Annex B

Field Forms

ERM

Environmental Resources Management Australia Pty Ltd

PID Calibration Certificate

Project Name :	Phase II ESA	**Project Staff :**	Drew Wood
Project No :	0143175	**Date :**	8.5.12

Photo-ionisation Detector

Make/Model No:	MiniRAE Lite (PID)
Serial Number:	590-000228

Calibration Gas

Calibration Gas:	Isobutylene

PID Calibration

Zero Calibration

PID Reading:	0.0

Span Calibration

Desired PID Reading:	100.0
Actual PID Reading:	100.0

Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:	Drew Wood

Signature:			Date: 8.5.12

ERM

Environmental Resources Management Australia Pty Ltd

PID Calibration Certificate

Project Name :	Rose II ESA	**Project Staff :**	Drew Wood
Project No :	0143175	**Date :**	8.5.12

Photo-ionisation Detector

Make/Model No:	590-000228
Serial Number:	MiniRAE Lite.

Calibration Gas

Calibration Gas:	Isobutylene

PID Calibration

Zero Calibration

PID Reading:	0.0

Span Calibration

Desired PID Reading:	100.0
Actual PID Reading:	100.0

Certification

The above detector has been calibrated in accordance with the manufacturers specifications.

Checked By:	Drew Wood				
Signature:		K	Date:	8.5.12.	

Well Monitoring Form

ERM

Job Information	
Date: 14-5-12	Time: arrive 0830 depart 1330
Project Name: Crawfords Freightliners	Project Number 0143175
Site Location: Sandgate (Old Maitland Rd)	Operator: R Pascoe

Well Details

Well ID	Time	Well Depth	TOC Elev. (m)	Depth Water (m)	Depth Petro (m)	Product In Well	~~Petro Thick (m)~~	~~Top of Liquids (m)~~
MW03	0815	4.743		0.064		MW03-	Squal Beep at Bottom of well- possibly due to excess silt. No Sheen on probe.	
MW02	0820	4.004		0.713				
MW01	0825	4.290		1.732				
MW04	0830	3.985		0.910		MW02-	no odour	
MW05	0835	3.632		1.045		MW01-	no odour	
						MW04-	no odour	
						MW05-	no odour	

Notes:

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 14-5-12	Time: arrive 1225 depart 1300
Project Name: Crawfords Freightlines (Phase II)	Project Number: 0143175
Site Location: Old Maitland Rd	Sampler: R Pascoe
Well ID: MW01	Weather: sunny/sunny

Equipment

Water quality equipment description: 10M10028451 Interface probe number: Solinst - 122

Purging equipment: ~~Bailer type: Plastic Teflon~~ (please circle)

Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	(50mm)	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.98	(1.96)	7.85	31.4	49.1	70.7	125.7	196.3

Volume of water in well / V
= Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 4.290 m (-) Water level 1.732 m (=) Water Column ~2.5 m

Water Column 2.5 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~5L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y / ~~N~~

Water Quality Parameters

Beginning purge time: 1230 Ending purge time: 1253

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	1233	7.75	20.2	598	0.45	-121.8	—	Clear, no odour
2	1236	7.52	20.3	490.0	0.45	-104.4	—	(slight yellow staining)
3	1239	7.53	20.0	492.4	0.43	-98.5	—	
4	1242	7.57	19.9	488.6	0.45	-99.1	—	

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: (clear) / slightly cloudy / turbid / very turbid (no odour) / slight odour / odour / strong odour / drawdown depth

4L Total Well Volume — Actual amount of water prior to sampling

~300mL Flow rate mL/minute

Sample time 1243 Containers used 6+6=12

Did field parameters stabilise? (Y) N NA

Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaning sampling equipment used for these samples?	(Y)	N	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N	
Was documentation of equipment conducted?	(Y)	(X)	NA
Were air bubbles present in vials at time of collection?	(X)	(N)	NA
Was sample for metals field filtered prior to preservations?	(Y)	N	NA
Duplicate sample collected?	Y	(N)	Duplicate sample ID —
Rinsate blank collected?	(Y)	N	Rinsate blank ID R-140512-01

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 14-5-12	Time: arrive 1150 depart 1220
Project Name: Crawfords Freight Movers (Phase II)	Project Number: ~~M93~~ 0143175
Site Location: Crawfords Freight Movers (Sandgate)	Sampler: R. Pascoe
Well ID: MW02	Weather: Fine / sunny

Equipment

Water quality equipment description: 10M/100284/S1 Interface probe number: Solinst 122.

Purging equipment: (please circle) ~~Bailer type:~~ ~~Plastic~~ ~~Teflon~~

Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	(50mm)	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.98	(1.96)	7.85	31.4	49.1	70.7	125.7	196.3

Volume of water in well / V
= Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 4.004 m (-) Water level 0.713 m (=) Water Column 3.291 m

Water Column 3.291 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~6.5 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 1150 Ending purge time:

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	1155	6.61	20.6	42441	0.43	-83.4	—	Clear, yellow stain,
2	1158	5.8	20.7	39853	0.45	-70.3	—	no odour
3	1201	6.53	20.8	31774	0.40	-54.7	—	
4	1204	6.61	20.7	37972	0.51	-54.6	—	
5	1207	6.60	20.5	37710	0.48	-57.8	—	

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5L Total Well Volume (Actual amount of water prior to sampling) Sample time 1209 Containers used 6

~300 Flow rate mL/minute Did field parameters stabilise? Y / N / NA Was the well dry purged? Y / N

Field QC Checks

Was pre-cleaning sampling equipment used for these samples?	Y	N	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	
Was documentation of equipment conducted?	Y	N	NA
Were air bubbles present in vials at time of collection?	Y	N	NA
Was sample for metals field filtered prior to preservations?	Y	N	NA
Duplicate sample collected?	Y	N	Duplicate sample ID —
Rinsate blank collected?	Y	N	Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 14-5-12	Time: arrive 1000 depart 1039
Project Name: Crawfords Freightliners (Pheasley)	Project Number: 0143175
Site Location: Crawfords Freightliners Sandgate	Sampler: R Pascoe
Well ID: MW03	Weather: Fine / Sunny

Equipment

Water quality equipment description: IOM100284 YSI Interface probe number: Solinst 122

Purging equipment: (please circle) ~~Bailer type: Plastic Teflon~~

Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	(50mm)	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

Volume of water in well / V
= Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 4.743 m (-) Water level 0.064 m (=) Water Column 4.769 m

Water Column 4.769 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~9 L

Depth to product: — m Product Thickness: — m Verified with Baller: ~~Y~~ N

Water Quality Parameters

Beginning purge time: 1009 Ending purge time: 1035

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	1012	5.83	22.6	8752	0.52	42.9	—	Clear, no odour
2	1015	5.99	20.5	7810	0.43	42.9	—	
3	1018	5.78	20.7	5329	0.46	43.0	—	
4	1021	5.78	20.7	5729	0.49	48.0	—	
5	1024	5.79	20.6	5670	0.54	48.6	—	

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid (no odour) slight odour / odour / strong odour / drawdown depth

5L Total Well Volume — Actual amount of water prior to sampling Sample time 1025 Containers used 6

~300mL/min Flow rate mL/minute Did field parameters stabilise? (Y) N NA Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaning sampling equipment used for these samples?	(Y)	N	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N	
Was documentation of equipment conducted?	(Y)	N	NA
Were air bubbles present in vials at time of collection?	Y	(N)	NA
Was sample for metals field filtered prior to preservations?	(Y)	N	NA
Duplicate sample collected?	Y	(N)	Duplicate sample ID —
Rinsate blank collected?	Y	(N)	Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 14-5-12	Time: arrive 1100 depart 1135
Project Name: Crawfords Freightliners (Phase II)	Project Number: 0143175
Site Location: Crawfords Freightliners (Sandgate)	Sampler: R Pascoe
Well ID: MW04	Weather: fine / sunny

Equipment

Water quality equipment description: 10M100284451 Interface probe number: Solinst 122

Purging equipment: (please circle) ~~Bailer type:~~ ~~Plastic~~ ~~Teflon~~

Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	(50mm)	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.98	(1.96)	7.85	31.4	49.1	70.7	125.7	196.3

Volume of water in well / V
= Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 3.985 m (-) Water level 0.910 m (=) Water Column ~3.00 m

Water Column 3.00 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~6 L

Depth to product: — m Product Thickness: — m Verified with Bailer: (Y) N

Water Quality Parameters

Beginning purge time: 1105 Ending purge time: 1130

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	1110	6.14	21.1	49730	0.61	-41.4	—	clear no odour.
2	1113	6.27	21.2	47896	0.46	-70.7	—	
3	1115	6.31	21.2	49835	0.37	-79.4	—	
4	1118	6.33	21.0	49837	0.39	-80.2	—	

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: (clear) / slightly cloudy / turbid / very turbid / (no odour) / slight odour / odour / strong odour / drawdown depth

4L Total Well Volume
Actual amount of water prior to sampling

~300ml/m Flow rate
ml/minute

Sample time 1119 Containers used 6+6=12

Did field parameters stabilise? (Y) N NA

Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaning sampling equipment used for these samples?	(Y)	N	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N	
Was documentation of equipment conducted?	(Y)	N	NA
Were air bubbles present in vials at time of collection?	Y	(N)	NA
Was sample for metals field filtered prior to preservations?	(Y)	N	NA
Duplicate sample collected?	(Y)	N	
Rinsate blank collected?	Y	(N)	

Duplicate sample ID D-140512-01

Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 14-5-12	Time: arrive 0913 depart 0955
Project Name: Crawfords Freightliners (Phase II)	Project Number: 0145175
Site Location: Crawfords Freightliners (Sandgate)	Sampler: Rose. Pascoe
Well ID: MW05	Weather: fine/sunny

Equipment

Water quality equipment description: 10M100284 YSI Interface probe number: Solinst -122

Purging equipment: (please circle) ~~Baller type: Plastic Teflon~~

Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	(50mm)	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.98	(1.96)	7.85	31.4	49.1	70.7	125.7	196.3

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 3.632 m (-) Water level 1.045 m (=) Water Column 2.587 m

Water Column 2.587 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~5L L

Depth to product: — m Product Thickness: — m Verified with Baller: Y N

Water Quality Parameters

Beginning purge time: 0927 Ending purge time: 0950

Litres	Time	PH	Temp °C	Cond ~~uS~~/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	0932	6.1	17.1	743	0.25	-44.7	—	Clear, ~~Piano~~ yellow tinge, clumps
2	0935	6.23	17.2	608	0.24	-66.8	—	of algae (orange) throughout
3	0938	6.26	17.2	598	0.22	-70.0	—	No Odour. Becoming darker
4	0941	6.26	17.1	598	0.24	-68.9	—	& cloudy at 3L
								final depth to water
								=

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: (clear) / slightly cloudy / turbid / very turbid / (no odour) / slight odour / odour / strong odour / drawdown depth

4L Total Well Volume — Actual amount of water prior to sampling

300mL/min Flow rate — mL/minute

Sample time 0942 Containers used 6

Did field parameters stabilise? (Y) N NA

Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaning sampling equipment used for these samples?	(Y)	N	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N	
Was documentation of equipment conducted?	(Y)	N	NA
Were air bubbles present in vials at time of collection?	Y	(N)	NA
Was sample for metals field filtered prior to preservations?	(Y)	N	NA
Duplicate sample collected?	Y	(N)	Duplicate sample ID —
Rinsate blank collected?	Y	(N)	Rinsate blank ID —

Groundwater-well sampling data form.doc

3mm = 1L

Annex C

Borelogs

Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: BH01

ERM

ERM Australia Pty Ltd

Drill Start Date: 8/05/2012	Total Depth (m): 0.9	Final Water Level (m bgl): NA
Drill Finish Date: 8/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): -
Drill Co: Rockwell	Casing Type: NA	Elevation (Case): NA
Driller: Bill Smith	Casing Diam. (mm): NA	Easting (MGA): -
Drill Method: Hand Auger/Solid Flight	Surface Completion: Backfill	Northing (MGA): -
Hole Type: Soil Bore	Water Strike (m bgl): NA	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
Fill Sandy Silty Gravel, grey, dry - damp, loose, fine - coarse gravel, poorly sorted, sub-rounded - sub-angular, no odour, no staining. Highly compacted fill material					Grab			1.3	BH01_0.05	
								1.5		
Fill Clayey Sandy Gravel, brown, medium dense, fine grained - coarse gravel, poorly sorted, rounded - angular, no odour, no staining.								2.6		
					Grab			2.8	BH01_0.9	
End of Log			1							
			2							
			3							
			4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: BH02

ERM

ERM Australia Pty Ltd

Drill Start Date: 8/05/2012	Total Depth (m): 0.7	Final Water Level (m bgl): NA
Drill Finish Date: 8/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): -
Drill Co: Rockwell	Casing Type: NA	Elevation (Case): NA
Driller: Bill Smith	Casing Diam. (mm): NA	Easting (MGA): -
Drill Method: Hand Auger/Solid Flight	Surface Completion: Backfill	Northing (MGA): -
Hole Type: Soil Bore	Water Strike (m bgl): NA	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
Fill Sandy Silty Gravel, grey, dry - damp, loose, fine - coarse gravel, poorly sorted, sub-rounded - sub-angular, no odour, no staining. Highly compacted fill material								1.5 0.7		
					Grab			1.2	BH02_0.6	
End of Log			1 2 3 4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: BH04

ERM

ERM Australia Pty Ltd

Drill Start Date: 8/05/2012	Total Depth (m): 1.3	Final Water Level (m bgl): NA
Drill Finish Date: 8/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): -
Drill Co: Rockwell	Casing Type: NA	Elevation (Case): NA
Driller: Bill Smith	Casing Diam. (mm): NA	Easting (MGA): -
Drill Method: Hand Auger/Solid Flight	Surface Completion: Backfill	Northing (MGA): -
Hole Type: Soil Bore	Water Strike (m bgl): NA	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
Asphalt					Grab			1.7	BH04_0.1	
Fill Sandy Silty Gravel, grey, dry - damp, loose, fine - coarse gravel, poorly sorted, sub-rounded - sub-angular, no staining, naphthalene odour present										
Fill Sandy Clayey Gravel, red - brown with white fragments throughout, damp, loose, fine grained - coarse gravel, poorly sorted, sub-rounded - angular, no odour, no staining					Grab			4	BH04_0.5	
								2.1		
Fill Gravelly Clay, grey - black, damp, soft, low plasticity, no odour, no staining			1					1.4		
								1.1		
End of Log			2							
			3							
			4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: BH05

ERM

ERM Australia Pty Ltd

Drill Start Date: 8/05/2012	Total Depth (m): 1.3	Final Water Level (m bgl): NA
Drill Finish Date: 8/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): -
Drill Co: Rockwell	Casing Type: NA	Elevation (Case): NA
Driller: Bill Smith	Casing Diam. (mm): NA	Easting (MGA): -
Drill Method: Hand Auger/Solid Flight	Surface Completion: Backfill	Northing (MGA): -
Hole Type: Soil Bore	Water Strike (m bgl): 0.8	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
Fill Silty Gravel, brown, dry, very loose, fine grained - pebbles (>75mm), poorly sorted, rounded - angular, no odour, no staining								2.1		
Fill Sandy Gravel, light brown, damp, medium dense, medium coarse - coarse gravel, moderately sorted, sub-rounded, no odour, no staining								1.1		
Fill Clayey Gravel, damp, loose - medium dense, medium coarse - coarse gravel, poorly sorted, rounded - angular, no odour, no staining. Inclusions of foreign material throughout			1					2.1		
Fill Gravelly Sand, saturated, grey, loose, medium coarse - coarse gravel, well sorted, sub-rounded, no odour, no staining					Grab			0.9 2	BH05_1.3	
End of Log			2							
			3							
			4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: BH06

ERM

ERM Australia Pty Ltd

Drill Start Date: 8/05/2012	Total Depth (m): 0.75	Final Water Level (m bgl): NA
Drill Finish Date: 8/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): -
Drill Co: Rockwell	Casing Type: NA	Elevation (Case): NA
Driller: Bill Smith	Casing Diam. (mm): NA	Easting (MGA): -
Drill Method: Hand Auger/Solid Flight	Surface Completion: Backfill	Northing (MGA): -
Hole Type: Soil Bore	Water Strike (m bgl): 0.7	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
Asphalt								2.3		
Fill Gravelly Sand, damp, brown, loose, medium coarse - coarse gravel, well sorted, sub-rounded, no odour, no staining					Grab			2.6	BH06_0.3	
Fill Gravelly Sand, moist, brown, loose, medium coarse - pebbles (>75mm), well sorted, sub-rounded, no odour, no staining					Grab			2.4 1.2	BH06_0.75	
Fill Clayey Sandy Gravel, damp - moist, medium dense, medium coarse - coarse gravel, poorly sorted, sub-rounded, no odour, no staining. Saturated from 0.7m bgs			1							
End of Log			2							
			3							
			4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: BH07

ERM

ERM Australia Pty Ltd

Drill Start Date: 8/05/2012	Total Depth (m): 1.1	Final Water Level (m bgl): NA
Drill Finish Date: 8/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): -
Drill Co: Rockwell	Casing Type: NA	Elevation (Case): NA
Driller: Bill Smith	Casing Diam. (mm): NA	Easting (MGA): -
Drill Method: Hand Auger/Solid Flight	Surface Completion: Backfill	Northing (MGA): -
Hole Type: Soil Bore	Water Strike (m bgl): NA	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
Fill Silty Gravel, grey - brown, dry, loose - very loose, fine grained - pebbles (>75mm), sub-rounded - angular, no odour, no staining								2.1 1.6		
Fill Clayey Gravel, damp, loose - medium dense, medium coarse - coarse gravel, poorly sorted, rounded - angular, no odour, no staining. Inclusions of foreign material throughout (asbestos-like fragments, ceramic, organic content)					Grab			2.2 1.5	BH07_0.4	
Fill Gravelly Sand, black, moist - saturated, medium dense, medium coarse grained with inclusions of larger pebbles, sub-angular, no odour, slight staining present. Evidence of organic content and foreign material			1					1.8		
End of Log			2 3 4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: BH08

ERM

ERM Australia Pty Ltd

Drill Start Date: 8/05/2012	Total Depth (m): 1.5	Final Water Level (m bgl): NA
Drill Finish Date: 8/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): -
Drill Co: Rockwell	Casing Type: NA	Elevation (Case): NA
Driller: Bill Smith	Casing Diam. (mm): NA	Easting (MGA): -
Drill Method: Hand Auger/Solid Flight	Surface Completion: Backfill	Northing (MGA): -
Hole Type: Soil Bore	Water Strike (m bgl): 1.1	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
Asphalt								1		
Fill Sandy Silty Gravel, brown, dry - damp, loose, fine grained - coarse gravel, poorly sorted, sub-rounded - sub-angular, no odour, no staining								2.1		
Fill Sandy Gravelly Clay, grey - brown, damp, soft, low plasticity, heterogeneous, no odour, no staining					Grab			1.5	BH08_0.5	
Fill Sandy Gravelly Clay, brown, damp, soft, low plasticity, heterogeneous, no odour, no staining. Evidence of slag-like coarse gravel			1					1.4 0.8 1.8		
Fill Gravelly Sandy Clay, brown and black with red and grey mottling, damp, soft, low plasticity, heterogeneous, no odour, slight black staining present					Grab			1.5	BH08_1.2	
Clay Black and dark grey, saturated, very soft, non-plastic, homogenous, no staining, organic odour present. Evidence of organic content										
End of Log			2							
			3							
			4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: BH09

ERM

ERM Australia Pty Ltd

Drill Start Date: 8/05/2012	Total Depth (m): 1.2	Final Water Level (m bgl): NA
Drill Finish Date: 8/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): -
Drill Co: Rockwell	Casing Type: NA	Elevation (Case): NA
Driller: Bill Smith	Casing Diam. (mm): NA	Easting (MGA): -
Drill Method: Hand Auger/Solid Flight	Surface Completion: Backfill	Northing (MGA): -
Hole Type: Soil Bore	Water Strike (m bgl): NA	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
Asphalt Asphalt Sandy Gravel, grey, damp, dense, medium coarse - coarse gravel, poorly sorted, rounded - angular, no staining, strong ammonia odour present										
					Grab			2.1	BH09_0.7	
Fill Gravelly Sandy Clay, brown and black with red and grey mottling, damp, soft, low plasticity, heterogeneous, slight odour and black staining present			1					1.3		
End of Log			2 3 4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: BH10

ERM

ERM Australia Pty Ltd

Drill Start Date: 8/05/2012	Total Depth (m): 1.3	Final Water Level (m bgl): NA
Drill Finish Date: 8/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): -
Drill Co: Rockwell	Casing Type: NA	Elevation (Case): NA
Driller: Bill Smith	Casing Diam. (mm): NA	Easting (MGA): -
Drill Method: Hand Auger/Solid Flight	Surface Completion: Backfill	Northing (MGA): -
Hole Type: Soil Bore	Water Strike (m bgl): NA	

Lithology	Symbol	Well	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface			0							
Fill Sandy Silty Gravel, grey, dry - damp, loose, fine - coarse gravel, poorly sorted, sub-rounded - sub-angular, no staining, chemical odour from 0.3 - 0.8m bgs. Highly compacted fill material								1.7		
					Grab			2.4	BH10_0.4	
								1.8		
Fill Gravelly Sandy Clay, grey with red and brown mottling, damp, soft, low plasticity, slight odour and staining present			1					2.1		
Fill Gravelly Clay, grey - black, damp, soft, low plasticity, organic odour and slight staining present. Evidence of organic content					Grab			1.9	BH10_1.3	
End of Log			2							
			3							
			4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

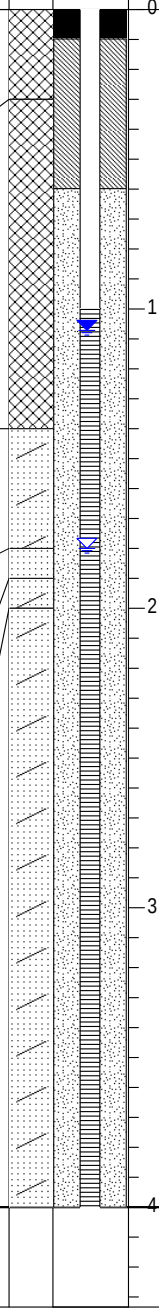
Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: MW01

ERM

ERM Australia Pty Ltd

Drill Start Date: 7/05/2012	Total Depth (m): 4	Final Water Level (m bgl): 1.072
Drill Finish Date: 7/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): 2.75
Drill Co: Rockwell	Casing Type: PVC	Elevation (Case): 3.41
Driller: Bill Smith	Casing Diam. (mm): 50	Easting (MGA): 378544.14
Drill Method: Pushtube/Auger	Surface Completion: Monument	Northing (MGA): 6362480.29
Hole Type: Monitoring Well	Water Strike (m bgl): 1.8	



Lithology	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface	0							
Fill Sandy Silty Gravel, brown, dry - damp, loose, fine grained - coarse gravel, poorly sorted, sub-rounded - sub-angular, no odour, no staining						0 0.8		
Fill Sandy Silty Gravel, damp, loose, fine grained - large pebble inclusions (>75mm), poorly sorted, sub-rounded - sub-angular, no odour, no staining			Grab			1.8	MW01_0.5	
	1					1.1 0.6		
Clayey Sand Dark brown - black, damp - moist, dense, fine grained, well sorted, low plasticity, homogenous, no odour, slight staining present. Evidence of organic content			PT			0.2	MW01_1.8	
Sand Dark grey - black, moist - saturated, dense, fine grained, well sorted, no odour, black staining present	2							
Sandy Clay Grey with brown mottling, damp, soft - medium stiff, low plasticity, homogenous, no odour, no staining								
Clayey Sand Grey with brown mottling, moist, dense, fine grained, well sorted, no odour, no staining. Grey and saturated from 2.9m bgs.						0.4		
	3							
			PT			0	MW01_3.6	
End of Log	4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

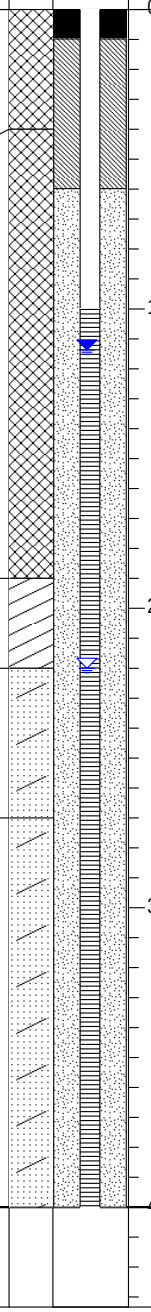
Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: MW02

ERM

ERM Australia Pty Ltd

Drill Start Date: 7/05/2012	Total Depth (m): 4	Final Water Level (m bgl): 1.137
Drill Finish Date: 7/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): 1.85
Drill Co: Rockwell	Casing Type: PVC	Elevation (Case): 1.79
Driller: Bill Smith	Casing Diam. (mm): 50	Easting (MGA): 378475.75
Drill Method: Pushtube/Auger	Surface Completion: Gatic	Northing (MGA): 6362681.79
Hole Type: Monitoring Well	Water Strike (m bgl): 2.2	



Lithology	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface	0							
Fill Sandy Silty Gravel, brown, dry - damp, loose, fine grained - coarse gravel, poorly sorted, sub-rounded - sub-angular, no staining, strong ammonia odour present			Grab			16.8	MW02_0.2	
Fill Sandy Clayey Gravel, grey, damp, medium coarse - pebbles, poorly sorted, sub-rounded - sub-angular, no staining, slight ammonia odour present. Inclusions of foreign material, inclusions of organic content at 1.85m bgs.						4.8 1.7 1.2		
	1		Grab			0.8	MW02_1.0	
Clay Dark grey - black, , moist, very soft, non-plastic, no odour, no staining. Inclusions of organic content	2							
Sandy Clay Grey with brown mottling, moist - saturated, very soft, non-plastic, no odour, no staining						2.1		
Clayey Sand Grey, moist, dense, fine grained, well sorted, no odour, no staining. Grey and saturated from 2.9m bgs.	3		PT			2.5	MW02_3.0	
						1.5		
End of Log	4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: MW03

ERM

ERM Australia Pty Ltd

Drill Start Date: 7/05/2012	Total Depth (m): 5	Final Water Level (m bgl): 2.316
Drill Finish Date: 7/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): 2.20
Drill Co: Rockwell	Casing Type: PVC	Elevation (Case): 2.06
Driller: Bill Smith	Casing Diam. (mm): 50	Easting (MGA): 378362.71
Drill Method: Pushtube/Auger	Surface Completion: Gatic	Northing (MGA): 6362966.38
Hole Type: Monitoring Well	Water Strike (m bgl): 1	

Lithology	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface	0							
Asphalt								
Fill Sandy Gravel, grey, damp, loose, medium coarse - coarse gravel, poorly sorted, sub-rounded - sub-angular, no staining, Naphthalene-like odour. Slag-like fill material			Grab			3	MW03_0.15	
						2.5		
						6.5		
Fill Sandy Gravel, grey, damp, loose, medium coarse - pebbles (>75mm), poorly sorted, sub-rounded - sub-angular, no staining, Naphthalene-like odour. Slag-like fill material	1					0.9		
Fill Clayey Sandy Gravel, red - brown, moist - saturated, loose, medium coarse - pebbles, poorly sorted, rounded - angular, no odour, no staining. Inclusions of building material								
Gravelly Clay Brown with orange and grey mottling and coarse gravel inclusions, damp - moist, medium plasticity, heterogeneous, no odour, no staining	2		PT			0.1	MW03_2.0	
Clay Black and dark grey, moist, very soft, non-plastic, homogenous, no staining, organic odour present. Evidence of organic content to 2.7m bgs	3					0		
Clayey Sand Grey, moist - saturated, dense, fine grained, well sorted, no odour, no staining. Evidence of white shells (approx. 10mm) throughout profile	4					0		
	5		PT			0	MW03_5.0	
End of Log								

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: MW04

ERM

ERM Australia Pty Ltd

Drill Start Date: 8/05/2012	Total Depth (m): 4	Final Water Level (m bgl): 1.09
Drill Finish Date: 8/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): 2.00
Drill Co: Rockwell	Casing Type: PVC	Elevation (Case): 1.88
Driller: Bill Smith	Casing Diam. (mm): 50	Easting (MGA): 378527.61
Drill Method: Pushtube/Auger	Surface Completion: Gatic	Northing (MGA): 6362671.35
Hole Type: Monitoring Well	Water Strike (m bgl): 1.6	

Lithology	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface	0							
Fill Silty Gravel, grey, dry - damp, loose, fine - coarse gravel, sub-angular - angular, poorly sorted, no staining, strong ammonia odour present			Grab			25.1 8.6 8	MW04_0.05	
Fill Gravelly Sand, grey, damp, medium dense, fine grained - coarse gravel, poorly sorted, rounded - angular, no staining, slight chemical odour present	1					1 0.7		
Fill Silty Gravelly Sand, grey, damp - moist, medium dense - dense, fine grained - coarse gravel, poorly sorted, rounded - angular, no staining, slight chemical odour present						0.4		
Fill Clayey Gravel, moist - saturated at 1.6m bgsm medium coarse - coarse gravel, loose - medium dense, poorly sorted, angular, no odour, no staining								
Clay Black and dark grey, moist, very soft, non-plastic, homogenous, no staining, organic odour present. Evidence of organic content	2		PT			0.1	MW04_2.1	
Sandy Clay Grey, saturated, very soft, non-plastic, no odour, no staining								
Clayey Sand Grey, saturated, dense, fine grained, well sorted, no odour, no staining. Grey and saturated from 2.9m bgs.	3					0.1		
			PT			2	MW04_3.6	
End of Log	4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

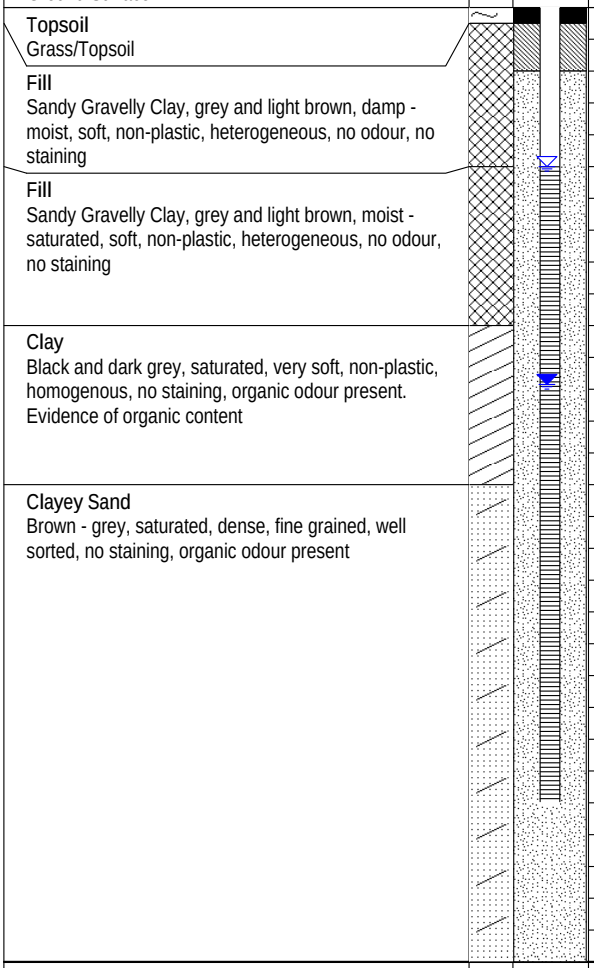
Client: Crawfords Freightlines Pty Ltd
Project No.: 0143175
Project Name: Phase II ESA
Site Name: Sandgate
Site Address: Lot 12 Old Maitland Road, Sandgate NSW

ID: MW05

ERM

ERM Australia Pty Ltd

Drill Start Date: 7/05/2012	Total Depth (m): 3	Final Water Level (m bgl): 1.185
Drill Finish Date: 7/05/2012	Hole Diam. / Width (mm): 100	Elevation (Ground): 2.23
Drill Co: Rockwell	Casing Type: PVC	Elevation (Case): 2.98
Driller: Bill Smith	Casing Diam. (mm): 50	Easting (MGA): 378681.27
Drill Method: Pushtube/Auger	Surface Completion: Monument	Northing (MGA): 6362772.92
Hole Type: Monitoring Well	Water Strike (m bgl): 0.5	



Lithology	Depth (m)	Recovery	Sample Type	Analysed	PPT (kPa)	PID (ppm)	Sample Details	Remarks
Ground Surface	0							
Topsoil Grass/Topsoil						0.1		
Fill Sandy Gravelly Clay, grey and light brown, damp - moist, soft, non-plastic, heterogeneous, no odour, no staining			Grab			0	MW05_0.45	
Fill Sandy Gravelly Clay, grey and light brown, moist - saturated, soft, non-plastic, heterogeneous, no odour, no staining	1							
Clay Black and dark grey, saturated, very soft, non-plastic, homogenous, no staining, organic odour present. Evidence of organic content			Grab			0.1	MW05_1.2	
Clayey Sand Brown - grey, saturated, dense, fine grained, well sorted, no staining, organic odour present	2					0.1		
			PT			1	MW05_2.7	
End of Log	3							
	4							

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Log By: D.Wood
Checked By: D.Wood

Annex D

Photolog

Photograph 1

MW01 view southwest

Photograph 2

MW02 view north

Photograph 3

MW03 view northeast

Photograph 4

MW04 view north

Photograph 5

MW05 view west

Photograph 6

Drilling BH04 view south

Annex E

Laboratory Certificates

ERM

☐ Sydney
☐ Melbourne
☐ Brisbane
☐ Perth
☑ Hunter Valley
☐ North Coast
☐ Other

Grnd Floor, 33 Saunders Street, Pyrmont, NSW, 2009. (ph) 02 8584 8888 (fax) 02 8584 8800
Level 3, Yarra Tower, WTC, 18-38 Siddeley Street, Docklands, VIC, 3005. (ph) 03 9696 8011 (fax) 03 9696 8022
Level 1, 60 Leichhardt Street, Spring Hill, QLD, 4004. (ph) 07 3839 8393 (fax) 07 3839 8381
Level 6, Grain Pool Bld, 172 St Georges Tce, WA, 6850. (ph) 08 9321 5200 (fax) 08 9321 5262
53 Bonville Avenue, Thornton, NSW, 2322. (ph) 02 4964 2150 (fax) 02 4964 2152
Suite 3/146 Gordon Street, Port Macquarie, NSW, 2444. (ph) 02 6584 7155 (fax) 02 6584 7160

Project No: 0143175
Project Name: Crawfords Phase II
Project Location: Sandgate
Project Manager: DW/RM
Sampler: Drew Wood.

COC Number
A 11933

Environmental Division
Sydney
Work Order
ES1211396

Telephone : +61-2-8784 8555

General Analysis Requirements	Yes (tick)
1. Turn Around Time (please tick: ☐ 1 Day ☐ 2 Days ☐ 3 Days ☑ Normal TAT)	
2. Do you wish any sediment layers in water to be exluded from extractions?	
3. Additional QA/QC reported where sample batches are < 10 samples?	
4. % of extraneous material removed from samples to be reported as per NEPM 5.1.1?	

Laboratory Number	Sample ID	Sample Depth	Sample Date	Sample Time	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Preservation: Filter	Preservation: Other	Containers (number/type)	BTEX	TPH (C6-C9 P & T) + TPH (C10-C36)	Speciated TPH	VOC Scan (USEPA 8260 List)	SVOC Scan (USEPA 8270 List)	OC OP Pesticides	PAH	Phenols	PCB	Metals* (dissolved metals)	Asbestos	Nitrate+Nitrite	Ammonia	Acid Sulfate Soil Scan	
1	MW01_0.5		7/5	am	X			X				1 x Jar 1 x Bag	X	X					X	X		X		X	X	X	
2	MW01_1.8				X																			X	X	X	
3	MW01_3.6																							X	X		Reject
4	MW02_0.2																							X	X	X	
5	MW02_1.0																						X		bag for asbestos Bact EN		Jar on HOLD
6	MW02_3.0																							X	X	X	
7	MW03_0.15			pm								1 x Jar	X	X				X	X	X	X	X		X	X		
8	MW03_2.0											1 x Jar 1 x Bag															HOLD
9	MW03_5.0											11												X	X	X	
10	D_070512_01											1 x Jar	X	X										X	X		
11	MW05_0.45											1 x Jar												X	X		
12	MW05_1.2											1 x Jar + Bag												X	X	X	
13	MW05_2.7											1 x Jar															→ HOLD
14	MW04_0.05		8/5	am								1 x Jar												X	X		
15	MW04_2.1											11															HOLD.
16	MW04_3.6											11												X	X		
17	BH08_0.5											1 x Jar	X	X					X	X				X	X		HOLD.
18	BH08_1.2											11	X	X				X	X	X	X	X		X	X		
19	D_080512_01																							X	X		

Comments: # No T/Blank in Spike/Blank pair, please added to pair + analyse.

*Metals (Circle)
As Cd Cr Cu Hg Ni Pb Zn

Relinquished by:	Signed:	Date/Time:	Received by:	Date/Time:
			J. Flent	9/5/12 16:30
Relinquished by:	Signed:	Date/Time:	Received by:	Date/Time:
				9/5/12 1900

ERM

☐ Sydney
☐ Melbourne
☐ Brisbane
☐ Perth
☒ Hunter Valley
☐ North Coast
☐ Other

Grnd Floor, 33 Saunders Street, Pyrmont, NSW, 2009. (ph) 02 8584 8888 (fax) 02 8584 8800
Level 3, Yarra Tower, WTC, 18-38 Siddeley Street, Docklands, VIC, 3005. (ph) 03 9696 8011 (fax) 03 9696 8022
Level 1, 60 Leichhardt Street, Spring Hill, QLD, 4004. (ph) 07 3839 8393 (fax) 07 3839 8381
Level 6, Grain Pool Bld, 172 St Georges Tce, WA, 6850. (ph) 08 9321 5200 (fax) 08 9321 5262
53 Bonville Avenue, Thornton, NSW, 2322. (ph) 02 4964 2150 (fax) 02 4964 2152
Suite 3/146 Gordon Street, Port Macquarie, NSW, 2444. (ph) 02 6584 7155 (fax) 02 6584 7160

Project No: 0143175
Project Name: Crawfords Phase II
Project Location: Sandgate
Project Manager: DW + RM
Sampler: Drew Wood

COC Number: A 11934
Laboratory: ALS.

General Analysis Requirements — Yes (tick)

1. Turn Around Time (please tick: ☐1 Day ☐2 Days ☐3 Days ☒Normal TAT)
2. Do you wish any sediment layers in water to be exluded from extractions?
3. Additional QA/QC reported where sample batches are < 10 samples?
4. % of extraneous material removed from samples to be reported as per NEPM 5.1.1?

Laboratory Number	Sample ID	Sample Depth	Sample Date	Sample Time	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Preservation: Filter	Preservation: Other	Containers (number/type)	BTEX	TPH (C6-C9 P & T) + TPH (C10-C36)	Speciated TPH	VOC Scan (USEPA 8260 List)	SVOC Scan (USEPA 8270 List)	OC OP Pesticides	PAH	Phenols	PCB	Metals*	Nitrate/Nitrite	Ammonia	Asbestos	Other Comments on sample (eg: high voc, highly contaminated, special detection limits etc etc)
20	R-070512-01		7/5			X		X	X														X	X		~~2 x snap-lock bags kept for Asbestos bag as ES WO~~ ~~please freeze ASS soils overnight and to Brisbane~~
21	R-080512-01		8/5	am		X		X	X														X	X		
22	BH09_0.7		″	″	X			X				1x Jar											X	X		
23	BH09_1.2		″	″	″			″				1x Jar											X	X		[illegible]
24	BH07_0.4		″	″	″			″				1x Jar 1x Bag	X	X				X			X	X	X	X	X	bag kept at EN for Asb.
25	T/Spike												X	X												
26	*T/Blank.												X	X												
27	BH06_0.3		8/5	pm	X			X				1x Jar											X	X		
28	BH06_0.75		″	″	″			″				1x Jar														HOLD
29	BH05_1.3		″	″	″			″				1 x Jar											X	X		
30	BH02_0.6		″	″	X			X				″											X	X		
31	BH01_0.05		″	″	″			″				″														HOLD
32	BH01_0.9		″	″	″			″				1											X	X		
33	BH10_0.4		″	″	″			″				1	X	X				X	X	X	X	X	X	X		
34	BH10_1.3		″	″	″			″				1											X	X		
35	D-080512_02		″	″	″			″				1	~~X~~	~~X~~					~~X~~				X	X		
36	BH04_0.1		″	″	″							1	X	X					X	X			X	X		
37	BH04_0.5											1											X	X		
38	TSC																									

Comments: *No T/Blank in pair, please add blank to analysis.

*Metals (circle): As Cd Cr Cu Hg Ni Pb Zn

Relinquished by: M. Cra... Signed: [signature] Date/Time: 9/5/12 Received by: J. Flint ALS Date/Time: 9/5/12 16:35

Relinquished by: SFlint Signed: [signature] Date/Time: 9/5/12 17:00 Received by: Date/Time: 9/5/12 19:00

Environmental Division
Sydney
Work Order
ES1211396

Telephone : +61-2-8784 8555

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: **ES1211396**		
Client	: **ENVIRO RESOURCES MANAGEMENT**	Laboratory	: Environmental Division Sydney
Contact	: DREW WOOD	Contact	: Client Services
Address	: P O BOX 71 THORNTON NSW, AUSTRALIA 2322	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: drew.wood@erm.com	E-mail	: sydney@alsglobal.com
Telephone	: +61 02 4964 2150	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 4962 2152	Facsimile	: +61-2-8784 8500
Project	: 0143175-CROW FORDS PHASE II	Page	: 1 of 4
Order number	: ----		
C-O-C number	: 11933-11934	Quote number	: ----
Site	: SANDGELE		
Sampler	: DW	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 09-MAY-2012	Issue Date	: 14-MAY-2012 13:29
Client Requested Due Date	: 17-MAY-2012	Scheduled Reporting Date	: **17-MAY-2012**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 4.3'C SYD - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 37
Security Seal	: Intact.	No. of samples analysed	: 31

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.
- **Samples received in appropriately pretreated and preserved containers.**
- **Acid Sulfate Soil Screen and Amonia (on water) analysis will be conducted by ALS Brisbane.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **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 neccessary 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: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA037 ASS Field Screening Analysis	SOIL - EA200 Asbestos Identification in Soils	SOIL - EK055 (solids) Ammonia as N	SOIL - NT-4S NO2 and NO3	SOIL - S-04 TPH/BTEX	SOIL - S-05 TPH/BTEX/8 Metals	SOIL - S-13 OC/OP/PCB
ES1211396-001	07-MAY-2012 09:00	MW01_0.5		✓		✓	✓			
ES1211396-002	07-MAY-2012 09:00	MW01_1.8		✓		✓	✓			
ES1211396-003	07-MAY-2012 09:00	MW01_3.6				✓	✓			
ES1211396-004	07-MAY-2012 09:00	MW02_0.2		✓		✓	✓			
ES1211396-005	07-MAY-2012 09:00	MW02_1.0			✓					
ES1211396-006	07-MAY-2012 09:00	MW02_3.0		✓		✓	✓			
ES1211396-007	07-MAY-2012 15:00	MW03_0.15				✓	✓			
ES1211396-008	07-MAY-2012 15:00	MW03_2.0	✓							
ES1211396-009	07-MAY-2012 15:00	MW03_5.0		✓		✓	✓			
ES1211396-010	07-MAY-2012 15:00	D_070512_01				✓	✓	✓		
ES1211396-011	07-MAY-2012 15:00	MW05_0.45				✓	✓			
ES1211396-012	07-MAY-2012 15:00	MW05_1.2		✓		✓	✓			
ES1211396-013	07-MAY-2012 15:00	MW05_2.7	✓							
ES1211396-014	08-MAY-2012 15:00	MW04_0.05				✓	✓			
ES1211396-015	08-MAY-2012 15:00	MW04_2.1	✓							
ES1211396-016	08-MAY-2012 15:00	MW04_3.6				✓	✓			
ES1211396-017	08-MAY-2012 15:00	BH08_0.5	✓							
ES1211396-018	08-MAY-2012 15:00	BH08_1.2				✓	✓			
ES1211396-019	08-MAY-2012 15:00	D_080512_01				✓	✓			
ES1211396-022	08-MAY-2012 09:00	BH09_0.7				✓	✓			
ES1211396-023	08-MAY-2012 09:00	BH09_1.2				✓	✓			
ES1211396-024	08-MAY-2012 09:00	BH07_0.4			✓	✓	✓		✓	✓
ES1211396-026	08-MAY-2012 15:00	T/BLANK						✓		
ES1211396-027	08-MAY-2012 15:00	BH06_0.3				✓	✓			
ES1211396-028	08-MAY-2012 15:00	BH06_0.75	✓							
ES1211396-029	08-MAY-2012 15:00	BH05_1.3				✓	✓			
ES1211396-030	08-MAY-2012 15:00	BH02_0.6				✓	✓			
ES1211396-031	08-MAY-2012 15:00	BH01_0.05	✓							
ES1211396-032	08-MAY-2012 15:00	BH01_0.9				✓	✓			
ES1211396-033	08-MAY-2012 15:00	BH10_0.4				✓	✓			
ES1211396-034	08-MAY-2012 15:00	BH10_1.3				✓	✓			
ES1211396-035	08-MAY-2012 15:00	D_080512_02				✓	✓			
ES1211396-036	08-MAY-2012 15:00	BH04_0.1				✓	✓			
ES1211396-037	08-MAY-2012 15:00	BH04_0.5_				✓	✓			

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - S-18 (NO MOIST) TPH(C6-C9)/BTEX with No Moisture for TBs	SOIL - S-19 TPH/BTEX/P/Ph/OC/OP/PCB/8 metals	SOIL - S-24 TPH/BTEX/PAH + Phenols	SOIL - S-27 TPH/BTEX/PAH/Phenols/8Metals
ES1211396-001	07-MAY-2012 09:00	MW01_0.5				✓
ES1211396-007	07-MAY-2012 15:00	MW03_0.15		✓		
ES1211396-018	08-MAY-2012 15:00	BH08_1.2		✓		
ES1211396-025	08-MAY-2012 15:00	T/SPIKE	✓			
ES1211396-033	08-MAY-2012 15:00	BH10_0.4		✓		
ES1211396-036	08-MAY-2012 15:00	BH04_0.1			✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - NT-04 Nitrite and Nitrate
ES1211396-020	07-MAY-2012 15:00	R_070512_01	✓	✓
ES1211396-021	08-MAY-2012 09:00	R_080512_01	✓	✓

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: **SOIL**

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
EA037: ASS Field Screening Analysis							
MW01_0.5	Snap Lock Bag	08-MAY-2012	----	09-MAY-2012	×	09-MAY-2012	×
MW01_1.8	Snap Lock Bag	08-MAY-2012	----	09-MAY-2012	×	09-MAY-2012	×
MW02_0.2	Snap Lock Bag	08-MAY-2012	----	09-MAY-2012	×	09-MAY-2012	×
MW02_3.0	Snap Lock Bag	08-MAY-2012	----	09-MAY-2012	×	09-MAY-2012	×
MW03_5.0	Snap Lock Bag	08-MAY-2012	----	09-MAY-2012	×	09-MAY-2012	×
MW05_1.2	Snap Lock Bag	08-MAY-2012	----	09-MAY-2012	×	09-MAY-2012	×

Requested Deliverables

DREW WOOD

- *AU Certificate of Analysis - NATA (COA)	Email	drew.wood@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	drew.wood@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	drew.wood@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	drew.wood@erm.com
- A4 - AU Tax Invoice (INV)	Email	drew.wood@erm.com
- Chain of Custody (CoC) (COC)	Email	drew.wood@erm.com
- EDI Format - ENMRG (ENMRG)	Email	drew.wood@erm.com
- EDI Format - EQUIS V5 Generic (EQUIS_V5)	Email	drew.wood@erm.com
- EDI Format - ESDAT (ESDAT)	Email	drew.wood@erm.com

MR ROB MACINTOSH

- *AU Certificate of Analysis - NATA (COA)	Email	Rob.MacIntosh@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Rob.MacIntosh@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Rob.MacIntosh@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Rob.MacIntosh@erm.com
- A4 - AU Tax Invoice (INV)	Email	Rob.MacIntosh@erm.com
- Chain of Custody (CoC) (COC)	Email	Rob.MacIntosh@erm.com
- EDI Format - ENMRG (ENMRG)	Email	Rob.MacIntosh@erm.com
- EDI Format - EQUIS V5 Generic (EQUIS_V5)	Email	Rob.MacIntosh@erm.com
- EDI Format - ESDAT (ESDAT)	Email	Rob.MacIntosh@erm.com

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES1211396**	Page	: 1 of 26
Client	: **ENVIRO RESOURCES MANAGEMENT**	Laboratory	: Environmental Division Sydney
Contact	: DREW WOOD	Contact	: Client Services
Address	: P O BOX 71 THORNTON NSW, AUSTRALIA 2322	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: drew.wood@erm.com	E-mail	: sydney@alsglobal.com
Telephone	: +61 02 4964 2150	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 4962 2152	Facsimile	: +61-2-8784 8500
Project	: CRANSFORDS PHASE 11	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: 11933-11934	Date Samples Received	: 09-MAY-2012
Sampler	: DW	Issue Date	: 17-MAY-2012
Site	: SANDGATE		
		No. of samples received	: 38
Quote number	: EN/009/11	No. of samples analysed	: 32

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
- Descriptive 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.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Evie.Sidarta	Inorganic Chemist	Sydney Inorganics
Myles.Clark	Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Peter Rennie	Team Leader - Asbestos	Newcastle
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney Inorganics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics
Stephen Hislop	Senior Inorganic Chemist	Brisbane 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

- **ASS: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Vigorous; 4 - Very Vigorous**
- **EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.**
- **EA200 Legend for Asbestos Type:**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 't' Trace levels**
- **EA200 'UMF' Unknown mineral fibres**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Confirmation by alternative techniques is recommended for samples where unknown mineral fibres are detected. Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EG-005T:LCS recovery for Chromium falls outside ALS Dynamic Control Limit. However, it is within the acceptance criteria based on ALS DQO. No further action is required.**
- **EP066, EP068, EP075(SIM): Particular samples required dilution due to sample matrix interferences. LOR values have been adjusted accordingly. Various surrogates could not be determined.**
- **EP080: Trip spike and Trip spike control have not been spiked with petrol. Results confirmed by re-extraction and re-analysis.**
- **EP080:The trip spike and its control have been analysed for volatile TPH and BTEX only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: MW01_0.5	MW01_1.8	MW01_3.6	MW02_0.2	MW02_1.0
				Client sampling date / time: 07-MAY-2012 09:00	07-MAY-2012 09:00	07-MAY-2012 09:00	07-MAY-2012 09:00	07-MAY-2012 09:00
				ES1211396-001	ES1211396-002	ES1211396-003	ES1211396-004	ES1211396-005
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	7.4	7.7	----	10.5	----
pH (Fox)	----	0.1	pH Unit	8.7	3.3	----	10.6	----
Reaction Rate	----	1	-	4	1	----	4	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	7.7	16.9	23.4	6.0	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	No
Asbestos Type	1332-21-4	0.1	--	----	----	----	----	-
Sample weight (dry)	----	0.01	g	----	----	----	----	486
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	P.RENNIE
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	30	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	13	----	----	----	----
Chromium	7440-47-3	2	mg/kg	73	----	----	----	----
Copper	7440-50-8	5	mg/kg	669	----	----	----	----
Lead	7439-92-1	5	mg/kg	1970	----	----	----	----
Nickel	7440-02-0	2	mg/kg	72	----	----	----	----
Zinc	7440-66-6	5	mg/kg	4300	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	2.8	----	----	----	----
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	40	50	110	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	<0.1	<0.1	1.1	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	----	0.1	mg/kg	8.7	<0.1	0.3	509	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	8.7	<0.1	0.3	510	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1.0	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: MW01_0.5	MW01_1.8	MW01_3.6	MW02_0.2	MW02_1.0
				Client sampling date / time: 07-MAY-2012 09:00	07-MAY-2012 09:00	07-MAY-2012 09:00	07-MAY-2012 09:00	07-MAY-2012 09:00
				ES1211396-001	ES1211396-002	ES1211396-003	ES1211396-004	ES1211396-005
EP075(SIM)A: Phenolic Compounds - Continued								
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2.0	mg/kg	<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	**2.2**	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	**1.9**	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	**1.1**	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	**1.0**	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	**1.3**	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	**0.8**	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	**0.6**	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	**8.9**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	**160**	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	**160**	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	10	mg/kg	<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg	<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	**220**	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	**220**	----	----	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: MW01_0.5	MW01_1.8	MW01_3.6	MW02_0.2	MW02_1.0
				Client sampling date / time: 07-MAY-2012 09:00	07-MAY-2012 09:00	07-MAY-2012 09:00	07-MAY-2012 09:00	07-MAY-2012 09:00
				ES1211396-001	ES1211396-002	ES1211396-003	ES1211396-004	ES1211396-005
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
EP080: BTEXN								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	<0.5	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	**109**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	**107**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	**95.5**	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	**101**	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	**115**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	**106**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**100**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	**98.7**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	**91.1**	----	----	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: MW02_3.0	MW03_0.15	MW03_5.0	D_070512_01	MW05_0.45
				Client sampling date / time: 07-MAY-2012 09:00	07-MAY-2012 15:00	07-MAY-2012 15:00	07-MAY-2012 15:00	07-MAY-2012 15:00
				ES1211396-006	ES1211396-007	ES1211396-009	ES1211396-010	ES1211396-011
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**8.5**	----	**8.8**	----	----
pH (Fox)	----	0.1	pH Unit	**1.9**	----	**5.8**	----	----
Reaction Rate	----	1	-	**2**	----	**2**	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	**22.5**	<1.0	**27.1**	**9.3**	**25.1**
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	----	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	----	**5**	----	----	----
Copper	7440-50-8	5	mg/kg	----	**6**	----	----	----
Lead	7439-92-1	5	mg/kg	----	**9**	----	----	----
Nickel	7440-02-0	2	mg/kg	----	<2	----	----	----
Zinc	7440-66-6	5	mg/kg	----	**44**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	----	----
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	----	0.1	mg/kg	**0.4**	**1.0**	**0.2**	**0.9**	**0.2**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	**0.4**	**1.0**	**0.2**	**0.9**	**0.2**
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.10	mg/kg	----	<0.20	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.25	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.25	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.25	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.25	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.25	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.25	----	----	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.25	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.25	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.25	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.25	----	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: MW02_3.0	MW03_0.15	MW03_5.0	D_070512_01	MW05_0.45
				Client sampling date / time: 07-MAY-2012 09:00	07-MAY-2012 15:00	07-MAY-2012 15:00	07-MAY-2012 15:00	07-MAY-2012 15:00
				ES1211396-006	ES1211396-007	ES1211396-009	ES1211396-010	ES1211396-011
EP068A: Organochlorine Pesticides (OC) - Continued								
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.25	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.25	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	<0.25	----	----	----
Endrin	72-20-8	0.05	mg/kg	----	<0.25	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.25	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	<0.25	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.25	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.25	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.25	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.2	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	<0.25	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	<0.25	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	<0.3	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	<0.25	----	----	----
Diazinon	333-41-5	0.05	mg/kg	----	<0.25	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	<0.25	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg	----	<0.25	----	----	----
Fenthion	55-38-9	0.05	mg/kg	----	<0.25	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	<0.25	----	----	----
Parathion	56-38-2	0.2	mg/kg	----	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	<0.25	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	<0.25	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	<0.25	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	<0.25	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	<0.25	----	----	----
Ethion	563-12-2	0.05	mg/kg	----	<0.25	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.25	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.25	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	<4.0	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<4.0	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<4.0	----	----	----
3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	----	<8.0	----	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: MW02_3.0	MW03_0.15	MW03_5.0	D_070512_01	MW05_0.45
				Client sampling date / time: 07-MAY-2012 09:00	07-MAY-2012 15:00	07-MAY-2012 15:00	07-MAY-2012 15:00	07-MAY-2012 15:00
				ES1211396-006	ES1211396-007	ES1211396-009	ES1211396-010	ES1211396-011
EP075(SIM)A: Phenolic Compounds - Continued								
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<4.0	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<4.0	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<4.0	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<4.0	----	----	----
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	----	<4.0	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<4.0	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<4.0	----	----	----
Pentachlorophenol	87-86-5	2.0	mg/kg	----	<8.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	**10.2**	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<4.0	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	**9.1**	----	----	----
Fluorene	86-73-7	0.5	mg/kg	----	<4.0	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	**154**	----	----	----
Anthracene	120-12-7	0.5	mg/kg	----	**40.6**	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	**239**	----	----	----
Pyrene	129-00-0	0.5	mg/kg	----	**183**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	**67.7**	----	----	----
Chrysene	218-01-9	0.5	mg/kg	----	**63.6**	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	**57.3**	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	**20.9**	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	**33.5**	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	**17.3**	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	**4.6**	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	**19.2**	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	**920**	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	**3670**	----	**4260**	----
C29 - C36 Fraction	----	100	mg/kg	----	**580**	----	**680**	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	**4250**	----	**4940**	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	10	mg/kg	----	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg	----	<10	----	<10	----
>C10 - C16 Fraction	----	50	mg/kg	----	**70**	----	**80**	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: MW02_3.0	MW03_0.15	MW03_5.0	D_070512_01	MW05_0.45
				Client sampling date / time: 07-MAY-2012 09:00	07-MAY-2012 15:00	07-MAY-2012 15:00	07-MAY-2012 15:00	07-MAY-2012 15:00
				ES1211396-006	ES1211396-007	ES1211396-009	ES1211396-010	ES1211396-011
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft - Continued								
>C16 - C34 Fraction	----	100	mg/kg	----	**3990**	----	**4640**	----
>C34 - C40 Fraction	----	100	mg/kg	----	**330**	----	**390**	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	----	**4390**	----	**5110**	----
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	----
EP080: BTEXN								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
^ **Sum of BTEX**	----	0.2	mg/kg	----	<0.2	----	<0.2	----
Naphthalene	91-20-3	1	mg/kg	----	**6**	----	**9**	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	**125**	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	----	**102**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	----	**77.2**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	----	**74.1**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	**76.8**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	----	**76.0**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	----	**80.9**	----	----	----
Anthracene-d10	1719-06-8	0.1	%	----	**96.1**	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	**80.3**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	----	**85.9**	----	**97.4**	----
Toluene-D8	2037-26-5	0.1	%	----	**98.1**	----	**114**	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	**96.2**	----	**110**	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: MW05_1.2	MW04_0.05	MW04_3.6	BH08_1.2	D_080512_01
				Client sampling date / time: 07-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00
				ES1211396-012	ES1211396-014	ES1211396-016	ES1211396-018	ES1211396-019
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**7.1**	----	----	----	----
pH (Fox)	----	0.1	pH Unit	**3.0**	----	----	----	----
Reaction Rate	----	1	-	**3**	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	**25.1**	**18.4**	**24.1**	**21.0**	**11.6**
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	----	**20**	----
Cadmium	7440-43-9	1	mg/kg	----	----	----	<1	----
Chromium	7440-47-3	2	mg/kg	----	----	----	<2	----
Copper	7440-50-8	5	mg/kg	----	----	----	**9**	----
Lead	7439-92-1	5	mg/kg	----	----	----	**26**	----
Nickel	7440-02-0	2	mg/kg	----	----	----	**3**	----
Zinc	7440-66-6	5	mg/kg	----	----	----	**58**	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	----	**0.1**	----
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	**50**	<20	**60**	**50**
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	**1.3**	<0.1	<0.1	**5.6**
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	----	0.1	mg/kg	**4.8**	**107**	**0.5**	**0.2**	**326**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	**4.8**	**108**	**0.5**	**0.2**	**332**
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.10	mg/kg	----	----	----	<0.10	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg	----	----	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg	----	----	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg	----	----	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	----	<0.05	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: MW05_1.2	MW04_0.05	MW04_3.6	BH08_1.2	D_080512_01
				Client sampling date / time: 07-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00
				ES1211396-012	ES1211396-014	ES1211396-016	ES1211396-018	ES1211396-019
EP068A: Organochlorine Pesticides (OC) - Continued								
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	----	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg	----	----	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg	----	----	----	<0.2	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg	----	----	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg	----	----	----	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg	----	----	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg	----	----	----	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg	----	----	----	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg	----	----	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg	----	----	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg	----	----	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	----	----	----	<1.0	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: MW05_1.2	MW04_0.05	MW04_3.6	BH08_1.2	D_080512_01
				Client sampling date / time: 07-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00
				ES1211396-012	ES1211396-014	ES1211396-016	ES1211396-018	ES1211396-019
EP075(SIM)A: Phenolic Compounds - Continued								
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	<0.5	----
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	----	----	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	<0.5	----
Pentachlorophenol	87-86-5	2.0	mg/kg	----	----	----	<2.0	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	----	**1.2**	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	----	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	----	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	----	----	**1.4**	----
Anthracene	120-12-7	0.5	mg/kg	----	----	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	----	----	**0.6**	----
Pyrene	129-00-0	0.5	mg/kg	----	----	----	**0.5**	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	----	----	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	----	**3.7**	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	----	----	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	----	----	**80**	----
C15 - C28 Fraction	----	100	mg/kg	----	----	----	**1230**	----
C29 - C36 Fraction	----	100	mg/kg	----	----	----	**300**	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	**1610**	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	10	mg/kg	----	----	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg	----	----	----	<10	----
>C10 - C16 Fraction	----	50	mg/kg	----	----	----	**150**	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: MW05_1.2	MW04_0.05	MW04_3.6	BH08_1.2	D_080512_01
				Client sampling date / time: 07-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00
				ES1211396-012	ES1211396-014	ES1211396-016	ES1211396-018	ES1211396-019
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft - Continued								
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	**1390**	----
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	<100	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	----	----	----	**1540**	----
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	----	----	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	----	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	----	<0.5	----
EP080: BTEXN								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	----	----	----	<0.5	----
^ **Sum of BTEX**	----	0.2	mg/kg	----	----	----	<0.2	----
Naphthalene	91-20-3	1	mg/kg	----	----	----	<1	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	**64.0**	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	----	----	----	**91.1**	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	----	----	----	**58.0**	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	----	----	----	**98.6**	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	----	**101**	----
2.4.6-Tribromophenol	118-79-6	0.1	%	----	----	----	**92.2**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	----	**96.2**	----
Anthracene-d10	1719-06-8	0.1	%	----	----	----	**102**	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	----	**100**	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	**79.0**	----
Toluene-D8	2037-26-5	0.1	%	----	----	----	**109**	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	**92.7**	----

Analytical Results

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID	BH09_0.7	BH09_1.2	BH07_0.4	T/SPIKE AAA	T/BLANK
				Client sampling date / time	08-MAY-2012 09:00	08-MAY-2012 09:00	08-MAY-2012 09:00	08-MAY-2012 15:00	08-MAY-2012 15:00
					ES1211396-022	ES1211396-023	ES1211396-024	ES1211396-025	ES1211396-026
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		16.7	19.3	24.6	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg		----	----	No	----	----
Asbestos Type	1332-21-4	0.1	--		----	----	-	----	----
Sample weight (dry)	----	0.01	g		----	----	336	----	----
APPROVED IDENTIFIER:	----	-	--		----	----	P.RENNIE	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		----	----	21	----	----
Cadmium	7440-43-9	1	mg/kg		----	----	<1	----	----
Chromium	7440-47-3	2	mg/kg		----	----	6	----	----
Copper	7440-50-8	5	mg/kg		----	----	21	----	----
Lead	7439-92-1	5	mg/kg		----	----	35	----	----
Nickel	7440-02-0	2	mg/kg		----	----	12	----	----
Zinc	7440-66-6	5	mg/kg		----	----	62	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		----	----	<0.1	----	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		<20	20	20	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	----	0.1	mg/kg		0.3	<0.1	<0.1	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	----	0.1	mg/kg		1.5	0.6	0.2	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		1.8	0.6	0.2	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.10	mg/kg		----	----	<0.10	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	----	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	----	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg		----	----	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg		----	----	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		----	----	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg		----	----	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg		----	----	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	<0.05	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	BH09_0.7	BH09_1.2	BH07_0.4	T/SPIKE AAA	T/BLANK
				Client sampling date / time	08-MAY-2012 09:00	08-MAY-2012 09:00	08-MAY-2012 09:00	08-MAY-2012 15:00	08-MAY-2012 15:00
					ES1211396-022	ES1211396-023	ES1211396-024	ES1211396-025	ES1211396-026
EP068A: Organochlorine Pesticides (OC) - Continued									
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	----	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg		----	----	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	<0.2	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		----	----	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		----	----	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		----	----	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		----	----	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		----	----	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	<0.05	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	<10	<10	<10

Analytical Results

Sub-Matrix: SOIL				Client sample ID	BH09_0.7	BH09_1.2	BH07_0.4	T/SPIKE AAA	T/BLANK
				Client sampling date / time	08-MAY-2012 09:00	08-MAY-2012 09:00	08-MAY-2012 09:00	08-MAY-2012 15:00	08-MAY-2012 15:00
Compound	CAS Number	LOR	Unit		ES1211396-022	ES1211396-023	ES1211396-024	ES1211396-025	ES1211396-026
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		----	----	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg		----	----	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg		----	----	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	----	<50	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft									
C6 - C10 Fraction	----	10	mg/kg		----	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg		----	----	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		----	----	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg		----	----	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg		----	----	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	----	<50	----	<50
EP080: BTEX									
Benzene	71-43-2	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
EP080: BTEXN									
^ Total Xylenes	1330-20-7	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg		----	----	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	**62.1**	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%		----	----	**100**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%		----	----	**53.8**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	----	**77.1**	**92.0**	**87.7**
Toluene-D8	2037-26-5	0.1	%		----	----	**101**	**128**	**113**
4-Bromofluorobenzene	460-00-4	0.1	%		----	----	**84.2**	**106**	**93.0**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: BH06_0.3	BH05_1.3	BH02_0.6	BH01_0.9	BH10_0.4
				Client sampling date / time: 08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00
				ES1211396-027	ES1211396-029	ES1211396-030	ES1211396-032	ES1211396-033
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	**7.4**	**17.5**	**6.9**	**11.0**	**17.0**
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	----	----	**16**
Cadmium	7440-43-9	1	mg/kg	----	----	----	----	**2**
Chromium	7440-47-3	2	mg/kg	----	----	----	----	**15**
Copper	7440-50-8	5	mg/kg	----	----	----	----	**37**
Lead	7439-92-1	5	mg/kg	----	----	----	----	**416**
Nickel	7440-02-0	2	mg/kg	----	----	----	----	**9**
Zinc	7440-66-6	5	mg/kg	----	----	----	----	**284**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	----	----	<0.1
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	**20**	<20	<20	<20	<20
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	<0.1	**0.1**	**0.3**	<0.1
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	----	0.1	mg/kg	**19.9**	<0.1	**3.8**	**7.6**	**6.1**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	**19.9**	<0.1	**3.9**	**7.9**	**6.1**
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.10	mg/kg	----	----	----	----	<0.10
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	----	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	----	----	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	----	----	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg	----	----	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg	----	----	----	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg	----	----	----	----	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg	----	----	----	----	<0.05

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: BH06_0.3	BH05_1.3	BH02_0.6	BH01_0.9	BH10_0.4
				Client sampling date / time: 08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00
				ES1211396-027	ES1211396-029	ES1211396-030	ES1211396-032	ES1211396-033
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	----	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	----	----	----	----	<0.2
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	----	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	----	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	----	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg	----	----	----	----	<0.05
Diazinon	333-41-5	0.05	mg/kg	----	----	----	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	----	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	----	----	<0.2
Malathion	121-75-5	0.05	mg/kg	----	----	----	----	<0.05
Fenthion	55-38-9	0.05	mg/kg	----	----	----	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	----	----	<0.05
Parathion	56-38-2	0.2	mg/kg	----	----	----	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	----	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	----	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	----	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	----	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	----	----	----	----	<0.05
Ethion	563-12-2	0.05	mg/kg	----	----	----	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	----	----	----	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	----	----	<0.05
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	----	----	----	----	<1.0
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	----	<0.5

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: BH06_0.3	BH05_1.3	BH02_0.6	BH01_0.9	BH10_0.4
				Client sampling date / time: 08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00
				ES1211396-027	ES1211396-029	ES1211396-030	ES1211396-032	ES1211396-033
EP075(SIM)A: Phenolic Compounds - Continued								
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	----	----	----	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	----	<0.5
Pentachlorophenol	87-86-5	2.0	mg/kg	----	----	----	----	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	----	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	----	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	----	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	----	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	----	----	----	**0.6**
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	----	----	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	----	----	**0.6**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	----	----	----	<10
C10 - C14 Fraction	----	50	mg/kg	----	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	----	----	**3090**
C29 - C36 Fraction	----	100	mg/kg	----	----	----	----	**1260**
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	----	**4350**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	10	mg/kg	----	----	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg	----	----	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg	----	----	----	----	**90**
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	----	**3760**
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	----	**1030**
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	----	**4880**
EP080: BTEX								

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: BH06_0.3	BH05_1.3	BH02_0.6	BH01_0.9	BH10_0.4
				Client sampling date / time: 08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00
				ES1211396-027	ES1211396-029	ES1211396-030	ES1211396-032	ES1211396-033
EP080: BTEX - Continued								
Benzene	71-43-2	0.2	mg/kg	----	----	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg	----	----	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	----	----	<0.5
EP080: BTEXN								
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	----	----	----	----	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	----	----	----	----	<0.2
Naphthalene	91-20-3	1	mg/kg	----	----	----	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	----	**84.9**
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	----	----	----	----	**96.3**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	----	----	----	----	**62.3**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	----	----	----	----	**113**
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	----	----	**112**
2.4.6-Tribromophenol	118-79-6	0.1	%	----	----	----	----	**117**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	----	----	**112**
Anthracene-d10	1719-06-8	0.1	%	----	----	----	----	**118**
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	----	----	**108**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	----	**91.7**
Toluene-D8	2037-26-5	0.1	%	----	----	----	----	**110**
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	----	**97.8**

Analytical Results

Sub-Matrix: SOIL				Client sample ID	BH10_1.3	D_080512_02	BH04_0.1	BH04_0.5_	T/SPIKE CONTROL AAB1
				Client sampling date / time	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00
Compound	CAS Number	LOR	Unit		ES1211396-034	ES1211396-035	ES1211396-036	ES1211396-037	ES1211396-038
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		18.9	18.2	5.0	19.4	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		130	<20	<20	<20	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	----	0.1	mg/kg		0.1	1.7	4.3	0.3	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		0.1	1.7	4.3	0.3	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	<8.0	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	<8.0	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	<8.0	----	----
3- & 4-Methylphenol	1319-77-3	1.0	mg/kg		----	----	<16.0	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	<8.0	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	<8.0	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	<8.0	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	<8.0	----	----
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg		----	----	<8.0	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	<8.0	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	<8.0	----	----
Pentachlorophenol	87-86-5	2.0	mg/kg		----	----	<16.0	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	17.3	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	<8.0	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	58.6	----	----
Fluorene	86-73-7	0.5	mg/kg		----	----	20.7	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	1010	----	----
Anthracene	120-12-7	0.5	mg/kg		----	----	226	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	1810	----	----
Pyrene	129-00-0	0.5	mg/kg		----	----	1370	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	493	----	----
Chrysene	218-01-9	0.5	mg/kg		----	----	420	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg		----	----	406	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	135	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	BH10_1.3	D_080512_02	BH04_0.1	BH04_0.5_	T/SPIKE CONTROL AAB1
				Client sampling date / time	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00
					ES1211396-034	ES1211396-035	ES1211396-036	ES1211396-037	ES1211396-038
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	**210**	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	**100**	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	**30.1**	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	**97.7**	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		----	----	**6400**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg		----	----	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		----	----	**19600**	----	----
C29 - C36 Fraction	----	100	mg/kg		----	----	**4270**	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		----	----	**23900**	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft									
C6 - C10 Fraction	----	10	mg/kg		----	----	<10	----	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	----	10	mg/kg		----	----	<10	----	<10
>C10 - C16 Fraction	----	50	mg/kg		----	----	**150**	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	----	**20900**	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	----	**3780**	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	----	**24800**	----	----
EP080: BTEX									
Benzene	71-43-2	0.2	mg/kg		----	----	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg		----	----	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	<0.5	----	<0.5
EP080: BTEXN									
^ **Total Xylenes**	1330-20-7	0.5	mg/kg		----	----	<0.5	----	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		----	----	<0.2	----	<0.2
Naphthalene	91-20-3	1	mg/kg		----	----	**13**	----	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		----	----	**78.2**	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%		----	----	**73.5**	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%		----	----	**Not Determined**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		----	----	**76.7**	----	----
Anthracene-d10	1719-06-8	0.1	%		----	----	**106**	----	----

Analytical Results

Sub-Matrix: SOIL				Client sample ID	BH10_1.3	D_080512_02	BH04_0.1	BH04_0.5_	T/SPIKE CONTROL AAB1
				Client sampling date / time	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00	08-MAY-2012 15:00
Compound	CAS Number	LOR	Unit		ES1211396-034	ES1211396-035	ES1211396-036	ES1211396-037	ES1211396-038
EP075(SIM)T: PAH Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	0.1	%		----	----	90.6	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	----	99.8	----	105
Toluene-D8	2037-26-5	0.1	%		----	----	119	----	114
4-Bromofluorobenzene	460-00-4	0.1	%		----	----	106	----	111

Analytical Results

Sub-Matrix: WATER			Client sample ID	R_070512_01	R_080512_01	----	----	----
			Client sampling date / time	07-MAY-2012 15:00	08-MAY-2012 09:00	----	----	----
Compound	CAS Number	LOR	Unit	ES1211396-020	ES1211396-021	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.03**	**0.02**	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	----	0.01	mg/L	<0.01	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**0.01**	<0.01	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.01**	<0.01	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	MW02_1.0 - 07-MAY-2012 09:00	Grey shaly soil with some vegetation and small to medium sized grey rocks and small coal and charcoal pieces
EA200: Description	BH07_0.4 - 08-MAY-2012 09:00	Mixture of pinkish-brown and white rocks and large quantity small coal pieces

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	30.8	155.7
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	19.5	167.0
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	22.7	163.5
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	56.3	133.3
2-Chlorophenol-D4	93951-73-6	53.8	133.8
2.4.6-Tribromophenol	118-79-6	23.1	134.9
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	58.9	132.7
Anthracene-d10	1719-06-8	55.0	137.6
4-Terphenyl-d14	1718-51-0	54.0	147.8
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Environmental Division

QUALITY CONTROL REPORT

Work Order	: **ES1211396**	Page	: 1 of 16
Client	: **ENVIRO RESOURCES MANAGEMENT**	Laboratory	: Environmental Division Sydney
Contact	: DREW WOOD	Contact	: Client Services
Address	: P O BOX 71 THORNTON NSW, AUSTRALIA 2322	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: drew.wood@erm.com	E-mail	: sydney@alsglobal.com
Telephone	: +61 02 4964 2150	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 4962 2152	Facsimile	: +61-2-8784 8500
Project	: CRANSFORDS PHASE 11	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: SANDGATE		
C-O-C number	: 11933-11934	Date Samples Received	: 09-MAY-2012
Sampler	: DW	Issue Date	: 17-MAY-2012
Order number	: ----		
		No. of samples received	: 38
Quote number	: EN/009/11	No. of samples analysed	: 32

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*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Evie.Sidarta	Inorganic Chemist	Sydney Inorganics
Myles.Clark	Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Peter Rennie	Team Leader - Asbestos	Newcastle
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Raymond Commodor	Instrument Chemist	Sydney Inorganics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics
Stephen Hislop	Senior Inorganic Chemist	Brisbane 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: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA037: Ass Field Screening Analysis (QC Lot: 2306579)									
ES1211396-001	MW01_0.5	EA037: pH (F)	----	0.1	pH Unit	7.4	7.5	1.3	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	8.7	8.6	1.2	0% - 20%
ES1211429-005	Anonymous	EA037: pH (F)	----	0.1	pH Unit	5.6	5.6	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	2.9	3.0	3.4	0% - 20%
EA055: Moisture Content (QC Lot: 2303870)									
ES1211396-003	MW01_3.6	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	23.4	23.8	1.8	0% - 20%
ES1211396-019	D_080512_01	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.6	11.9	2.5	0% - 50%
EA055: Moisture Content (QC Lot: 2303871)									
ES1211396-033	BH10_0.4	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	17.0	17.0	0.0	0% - 50%
ES1211899-005	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	5.2	5.2	0.0	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 2305836)									
ES1211257-017	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES1211270-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	27	28	0.0	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	56	58	3.1	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	13	14	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	11	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	224	232	3.2	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	3860	3970	2.9	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	73000	77400	5.8	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2305837)									
ES1211257-017	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK055: Ammonia as N (QC Lot: 2307010)									
ES1211396-001	MW01_0.5	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
ES1211396-014	MW04_0.05	EK055: Ammonia as N	7664-41-7	20	mg/kg	50	50	0.0	No Limit
EK055: Ammonia as N (QC Lot: 2307011)									
ES1211396-032	BH01_0.9	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2303990)									
ES1211396-001	MW01_0.5	EK057G: Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1211396-012	MW05_1.2	EK057G: Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2303992)									
ES1211396-032	BH01_0.9	EK057G: Nitrite as N (Sol.)	----	0.1	mg/kg	0.3	0.3	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2303991)									
ES1211396-001	MW01_0.5	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	8.7	8.8	1.2	0% - 20%
ES1211396-012	MW05_1.2	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	4.8	4.8	0.0	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2303993)									
ES1211396-032	BH01_0.9	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	7.9	7.9	0.0	0% - 20%
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2303876)									
ES1211396-007	MW03_0.15	EP066: Total Polychlorinated biphenyls	----	0.10	mg/kg	<0.20	<0.20	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2303875)									
ES1211396-007	MW03_0.15	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2303875)									
ES1211396-007	MW03_0.15	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.25	<0.25	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2303875) - continued									
ES1211396-007	MW03_0.15	EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.25	<0.25	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.3	<0.3	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2304114)									
ES1211396-001	MW01_0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	mg/kg	<2.0	<2.0	0.0	No Limit
ES1211476-008	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	mg/kg	<2.0	<2.0	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2305487)									
ES1211396-033	BH10_0.4	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				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: 2305487) - continued									
ES1211396-033	BH10_0.4	EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2.0	mg/kg	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2304114)									
ES1211396-001	MW01_0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	2.2	2.0	8.4	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.9	1.7	7.8	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	1.1	1.0	12.4	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.0	0.9	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	1.3	1.1	17.7	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.8	0.7	17.6	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.6	0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	8.9	7.9	11.9	0% - 50%
ES1211476-008	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2304114) - continued									
ES1211476-008	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2305487)									
ES1211396-033	BH10_0.4	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.6	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.6	0.7	19.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	0.6	1.3	73.7	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2303039)									
ES1211396-001	MW01_0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1211905-021	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2304113)									
ES1211396-001	MW01_0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	160	150	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1211476-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2305486)									
ES1211396-033	BH10_0.4	EP071: C15 - C28 Fraction	----	100	mg/kg	3090	3500	12.5	0% - 20%
		EP071: C29 - C36 Fraction	----	100	mg/kg	1260	1350	7.1	0% - 50%
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2303039)									

Sub-Matrix: **SOIL**

				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 2010 Draft (QC Lot: 2303039) - continued									
ES1211396-001	MW01_0.5	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1211905-021	Anonymous	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2304113)									
ES1211396-001	MW01_0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	220	230	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1211476-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2305486)									
ES1211396-033	BH10_0.4	EP071: >C16 - C34 Fraction	----	100	mg/kg	3760	4340	14.3	0% - 20%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	1030	1050	2.5	0% - 50%
		EP071: >C10 - C16 Fraction	----	50	mg/kg	90	110	17.1	No Limit
EP080: BTEXN (QC Lot: 2303039)									
ES1211396-001	MW01_0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1211905-021	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	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 (%)
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 2307927)									
EB1212491-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.01	<0.01	0.0	No Limit
EB1212491-011	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2302351)									
ES1211396-020	R_070512_01	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2307926)									
EB1212491-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EB1212491-011	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.01	<0.01	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: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2305836)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	99.8	70	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	93.6	83.3	111
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	# 81.2	89.2	117
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	99.4	90.1	114
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	99.8	85.2	111
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.23 mg/kg	91.1	88.3	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	95.2	88.9	112
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2305837)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	82.0	67	118
EK055: Ammonia as N (QCLot: 2307010)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	100 mg/kg	99.1	70	130
EK055: Ammonia as N (QCLot: 2307011)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	100 mg/kg	101	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2303990)								
EK057G: Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	100	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2303992)								
EK057G: Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	101	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2303991)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	73.4	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2303993)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	114	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2303876)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.10	1 mg/kg	84.0	57.4	117
EP068A: Organochlorine Pesticides (OC) (QCLot: 2303875)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	98.2	60.8	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	59.4	115
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.8	59.8	117
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	59.8	118
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	65.8	114
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	112	65.6	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	67	113
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	100	65.6	113
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	100	60.7	113

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2303875) - continued								
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	110	65.8	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	57.3	120
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	104	67.4	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	67.5	114
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.2	63	121
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	66.1	117
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.1	65.3	116
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	84.7	57.3	115
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	63.6	119
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	109	58.4	127
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	63.6	117
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	97.5	50.4	132
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2303875)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	92.7	25.5	124
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.1	10.1	159
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	94.7	2.88	149
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	105	48.6	126
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	100	64.9	111
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	65.1	111
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	85.2	61.4	113
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	105	60.4	127
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	64.7	110
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.6	64.2	111
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	86.3	60	116
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.9	64.8	111
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	103	61.4	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	64.3	114
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	45.5	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	65.4	111
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	62	116
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	100	59.5	119
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	87.1	29.8	137
EP075(SIM)A: Phenolic Compounds (QCLot: 2304114)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	93.4	73.9	115
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	95.6	80.2	115
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	93.6	76.8	114
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1.0	8 mg/kg	99.8	72	119
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	87.1	60.3	117
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	87.1	74.5	119

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 2304114) - continued								
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	87.2	71.6	113
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	87.1	74.8	115
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	85.1	76.4	114
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	86.0	62.2	115
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	82.0	68.9	112
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1.0	8 mg/kg	33.0	1.23	91.6
EP075(SIM)A: Phenolic Compounds (QCLot: 2305487)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	4 mg/kg	84.5	73.9	115
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	4 mg/kg	85.2	80.2	115
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	4 mg/kg	79.4	76.8	114
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1.0	8 mg/kg	83.5	72	119
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	4 mg/kg	68.8	60.3	117
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	4 mg/kg	84.5	74.5	119
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	4 mg/kg	74.2	71.6	113
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	4 mg/kg	84.1	74.8	115
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	4 mg/kg	77.5	76.4	114
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	4 mg/kg	69.2	62.2	115
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	4 mg/kg	82.2	68.9	112
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1.0	8 mg/kg	22.3	1.23	91.6
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2304114)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	104	81.9	113
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	101	79.6	113
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	100	81.5	112
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	96.7	79.9	112
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	108	79.4	114
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	109	81.1	112
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	103	78.8	113
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	102	78.9	113
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	103	77.2	112
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	106	79.8	114
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	91.1	71.8	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	107	74.2	117
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	90.0	76.4	113
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	85.2	71	113
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	85.7	71.7	113
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	83.5	72.4	114
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2305487)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	87.3	81.9	113
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	80.6	79.6	113

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2305487) - continued								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	84.2	81.5	112
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	80.6	79.9	112
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	86.3	79.4	114
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	81.4	81.1	112
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	79.9	78.8	113
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	79.4	78.9	113
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	82.8	77.2	112
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	83.4	79.8	114
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	# 71.7	71.8	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	82.4	74.2	117
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	86.7	76.4	113
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	72.3	71	113
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	74.6	71.7	113
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	84.7	72.4	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2303039)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	107	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2304113)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	101	59	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	103	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	91.0	63	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2305486)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	91.7	59	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	105	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	86.0	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2303039)								
EP080: C6 - C10 Fraction	----	10	mg/kg	<10	31 mg/kg	109	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2304113)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	94.4	59	131
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	92.0	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	80.0	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2305486)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	96.4	59	131
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	84.8	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	114	63	131
EP080: BTEXN (QCLot: 2303039)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.3	62	120

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 2303039) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	113	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	95.4	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	94.2	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	97.5	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	92.2	62	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2307927)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	70.0	70	120
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2302351)								
EK057G: Nitrite as N	----	0.01	mg/L	<0.01	0.5 mg/L	93.5	78	128
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2307926)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	81.5	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: **SOIL**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2305836)							
ES1211257-017	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	97.5	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.2	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	100	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	96.7	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	97.5	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	96.4	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	97.1	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2305837)							
ES1211257-017	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	82.5	70	130
EK055: Ammonia as N (QCLot: 2307010)							
ES1211396-001	MW01_0.5	EK055: Ammonia as N	7664-41-7	50 mg/kg	95.9	70	130
EK055: Ammonia as N (QCLot: 2307011)							
ES1211396-032	BH01_0.9	EK055: Ammonia as N	7664-41-7	50 mg/kg	96.3	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2303990)							
ES1211396-001	MW01_0.5	EK057G: Nitrite as N (Sol.)	----	2.5 mg/kg	106	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2303992)							
ES1211396-032	BH01_0.9	EK057G: Nitrite as N (Sol.)	----	2.5 mg/kg	106	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2303991)							
ES1211396-001	MW01_0.5	EK059G: Nitrite + Nitrate as N (Sol.)	----	2 mg/kg	# Not Determined	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2303993)							
ES1211396-032	BH01_0.9	EK059G: Nitrite + Nitrate as N (Sol.)	----	2 mg/kg	74.0	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2303876)							
ES1211848-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	94.0	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2303875)							
ES1211848-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	104	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	101	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	98.4	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	106	70	130
		EP068: Endrin	72-20-8	2 mg/kg	102	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	97.2	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2303875)							
ES1211848-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	110	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	99.2	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	92.9	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2303875) - continued							
ES1211848-001	Anonymous	EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	89.0	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	105	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 2304114)							
ES1211396-001	MW01_0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	90.8	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	83.5	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.3	60	130
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	80.9	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	53.2	20	130
EP075(SIM)A: Phenolic Compounds (QCLot: 2305487)							
ES1211396-033	BH10_0.4	EP075(SIM): Phenol	108-95-2	10 mg/kg	70.8	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	75.2	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	64.8	60	130
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	77.7	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	34.7	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2304114)							
ES1211396-001	MW01_0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	85.1	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	84.2	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2305487)							
ES1211396-033	BH10_0.4	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	70.5	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	79.4	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2303039)							
ES1211396-001	MW01_0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.6	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2304113)							
ES1211396-001	MW01_0.5	EP071: C10 - C14 Fraction	----	640 mg/kg	117	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	104	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	115	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2305486)							
ES1211396-033	BH10_0.4	EP071: C10 - C14 Fraction	----	640 mg/kg	80.0	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	57.3	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	110	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2303039)							
ES1211396-001	MW01_0.5	EP080: C6 - C10 Fraction	----	37.5 mg/kg	96.5	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2304113)							
ES1211396-001	MW01_0.5	EP071: >C10 - C16 Fraction	----	850 mg/kg	122	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	103	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	93.4	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2305486)							

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Spike Recovery (%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2305486) - continued							
ES1211396-033	BH10_0.4	EP071: >C10 - C16 Fraction	----	850 mg/kg	79.9	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	95.0	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	111	52	132
EP080: BTEXN (QCLot: 2303039)							
ES1211396-001	MW01_0.5	EP080: Benzene	71-43-2	2.5 mg/kg	80.5	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	91.3	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	87.5	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	87.2	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.9	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	78.7	70	130

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	Recovery Limits (%): High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2307927)							
EB1212491-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.8 mg/L	72.0	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2302351)							
ES1211396-020	R_070512_01	EK057G: Nitrite as N	----	0.5 mg/L	97.9	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2307926)							
EB1212491-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.4 mg/L	98.1	70	130

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **ES1211396**	Page	: 1 of 12
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: DREW WOOD	Contact	: Client Services
Address	: P O BOX 71 THORNTON NSW, AUSTRALIA 2322	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
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Telephone	: +61 02 4964 2150	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 4962 2152	Facsimile	: +61-2-8784 8500
Project	: CRANSFORDS PHASE 11	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: SANDGATE		
C-O-C number	: 11933-11934	Date Samples Received	: 09-MAY-2012
Sampler	: DW	Issue Date	: 17-MAY-2012
Order number	: ----		
		No. of samples received	: 38
Quote number	: EN/009/11	No. of samples analysed	: 32

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

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **SOIL**

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
EA037: Ass Field Screening Analysis							
Snap Lock Bag (EA037)							
MW01_0.5, MW01_1.8, MW02_0.2, MW02_3.0, MW03_5.0, MW05_1.2	**07-MAY-2012**	**16-MAY-2012**	08-MAY-2012	×	**17-MAY-2012**	08-MAY-2012	×
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
MW01_0.5, MW01_1.8, MW01_3.6, MW02_0.2, MW02_3.0, MW03_0.15, MW03_5.0, D_070512_01, MW05_0.45, MW05_1.2	**07-MAY-2012**	**----**	----	----	**15-MAY-2012**	21-MAY-2012	✓
Soil Glass Jar - Unpreserved (EA055-103)							
MW04_0.05, MW04_3.6, BH08_1.2, D_080512_01, BH09_0.7, BH09_1.2, BH07_0.4, BH06_0.3, BH05_1.3, BH02_0.6, BH01_0.9, BH10_0.4, BH10_1.3, D_080512_02, BH04_0.1, BH04_0.5_	**08-MAY-2012**	**----**	----	----	**15-MAY-2012**	22-MAY-2012	✓
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples							
Snap Lock Bag (EA200)							
MW02_1.0	**07-MAY-2012**	**---**	03-NOV-2012	----	**16-MAY-2012**	12-NOV-2012	✓
Snap Lock Bag (EA200)							
BH07_0.4	**08-MAY-2012**	**---**	04-NOV-2012	----	**16-MAY-2012**	12-NOV-2012	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
MW01_0.5, MW03_0.15	**07-MAY-2012**	**16-MAY-2012**	03-NOV-2012	✓	**16-MAY-2012**	03-NOV-2012	✓
Soil Glass Jar - Unpreserved (EG005T)							
BH08_1.2, BH07_0.4, BH10_0.4	**08-MAY-2012**	**16-MAY-2012**	04-NOV-2012	✓	**16-MAY-2012**	04-NOV-2012	✓

Matrix: **SOIL**

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								
Soil Glass Jar - Unpreserved (EG035T)								
MW01_0.5,	MW03_0.15	**07-MAY-2012**	**16-MAY-2012**	04-JUN-2012	✓	**16-MAY-2012**	04-JUN-2012	✓
Soil Glass Jar - Unpreserved (EG035T)								
BH08_1.2, BH10_0.4	BH07_0.4,	**08-MAY-2012**	**16-MAY-2012**	05-JUN-2012	✓	**16-MAY-2012**	05-JUN-2012	✓
EK055: Ammonia as N								
Soil Glass Jar - Unpreserved (EK055)								
MW01_0.5, MW01_3.6, MW02_3.0, MW03_5.0, MW05_0.45,	MW01_1.8, MW02_0.2, MW03_0.15, D_070512_01, MW05_1.2	**07-MAY-2012**	**----**	----	----	**16-MAY-2012**	03-NOV-2012	✓
Soil Glass Jar - Unpreserved (EK055)								
MW04_0.05, BH08_1.2, BH09_0.7, BH07_0.4, BH05_1.3, BH01_0.9, BH10_1.3, BH04_0.1,	MW04_3.6, D_080512_01, BH09_1.2, BH06_0.3, BH02_0.6, BH10_0.4, D_080512_02, BH04_0.5_	**08-MAY-2012**	**----**	----	----	**16-MAY-2012**	04-NOV-2012	✓
EK057G: Nitrite as N by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK057G)								
MW01_0.5, MW01_3.6, MW02_3.0, MW03_5.0, MW05_0.45,	MW01_1.8, MW02_0.2, MW03_0.15, D_070512_01, MW05_1.2	**07-MAY-2012**	**15-MAY-2012**	03-NOV-2012	✓	**15-MAY-2012**	03-NOV-2012	✓
Soil Glass Jar - Unpreserved (EK057G)								
MW04_0.05, BH08_1.2, BH09_0.7, BH07_0.4, BH05_1.3, BH01_0.9, BH10_1.3, BH04_0.1,	MW04_3.6, D_080512_01, BH09_1.2, BH06_0.3, BH02_0.6, BH10_0.4, D_080512_02, BH04_0.5_	**08-MAY-2012**	**15-MAY-2012**	04-NOV-2012	✓	**15-MAY-2012**	04-NOV-2012	✓

Matrix: **SOIL**

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
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK059G) MW01_0.5, MW01_1.8, MW01_3.6, MW02_0.2, MW02_3.0, MW03_0.15, MW03_5.0, D_070512_01, MW05_0.45, MW05_1.2	**07-MAY-2012**	**15-MAY-2012**	03-NOV-2012	✓	**15-MAY-2012**	03-NOV-2012	✓
Soil Glass Jar - Unpreserved (EK059G) MW04_0.05, MW04_3.6, BH08_1.2, D_080512_01, BH09_0.7, BH09_1.2, BH07_0.4, BH06_0.3, BH05_1.3, BH02_0.6, BH01_0.9, BH10_0.4, BH10_1.3, D_080512_02, BH04_0.1, BH04_0.5_	**08-MAY-2012**	**15-MAY-2012**	04-NOV-2012	✓	**15-MAY-2012**	04-NOV-2012	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) MW03_0.15	**07-MAY-2012**	**15-MAY-2012**	21-MAY-2012	✓	**16-MAY-2012**	24-JUN-2012	✓
Soil Glass Jar - Unpreserved (EP066) BH08_1.2, BH07_0.4, BH10_0.4	**08-MAY-2012**	**15-MAY-2012**	22-MAY-2012	✓	**16-MAY-2012**	24-JUN-2012	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) MW03_0.15	**07-MAY-2012**	**15-MAY-2012**	21-MAY-2012	✓	**16-MAY-2012**	24-JUN-2012	✓
Soil Glass Jar - Unpreserved (EP068) BH08_1.2, BH07_0.4, BH10_0.4	**08-MAY-2012**	**15-MAY-2012**	22-MAY-2012	✓	**16-MAY-2012**	24-JUN-2012	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) MW03_0.15	**07-MAY-2012**	**15-MAY-2012**	21-MAY-2012	✓	**16-MAY-2012**	24-JUN-2012	✓
Soil Glass Jar - Unpreserved (EP068) BH08_1.2, BH07_0.4, BH10_0.4	**08-MAY-2012**	**15-MAY-2012**	22-MAY-2012	✓	**16-MAY-2012**	24-JUN-2012	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) MW01_0.5, MW03_0.15, D_070512_01	**07-MAY-2012**	**15-MAY-2012**	21-MAY-2012	✓	**16-MAY-2012**	24-JUN-2012	✓
Soil Glass Jar - Unpreserved (EP071) BH08_1.2, BH07_0.4, T/BLANK, BH10_0.4, BH04_0.1	**08-MAY-2012**	**15-MAY-2012**	22-MAY-2012	✓	**16-MAY-2012**	24-JUN-2012	✓

Matrix: **SOIL**

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							
Soil Glass Jar - Unpreserved (EP075(SIM)) MW01_0.5, MW03_0.15	**07-MAY-2012**	**15-MAY-2012**	21-MAY-2012	✓	**16-MAY-2012**	24-JUN-2012	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH08_1.2, BH10_0.4, BH04_0.1	**08-MAY-2012**	**15-MAY-2012**	22-MAY-2012	✓	**16-MAY-2012**	24-JUN-2012	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) MW01_0.5, MW03_0.15	**07-MAY-2012**	**15-MAY-2012**	21-MAY-2012	✓	**16-MAY-2012**	24-JUN-2012	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH08_1.2, BH10_0.4, BH04_0.1	**08-MAY-2012**	**15-MAY-2012**	22-MAY-2012	✓	**16-MAY-2012**	24-JUN-2012	✓
EP080: BTEX							
Soil Glass Jar - Unpreserved (EP080) MW01_0.5, MW03_0.15, D_070512_01	**07-MAY-2012**	**14-MAY-2012**	21-MAY-2012	✓	**16-MAY-2012**	21-MAY-2012	✓
Soil Glass Jar - Unpreserved (EP080) BH08_1.2, BH07_0.4, T/SPIKE - AAA, T/BLANK, BH10_0.4, BH04_0.1, T/SPIKE CONTROL - AAB1	**08-MAY-2012**	**14-MAY-2012**	22-MAY-2012	✓	**16-MAY-2012**	22-MAY-2012	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) MW01_0.5, MW03_0.15, D_070512_01	**07-MAY-2012**	**14-MAY-2012**	21-MAY-2012	✓	**16-MAY-2012**	21-MAY-2012	✓
Soil Glass Jar - Unpreserved (EP080) BH08_1.2, BH07_0.4, T/SPIKE - AAA, T/BLANK, BH10_0.4, BH04_0.1, T/SPIKE CONTROL - AAB1	**08-MAY-2012**	**14-MAY-2012**	22-MAY-2012	✓	**16-MAY-2012**	22-MAY-2012	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft							
Soil Glass Jar - Unpreserved (EP080) MW01_0.5, MW03_0.15, D_070512_01	**07-MAY-2012**	**14-MAY-2012**	21-MAY-2012	✓	**16-MAY-2012**	21-MAY-2012	✓
Soil Glass Jar - Unpreserved (EP080) BH08_1.2, BH07_0.4, T/SPIKE - AAA, T/BLANK, BH10_0.4, BH04_0.1, T/SPIKE CONTROL - AAB1	**08-MAY-2012**	**14-MAY-2012**	22-MAY-2012	✓	**16-MAY-2012**	22-MAY-2012	✓

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

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
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) R_070512_01	**07-MAY-2012**	**---**	04-JUN-2012	----	**17-MAY-2012**	04-JUN-2012	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) R_080512_01	**08-MAY-2012**	**---**	05-JUN-2012	----	**17-MAY-2012**	05-JUN-2012	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) R_070512_01	**07-MAY-2012**	**---**	09-MAY-2012	----	**14-MAY-2012**	09-MAY-2012	×
Clear Plastic Bottle - Natural (EK057G) R_080512_01	**08-MAY-2012**	**---**	10-MAY-2012	----	**14-MAY-2012**	10-MAY-2012	×
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) R_070512_01	**07-MAY-2012**	**---**	04-JUN-2012	----	**17-MAY-2012**	04-JUN-2012	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) R_080512_01	**08-MAY-2012**	**---**	05-JUN-2012	----	**17-MAY-2012**	05-JUN-2012	✓

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: **SOIL**

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*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
ASS Field Screening Analysis	EA037	2	15	**13.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Buchi Ammonia	EK055	3	26	**11.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	39	**10.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	3	27	**11.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N - Soluble by Discrete Analyser	EK057G	3	27	**11.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	3	22	**13.6**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	7	**14.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	**14.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	3	25	**12.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Buchi Ammonia	EK055	2	26	**7.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	2	27	**7.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N - Soluble by Discrete Analyser	EK057G	2	27	**7.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	22	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	7	**14.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	**14.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	25	**8.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Buchi Ammonia	EK055	2	26	**7.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	2	27	**7.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N - Soluble by Discrete Analyser	EK057G	2	27	**7.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	22	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	7	**14.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	**14.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	25	**8.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Buchi Ammonia	EK055	2	26	**7.7**	**5.0**	✓	ALS QCS3 requirement

Matrix: **SOIL**

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*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	2	27	**7.4**	**5.0**	✓	ALS QCS3 requirement
Nitrite as N - Soluble by Discrete Analyser	EK057G	2	27	**7.4**	**5.0**	✓	ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	22	**9.1**	**5.0**	✓	ALS QCS3 requirement
Pesticides by GCMS	EP068	1	7	**14.3**	**5.0**	✓	ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.0**	**5.0**	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	**14.3**	**5.0**	✓	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	25	**8.0**	**5.0**	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement

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*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	2	15	**13.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	15	**13.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	3	**33.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	15	**6.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	15	**6.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	3	**33.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	15	**6.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	15	**6.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	3	**33.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	15	**6.7**	**5.0**	✓	ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	15	**6.7**	**5.0**	✓	ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	3	**33.3**	**5.0**	✓	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
ASS Field Screening Analysis	* EA037	SOIL	Acid Sulfate Soils Laboratory Methods Guidelines, version 2.1 June 2004. As received samples are tested for pH field and pH fox and assessed for a reaction rating.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2010 Draft) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (1999) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3)
Buchi Ammonia	EK055	SOIL	APHA 21st ed., 4500 NH3+-B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	APHA 21st ed., 4500 NO3- B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	APHA 21st ed., 4500 NO3--F. Nitrate in the 1:5 soil:water extract is reduced to nitrite by way of a cadmium reduction column followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results.
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	SOIL	APHA 21st ed., 4500 NO3- F. Combined oxidised Nitrogen (NO2+NO3) in a water extract is determined by Cadmium Reduction, and direct colourimetry by Discrete Analyser.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) 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 (1999) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (1999) Schedule B(3) (Method 504,505)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (1999) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 501)
Ammonia as N by Discrete analyser	EK055G	WATER	APHA 21st ed., 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite as N by Discrete Analyser	EK057G	WATER	APHA 21st ed., 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Analytical Methods	Method	Matrix	Method Descriptions
Nitrate as N by Discrete Analyser	EK058G	WATER	APHA 21st ed., 4500-NO3- F. Nitrate is reduced to nitrite by way of a cadmium reduction column followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	APHA 21st ed., 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Cadmium Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Drying only	EN020D	SOIL	In House
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (1999) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na2SO4 and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.

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: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EG005T: Total Metals by ICP-AES	2731014-002	----	**Chromium**	7440-47-3	81.2 %	89.2-117%	**Recovery less than lower control limit**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	2730412-007	----	**Benzo(b)fluoranthene**	205-99-2	71.7 %	71.8-118%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	ES1211396-001	MW01_0.5	**Nitrite + Nitrate as N (Sol.)**	----	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: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	ES1211396-036	BH04_0.1	**2.4.6-Tribromophenol**	118-79-6	Not Determined	----	**Surrogate recovery not determined due to (target or non-target) matrix interferences**

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: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA037: Ass Field Screening Analysis						
Snap Lock Bag MW01_0.5, MW01_1.8, MW02_0.2, MW02_3.0, MW03_5.0, MW05_1.2	16-MAY-2012	08-MAY-2012	**8**	17-MAY-2012	08-MAY-2012	**9**

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EK057G: Nitrite as N by Discrete Analyser						

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
EK057G: Nitrite as N by Discrete Analyser - Analysis Holding Time Compliance						
Clear Plastic Bottle - Natural						
R_070512_01	----	----	----	14-MAY-2012	09-MAY-2012	**5**
Clear Plastic Bottle - Natural						
R_080512_01	----	----	----	14-MAY-2012	10-MAY-2012	**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.**

ERM

☐ Sydney
☐ Melbourne
☐ Brisbane
☐ Perth
☒ Hunter Valley
☐ North Coast
☐ Other

Grnd Floor, 33 Saunders Street, Pyrmont, NSW, 2009. (ph) 02 8584 8888 (fax) 02 8584 8800
Level 3, Yarra Tower, WTC, 18-38 Siddeley Street, Docklands, VIC, 3005. (ph) 03 9696 8011 (fax) 03 9696 8022
Level 1, 60 Leichhardt Street, Spring Hill, QLD, 4004. (ph) 07 3839 8393 (fax) 07 3839 8381
Level 6, Grain Pool Bld, 172 St Georges Tce, WA, 6850. (ph) 08 9321 5200 (fax) 08 9321 5262
53 Bonville Avenue, Thornton, NSW, 2322. (ph) 02 4964 2150 (fax) 02 4964 2152
Suite 3/146 Gordon Street, Port Macquarie, NSW, 2444. (ph) 02 6584 7155 (fax) 02 6584 7160

21/5/12

Project No: 0143175
Project Name: Crawfords Freight Access (Phase 4)
Project Location: Old Maitland Rd
Project Manager: Rob Macintosh / Drew Hood
Sampler: Rose Pascoe

COC Number: A 03707
Laboratory: ALS

General Analysis Requirements	Yes (tick)
1. Turn Around Time (please tick: ☐1 Day ☐2 Days ☐3 Days ☑Normal TAT)	
2. Do you wish any sediment layers in water to be exluded from extractions?	
3. Additional QA/QC reported where sample batches are < 10 samples?	
4. % of extraneous material removed from samples to be reported as per NEPM 5.1.1?	

Laboratory Number	Sample ID	Sample Depth	Sample Date	Sample Time	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Preservation: Filter	Preservation: Other	Containers (number/type)	BTEX	TPH (C6-C9 P & T) + TPH (C10-C36)	Speciated TPH	VOC Scan (USEPA 8260 List)	SVOC Scan (USEPA 8270 List)	OC OP Pesticides	PAH	Phenols	PCB	Metals* (dissolved / ~~total~~)	Ammonia	Nitrate	Nitrite	Other Comments on sample (eg: high voc, highly contaminated, special detection limits etc etc)
1	MW01		14-5-12			X		X				6	X	X				X			X	X	X	X	X	
2	MW02					X		X				6	X	X				X			X	X	X	X	X	
3	MW03					X		X				6	X	X				X			X	X	X	X	X	
4	MW04					X		X				6	X	X				X			X	X	X	X	X	
5	MW05					X		X				6	X	X				X			X	X	X	X	X	
6	D-140512-01					X		X				6	X	X				X			X	X	X	X	X	
7	R-140512-01					X		X				6	X	X				X			X	X	X	X	X	
8	TRIP BLANK					X		X				2	X	X												
9	TRIP SPIKE					X		X				2	X													

Environmental Division
Sydney
Work Order
ES1211770

Telephone : +61-2-8784 8555

Comments: results to Rob.Macintosh@erm.com + Drew.Hood@erm.com

*Metals (circle) (As) (Cd) (Cr) (Cu) (Hg) (Ni) (Pb) (Zn)

Relinquished by: Rose Pascoe Signed: Date/Time: 14-5-12 1345 Received by: Date/Time: 14/5/12 13:45

Relinquished by: SFlint Signed: Date/Time: 14/5/12 17:00 Received by: Date/Time: 14/5/12 1900

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: **ES1211770**		
Client	: **ENVIRO RESOURCES MANAGEMENT**	Laboratory	: Environmental Division Sydney
Contact	: DREW WOOD	Contact	: Client Services
Address	: P O BOX 71 THORNTON NSW, AUSTRALIA 2322	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: drew.wood@erm.com	E-mail	: sydney@alsglobal.com
Telephone	: +61 02 4964 2150	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 4962 2152	Facsimile	: +61-2-8784 8500
Project	: 0143175-CRAWFORDS FREIGHTLINERS PHASE II	Page	: 1 of 2
Order number	: ----		
C-O-C number	: 03707	Quote number	: ----
Site	: OLD MAITLAND RD		
Sampler	: RP	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 14-MAY-2012	Issue Date	: 21-MAY-2012 02:42
Client Requested Due Date	: 22-MAY-2012	Scheduled Reporting Date	: **22-MAY-2012**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 3.2' 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.**
- **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 neccessary 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 - EK055G Ammonia as N By Discrete Analyser	WATER - EP080 BTEX	WATER - NT-04 Nitrite and Nitrate	WATER - W-05 TPH/BTEX/8 Metals	WATER - W-13 OC/OP/PCB	WATER - W-14A PAH/Phenols (SIM)	WATER - W-18 TPH(C6 - C9)/BTEX
ES1211770-001	[14-MAY-2012]	MW01	✓		✓	✓	✓	✓	
ES1211770-002	[14-MAY-2012]	MW02	✓		✓	✓	✓	✓	
ES1211770-003	[14-MAY-2012]	MW03	✓		✓	✓	✓	✓	
ES1211770-004	[14-MAY-2012]	MW04	✓		✓	✓	✓	✓	
ES1211770-005	[14-MAY-2012]	MW05	✓		✓	✓	✓	✓	
ES1211770-006	[14-MAY-2012]	D_140512_01	✓		✓	✓	✓	✓	
ES1211770-007	[14-MAY-2012]	R_140512_01	✓		✓	✓	✓	✓	
ES1211770-008	[14-MAY-2012]	TRIP BLANK							✓
ES1211770-009	[14-MAY-2012]	TRIP SPIKE		✓					

Proactive Holding Time Report

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

Requested Deliverables

DREW WOOD

- *AU Certificate of Analysis - NATA (COA)	Email	drew.wood@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	drew.wood@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	drew.wood@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	drew.wood@erm.com
- A4 - AU Tax Invoice (INV)	Email	drew.wood@erm.com
- Chain of Custody (CoC) (COC)	Email	drew.wood@erm.com
- EDI Format - ENMRG (ENMRG)	Email	drew.wood@erm.com
- EDI Format - EQUIS V5 Generic (EQUIS_V5)	Email	drew.wood@erm.com
- EDI Format - ESDAT (ESDAT)	Email	drew.wood@erm.com

MR ROB MACINTOSH

- *AU Certificate of Analysis - NATA (COA)	Email	Rob.MacIntosh@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Rob.MacIntosh@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Rob.MacIntosh@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Rob.MacIntosh@erm.com
- A4 - AU Tax Invoice (INV)	Email	Rob.MacIntosh@erm.com
- Chain of Custody (CoC) (COC)	Email	Rob.MacIntosh@erm.com
- EDI Format - ENMRG (ENMRG)	Email	Rob.MacIntosh@erm.com
- EDI Format - EQUIS V5 Generic (EQUIS_V5)	Email	Rob.MacIntosh@erm.com
- EDI Format - ESDAT (ESDAT)	Email	Rob.MacIntosh@erm.com

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES1211770**	Page	: 1 of 11
Client	: **ENVIRO RESOURCES MANAGEMENT**	Laboratory	: Environmental Division Sydney
Contact	: DREW WOOD	Contact	: Client Services
Address	: P O BOX 71 THORNTON NSW, AUSTRALIA 2322	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: drew.wood@erm.com	E-mail	: sydney@alsglobal.com
Telephone	: +61 02 4964 2150	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 4962 2152	Facsimile	: +61-2-8784 8500
Project	: 0143175-CRAWFORDS FREIGHTLINERS PHASE II	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: 03707	Date Samples Received	: 14-MAY-2012
Sampler	: RP	Issue Date	: 22-MAY-2012
Site	: OLD MAITLAND RD		
		No. of samples received	: 9
Quote number	: ----	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

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*
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

- **EG020: LOR's for some samples have been raised due to matrix interference (High sample salinity).**
- **EG035-F: Poor matrix spike recovery was obtained for Mercury on sample ES1211770#2 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**

Compound	CAS Number	LOR	Unit	Client sample ID: MW01	MW02	MW03	MW04	MW05
				Client sampling date / time: [14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]
				ES1211770-001	ES1211770-002	ES1211770-003	ES1211770-004	ES1211770-005
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.010	**0.002**	<0.010	**0.040**
Cadmium	7440-43-9	0.0001	mg/L	**0.0118**	<0.0010	**0.0001**	<0.0010	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.010	<0.001	<0.010	<0.001
Copper	7440-50-8	0.001	mg/L	**0.008**	<0.020	<0.001	<0.020	**0.003**
Nickel	7440-02-0	0.001	mg/L	**0.002**	<0.010	**0.009**	<0.010	**0.004**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.010	<0.001	<0.010	<0.001
Zinc	7440-66-6	0.005	mg/L	**0.678**	<0.050	**0.019**	<0.050	**0.190**
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.51**	**16.4**	**1.28**	**4.62**	**0.12**
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	----	0.01	mg/L	<0.01	**0.11**	**1.04**	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	**7.62**	**6.28**	**0.76**	**0.32**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	**7.73**	**7.32**	**0.76**	**0.32**
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	<1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: MW01	MW02	MW03	MW04	MW05
				Client sampling date / time: [14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]
				ES1211770-001	ES1211770-002	ES1211770-003	ES1211770-004	ES1211770-005
EP068A: Organochlorine Pesticides (OC) - Continued								
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDT	50-29-3	2	µg/L	<2	<2	<2	<2	<2
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Methoxychlor	72-43-5	2	µg/L	<2	<2	<2	<2	<2
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Monocrotophos	6923-22-4	2	µg/L	<2	<2	<2	<2	<2
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion-methyl	298-00-0	2	µg/L	<2	<2	<2	<2	<2
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion	56-38-2	2	µg/L	<2	<2	<2	<2	<2
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
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**	**1.5**
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	**2.6**
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**

Compound	CAS Number	LOR	Unit	Client sample ID: MW01	MW02	MW03	MW04	MW05
				Client sampling date / time: [14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]
				ES1211770-001	ES1211770-002	ES1211770-003	ES1211770-004	ES1211770-005
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	**1.5**	**7.5**	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	**3.5**	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	**18.1**	**1.5**	**1.2**
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	**3.1**	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	**7.6**	**1.6**	**1.2**
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	**5.8**	**1.4**	**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	**1.5**	**45.6**	**5.0**	**3.4**
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	**260**	**380**	<100	**370**
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	**260**	**380**	<50	**370**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	----	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	**240**	**340**	<100	**380**
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	**240**	**340**	<100	**380**
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

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: MW01	MW02	MW03	MW04	MW05
				Client sampling date / time: [14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]
				ES1211770-001	ES1211770-002	ES1211770-003	ES1211770-004	ES1211770-005
EP080: BTEXN - 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
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
ORG14: Separatory Funnel Extraction of Liquids								
Volume	----	-	mL	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**68.1**	**65.7**	**61.2**	**62.3**	**65.7**
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	**77.6**	**77.4**	**62.8**	**71.5**	**60.4**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	**117**	**110**	**73.4**	**115**	**98.8**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	**46.4**	**40.2**	**38.2**	**40.3**	**37.9**
2-Chlorophenol-D4	93951-73-6	0.1	%	**93.0**	**85.0**	**77.6**	**76.2**	**87.2**
2.4.6-Tribromophenol	118-79-6	0.1	%	**115**	**101**	**96.3**	**92.4**	**106**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	**97.7**	**76.6**	**81.9**	**70.0**	**77.0**
Anthracene-d10	1719-06-8	0.1	%	**94.2**	**91.0**	**76.1**	**75.8**	**83.3**
4-Terphenyl-d14	1718-51-0	0.1	%	**90.2**	**70.6**	**71.1**	**72.8**	**80.4**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**98.2**	**90.4**	**131**	**98.2**	**103**
Toluene-D8	2037-26-5	0.1	%	**109**	**108**	**122**	**119**	**113**
4-Bromofluorobenzene	460-00-4	0.1	%	**96.3**	**93.5**	**115**	**92.7**	**101**

Analytical Results

Sub-Matrix: WATER				Client sample ID	D_140512_01	R_140512_01	TRIP BLANK	TRIP SPIKE	----
				Client sampling date / time	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	----
Compound	CAS Number	LOR	Unit		ES1211770-006	ES1211770-007	ES1211770-008	ES1211770-009	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.010	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0010	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.010	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.020	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.010	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.010	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.050	<0.005	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**12.3**	**0.01**	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	----	0.01	mg/L		**0.01**	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.75**	**0.03**	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.76**	**0.03**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	1	µg/L		<1	<1	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	<0.5	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	<0.5	----	----	----
beta-BHC	319-85-7	0.5	µg/L		<0.5	<0.5	----	----	----
gamma-BHC	58-89-9	0.5	µg/L		<0.5	<0.5	----	----	----
delta-BHC	319-86-8	0.5	µg/L		<0.5	<0.5	----	----	----
Heptachlor	76-44-8	0.5	µg/L		<0.5	<0.5	----	----	----
Aldrin	309-00-2	0.5	µg/L		<0.5	<0.5	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		<0.5	<0.5	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L		<0.5	<0.5	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L		<0.5	<0.5	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L		<0.5	<0.5	----	----	----
Dieldrin	60-57-1	0.5	µg/L		<0.5	<0.5	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L		<0.5	<0.5	----	----	----
Endrin	72-20-8	0.5	µg/L		<0.5	<0.5	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L		<0.5	<0.5	----	----	----
4.4`-DDD	72-54-8	0.5	µg/L		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER				Client sample ID	D_140512_01	R_140512_01	TRIP BLANK	TRIP SPIKE	----
				Client sampling date / time	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	----
Compound	CAS Number	LOR	Unit		ES1211770-006	ES1211770-007	ES1211770-008	ES1211770-009	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.5	µg/L		<0.5	<0.5	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L		<0.5	<0.5	----	----	----
4.4`-DDT	50-29-3	2	µg/L		<2	<2	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L		<0.5	<0.5	----	----	----
Methoxychlor	72-43-5	2	µg/L		<2	<2	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		<0.5	<0.5	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L		<0.5	<0.5	----	----	----
Monocrotophos	6923-22-4	2	µg/L		<2	<2	----	----	----
Dimethoate	60-51-5	0.5	µg/L		<0.5	<0.5	----	----	----
Diazinon	333-41-5	0.5	µg/L		<0.5	<0.5	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		<0.5	<0.5	----	----	----
Parathion-methyl	298-00-0	2	µg/L		<2	<2	----	----	----
Malathion	121-75-5	0.5	µg/L		<0.5	<0.5	----	----	----
Fenthion	55-38-9	0.5	µg/L		<0.5	<0.5	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		<0.5	<0.5	----	----	----
Parathion	56-38-2	2	µg/L		<2	<2	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		<0.5	<0.5	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		<0.5	<0.5	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		<0.5	<0.5	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L		<0.5	<0.5	----	----	----
Prothiofos	34643-46-4	0.5	µg/L		<0.5	<0.5	----	----	----
Ethion	563-12-2	0.5	µg/L		<0.5	<0.5	----	----	----
Carbophenothion	786-19-6	0.5	µg/L		<0.5	<0.5	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		<0.5	<0.5	----	----	----
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	----	----	----

Analytical Results

Sub-Matrix: WATER				Client sample ID	D_140512_01	R_140512_01	TRIP BLANK	TRIP SPIKE	----
				Client sampling date / time	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	----
Compound	CAS Number	LOR	Unit		ES1211770-006	ES1211770-007	ES1211770-008	ES1211770-009	----
EP075(SIM)A: Phenolic Compounds - Continued									
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		**1.5**	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		**1.6**	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		**1.4**	<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		**4.5**	<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 2010 Draft									
C6 - C10 Fraction	----	20	µg/L		<20	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	----	20	µg/L		<20	<20	<20	----	----
>C10 - C16 Fraction	----	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	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	**12**	----
Toluene	108-88-3	2	µg/L		<2	<2	<2	**12**	----

Analytical Results

Sub-Matrix: WATER				Client sample ID	D_140512_01	R_140512_01	TRIP BLANK	TRIP SPIKE	----
				Client sampling date / time	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	[14-MAY-2012]	----
Compound	CAS Number	LOR	Unit		ES1211770-006	ES1211770-007	ES1211770-008	ES1211770-009	----
EP080: BTEXN - Continued									
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	12	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	12	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	11	----
^ Total Xylenes	1330-20-7	2	µg/L		<2	<2	<2	23	----
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	59	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	16	----
ORG14: Separatory Funnel Extraction of Liquids									
Volume	----	-	mL		1.00	1.00	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		63.7	64.7	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%		64.1	69.5	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%		98.1	92.9	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		33.6	30.2	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%		77.9	76.4	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%		99.4	95.0	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		84.3	82.9	----	----	----
Anthracene-d10	1719-06-8	0.1	%		77.7	82.4	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%		74.8	82.3	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		94.8	103	116	117	----
Toluene-D8	2037-26-5	0.1	%		116	126	124	114	----
4-Bromofluorobenzene	460-00-4	0.1	%		92.0	112	103	109	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	14.1	151.8
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	33.6	142.5
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	28.1	147.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	64.1
2-Chlorophenol-D4	93951-73-6	11.3	122.9
2.4.6-Tribromophenol	118-79-6	11.7	144.0
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	19.9	122.8
Anthracene-d10	1719-06-8	23.3	125.8
4-Terphenyl-d14	1718-51-0	20.3	134.5
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

Environmental Division

QUALITY CONTROL REPORT

Work Order	: **ES1211770**	Page	: 1 of 10
Client	: **ENVIRO RESOURCES MANAGEMENT**	Laboratory	: Environmental Division Sydney
Contact	: DREW WOOD	Contact	: Client Services
Address	: P O BOX 71 THORNTON NSW, AUSTRALIA 2322	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: drew.wood@erm.com	E-mail	: sydney@alsglobal.com
Telephone	: +61 02 4964 2150	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 4962 2152	Facsimile	: +61-2-8784 8500
Project	: 0143175-CRAWFORDS FREIGHTLINERS PHASE II	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: OLD MAITLAND RD		
C-O-C number	: 03707	Date Samples Received	: 14-MAY-2012
Sampler	: RP	Issue Date	: 22-MAY-2012
Order number	: ----		
		No. of samples received	: 9
Quote number	: ----	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.

Signatories	*Position*	*Accreditation Category*
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 (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2306546)									
EP1203725-001	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: Chromium	7440-47-3	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: Nickel	7440-02-0	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
EP1203725-011	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: Chromium	7440-47-3	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: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.015	0.016	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2306547)									
ES1211770-001	MW01	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 2308142)									
EN1201764-005	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.03	0.04	0.0	No Limit
ES1211737-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.34	0.34	0.0	0% - 20%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 2308143)									
ES1211770-005	MW05	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.12	0.10	17.7	0% - 50%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2305145)									
EN1201764-005	Anonymous	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES1211770-005	MW05	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2308141)									
EN1201764-005	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES1211770-001	MW01	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.02	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2310816)									
ES1211770-001	MW01	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1211856-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2310816)									
ES1211770-001	MW01	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1211856-001	Anonymous	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 2310816)									

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: 2310816) - continued									
ES1211770-001	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
ES1211856-001	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 Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2306546)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.2	88	110
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.3	89	107
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	91.8	91	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.8	87	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.2	90	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.9	89	109
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	87.3	85	115
EG035F: Dissolved Mercury by FIMS (QCLot: 2306547)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	101	86	116
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2308142)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1.00 mg/L	104	86	116
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2308143)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1.00 mg/L	106	86	116
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2305145)								
EK057G: Nitrite as N	----	0.01	mg/L	<0.01	0.5 mg/L	99.0	78	128
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2308141)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	105	80	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2306597)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	100 µg/L	92.0	61.6	107
EP068A: Organochlorine Pesticides (OC) (QCLot: 2306595)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	50 µg/L	85.6	61	117
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	50 µg/L	80.0	56	116
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	50 µg/L	95.6	60	118
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	50 µg/L	92.7	62	118
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	50 µg/L	93.7	64	116
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	50 µg/L	69.8	63	117
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	50 µg/L	84.6	65	121
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	50 µg/L	71.0	63	117
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	50 µg/L	73.5	64	120
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	50 µg/L	96.0	67	119
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	50 µg/L	72.5	63	123
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	50 µg/L	100	64	122
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	50 µg/L	104	64	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2306595) - continued								
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	50 µg/L	75.8	64	126
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	50 µg/L	105	68	122
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	50 µg/L	89.7	66	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	50 µg/L	# 55.1	62	112
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	50 µg/L	106	60	124
EP068: 4.4`-DDT	50-29-3	2.0	µg/L	<2	50 µg/L	98.4	54	126
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	50 µg/L	93.8	55	119
EP068: Methoxychlor	72-43-5	2.0	µg/L	<2	50 µg/L	107	53	127
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2306595)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	50 µg/L	102	52	128
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	50 µg/L	89.1	28.4	150
EP068: Monocrotophos	6923-22-4	0.5	µg/L	----	50 µg/L	27.4	10	89.1
		2.0	µg/L	<2	----	----	----	----
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	50 µg/L	88.8	61	117
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	50 µg/L	92.4	64	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	50 µg/L	85.5	67	121
EP068: Parathion-methyl	298-00-0	2.0	µg/L	<2	50 µg/L	87.8	59	123
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	50 µg/L	94.4	57	123
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	50 µg/L	86.0	67	119
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	50 µg/L	92.9	67	121
EP068: Parathion	56-38-2	2.0	µg/L	<2	50 µg/L	83.5	64	118
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	50 µg/L	82.2	64	118
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	50 µg/L	108	59	123
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	50 µg/L	79.2	62	122
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	50 µg/L	100	59	131
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	50 µg/L	103	64	116
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	50 µg/L	90.6	68	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	50 µg/L	85.5	62	120
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	50 µg/L	104	39	131
EP075(SIM)A: Phenolic Compounds (QCLot: 2311159)								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	20 µg/L	36.9	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	20 µg/L	76.3	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	20 µg/L	62.9	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	40 µg/L	57.2	42.5	114
		2	µg/L	<2.0	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 2311159) - continued								
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	20 µg/L	67.6	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	20 µg/L	68.2	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	20 µg/L	69.4	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	20 µg/L	71.0	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	20 µg/L	72.8	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	20 µg/L	71.0	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	20 µg/L	80.1	51.2	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	40 µg/L	43.3	6.85	95.6
		2	µg/L	<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2311159)								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	20 µg/L	68.5	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	20 µg/L	74.9	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	20 µg/L	71.8	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	20 µg/L	81.0	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	20 µg/L	79.5	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	20 µg/L	78.6	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	20 µg/L	68.9	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	20 µg/L	71.6	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	20 µg/L	75.8	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	20 µg/L	81.4	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	20 µg/L	73.4	61.7	119
		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 (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2311159) - continued								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	20 µg/L	73.6	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	20 µg/L	84.6	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	20 µg/L	93.8	59.9	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.2	µg/L	----	20 µg/L	93.4	61.2	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.2	µg/L	----	20 µg/L	77.7	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: 2306596)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	200 µg/L	110	58.9	131
EP071: C15 - C28 Fraction	----	100	µg/L	<100	250 µg/L	110	73.9	138
EP071: C29 - C36 Fraction	----	50	µg/L	<50	200 µg/L	106	62.7	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2310816)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.1	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2306596)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	250 µg/L	114	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	350 µg/L	98.8	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	150 µg/L	116	62.7	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2310816)								
EP080: C6 - C10 Fraction	----	20	µg/L	<20	310 µg/L	88.7	75	127
EP080: BTEXN (QCLot: 2310816)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	87.4	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	84.8	66	132
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.4	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	92.5	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	87.6	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	102	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		
	Spike	Spike Recovery (%)	Recovery Limits (%)

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
EG020F: Dissolved Metals by ICP-MS (QCLot: 2306546)							
EP1203725-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	97.7	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	93.2	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	89.5	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	93.4	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.3	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	87.8	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	92.5	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2306547)							
ES1211770-002	MW02	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 54.1	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2308142)							
EN1201764-005	Anonymous	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	107	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2308143)							
ES1211770-005	MW05	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	97.0	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2305145)							
EN1201764-005	Anonymous	EK057G: Nitrite as N	----	0.5 mg/L	105	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2308141)							
EN1201764-005	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	82.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2310816)							
ES1211770-001	MW01	EP080: C6 - C9 Fraction	----	325 µg/L	119	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2310816)							
ES1211770-001	MW01	EP080: C6 - C10 Fraction	----	375 µg/L	116	70	130
EP080: BTEXN (QCLot: 2310816)							
ES1211770-001	MW01	EP080: Benzene	71-43-2	25 µg/L	106	70	130
		EP080: Toluene	108-88-3	25 µg/L	103	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	113	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	113	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	104	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	98.0	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 (%)

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
EG020F: Dissolved Metals by ICP-MS (QCLot: 2306546)										
EP1203725-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	97.7	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	93.2	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	89.5	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	93.4	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.3	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	87.8	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	92.5	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 2306547)										
ES1211770-002	MW02	EG035F: Mercury	7439-97-6	0.0100 mg/L	# 54.1	----	70	130	----	----
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2308142)										
EN1201764-005	Anonymous	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	107	----	70	130	----	----
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2308143)										
ES1211770-005	MW05	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	97.0	----	70	130	----	----
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2305145)										
EN1201764-005	Anonymous	EK057G: Nitrite as N	----	0.5 mg/L	105	----	70	130	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2308141)										
EN1201764-005	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	82.0	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2310816)										
ES1211770-001	MW01	EP080: C6 - C9 Fraction	----	325 µg/L	119	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2310816)										
ES1211770-001	MW01	EP080: C6 - C10 Fraction	----	375 µg/L	116	----	70	130	----	----
EP080: BTEXN (QCLot: 2310816)										
ES1211770-001	MW01	EP080: Benzene	71-43-2	25 µg/L	106	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	103	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	113	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	113	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	104	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	98.0	----	70	130	----	----

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **ES1211770**	Page	: 1 of 7
Client	: ENVIRO RESOURCES MANAGEMENT	Laboratory	: Environmental Division Sydney
Contact	: DREW WOOD	Contact	: Client Services
Address	: P O BOX 71 THORNTON NSW, AUSTRALIA 2322	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: drew.wood@erm.com	E-mail	: sydney@alsglobal.com
Telephone	: +61 02 4964 2150	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 4962 2152	Facsimile	: +61-2-8784 8500
Project	: 0143175-CRAWFORDS FREIGHTLINERS PHASE II	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: OLD MAITLAND RD		
C-O-C number	: 03707	Date Samples Received	: 14-MAY-2012
Sampler	: RP	Issue Date	: 22-MAY-2012
Order number	: ----		
		No. of samples received	: 9
Quote number	: ----	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

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

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)							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01	**14-MAY-2012**	**---**	10-NOV-2012	----	**16-MAY-2012**	10-NOV-2012	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01	**14-MAY-2012**	**---**	11-JUN-2012	----	**18-MAY-2012**	11-JUN-2012	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01	**14-MAY-2012**	**---**	11-JUN-2012	----	**17-MAY-2012**	11-JUN-2012	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01	**14-MAY-2012**	**---**	16-MAY-2012	----	**15-MAY-2012**	16-MAY-2012	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01	**14-MAY-2012**	**---**	11-JUN-2012	----	**17-MAY-2012**	11-JUN-2012	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066)							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01	**14-MAY-2012**	**16-MAY-2012**	21-MAY-2012	✓	**17-MAY-2012**	25-JUN-2012	✓

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
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068)							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01	**14-MAY-2012**	**16-MAY-2012**	21-MAY-2012	✓	**17-MAY-2012**	25-JUN-2012	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068)							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01	**14-MAY-2012**	**16-MAY-2012**	21-MAY-2012	✓	**17-MAY-2012**	25-JUN-2012	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01	**14-MAY-2012**	**16-MAY-2012**	21-MAY-2012	✓	**16-MAY-2012**	25-JUN-2012	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01	**14-MAY-2012**	**16-MAY-2012**	21-MAY-2012	✓	**20-MAY-2012**	27-JUN-2012	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01	**14-MAY-2012**	**16-MAY-2012**	21-MAY-2012	✓	**20-MAY-2012**	27-JUN-2012	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01, TRIP BLANK, TRIP SPIKE	**14-MAY-2012**	**18-MAY-2012**	28-MAY-2012	✓	**18-MAY-2012**	28-MAY-2012	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
MW01, MW02, MW03, MW04, MW05, D_140512_01, R_140512_01, TRIP BLANK	**14-MAY-2012**	**18-MAY-2012**	28-MAY-2012	✓	**18-MAY-2012**	28-MAY-2012	✓

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*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	3	23	**13.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	7	**14.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	16	**12.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	2	23	**8.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	7	**14.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	8	**12.5**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	7	**14.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	**11.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	2	23	**8.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	7	**14.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	8	**12.5**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	7	**14.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	**11.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	2	23	**8.7**	**5.0**	✓	ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	7	**14.3**	**5.0**	✓	ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	16	**6.3**	**5.0**	✓	ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	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 (SnCl2)(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 SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Ammonia as N by Discrete analyser	EK055G	WATER	APHA 21st ed., 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite as N by Discrete Analyser	EK057G	WATER	APHA 21st ed., 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrate as N by Discrete Analyser	EK058G	WATER	APHA 21st ed., 4500-NO3- F. Nitrate is reduced to nitrite by way of a cadmium reduction column followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	APHA 21st ed., 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Cadmium Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) 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 (1999) Schedule B(3) (Appdx. 2)
Pesticides by GCMS	EP068	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 (1999) 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 (1999) 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 (1999) 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 (1999) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 500 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 (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.

Preparation Methods	Method	Matrix	Method Descriptions
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 SW 846 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							
EP068A: Organochlorine Pesticides (OC)	2731883-007	----	**Endrin aldehyde**	7421-93-4	55.1 %	62-112%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
EG035F: Dissolved Mercury by FIMS	ES1211770-002	MW02	**Mercury**	7439-97-6	54.1 %	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.

- **No Analysis Holding Time Outliers exist.**

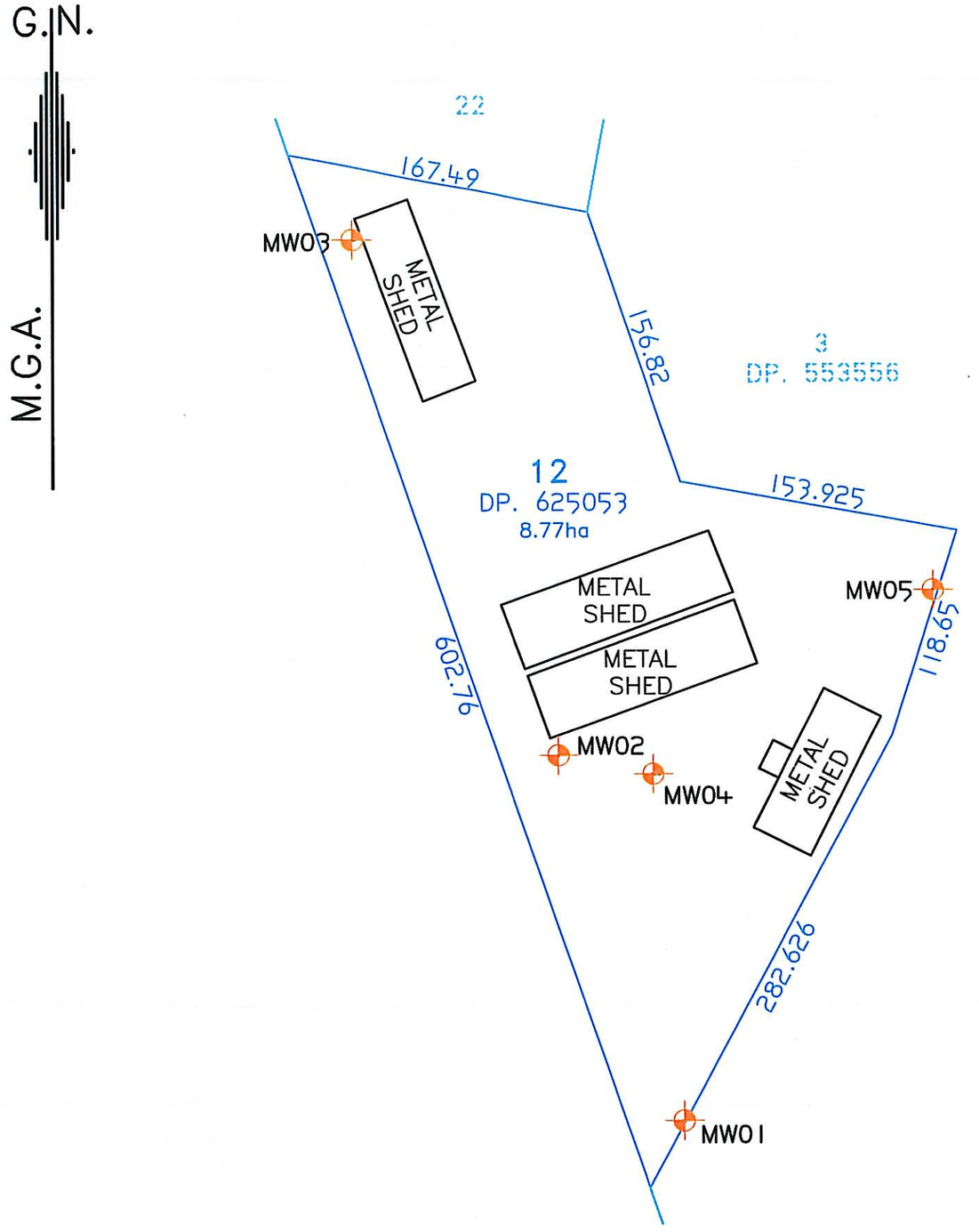
Outliers : Frequency of Quality Control Samples

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

- **No Quality Control Sample Frequency Outliers exist.**

Annex F

Survey Report



LEGEND

BOUNDARY LINE

MONITORING WELL LOCATION & NO.

NOTES:

- DATUM OF LEVELS IS AUSTRALIAN HEIGHT DATUM (A.H.D.)
- SOURCE OF LEVELS IS PM.142584 (RL.10.657)
- BOUNDARY LINES ARE APPROXIMATE ONLY.

Borehole No.	Easting	Northing	Surface R.L.	Top Of Pipe R.L.	Date Survey
MW01	378 544.14	6 362 480.29	2.75	3.41	14/05/2012
MW02	378 475.75	6 362 681.79	1.85	1.79	14/05/2012
MW03	378 362.71	6 362 966.38	2.20	2.06	14/05/2012
MW04	378 527.61	6 362 671.35	2.00	1.88	14/05/2012
MW05	378 681.27	6 362 772.92	2.23	2.98	14/05/2012

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TITLE: PLAN OF MONITORING WELL LOCATIONS ON LOT 12 DP 625053 AT SANDGATE

DATE:	DRAWN/SURVEYED:	SCALE (A3):	DATUM:
14 MAY 2012	DG/MT	1:300	A.H.D.
DRAWING: B795MW-A.dwg	REVISION: A	REFERENCE No: B795	SHEET 1 OF 1 SHEETS

0m 50 100 200 300m

Annex G

Investigation Location Rationale

Location ID	Location	Rationale
MW01	Southern corner of site as shown on *Figure 3*	Spatial coverage within area of bulk ammonium nitrate storage.
MW02	Southwest of "Shed B" as shown on *Figure 3*	Spatial coverage within area of bulk ammonium nitrate storage. Within area of historical release as a result of Impact Fertilizer's operations.
MW03	Adjacent "Shed C" as shown on *Figure 3*	Spatial coverage within area of bulk ammonium nitrate storage.
MW04	South of "Shed B" as shown on *Figure 3*	Spatial coverage within area of bulk ammonium nitrate handling and storage.
MW05	West of administration building as shown on *Figure 3*	Upgradient site location positioned to provide spatial coverage.
BH01	Western boundary as shown on *Figure 3*	Spatial coverage within area of bulk ammonium nitrate storage.
BH02	Adjacent "Shed A" as shown on *Figure 3*	Spatial coverage within area of bulk ammonium nitrate storage.
BH04	Adjacent "Shed C" as shown on *Figure 3*	Spatial coverage within area of bulk ammonium nitrate handling and storage.
BH05	Storage yard as shown on *Figure 3*	Spatial coverage within area of bulk ammonium nitrate storage.
BH06	Northeast of "Shed A" as shown on *Figure 3*	Spatial coverage within area of bulk ammonium nitrate storage.
BH07	Adjacent scaffolding yard as shown on *Figure 3*	Spatial coverage within area of bulk ammonium nitrate storage.
BH08	North of "Shed D" as shown on *Figure 3*	Spatial coverage within area of potential historical Underground Storage Tank (UST).
BH09	Northwest of "Shed D" as shown on *Figure 3*	Spatial coverage within area of potential historical Underground Storage Tank (UST).
BH10	South of "Shed D" as shown on *Figure 3*	Spatial coverage within area of mechanic workshop.

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