DEC-2013	31-DEC-2013	✓	20-DEC-2013	31-DEC-2013	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB9, TB7	19-DEC-2013	20-DEC-2013	02-JAN-2014	✓	20-DEC-2013	02-JAN-2014	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	16	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	16	6.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatle Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Preparation Methods	Method	Matrix	Method Descriptions



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Lab Acidification of Metals	EN80	WATER	USEPA Method 200.8
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	3848114-007	----	Phenol	108-95-2	71.0 %	24.5-61.9%	Recovery greater than upper control limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	3848114-007	----	Benzo(b)fluoranthene	205-99-2	125 %	61.7-119%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1327890-004	D01_171213_JG	Nickel	7440-02-0	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG094F: Dissolved Metals in Fresh Water by ORC-ICP	ES1327890-004	D01_171213_JG	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	ES1327890-005	BY_MK25	Phenol-d6	13127-88-3	45.4 %	10.0-44 %	Recovery greater than upper data quality objective

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



CHAIN OF CUSTODY

ALS Laboratory
please tick →

ADELAIDE 21 Burma Road Pooraka SA 5085
Ph: 08 8359 0800 E: adelaide@alsglobal.com

BRISBANE 22 Strand Street Staines QLD 4063
Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GLADSTONE 66 Catherine Drive Clinton QLD 4680
Ph: 07 7471 6000 E: gladstone@alsglobal.com

MACQUARY 78 Harbour Road Mackay QLD 4740
Ph: 07 4044 0177 E: macquary@alsglobal.com

MELBOURNE 2-4 West Road Springvale VIC 3171
Ph: 03 8540 0600 E: samples.melbourne@alsglobal.com

MURDOCH 27 Sydney Road Mtjoy NSW 2850
Ph: 02 6372 0735 E: murdoch.mtjoy@alsglobal.com

NEWCASTLE 6 Rose Gum Road Warabrook NSW 2304
Ph: 02 4303 9435 E: newcastle@alsglobal.com

PERTH 413 Quay Place North Mosman NSW 2151
Ph: 02 9423 2000 E: perth@alsglobal.com

PERTH 10 Hot Way Margot WA 8009
Ph: 08 2539 7855 E: perth.perth@alsglobal.com

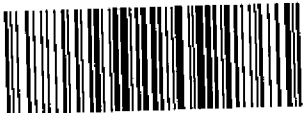
SYDNEY 277-269 Woodman Road Smithfield NSW 2101
Ph: 02 8784 8500 E: sydney@alsglobal.com

TOWNSVILLE 14-15 Emma Court Rockhampton QLD 4613
Ph: 07 4780 0600 E: towsville@alsglobal.com

WOLLONGONG 89 Nancy Street Wollongong NSW 2500
Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: ERM	TURNAROUND REQUIREMENTS: <input type="checkbox"/> Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input checked="" type="checkbox"/> Non Standard or urgent TAT (List due date): 48hrs	Custody Seal Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
PROJECT: Project Symphony	ALS QUOTE NO.: SY794/13	Free ice / frozen ice bricks present upon receipt? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
ORDER NUMBER: 0724193	SITE: BAYSWATER / LIDDELL	Random Sample Temperature on Receipt: 44 °C
PROJECT MANAGER: Joe Ferrary	CONTACT PH: 0424 970 468	Other comment:
SAMPLER: Sacks Grant	SAMPLER MOBILE: 0432 596 844	RECEIVED BY: Ravi
COC emailed to ALS? (YES / NO) <input checked="" type="checkbox"/>	EDD FORMAT (or default):	DATE/TIME: 20/12/13 13:40
Email Reports to (will default to PM if no other addresses are listed): macger@symphony@erm.com	RELINQUISHED BY:	DATE/TIME: 20/12 17:00
Email Invoice to (will default to PM if no other addresses are listed): Symphony.malger@erm.com	DATE/TIME:	DATE/TIME: 20/12 19:20

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS			CONTAINER INFORMATION		ANALYSIS REQUIRED (including SUITES (NB, Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information	
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below	(refer to)	TOTAL CONTAINERS	W-2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, B, Mo, Tl)	Selenium (Freshwater ORC)	VOC Target Scan	PCB	PFOS/PFOA		W-24 TRH (C6-C40) (BTEXN, PAH, Phenols)
1	BY-MW26	18.12.13	W			6	X						X	Environmental Division Sydney Work Order ES1327963  Telephone: +61-2-8784 8555
2	ROI-181213-04	18.12.13	W			6	X						X	
3	BY-MW24	18.12.13	W			6	X						X	
4	BF-MW05	18.12.13	W			6	X						X	
5	DF-MW03	18.12.13	W			6	X						X	
6	DF-MW02	18.12.13	W			6	X						X	
7	DF-MW01	18.12.13	W			6	X						X	
8	BC-MW05	18.12.13	W			6	X						X	
9	TB 3	18.12.13	W			1								BTEX & TRH Analyse as one
10	TB 4	18.12.13	W			1								
11	TS 7	18.12.13	W			1								
12	TS 9	18.12.13	W			1								

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulphuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulphuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ABS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: ES1327963		
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact Address	: MR JOSEPH FERRING GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Contact Address	: Barbara Hanna 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	Page	: 1 of 2
Order number	: 0224193	Quote number	: ES2013ENVRES0369 (SY/794/13)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	: JG		

Dates

Date Samples Received	: 20-DEC-2013	Issue Date	: 20-DEC-2013 21:55
Client Requested Due Date	: 24-DEC-2013	Scheduled Reporting Date	: 24-DEC-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 4.4°C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 10
Security Seal	: Intact.	No. of samples analysed	: 10

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG035F Dissolved Mercury by FIMS	WATER - EG035T Total Mercury by FIMS	WATER - EG094A-F Dissolved Metals in Fresh Water Suite A by	WATER - EG094A-T Total Metals in Fresh water Suite A by ORC-ICPMS	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES1327963-001	18-DEC-2013 15:00	BY_MW26	✓		✓	✓				✓
ES1327963-002	18-DEC-2013 15:00	R01_181213_JG		✓		✓	✓			✓
ES1327963-003	18-DEC-2013 15:00	BY_MW24	✓		✓		✓			✓
ES1327963-004	18-DEC-2013 15:00	BF_MW05	✓		✓		✓			✓
ES1327963-005	18-DEC-2013 15:00	BF_MW03	✓		✓		✓			✓
ES1327963-006	18-DEC-2013 15:00	BF_MW02	✓		✓		✓			✓
ES1327963-007	18-DEC-2013 15:00	BF_MW01	✓		✓		✓			✓
ES1327963-008	18-DEC-2013 15:00	BC_MW05	✓		✓		✓			✓
ES1327963-009	[20-DEC-2013]	TB3, TB4							✓	
ES1327963-010	[20-DEC-2013]	TS7, TS9					✓			

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

MR JOSEPH FERRING

- *AU Certificate of Analysis - NATA (COA)	Email	joseph.ferring@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	joseph.ferring@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	joseph.ferring@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	joseph.ferring@erm.com
- Chain of Custody (CoC) (COC)	Email	joseph.ferring@erm.com
- EDI Format - ENMRG (ENMRG)	Email	joseph.ferring@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	joseph.ferring@erm.com
- EDI Format - ESDAT (ESDAT)	Email	joseph.ferring@erm.com
- EDI Format - XTab (XTAB)	Email	joseph.ferring@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1327963 Client : ENVIRO RESOURCES MANAGEMENT Contact : MR JOSEPH FERRING Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : joseph.ferring@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : PROJECT SYMPHONY Order number : 0224193 C-O-C number : ---- Sampler : JG Site : ---- Quote number : SY/794/13	Page : 1 of 13 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 20-DEC-2013 Issue Date : 24-DEC-2013 No. of samples received : 10 No. of samples analysed : 10
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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

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>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksono	Laboratory Manager - Organics	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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

- **EP074/EP080: Results for sample BC_MW05 has been confirmed by re-analysis.**
- **EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BY_MW26	R01_181213_JG	BY_MW24	BF_MW05	BF_MW03
				18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327963-001	ES1327963-002	ES1327963-003	ES1327963-004	ES1327963-005
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	<0.0001	<0.0001	<0.0001
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	1.0	----	16.4	34.4	112
Cadmium	7440-43-9	0.05	µg/L	0.06	----	3.06	0.05	<0.05
Chromium	7440-47-3	0.2	µg/L	0.3	----	10.1	0.9	0.2
Copper	7440-50-8	0.5	µg/L	13.1	----	60.1	4.6	3.7
Lead	7439-92-1	0.1	µg/L	9.7	----	48.2	2.3	0.6
Nickel	7440-02-0	0.5	µg/L	7.0	----	853	81.1	47.7
Zinc	7440-66-6	1	µg/L	32	----	3250	39	77
EG094T: Total metals in Fresh water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	----	<0.2	----	----	----
Cadmium	7440-43-9	0.05	µg/L	----	<0.05	----	----	----
Chromium	7440-47-3	0.2	µg/L	----	<0.2	----	----	----
Copper	7440-50-8	0.5	µg/L	----	<0.5	----	----	----
Lead	7439-92-1	0.1	µg/L	----	<0.1	----	----	----
Nickel	7440-02-0	0.5	µg/L	----	<0.5	----	----	----
Zinc	7440-66-6	1	µg/L	----	<1	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BY_MW26	R01_181213_JG	BY_MW24	BF_MW05	BF_MW03
				18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00
				ES1327963-001	ES1327963-002	ES1327963-003	ES1327963-004	ES1327963-005
Compound	CAS Number	LOR	Unit	Client sampling date / time				
EP074B: Oxygenated Compounds - Continued								
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BY_MW26	R01_181213_JG	BY_MW24	BF_MW05	BF_MW03
				18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327963-001	ES1327963-002	ES1327963-003	ES1327963-004	ES1327963-005
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7	<7
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BY_MW26	R01_181213_JG	BY_MW24	BF_MW05	BF_MW03
				18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327963-001	ES1327963-002	ES1327963-003	ES1327963-004	ES1327963-005
EP075(SIM)A: Phenolic Compounds - Continued								
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BY_MW26	R01_181213_JG	BY_MW24	BF_MW05	BF_MW03
				18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00
Compound	CAS Number	LOR	Unit	ES1327963-001	ES1327963-002	ES1327963-003	ES1327963-004	ES1327963-005
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	118	117	124	117	120
Toluene-D8	2037-26-5	0.1	%	109	110	114	107	115
4-Bromofluorobenzene	460-00-4	0.1	%	104	104	110	103	110
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	21.9	28.6	34.4	35.5	32.0
2-Chlorophenol-D4	93951-73-6	0.1	%	49.1	52.1	63.5	62.3	56.8
2,4,6-Tribromophenol	118-79-6	0.1	%	17.9	75.5	110	31.0	25.1
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	58.2	58.4	65.8	64.8	51.5
Anthracene-d10	1719-06-8	0.1	%	74.7	75.6	86.6	77.2	73.8
4-Terphenyl-d14	1718-51-0	0.1	%	79.5	78.9	87.6	85.2	80.9
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	118	116	123	116	120
Toluene-D8	2037-26-5	0.1	%	108	108	112	106	113
4-Bromofluorobenzene	460-00-4	0.1	%	99.3	100	106	98.0	105



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BF_MW02	BF_MW01	BC_MW05	TB3, TB4	TS7, TS9
				18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	[20-DEC-2013]	[20-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1327963-006	ES1327963-007	ES1327963-008	ES1327963-009	ES1327963-010
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	7.0	7.8	5.7	----	----
Cadmium	7440-43-9	0.05	µg/L	0.06	<0.05	<0.05	----	----
Chromium	7440-47-3	0.2	µg/L	0.4	<0.2	<0.2	----	----
Copper	7440-50-8	0.5	µg/L	6.0	<0.5	2.9	----	----
Lead	7439-92-1	0.1	µg/L	81.9	0.8	0.8	----	----
Nickel	7440-02-0	0.5	µg/L	29.1	91.6	16.9	----	----
Zinc	7440-66-6	1	µg/L	244	238	16	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BF_MW02	BF_MW01	BC_MW05	TB3, TB4	TS7, TS9
				18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	[20-DEC-2013]	[20-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1327963-006	ES1327963-007	ES1327963-008	ES1327963-009	ES1327963-010
EP074E: Halogenated Aliphatic Compounds - Continued								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BF_MW02	BF_MW01	BC_MW05	TB3, TB4	TS7, TS9
				18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	[20-DEC-2013]	[20-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1327963-006	ES1327963-007	ES1327963-008	ES1327963-009	ES1327963-010
EP074F: Halogenated Aromatic Compounds - Continued								
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	1.2	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BF_MW02	BF_MW01	BC_MW05	TB3, TB4	TS7, TS9
				18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	[20-DEC-2013]	[20-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1327963-006	ES1327963-007	ES1327963-008	ES1327963-009	ES1327963-010
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.6	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	1.2	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	1	<1	18
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	17
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	16
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	16
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	18
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	<2	34
^ Sum of BTEX	----	1	µg/L	<1	<1	1	<1	85



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BF_MW02	BF_MW01	BC_MW05	TB3, TB4	TS7, TS9
				18-DEC-2013 15:00	18-DEC-2013 15:00	18-DEC-2013 15:00	[20-DEC-2013]	[20-DEC-2013]
Compound	CAS Number	LOR	Unit	ES1327963-006	ES1327963-007	ES1327963-008	ES1327963-009	ES1327963-010
EP080: BTEXN - Continued								
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	20
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	120	119	118	----	----
Toluene-D8	2037-26-5	0.1	%	112	110	113	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	106	106	107	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	35.2	37.6	43.8	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	56.4	63.2	68.3	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	14.1	13.3	64.6	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	57.4	62.8	70.8	----	----
Anthracene-d10	1719-06-8	0.1	%	91.1	92.2	89.6	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	98.5	102	98.6	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	119	119	118	126	122
Toluene-D8	2037-26-5	0.1	%	110	108	111	114	112
4-Bromofluorobenzene	460-00-4	0.1	%	101	101	102	105	110



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: ES1327963	Page	: 1 of 16
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Barbara Hanna
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61 2 8784 8555
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 20-DEC-2013
C-O-C number	: ----	Issue Date	: 24-DEC-2013
Sampler	: JG	No. of samples received	: 10
Order number	: 0224193	No. of samples analysed	: 10
Quote number	: SY/794/13		

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

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
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney 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 = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 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%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG035F: Dissolved Mercury by FIMS (QC Lot: 3225615)									
ES1327888-005	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	Anonymous	Anonymous	Anonymous	No Limit
ES1327964-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	Anonymous	Anonymous	Anonymous	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3228376)									
ES1326350-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	Anonymous	Anonymous	Anonymous	No Limit
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 3226297)									
ES1327893-006	Anonymous	EG094A-F: Cadmium	7440-43-9	0.05	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EG094A-F: Lead	7439-92-1	0.1	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EG094A-F: Copper	7440-50-8	0.5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	Anonymous	Anonymous	Anonymous	0% - 20%
		EG094A-F: Zinc	7440-66-6	1	µg/L	Anonymous	Anonymous	Anonymous	0% - 20%
ES1327964-002	Anonymous	EG094A-F: Cadmium	7440-43-9	0.05	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EG094A-F: Lead	7439-92-1	0.1	µg/L	Anonymous	Anonymous	Anonymous	0% - 20%
		EG094A-F: Arsenic	7440-38-2	0.2	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EG094A-F: Chromium	7440-47-3	0.2	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EG094A-F: Copper	7440-50-8	0.5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EG094A-F: Nickel	7440-02-0	0.5	µg/L	Anonymous	Anonymous	Anonymous	0% - 50%
		EG094A-F: Zinc	7440-66-6	1	µg/L	Anonymous	Anonymous	Anonymous	0% - 50%
EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 3228961)									
ES1327963-002	R01_181213_JG	EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EG094A-T: Lead	7439-92-1	0.1	µg/L	<0.1	0.3	87.6	No Limit
		EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Copper	7440-50-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-T: Zinc	7440-66-6	1	µg/L	<1	<1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3225679)									
ES1327963-001	BY_MW26	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3225679) - continued									
ES1327963-001	BY_MW26	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES1328108-002	Anonymous	EP074: Styrene	100-42-5	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP074: n-Butylbenzene	104-51-8	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit		
EP074B: Oxygenated Compounds (QC Lot: 3225679)									
ES1327963-001	BY_MW26	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES1328108-002	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3225679)									
ES1327963-001	BY_MW26	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES1328108-002	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP074D: Fumigants (QC Lot: 3225679)									
ES1327963-001	BY_MW26	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES1328108-002	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3225679)									
ES1327963-001	BY_MW26	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3225679) - continued									
ES1327963-001	BY_MW26	EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
ES1328108-002	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3225679) - continued									
ES1328108-002	Anonymous	EP074: Pentachloroethane	76-01-7	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 3225679)									
ES1327963-001	BY_MW26	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES1328108-002	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP074G: Trihalomethanes (QC Lot: 3225679)									
ES1327963-001	BY_MW26	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES1328108-002	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP074H: Naphthalene (QC Lot: 3225679)									
ES1327963-001	BY_MW26	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
ES1328108-002	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	Anonymous	Anonymous	Anonymous	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 3226325)									
ES1327964-001	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit		
ES1327964-004	Anonymous	EP075(SIM): Phenol	108-95-2	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP075(SIM): Pentachlorophenol	87-86-5	2.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit		
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3226325)									
ES1327964-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3226325) - continued									
ES1327964-004	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Naphthalene	91-20-3	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Fluorene	86-73-7	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Anthracene	120-12-7	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Pyrene	129-00-0	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Chrysene	218-01-9	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit		
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	Anonymous	Anonymous	Anonymous	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3225680)									
ES1327963-001	BY_MW26	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1328108-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3226324)									
ES1327964-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
ES1327964-004	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3225680)									
ES1327963-001	BY_MW26	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1328108-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3226324)									
ES1327964-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	Anonymous	Anonymous	Anonymous	No Limit
ES1327964-004	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP080: BTEXN (QC Lot: 3225680)									
ES1327963-001	BY_MW26	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit

Page : 9 of 16
 Work Order : ES1327963
 Client : ENVIRO RESOURCES MANAGEMENT
 Project : PROJECT SYMPHONY



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 3225680) - continued									
ES1327963-001	BY_MW26	EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
ES1328108-002	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
		EP080: Benzene	71-43-2	1	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP080: Toluene	108-88-3	2	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	Anonymous	Anonymous	Anonymous	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	Anonymous	Anonymous	Anonymous	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	Anonymous	Anonymous	Anonymous	No Limit
EP080: Naphthalene	91-20-3	5	µg/L	Anonymous	Anonymous	Anonymous	No Limit		



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 Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)
Method: Compound	CAS Number	LOR	Unit				LCS	Low
EG035F: Dissolved Mercury by FIMS (QCLot: 3225615)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	106	78	114
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3228376)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	108	77	115
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3226297)								
EG094A-F: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	87.0	75	129
EG094A-F: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	87.5	78	112
EG094A-F: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	87.0	71	123
EG094A-F: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	108	77	125
EG094A-F: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	111	74	118
EG094A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	91.0	72	128
EG094A-F: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	91.1	76	134
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 3228961)								
EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	88.8	81	125
EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	93.5	77	111
EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	99.8	78	126
EG094A-T: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	100	78	126
EG094A-T: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	93.9	75	123
EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	91.1	82	124
EG094A-T: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	88.9	75	129
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3225679)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	87.3	74	118
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	92.5	75	121
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	97.0	67	123
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	98.4	70	122
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	98.7	69	123
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	101	71	121
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	95.4	70	122
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	100	67	123
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	102	62	126
EP074B: Oxygenated Compounds (QCLot: 3225679)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	114	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	112	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	108	61	139
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	109	65	137



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074C: Sulfonated Compounds (QCLot: 3225679)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	114	72.8	127	
EP074D: Fumigants (QCLot: 3225679)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	110	61	119	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	107	76	120	
EP074: cis-1,3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	95.5	62	120	
EP074: trans-1,3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	94.0	61	119	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	93.4	69	117	
EP074E: Halogenated Aliphatic Compounds (QCLot: 3225679)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	104	60.6	138	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	116	67.4	130	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	127	69.4	129	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	139	56	140	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	120	63	135	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	116	65	131	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	113	69	123	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	106	70.2	128	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	110	71	119	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	113	75	119	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	106	77	117	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	108	61	119	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	109	73	119	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	97.4	63	121	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	110	78	122	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	102	74	120	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	108	74	118	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	110	75	123	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	105	79	121	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	91.5	72	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	98.4	66	114	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	98.0	60	120	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	99.3	70.6	128	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	99.0	70	124	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	105	74	128	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	116	71.8	126	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	112	66.4	136	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	118	58	132	
EP074F: Halogenated Aromatic Compounds (QCLot: 3225679)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	99.1	80	118	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	101	76	116	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074F: Halogenated Aromatic Compounds (QCLot: 3225679) - continued									
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	108	71	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	108	71	121	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	107	74	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	112	72	120	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	106	77	117	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	112	60	126	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	99.6	67	125	
EP074G: Trihalomethanes (QCLot: 3225679)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	111	76	118	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	103	64	118	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	89.3	65	115	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	84.9	73.5	126	
EP074H: Naphthalene (QCLot: 3225679)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	98.7	61	125	
EP075(SIM)A: Phenolic Compounds (QCLot: 3226325)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	41.0	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	65.4	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	65.6	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	59.3	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	70.4	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	76.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	74.1	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	71.7	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	85.4	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	77.1	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	70.9	50	108	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	# 105	8.7	95	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3226325)									



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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3226325) - continued								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	67.6	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	79.6	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	71.4	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	77.0	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	76.3	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	75.8	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	83.6	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	80.7	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	84.5	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	82.1	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	79.8	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	86.1	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	82.5	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	74.0	59.9	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	75.2	61.2	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	82.8	59.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3225680)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	102	75	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3226324)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	98.1	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	115	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	99.4	62	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3225680)								



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	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3225680) - continued									
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	106	75	127	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3226324)									
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	92.7	58.9	131	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	109	73.9	138	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
		50	µg/L	----	1500 µg/L	111	67	127	
EP080: BTEXN (QCLot: 3225680)									
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	101	70	124	
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	65	129	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	92.9	70	120	
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	93.8	69	121	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	98.2	72	122	
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	103	70	124	



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.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					MS	Low	High
EG035F: Dissolved Mercury by FIMS (QCLot: 3225615)							
ES1327888-006	Anonymous	EG035F: Mercury	7439-97-6	Anonymous	Anonymous	Anonymous	Anonymous
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3228376)							
ES1327953-003	Anonymous	EG035T: Mercury	7439-97-6	Anonymous	Anonymous	Anonymous	Anonymous
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 3226297)							
ES1327963-008	BC_MW05	EG094A-F: Arsenic	7440-38-2	50 µg/L	122	70	130
		EG094A-F: Cadmium	7440-43-9	12.5 µg/L	120	70	130
		EG094A-F: Chromium	7440-47-3	50 µg/L	118	70	130
		EG094A-F: Copper	7440-50-8	50 µg/L	128	70	130
		EG094A-F: Lead	7439-92-1	50 µg/L	120	70	130
		EG094A-F: Nickel	7440-02-0	50 µg/L	106	70	130
		EG094A-F: Zinc	7440-66-6	50 µg/L	115	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3225679)							
ES1327963-001	BY_MW26	EP074: 1,1-Dichloroethene	75-35-4	25 µg/L	101	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	119	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3225679)							
ES1327963-001	BY_MW26	EP074: Chlorobenzene	108-90-7	25 µg/L	122	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3226325)							
ES1327964-001	Anonymous	EP075(SIM): Phenol	108-95-2	Anonymous	Anonymous	Anonymous	Anonymous
		EP075(SIM): 2-Chlorophenol	95-57-8	Anonymous	Anonymous	Anonymous	Anonymous
		EP075(SIM): 2-Nitrophenol	88-75-5	Anonymous	Anonymous	Anonymous	Anonymous
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	Anonymous	Anonymous	Anonymous	Anonymous
		EP075(SIM): Pentachlorophenol	87-86-5	Anonymous	Anonymous	Anonymous	Anonymous
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3226325)							
ES1327964-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	Anonymous	Anonymous	Anonymous	Anonymous
		EP075(SIM): Pyrene	129-00-0	Anonymous	Anonymous	Anonymous	Anonymous
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3225680)							
ES1327963-001	BY_MW26	EP080: C6 - C9 Fraction	----	325 µg/L	123	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3226324)							
ES1327964-001	Anonymous	EP071: C10 - C14 Fraction	----	Anonymous	Anonymous	Anonymous	Anonymous
		EP071: C15 - C28 Fraction	----	Anonymous	Anonymous	Anonymous	Anonymous
		EP071: C29 - C36 Fraction	----	Anonymous	Anonymous	Anonymous	Anonymous
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3225680)							
ES1327963-001	BY_MW26	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	124	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3226324)							



Sub-Matrix: WATER

				<i>Matrix Spike (MS) Report</i>				
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Spike</i>	<i>Spike Recovery (%)</i>	<i>Recovery Limits (%)</i>		
				<i>Concentration</i>	<i>MS</i>	<i>Low</i>	<i>High</i>	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3226324) - continued								
ES1327964-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	Anonymous	Anonymous	Anonymous	Anonymous	
		EP071: >C16 - C34 Fraction	----	Anonymous	Anonymous	Anonymous	Anonymous	
		EP071: >C34 - C40 Fraction	----	Anonymous	Anonymous	Anonymous	Anonymous	
EP080: BTEXN (QCLot: 3225680)								
ES1327963-001	BY_MW26	EP080: Benzene	71-43-2	25 µg/L	99.6	70	130	
		EP080: Toluene	108-88-3	25 µg/L	101	70	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	104	70	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	105	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	70	130	
EP080: Naphthalene	91-20-3	25 µg/L	108	70	130			

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1327963	Page	: 1 of 8
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Client Services
Address	: GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: sydney@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61-2-8784 8500
Project	: PROJECT SYMPHONY	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 20-DEC-2013
C-O-C number	: ----	Issue Date	: 24-DEC-2013
Sampler	: JG	No. of samples received	: 10
Order number	: 0224193	No. of samples analysed	: 10
Quote number	: SY/794/13		

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified BY_MW26, BY_MW05, BF_MW02, BC_MW05 BY_MW24, BF_MW03, BF_MW01,	18-DEC-2013	---	15-JAN-2014	----	22-DEC-2013	15-JAN-2014	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified R01_181213_JG	18-DEC-2013	----	----	----	24-DEC-2013	15-JAN-2014	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified BY_MW26, BF_MW05, BF_MW02, BC_MW05 BY_MW24, BF_MW03, BF_MW01,	18-DEC-2013	---	16-JUN-2014	----	23-DEC-2013	16-JUN-2014	✓
EG094T: Total metals in Fresh water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified R01_181213_JG	18-DEC-2013	24-DEC-2013	16-JUN-2014	✓	24-DEC-2013	16-JUN-2014	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid BY_MW26, BY_MW24, BF_MW03, BF_MW01, R01_181213_JG, BF_MW05, BF_MW02, BC_MW05	18-DEC-2013	22-DEC-2013	01-JAN-2014	✓	22-DEC-2013	01-JAN-2014	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid BY_MW26, BY_MW24, BF_MW03, BF_MW01, R01_181213_JG, BF_MW05, BF_MW02, BC_MW05	18-DEC-2013	22-DEC-2013	01-JAN-2014	✓	22-DEC-2013	01-JAN-2014	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	22-DEC-2013	01-JAN-2014	✓	22-DEC-2013	01-JAN-2014	✓	
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	22-DEC-2013	01-JAN-2014	✓	22-DEC-2013	01-JAN-2014	✓	
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	22-DEC-2013	01-JAN-2014	✓	22-DEC-2013	01-JAN-2014	✓	
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	22-DEC-2013	01-JAN-2014	✓	22-DEC-2013	01-JAN-2014	✓	
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	22-DEC-2013	01-JAN-2014	✓	22-DEC-2013	01-JAN-2014	✓	
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	22-DEC-2013	01-JAN-2014	✓	22-DEC-2013	01-JAN-2014	✓	
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	23-DEC-2013	25-DEC-2013	✓	23-DEC-2013	01-FEB-2014	✓	



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	23-DEC-2013	25-DEC-2013	✓	23-DEC-2013	01-FEB-2014	✓	
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	23-DEC-2013	25-DEC-2013	✓	23-DEC-2013	01-FEB-2014	✓	
Amber VOC Vial - Sulfuric Acid BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	22-DEC-2013	01-JAN-2014	✓	22-DEC-2013	01-JAN-2014	✓	
Amber VOC Vial - Sulfuric Acid TB3, TB4	20-DEC-2013	22-DEC-2013	03-JAN-2014	✓	22-DEC-2013	03-JAN-2014	✓	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
Amber Glass Bottle - Unpreserved BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	23-DEC-2013	25-DEC-2013	✓	23-DEC-2013	01-FEB-2014	✓	
Amber VOC Vial - Sulfuric Acid BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	22-DEC-2013	01-JAN-2014	✓	22-DEC-2013	01-JAN-2014	✓	
Amber VOC Vial - Sulfuric Acid TB3, TB4	20-DEC-2013	22-DEC-2013	03-JAN-2014	✓	22-DEC-2013	03-JAN-2014	✓	
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid BY_MW26, R01_181213_JG, BY_MW24, BF_MW05, BF_MW03, BF_MW02, BF_MW01, BC_MW05	18-DEC-2013	22-DEC-2013	01-JAN-2014	✓	22-DEC-2013	01-JAN-2014	✓	
Amber VOC Vial - Sulfuric Acid TB3, TB4, TS7, TS9	20-DEC-2013	22-DEC-2013	03-JAN-2014	✓	22-DEC-2013	03-JAN-2014	✓	



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	2	14	14.3	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	5	20.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	2	50.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	18	11.1	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	11	18.2	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	2	50.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	14	7.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	5	20.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Preparation Methods	Method	Matrix	Method Descriptions



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Lab Acidification of Metals	EN80	WATER	USEPA Method 200.8
Lab Acidification of Dissolved Metals	EN80F	WATER	US EPA Method 200.8
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	3851877-007	----	Pentachlorophenol	87-86-5	105 %	8.7-95%	Recovery greater than upper control limit

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	ES1327963-006	BF_MW02	2.4.6-Tribromophenol	118-79-6	14.1 %	17-125 %	Recovery less than lower data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	ES1327963-007	BF_MW01	2.4.6-Tribromophenol	118-79-6	13.3 %	17-125 %	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.



CHAIN OF CUSTODY

ALS Laboratory
please tick →

ADLAIDE 21 Birnie Road Adelaide SA 5005
Ph: 08 8350 8800 E: adelaide@alsglobal.com

BRISBANE 27 Grand Street Sturtford QLD 4053
Ph: 07 3243 7222 E: brisbane@alsglobal.com

DUNEDIN 100 North Beach Road Dunedin 9010
Ph: 07 7471 5000 E: dunedin@alsglobal.com

MACKAY 76 Harbour Road Mackay QLD 4740
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MELBOURNE 2-4 Warrall Road Springvale VIC 3171
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SYDNEY 577-269 Woodman Road Smithfield NSW 2161
Ph: 02 6781 0505 E: sydney@alsglobal.com

TOWNSVILLE 14-16 Drama Court Toowoomba QLD 4300
Ph: 07 4790 0600 E: toowoomba@alsglobal.com


WOLLONGONG 69 Henry Street Wollongong NSW 2500
Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: EKM	TURNAROUND REQUIREMENTS: <input type="checkbox"/> Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle):
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input checked="" type="checkbox"/> Non Standard or urgent TAT (List due date): 48hrs TAT	Custody Seal Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
PROJECT: Project Symphony	ALS QUOTE NO.: SY179413	Free ice / frozen ice blocks present upon receipt? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
ORDER NUMBER:	SITE: BAYSWATER / LIDDELL	Random Sample Temperature on Receipt: 4.4 °C
PROJECT MANAGER: 0224103	CONTACT PH: 0424 970 468	Other comment: 4.4
SAMPLER: S.C. - 3.6	SAMPLER MOBILE: 0413508660	
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	
Email Reports to (will default to PM if no other addresses are listed): Symphony@margen@erm.com	RELINQUISHED BY:	RECEIVED BY: May 14 W
Email Invoice to (will default to PM if no other addresses are listed):	DATE/TIME: 20.12.13	DATE/TIME: 20/12/15 15:15
		RELINQUISHED BY: May 14 W
		DATE/TIME: 20/12 17:00
		RECEIVED BY: Kan
		DATE/TIME: 20/12 19:00

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS			CONTAINER INFORMATION		ANALYSIS REQUIRED Including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information
	MATRIX: SOLID (S) WATER (W)	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below (refer to)	TOTAL CONTAINERS	W2 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	17 Metals (As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, Zn, Bi, Mo, Tl, U)	Selenium (Freshwater ORC)	VOC Target Scan	PFOA/FOA	W24 TRHC6-C40/BTEXN, PAH, Phenols	Carbonyls / Anions	
	BR-MW01	20.12.13/1000	W		9		X		X		X	X	
	ROL-2013-JG	" - "			8		X		X		X	X	
	BY-MW09	" - "			6	X			X		X	X	

Environmental Division
Sydney
Work Order
ES1328108



Telephone : + 61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Special bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Jacob Waugh

From: Jacob Waugh
Sent: Monday, 23 December 2013 5:41 PM
To: ERM Australia Project Symphony MacGen (Symphony.MacGen@erm.com)
Subject: ES1328108 - COC Clarification
Attachments: ES1328108_COC.pdf

Hello,

Sample R01_201213_JG from the attached COC did not have a unpreserved plastic bottle received so unfortunately we are not able to conduct the cation/anion analysis on this sample.

Let me know if you have any concerns with this.

Jacob Waugh

Laboratory Co-ordinator
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

How was your customer experience? [Please send us your feedback](#)

[EnviroMail 68 - Sampling and Analysis Implications of the new NEPM - July 2013](#)

[EnviroMail 69 - Testing Requirements of the new NEPM - July 2013](#)

[EnviroMail 70 - Variation of Naphthalene by SVOC and VOC Methods in Water - July 2013](#)

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SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1328108	
Client : ENVIRO RESOURCES MANAGEMENT Contact : SYMPHONY MACGEN Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007	Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail : symphony.macgen@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800	E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555
Project : Project Symphony Order number : 0224193 C-O-C number : ---- Site : ---- Sampler : SC, JG	Page : 1 of 2 Quote number : ES2013ENVRES0369 (SY/794/13) QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 20-DEC-2013 Client Requested Due Date : 24-DEC-2013	Issue Date : 21-DEC-2013 07:38 Scheduled Reporting Date : 24-DEC-2013
--	---

Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 1 HARD Security Seal : Intact.	Temperature : 4.4°C - Ice present No. of samples received : 3 No. of samples analysed : 3
---	--

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Green bottle not received for sample R01, unable to conduct cations/anion analysis.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including WATER - EG035F Dissolved Mercury by FIMS WATER - EG094A-F Dissolved Metals in Fresh Water Suite A by WATER - EN055 - PG Ionic Balance by ED037P, ED041G, ED045G & WATER - EP074 (water) Volatile Organic Compounds WATER - NT-01 Major Cations (Ca, Mg, Na, K) WATER - NT-02 Major Anions (Chloride, Sulphate, Alkalinity) WATER - W-03T 15 Metals (Total) (NEPM)
ES1328108-001	20-DEC-2013 10:00	BR_MW01	✓
ES1328108-002	20-DEC-2013 10:00	R01_201213_JG	✓
ES1328108-003	20-DEC-2013 10:00	BY_MW29	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-24 TRH/BTEX/PAH/Phenols
ES1328108-001	20-DEC-2013 10:00	BR_MW01	✓
ES1328108-002	20-DEC-2013 10:00	R01_201213_JG	✓
ES1328108-003	20-DEC-2013 10:00	BY_MW29	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

SYMPHONY MACGEN

- *AU Certificate of Analysis - NATA (COA)	Email	symphony.macgen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	symphony.macgen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	symphony.macgen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	symphony.macgen@erm.com
- Chain of Custody (CoC) (COC)	Email	symphony.macgen@erm.com
- EDI Format - ENMRG (ENMRG)	Email	symphony.macgen@erm.com
- EDI Format - EQUIS V5 ERM (EQUIS_V5_ERM)	Email	symphony.macgen@erm.com
- EDI Format - ESDAT (ESDAT)	Email	symphony.macgen@erm.com
- EDI Format - XTab (XTAB)	Email	symphony.macgen@erm.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
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CERTIFICATE OF ANALYSIS

Work Order : ES1328108 Client : ENVIRO RESOURCES MANAGEMENT Contact : SYMPHONY MACGEN Address : GROUND FLOOR 33 SAUNDERS STREET, PYRMONT NSW 2009 LOCKED BAG 24 BROADWAY NSW, AUSTRALIA 2007 E-mail : symphony.macgen@erm.com Telephone : +61 02 8584 8888 Facsimile : +61 02 8584 8800 Project : Project Symphony Order number : 0224193 C-O-C number : ---- Sampler : SC, JG Site : ---- Quote number : SY/794/13	Page : 1 of 9 Laboratory : Environmental Division Sydney Contact : Barbara Hanna Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Barbara.Hanna@alsglobal.com Telephone : +61 2 8784 8555 Facsimile : +61 2 8784 8555 QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement Date Samples Received : 20-DEC-2013 Issue Date : 24-DEC-2013 No. of samples received : 3 No. of samples analysed : 3
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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

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>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

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



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BR_MW01	R01_201213_JG	BY_MW29	----	----
				20-DEC-2013 10:00	20-DEC-2013 10:00	20-DEC-2013 10:00	----	----
Compound	CAS Number	LOR	Unit	ES1328108-001	ES1328108-002	ES1328108-003	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	753	----	478	----	----
Total Alkalinity as CaCO3	----	1	mg/L	753	----	478	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	794	----	928	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	1750	----	650	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	102	----	86	----	----
Magnesium	7439-95-4	1	mg/L	203	----	154	----	----
Sodium	7440-23-5	1	mg/L	1300	----	655	----	----
Potassium	7440-09-7	1	mg/L	38	----	20	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	----	----	----
Boron	7440-42-8	0.05	mg/L	----	<0.05	----	----	----
Barium	7440-39-3	0.001	mg/L	----	<0.001	----	----	----
Beryllium	7440-41-7	0.001	mg/L	----	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	----	----	----
Cobalt	7440-48-4	0.001	mg/L	----	<0.001	----	----	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	----	<0.001	----	----	----
Manganese	7439-96-5	0.001	mg/L	----	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	----	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	----	----	----
Vanadium	7440-62-2	0.01	mg/L	----	<0.01	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	<0.005	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	----	<0.001	----	----	----
Titanium	7440-32-6	0.01	mg/L	----	<0.01	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	<0.0001	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BR_MW01	R01_201213_JG	BY_MW29	----	----
				20-DEC-2013 10:00	20-DEC-2013 10:00	20-DEC-2013 10:00	----	----
Compound	CAS Number	LOR	Unit	ES1328108-001	ES1328108-002	ES1328108-003	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Arsenic	7440-38-2	0.2	µg/L	6.3	----	10.6	----	----
Barium	7440-39-3	0.5	µg/L	93.1	----	----	----	----
Beryllium	7440-41-7	0.1	µg/L	<0.1	----	----	----	----
Boron	7440-42-8	5	µg/L	193	----	----	----	----
Cadmium	7440-43-9	0.05	µg/L	<0.05	----	0.08	----	----
Chromium	7440-47-3	0.2	µg/L	16.7	----	3.7	----	----
Cobalt	7440-48-4	0.1	µg/L	6.3	----	----	----	----
Copper	7440-50-8	0.5	µg/L	5.4	----	8.6	----	----
Lead	7439-92-1	0.1	µg/L	0.8	----	158	----	----
Manganese	7439-96-5	0.5	µg/L	226	----	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	24.1	----	----	----	----
Nickel	7440-02-0	0.5	µg/L	104	----	8.2	----	----
Titanium	7440-32-6	1	µg/L	<1	----	----	----	----
Vanadium	7440-62-2	0.2	µg/L	1.5	----	----	----	----
Zinc	7440-66-6	1	µg/L	352	----	26	----	----
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	80.9	----	47.2	----	----
Total Cations	----	0.01	meq/L	79.3	----	46.0	----	----
Ionic Balance	----	0.01	%	1.04	----	1.36	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BR_MW01	R01_201213_JG	BY_MW29	----	----
				20-DEC-2013 10:00	20-DEC-2013 10:00	20-DEC-2013 10:00	----	----
Compound	CAS Number	LOR	Unit	ES1328108-001	ES1328108-002	ES1328108-003	----	----
EP074B: Oxygenated Compounds - Continued								
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BR_MW01	R01_201213_JG	BY_MW29	---	---
				20-DEC-2013 10:00	20-DEC-2013 10:00	20-DEC-2013 10:00	---	---
Compound	CAS Number	LOR	Unit	ES1328108-001	ES1328108-002	ES1328108-003	---	---
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	---	---
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	---	---
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	---	---
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	---	---
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	---	---
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	---	---
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	---	---
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	---	---
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	---	---
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	---	---
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	---	---
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	---	---
Bromoform	75-25-2	5	µg/L	<5	<5	<5	---	---
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	---	---
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	---	---
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	---	---
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BR_MW01	R01_201213_JG	BY_MW29	----	----
				20-DEC-2013 10:00	20-DEC-2013 10:00	20-DEC-2013 10:00	----	----
Compound	CAS Number	LOR	Unit	ES1328108-001	ES1328108-002	ES1328108-003	----	----
EP075(SIM)A: Phenolic Compounds - Continued								
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	1.1	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	1.1	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BR_MW01	R01_201213_JG	BY_MW29	----	----
Client sampling date / time				20-DEC-2013 10:00	20-DEC-2013 10:00	20-DEC-2013 10:00	----	----
Compound	CAS Number	LOR	Unit	ES1328108-001	ES1328108-002	ES1328108-003	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	<2	<2	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	115	116	122	----	----
Toluene-D8	2037-26-5	0.1	%	106	106	110	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	101	104	106	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	31.0	28.9	32.5	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	59.3	58.9	63.3	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	78.1	13.3	47.0	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	70.8	62.5	74.6	----	----
Anthracene-d10	1719-06-8	0.1	%	90.4	76.5	78.0	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	103	79.2	86.0	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	114	115	121	----	----
Toluene-D8	2037-26-5	0.1	%	105	104	109	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	96.3	97.6	101	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128