StateRail

Macdonaldtown Triangle (Former Gasworks Site) Human Health & Ecological Risk Assessment

Volume 2

Appendices

- Final
- 12/04/2006

Environmental Projects Unit
18 APR 2006
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Appendix A Borehole Logs

Bore No. 1

Sheet 1 of 1

Project No:	110168	Easting (MGA):	317111.094	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (MGA):	6247653.511	Contractor:	Macquarie Drilling
Site:	Macdonaldtown Triangle	Elevation (mAHD):	19.37	Logged By:	Maria Moss
Date:	19-Apr-09	Water Level (mbtoc):	N/A	Project Manager:	Lee Moore
Weather:	Sunny	Final Depth (mbgl):	4.5m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1			1-0.0-0.1		FILL: Dark brown, gravelly silt, gravel fragments less than 3cm, minor fine roots	
0.2						
0.3						
0.4						
0.5						Auger
0.6						
0.7						
0.8						
0.9						
1.0			1-0.9-1.0			
1.1						
1.2						
1.3						
1.4						
1.5					FILL: Loose light brown fine sand and rock fragments less than 1cm, dry	
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0					FILL: Red/Orange silty clay, hard, minor fine roots, some grey clay	
3.1						
3.2						
3.3						
3.4			3.3-3.4		FILL: Dark grey silty clay and coke fill (odour) (PAH/BTEX)	
3.5						
3.6						
3.7					Dark grey plastic silty clay, roots	
3.8						
3.9						
4.0						
4.1			4.1-4.3			
4.2						
4.3					Red clay, stiff, moist, dry, cleared not sheared	
4.4						
4.5						

EOH @ 4.5m

Notes:

Bore No. 2

Sheet 1 of 1

Project No.	110158	Easting (AMG)	317107.419	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG)	1247666.818	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	16.42	Logged By:	Maria Milos
Date:	18-Apr-00	Water Level (mbgl):	N/A	Project Manager:	Lee Moore
Weather:	Sunny	Final Depth (mbgl):	4.5m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1		1.6	2-0.0-0.1		Grey/red mottled hard clay, decomposed shale.	
0.2						
0.3		0.8	2-0.2-0.3			
0.4						
0.5						
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6					Red hard clay, slight grey mottling, weathered, shale(red)	
1.7						
1.8						
1.9						
2.0						
2.1		1.3	2-2.0-2.1			
2.2						
2.3						
2.4						
2.5						
2.6		3.3	2-2.5-2.6		Dark grey silty clay, minor fine rock fragments, strong end hydrocarbon odour	
2.7						
2.8						
2.9						
3.0						
3.1					Dark grey plastic clay, minor gravel fragments less than 1cm, silty, soft, (odour)	
3.2						
3.3						
3.4		1.4	2-3.3-3.4			
3.5						
3.6					Red/orange silty clay, hard, minor fine roots, some grey clay, (odour)	
3.7						
3.8						
3.9						
4.0						
4.1						
4.2					Red clay, silt, rock fragments less than 1cm, compacted, hard	
4.3						
4.4						
4.5		[illegible]	[illegible]		[illegible]	

Notes:

mAHD [illegible] Shell Wells Below Ground Level [illegible] mbgl [illegible] below top of casing

Bore No. 3

Sheet 1 of 1

Project No:	118158	Easting (AMG):	317103.713	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG):	1247693.356	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.69	Logged By:	Maria Milos
Date:	18-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Sunny	Final Depth (mbgl):	4.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0		2.5	3-0.0-0.1		FILL: Dark brown gravelly soil, fine roots, some glass and rock fragments	
1.0		1.1	3-1.0-1.1		Red/grey mottled clay, fine roots, compacted, weathered/decomposed shale(red)	
2.5		5.0	3-2.4-2.5		Grey plstic clay, roots, homogeneous.	
3.0		0.5	3-2.9-3.0		Red, orange clay, compacted weathered (decomposed shale) minor fine roots.	
4.0		4.5	3-3.9-4.0		End of Borehole	

Notes:

RL in m AHD on Australian Height Datum. RL of Top of Bore on ground level. Water metres below ground level.

GHD HILL AUSTRALIA PTY LTD

SOIL BORE LOG

Bore No. 4

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317103.566	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG)	1247699.228	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	16.78	Logged By:	Maria Miles
Date:	18-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Sunny	Final Depth (mbgl):	3.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1		1.3	4-0.0-0.1		FILL, Brown gravelly soil, gravel and shale fragments less than 1cm, glass	
0.2					FILL, Grey/red mottled clay, shale fragments less than 1cm, minor gravel and roots	
0.3						
0.4						
0.5					FILL, Brown gravelly soil, gravel and shale fragments	
0.6					FILL, Coal slag fill, coal pieces less than 1cm, coarse sand, roots, gravel and roots.	
0.7						
0.8		0.3	4-0.7-0.8			
0.9		2.7	4-0.8-0.9		FILL, Red/grey mottled clay large coal pieces, vessicular, glass fragments, gravel and rock fragments less than 2cm.	
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6		0.3	4-1.5-1.6		Dark grey silty clay soft, fine roots.	
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6		0.4	4-2.5-2.6		Red/tan plastic clay, roots weathered soft shale(red)	
2.7						
2.8						
2.9						
3.0					EOH @ 3m on clay	
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD metres Australian Height Datum mbgl metres below ground level mbtc metres below top of casing

[redacted] | [redacted] | Bore No. 6

Sheet 1 of 1

Project No:	118158	Easting (AMG):	317103.196	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG):	1247719.155	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.96	Logged By:	Maria Milos
Date:	18-Apr-06	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Sunny	Final Depth (mbgl):	3.1m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL, Bitumen	
0.2					FILL, Brown/black, coke fill, dry, crumbly, light, minor coarse black sand.	
0.3		55.6	6-0.2-0.3			
0.4		3.2	6-0.3-0.4		FILL, Red/grey, sandy clay, red weathered shale.	
0.5						
0.6						
0.7						
0.8						
0.9						
1.0						
1.1		0.3	6-1.0-1.1		Dark grey plastic silty clay, roots.	
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1		60.3	6-2.0-2.1			
2.2						
2.3						
2.4						
2.5						
2.6					Red, clay, compacted, dry, weathered shale red.	
2.7						
2.8						
2.9						
3.0						
3.1		16.8	6-3.0-3.1			
3.2					EOH @ 3.1m on clay.	
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes:

mAHD=metres Australian Height Datum mbgl=metres below ground level mbtc=metres below top of casing

GHD [illegible] HILL

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Soil BORE LOG

Bore No. 7

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317118.681	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG):	1247729.832	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.71	Logged By:	Maria Miles
Date:	18-Apr-08	Water Level (mbgl):	N/A	Project Manager:	Lee Moore
Weather:	Sunny	Final Depth (mbgl):	3.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1		2.5	7-0.0-0.1		FILL, Brown/black, coke fill, dry, crumbly, light, minor coerse black sand	
0.9					FILL, Brown plastic clay, weathered shale and rock fragments	
1.4		37.9	7-1.4-1.5		FILL, Dark grey silty clay, roots, oil, tar, strong, hydrocarbon smell, minor rock fragments	
2.5					Red, clay, compacted, dry, weathered shale red (napthalene odour)	
3.0		9.5	7-2.9-3.0		EOH @ 3.0m on clay	

Notes:

1) All depths in metres below ground level unless otherwise stated. 2) RL in metres below top of casing

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SOIL BORE LOG

Bore No. 8

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317125.680	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG):	1247723.696	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.56	Logged By:	Maria Milos
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Overcast	Final Depth (mbgl):	4.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1		0.9	B-0-0.1		FILL. Dark brown, gravelly fill, gravel fragments less than 3cm, minor fine roots.	
0.2						
0.3						
0.4						
0.5						
0.6					FILL. Brown/black, coke fill, dry, crumbly, light, minor coarse black sand.	
0.7						
0.8						
0.9					FILL. Crushed orange like, wet.	
1.0						
1.1		1.6	B-1.0-1.1		FILL. Dark grey silty clay, roots and coal slag mixed in.	
1.2						
1.3						
1.4						
1.5						
1.6						
1.7		2.1	B-1.6-1.7		Dark grey silty clay, roots.	
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4		2.5	B-2.3-2.4			
2.5						
2.6						
2.7					Red, clay, compacted, dry, weathered shale red	
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6		1.6	B-3.5-3.6		Grey compacted clay homogeneous	
3.7						
3.8						
3.9						
4.0					EOH @ 4.0m on clay.	

Notes

mAHD: metres Australian Height Datum; mbgl: metres below ground level; mbtc: metres below top of casing

CONCORD HILL

Coffey Geotechnics Pty Ltd

Soil Bore Log

Bore No. 9

Sheet 1 of 1

Project No:	110153	Easting (AMG):	317132.858	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG):	1247726.929	Contractor:	JET(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	16.74	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbgl):	N/A	Project Manager:	Lee Moore
Weather:	Overcast	Final Depth (mbgl):	0.2m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0					FILL: Dark brown sand and brick, moist, unconsolidated.	
0.2					EOH at 0.2m refusal on brick.	

Notes:

RL: Reduced Level to Australian Height Datum; mbgl: metres below ground level; mAHD: metres above Australian Height Datum

GHD

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SOIL BORE LOG

Bore No. 10

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317134.360	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247729.447	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.73	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Overcast	Final Depth (mbgl):	0.3	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1			10-0.0-0.1		FILL, Dark brown sand, some gravel ballast, some slag and bricks.	
0.2						
0.3			10-0.3			
0.4					EOH @ 0.3m on concrete slab.	
0.5						
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

GHD

CDM HILL AUSTRALIA Pty Ltd

Soil Bore Log

Bore No. 11

Sheet 1 of 1

Proj. No:	110158	Easting (AMG)	317140.501	Equipment:	Auger/Push Tube
Proj:	Eveleigh Gasworks	Northing (AMG)	1247707.420	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.56	Logged By:	Maria Milos
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Rain	Final Depth (mbgl):	3.9m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
11					FILL, Dark brown, gravelly fill, gravel fragments less than 3cm, minor fine roots.	
12					FILL, Orange coarse building sand, wet.	Auger
13			11-1.2-1.3		FILL, Dark grey clay fill and coke fill (odour)	Pushtube
14					Dark grey clay (no odour)	
15					Orange stiff/weathered clay, no odour	
16					EOH @ 3.9m on clay	
17						
18						
19						
20						
21			11-3.0-3.1			
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

CSEM PTY LTD ACN 003 320 831 ABN 28 003 320 831

Soil Bore Log

Bore No. 12

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317151.971	Equipment:	Push Tube
Project:	Evelyn Gasworks	Northing (AMG):	1247716.220	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.67	Logged By:	Maria Milos
Date:	19-Apr-00	Water Level (mbtc):	NA	Project Manager:	Lee Moore
Weather:	Rain	Final Depth (mbgl):	4.5m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1			12-0.0-0.1		FILL: Dark brown, gravelly fill, gravel fragments less than 3cm, minor fine roots.	
0.2						
0.3						
0.4						
0.5						
0.6					FILL: Orange coarse building sand, wet.	Auger
0.7						
0.8						
0.9						
1.0			12-0.9-1.0			
1.1						
1.2						
1.3						
1.4		0	12-1.3-1.4			
1.5					FILL: Tan/grey coarse sand, wet.	Pushtube
1.6						
1.7						
1.8						
1.9						
2.0						
2.1		0	12-2.0-2.1		FILL: Grey/orange clay some shale, plastic, some coke fill	
2.2						
2.3						
2.4						
2.5						
2.6						
2.7		0	12-2.6-2.7		FILL: Dark grey clay and coke fill (odour)	
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4		0			Red, clay, compacted, dry, weathered shale red	
3.5						
3.6						
3.7						
3.8						
3.9						
4.0					Dark grey, clay plastic	
4.1						
4.2						
4.3					Grey, silt, red compacted clay, minor roots, slight odour	
4.4						
4.5			12-4.4-4.5			
4.6						

Notes

[illegible] Permit Drilling [illegible] [illegible] [illegible] Water [illegible] below top of casing

CONSULTANT: CONSULTANT NAME

SOIL BORE LOG

Bore No. TP12

Sheet 1 of 1

Project No:	110158	Easting (AMG)	Same as	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	BH12	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):		Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):		Project Manager:	Lee Moore
Weather:	Overcast	Final Depth (mbgl):	4.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL, Ash, black to grey, moist, unconsolidated, some coal fragments	Located adjacent to B12
0.2						
0.3						
0.4						
0.5						
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6					Natural bedded sand fine to medium grained well sorted, moist, unconsolidated, very minor odour, between fill and sand interface	
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5					Very wet, silty sand, hydrocarbon odour, fine well sorted.	
3.6						
3.7						
3.8						
3.9						
4.0					EOH @ 4.0m due to equipment constraints	

Notes

mAHD metres Australian Height Datum mbgl metres below ground level mbtc metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 13

Sheet 1 of 1

Project No:	110158	Easting (AMG):	Was not	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG):	Surveyed	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):		Logged By:	Maria Milos
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Rain	Final Depth (mbgl):	3.9m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1			13-0.0-0.1		FILL: Dark brown, gravelly fill, gravel fragments less than 3cm, minor fine roots.	
0.2						
0.3			13-0.2-0.3		FILL: Brown/black coke fill, dry, crumbly, light, minor coarse black sand.	Auger
0.4						
0.5						
0.6						
0.7						
0.8					Red, clay, compacted, dry, weathered shale red	
0.9						
1.0			13-0.9-1.0			
1.1						
1.2		0	13-1.2-1.3		Dark grey silty clay.	Pushtube
1.3						
1.4						
1.5						
1.6					Tan/grey mottled plastic clay some weathered shale	
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9					Grey clay, homogeneous plastic, free roots	
3.0		0	13-3.0-3.1			
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9					EOH @ 3.9m on clay.	
4.0						

Notes

AHD metres Australian Height Datum mbgl metres below ground level mbtc metres below top of casing

Bore No. 14

Sheet 1 of 1

Project No:	116158	Easting (AMG):	317161.824	Equipment:	Auger
Project:	Eveleigh Gasworks	Northing (AMG):	1247753.075	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	19.03	Logged By:	Mark Mikos
Date:	9/9/10-9/9/	Water Level (mbgl):	N/A	Project Manager:	Lee Moore
Weather:	Rain	Final Depth (mbgl):	5.1m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1			14-0.0-0.1		FILL: Dark brown, gravelly fill, gravel fragments less than 3cm, minor fine roots.	
0.2						
0.3			14-0.2-0.3			
0.4					FILL: Brown/black coke fill, dry, crumbly, light, minor coarse black sand.	
0.5						
0.6						
0.7						
0.8						
0.9			14-0.9-1.0			
1.0						
1.1					FILL: Red clay, compacted, dry, weathered shale red.	
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2					Grey plastic mottled red clay.	
2.3		0	14-2.2-2.3			
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6					Tan/grey plastic clay.	
3.7						
3.8						
3.9						
4.0						

Bore No. 15

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317179.131	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG):	1247760.045	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.81	Logged By:	Maria Milos
Date:	19-Apr-00	Water Level (mbgl):	N/A	Project Manager:	Lee Moore
Weather:	Rain	Final Depth (mbgl):	4.2m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1		0	15-0.0-0.1		FILL: Dark brown, gravelly fill, gravel fragments less than 3cm, minor fine roots.	
0.2						
0.3			15-0.2-0.3			
0.4					FILL: Brown/black coke fill, dry, crumbly, light, minor coarse black sand.	Auger
0.5						
0.6						
0.7						
0.8						
0.9					FILL: Red, clay, compacted, dry, weathered shale red.	
1.0			15-0.9-1.0			
1.1						
1.2						
1.3						
1.4						
1.5		0	15-1.4-1.5		FILL: Dark grey clay and coke fill	
1.6						
1.7						
1.8						
1.9						
2.0			15-1.9-2.0			
2.1						
2.2					Orange/grey/mottled clay, plastic.	
2.3						
2.4						
2.5						Pushtube
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3					Brown mottled white clayey sand, dry, compacted then crumbles in your hand to loose powder	
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						
		0	15-4.1-4.2		END OF HOLE @ 4.2m	

Legend

Depth recorded to Australian Height Datum; water levels below ground level; other depths below top of casing

Bore No. 16

Sheet 1 of 1

Project No.	110158	Easting (AMG)	317184.659	Equipment:	Auger
Project:	Eveleigh Gasworks	Northing (AMG)	1247749.137	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.56	Logged By:	Maria Milos
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Rain	Final Depth (mbgl):	4.1m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1			16-0.0-0.1		FILL: Dark brown, gravelly fill, gravel fragments less than 3cm, minor fine roots.	
0.2						
0.3						
0.4						
0.5						
0.6						
0.7						
0.8					FILL: Orange/grey/black coarse sand/fill and rock fragments.	
0.9						
1.0			16-0.9-1.0			
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9					FILL: Grey/tan plastic clay (some gravel) (wet)	
2.0		0				
2.1		0.3	16-2.0-2.1			
2.2						
2.3						
2.4						
2.5						
2.6						
2.7			16-2.6-2.7		Grey plastic clay, fine roots (wet)	
2.8						
2.9						
3.0						
3.1		0	16-3.0-3.1			
3.2						
3.3						
3.4						
3.5						
3.6					Grey loose weathered shale (dry)	
3.7						
3.8						
3.9						
4.0						
					EOH at 4.1m in shale	

Notes

Depth metres subtract 0.1 for ground level — total metres below ground level — Drilled with Geoprobe 6600 Series

CLIENT HILL AUSTRALIA Pty Ltd

Soil Bore Hole

Bore No. 18

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317129.119	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG):	1247706.185	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	15.69	Logged By:	Maria Milos
Date:	18-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Cloudy	Final Depth (mbgl):	4.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL. Dark brown, gravelly fill, gravel fragments less than 3cm, minor fine roots.	
0.2		7.6	18-0.2-0.3		FILL. Black ash, coke layer, dry, loose, fragments coke slag less than 1cm.	
0.3						
0.4		0.4	18-0.4-0.5		FILL. Brown, grey, red mottled clay, compacted, rock fragments less than 1cm.	
0.5						
0.6						
0.7						
0.8						
0.9						
1.0		0.2	18-1.0-1.1		FILL. Dark grey/black/red, plastic, moist clay. Less than 1cm shale fragments. (Strong odour BENZENE)	
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7		33.4	18-1.7-1.8		FILL. Black, wet silty, minor rock fragments less than 0.5cm, oily, tarry, (very high benzene odour)	
1.8						
1.9						
2.0					Dark grey plastic silty clay, roots, (odourous)	
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9		1.8	18-2.9-3.0		Red clay, compacted, dry, weathered shale red (odourous)	
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9		0.1	18-3.9-4.0			
4.0					EOH @ 4.0m in clay	

Notes:

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

CH2M HILL

CH2M HILL AUSTRALIA Pty Ltd

SOIL BORE LOG

Bore No. TP19

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317085.053	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG):	1247726.526	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	19.95	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Overcast	Final Depth (mbgl):	0.2m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1			TP19-0.0-0.1		FILL. Dark brown sand with some gravel ballast, moist, unconsolidated.	
0.2					EOH at 0.2 refusal on concrete pad	
0.3						
0.4						
0.5						
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD: metres Australian Height Datum; mbgl: metres below ground level; mbtc: metres below top of casing

CH2M HILL

CH2M HILL AUSTRALIA Pty Ltd

SOIL BORE LOG

Bore No. 21

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317153.515	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247765.894	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.28	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Raining	Final Depth (mbgl):	0.4m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1						
0.2			21-0.2		FILL. Brick and Gravel ballast, minor sand, moist, dark brown, unconsolidated.	
0.3						
0.4					EOH @ 0.4m refusal on concrete.	
0.5						
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

CH2M HILL AUSTRALIA Pty Ltd

SOIL BORE LOG

Bore No. 22

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317173.503	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247771.465	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.25	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Raining	Final Depth (mbgl):	1.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL, Dark brown sand/gravel ballast, unconsolidated, moist, some organic matter.	
0.2			22-0.2			
0.3						
0.4						
0.5					FILL, Same as above with some sandstone fragments and brick work at 0.6m.	
0.6			22-0.6			
0.7						
0.8						
0.9						
1.0					EOH @1.0m refusal on concrete slab	
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 23

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317240.310	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG):	1247797.434	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.13	Logged By:	Maria Milos
Date:	18-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Cloudy	Final Depth (mbgl):	4.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1		0.6	23-0.0-0.1		FILL. Dark brown, gravelly sand, minor dark clay, gravel fragments less than 2cm.	
0.2						
0.3						
0.4						
0.5		1.1	23-0.5-0.6		FILL. Brown, black, coke fill, dry, crumbly, light, minor coarse black sand.	
0.6						
0.7						
0.8		0.7	23-0.8-0.9		FILL. Coarse orange/reddy building sand, homogeneous.	
0.9						
1.0					FILL. Grey, molted red clay, dry, weathered shale, decomposed shale.	
1.1						
1.2					FILL. Creamy white/tan coarse building sand.	
1.3					FILL. Grey, molted red clay, dry, weathered shale, decomposed shale.	
1.4						
1.5						
1.6		0.5			FILL. Tan/grey coarse building sand.	
1.7						
1.8						
1.9						
2.0						
2.1		1.7	23-2.0-2.1		FILL. Orange/brown coarse sand, wet, minor rock fragments less than 1 cm.	
2.2						
2.3						
2.4						
2.5						
2.6		0.7	23-2.5-2.6		FILL. Dark grey clay, moist, plastic, minor rock fragments.	
2.7						
2.8						
2.9						
3.0						
3.1					Dark brown/tan/grey plastic clay homogeneous.	
3.2						
3.3						
3.4						
3.5						
3.6					Grey, molted red clay, dry, weathered shale, weathered shale.	
3.7						
3.8						
3.9						
4.0					EOH @ 4.0m on clay.	

Notes:

m AHD metres Australian Height Datum mbgl metres below ground level mbtc metres below top of casing

CH2M HILL AUSTRALIA Pty Ltd

SOIL BORE LOG

Bore No. 24

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317222.325	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG)	1247793.813	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	19.86	Logged By:	Maria Milos
Date:	18-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Cloudy	Final Depth (mbgl):	3.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1		0.5	24-0.0-0.1		FILL, Dark brown gravelly sand, minor fine roots, minor coke fragments <0.5cm, gravel ballast less than 5cm.	
0.2						
0.3		0.7	24-0.2-0.3		FILL, Dark brown black, coke slag, light, crumbly, coke fragments less than 1cm.	
0.4						
0.5		0.8	24-0.4-0.5			
0.6						
0.7					FILL, Orange coarse building sand, dry, going into creamy building sand, coarse, dry, loose.	
0.8						
0.9						
1.0						
1.1		1.3				
1.2			24-1.1-1.2			
1.3						
1.4						
1.5						
1.6						
1.7					Grey/red mottled clay, weathered shale, decomposed grey shale, tree roots.	
1.8		0	24-1.7-1.8			
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6			24-2.5-2.6		Dark grey crumbly clay, minor roots (fine), organic odour, minor tree roots(bid), less than 1cm shale fragments.	
2.7						
2.8					Tan/grey plastic clay, homogeneous.	
2.9						
3.0		3.3	24-2.9-3.0			
3.1					EOH @ 3.0m on clay	
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

CH2M HILL AUSTRALIA Pty Ltd

SOIL BORE LOG

Bore No. 25

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317195.013	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247781.63	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.11	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Raining	Final Depth (mbgl):	1.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1						
0.2			25-0.2		FILL. Sand with some gravel (ballast), minor clay (less than 2%) and organic matter (less than 4%), sand/ballast is loosely consolidated, moist.	
0.3						
0.4						
0.5						Hit footing at 0.5 to 0.6
0.6			25-0.6			
0.7					FILL. Clay with some sand/gravel(ballast), firm, mottled red/brown/grey.	Some brick work at 0.6m to 0.8m
0.8						
0.9						
1.0					EOH @ 1.0m refusal on concrete slab	
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

CH2M HILL AUSTRALIA Pty Ltd

SOIL BORE LOG

Bore No. 26

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317086.896	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247743.165	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.88	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Cloudy/Overcast	Final Depth (mbgl):	0.8m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL. Dark brown sand with some gravel ballast, some brick fragments, metal piping, moist, unconsolidated.	
0.2			26-0.2			
0.3						
0.4						
0.5					FILL. Same as above with vessicles of mottled clay.	Along northern side of test pit is a brick wall extending from 0.15 to 0.8m
0.6						
0.7						
0.8			26-0.8			
0.9					EOH at 0.8m refusal on concrete pad	
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

CH2M HILL

CH2M HILL AUSTRALIA Pty Ltd

SOIL BORE LOG

Bore No. 27

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317109.637	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG):	1247756.131	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.13	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Overcast	Final Depth (mbgl):	0.3m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL: Gravel ballast with fragments of brick, some mottled grey/red clay, minor sand (brown), unconsolidated, moist.	
0.2			27-0.2			
0.3					EOH at 0.3m refusal on concrete pad	
0.4						
0.5						
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

CH2M HILL AUSTRALIA Pty Ltd

SOIL BORE LOG

Bore No. 28

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317134.870	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247767.599	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.18	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather	Raining	Final Depth (mbgl):	0.5m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL, Dark brown loose, unconsolidated sand, some gravel ballst, some brick, timber fragments, moist.	Hit sandstone, brick wall on southern side of pit.
0.2						
0.3			28-0.3-0.4			
0.4						
0.5					EOH at 0.5m refusal on concrete pad	
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD: metres Australian Height Datum; mbgl: metres below ground level; mbtc: metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 29

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317160.964	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247782.641	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.26	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Raining	Final Depth (mbgl):	1.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL, Dark brown sand with some gravel ballast, unconsolidated, moist.	
0.2			29-0.2			
0.3						
0.4						
0.5						
0.6			29-0.6		FILL, Gravel ballast with some sand, no odour, unconsolidated, dry to moist.	
0.7						
0.8						
0.9						
1.0					EOH @ 1.0m refusal on concrete.	
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 30

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317180.857	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG):	1247790.550	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.14	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Sunny	Final Depth (mbgl):	1.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL. Dark brown sand/gravel ballast (about 1.2cm), unconsolidated, moist, minor organic matter.	Footings present around 0.3 m (may have been used as track supports)
0.2			30-0.2			
0.3						
0.4						
0.5					FILL. Dark brown sand with some gravel ballast, presence of strips of metal, wooden beams (old sleepers?), material is unconsolidated, moist.	
0.6			30-0.6			
0.7						
0.8						
0.9						
1.0					EOH @ 1.0m refusal on concrete slab	
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 31

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317205.980	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247805.856	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.20	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Sunny/Clear	Final Depth (mbgl):	0.6m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (PID readings, visual contamination, odour, side collapse, etc.)
0.1					FILL. Gravel ballast (less than 1cm in diameter), dark brown fine to medium grained sand, some organics (roots), moist, unconsolidated.	
0.2		0.7	31-0.2-0.3			
0.3					FILL. Same as above except gravel fragments (ballast) increase in size to around 2 to 3cm in diameter.	
0.4						
0.5					Fragments of mottled red/beige clay, moderate plasticity, minor sand.	
0.6		0.6	31-0.6			
0.7					EOH @ 0.6m refusal on concrete slab.	
0.8						
0.9						
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 32

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317232.958	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG)	1247816.131	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.69	Logged By:	Maria Milos
Date:	18-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Cloudy	Final Depth (mbgl):	4.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1		0.4	32-0-0.1		FILL. Dark brown, sandy gravel/ballast less than 5cm, medium to coarse grained	
0.2					FILL. Crushed gravel and concrete, dry, pieces less than 3cm. Very loose.	
0.3						
0.4						
0.5						
0.6						
0.7					FILL. Dark brown silty, sand, gravel fragments less than 1cm, minor coke pieces less than 0.5cm.	
0.8						
0.9						
1.0						
1.1		0.7	32-1.0-1.1		FILL. White coarse sand, homogeneous dry, minor red/orange colour streaks	
1.2			32-1.1-1.2			
1.3					FILL. Brown/tan sandy clay, minor rock fragments less than 1cm, dry.	
1.4						
1.5						
1.6					FILL. Grey mottled, red clay, hard, decomposed grey shale, and weathered red shale pieces.	
1.7		0	32-1.6-1.7			
1.8					FILL. Orange/brown coarse building sand, moist.	
1.9						
2.0						
2.1		0.2	32-2.0-2.1		Grey mottled, red clay, hard, decomposed grey shale, and weathered red shale pieces.	
2.2						
2.3					Dark grey plastic clay, tree root, homogeneous, very dark grey.	
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2					Grey mottled, red clay, hard, decomposed grey shale, and weathered red shale pieces.	
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0					EOH @ 4.0m on clay.	

Notes

mAHD metres Australian Height Datum mbgl metres below ground level mbtc metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 34

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317101.842	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247776.74	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.46	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Overcast	Final Depth (mbgl):	2.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1			34-0.0-0.1		FILL. Dark brown sand, some gravel ballast, bricks, unconsolidated, moist.	
0.4			34-0.4-0.5		FILL. Black to grey ash unconsolidated, dry.	
1.2					Red/beige mottled clay with sandstone fragments.	
2.0					EOH @ 2.0m on clay	

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

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SOIL BORE LOG

Bore No. 35

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317126.139	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG):	1247798.341	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.22	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Raining	Final Depth (mbgl):	1.7m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1						
0.2			35-0.2		FILL: Sand with some gravel (ballist), wet to moist, loose unconsolidated, dark brown.	
0.3						
0.4						
0.5						
0.6						
0.7						
0.8			35-0.8			
0.9						
1.0						
1.1					Clay mottled red/grey, moderate plasticity, moist.	
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8					EOH @ 1.7m on clay	
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

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SOIL BORE LOG

Bore No. 36

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317155.250	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247793.952	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.07	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Raining	Final Depth (mbgl):	1.9m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1			36-0.3		FILL. Light brown sand, some gravel ballast, unconsolidated, moist.	Plastic pipe at 0.2m trending northwest to southeast.
0.2						
0.3			36-0.1		FILL. Dark brown to black ash, some tightly packed clay.	
0.4						
0.5						
0.6						
0.7						
0.8						
0.9						
1.0					Mottled light brown to grey clay, moderate plasticity, tightly compacted, minor sandstone inclusions.	
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9					EOH @ 1.9m on clay	
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 37

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317176.655	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247805.768	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.29	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Sunny	Final Depth (mbgl):	2.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL, Dark brown, loose unconsolidated sand/gravel ballast (less than 1cm), some organic matter, moist.	
0.2			37-0.2			
0.3					FILL, Loose unconsolidated dark brown sand/gravel ballast, dry, with some slag and sandstone fragments.	
0.4					FILL, Very compacted sand/gravel layer approximately 0.2 to 0.15 m thick.	
0.5			37-0.5			
0.6					Clay with sandstone inclusions, clay is moist, moderately plastic, mottled red/cream, sandstone fragments (weathered).	
0.7						
0.8						
0.9						
1.0						
1.1						
1.2						
1.3						
1.4						
1.5					Tight, consolidated clay, mottled grey, rust, minor sandstone fragments, plastic, moist.	
1.6						
1.7						
1.8						
1.9						
2.0					EOH at 2.0m on clay	
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes:

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 33

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317086.499	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG):	1247760.81	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.24	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Overcast	Final Depth (mbgl):	2.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL. Medium grained sand, dark brown, loose unconsolidated.	
0.2			33-0.2			
0.3						
0.4						
0.5						
0.6						
0.7						
0.8						
0.9						
1.0					Clay, moist to wet, mottled grey/orange/red, plastic	
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0			33-2.0		EOH at 2.0m on clay	
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD:metres Australian Height Datum mgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 39

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317236.293	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG)	1247834.389	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.77	Logged By:	Maria Milos
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Cloudy	Final Depth (mbgl):	4.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1		1.8	39-0.0-0.1		FILL. Brown, sandy clay, gravel fragments less than 2cm, orangy/brown clay, dry, minor shale laminates less than 1cm.	
0.2						
0.3						
0.4						
0.5						
0.6						
0.7						
0.8					FILL. Grey gravel pieces, dry, large, less than 3cm.	
0.9			DUP:39-0.9-1.0		FILL, Black coke gravel, light, dry becoming moist at 1m, coke fragments less than 1cm	
1.0		0			FILL. White coarse sand grading into orange coarse building sand, homogeneous	
1.1			39-1.1-1.2			
1.2		1.1			FILL. Brown, grey, silty clay, plastic, large rock fragments in its less than 3cm.	
1.3						
1.4						
1.5						
1.6						
1.7					Grey red mottled clay, silty, rock frags less than 1cm	
1.8		0.8	39-1.7-1.8		Dark grey silty clay, crumbly, dry, rock fragments less than 1cm.	
1.9						
2.0						
2.1					Grey/brown plastic clay, homogeneous.	
2.2						
2.3						
2.4						
2.5						
2.6		0.9	39-2.5-2.6		Grey/brown/red mottled plastic clay, wood pieces less than 1cm long.	
2.7						
2.8						
2.9						
3.0						
3.1		1.7	39-3.0-3.1		Orange/grey/red mottled clay, dry, compacted, minor wood slivers.	
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9					Red minor grey clay, very hard, shale fragments less than 0.5cm, weathered red shale decompose shale turned to	
4.0					EOH @ 4.0m on clay	

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 40

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317073.035	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247768.306	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.44	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Overcast	Final Depth (mbgl):	2.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1			40-0.0-0.1		FILL. Dark brown sand, some gravel ballast, moist, unconsolidated.	Duplicate sample collected
0.2						
0.3						
0.4						
0.5						
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2					Clay mottled, red with sandstone fragments (weathered), moderate plasticity, moist.	
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0					EOH @ 2.0m on clay.	
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 41

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317073.316	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247737.771	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	19.99	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Overcast	Final Depth (mbgl):	0.9m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL. Dark brown sand with some gravel ballast and brick fragments, minor organics, unconsolidated, moist.	Duplicate sample collected
0.2			41-0.2			
0.3						
0.4						
0.5						
0.6					FILL. Dark brown medium grained sand with some gravel ballast, some orange/grey/red mottled clay, soils moist, unconsolidated.	Concrete at 0.6m and steps down to 0.9m. Do not know if it extends beyond 0.9m
0.7						
0.8						
0.9			41-0.9		EOH 0.9m refusal on concrete pad	
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

CH2M HILL

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SOIL BORE LOG

Bore No. 42

Sheet 1 of 1

Project No.	110158	Easting (AMG)	317209.601	Equipment:	Push Tube
Project:	Eveleigh Gasworks	Northing (AMG)	1247820.981	Contractor:	Macquarie
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.52	Logged By:	Maria Milos
Date:	18-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Overcast	Final Depth (mbgl):	2.5m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1		2.3	42-0.0-0.1		FILL, Dark brown gravelly fill, ballast less than 5cm, minor coke less than 1cm, dry.	
0.7		0.6	42-0.7-0.8		FILL, Black, coke fill, dry, crumbly, light, coke fragments less than 1cm.	
0.8					FILL, White cream coarse sand.	
1.0		0.8	42-1.0-1.1		FILL, Orange coarse building sand.	
1.5		0.7	42-1.5-1.6		Tan, mottled orange clay, plastic, minor roots, decomposed shale.	
1.9		1.4	42-1.9-2.0			
2.5					EOH @ 2.5m on shale.	

Notes

mAHD metres Australian Height Datum mbgl metres below ground level mbtc metres below top of casing

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SOIL BORE LOG

Bore No. 43

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317111.826	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG):	1247739.861	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.27	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Overcast	Final Depth (mbgl):	1.6m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL, Dark brown, medium grained sand, some gravel ballast sandstone fragments, fragments of wires, pvc plastic, soil unconsolidated and moist.	wooden sleepers at 0.1m.
0.2						Steel pipe at 0.5m running east west (0.4m diameter)
0.3					FILL, Ash layer around 0.3 to 0.4m, loose, dry, grey to black.	Steel pipe at 0.4m running east west (0.4m diameter)
0.4			43-0.4			
0.5						Edge of concrete pad is visible along northern edge of test pit the pad extends down from 0.1m to approximately 0.6m.
0.6						
0.7			43-0.7			
0.8					FILL	
0.9					Mottled grey to red clay minor sandstone fragments (weathered), moderately plastic, moist.	
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6					CLAY	
1.7					Dark brown, medium grained sand, some gravel ballast, fragments of brick and ceramic pipe. Organic muddy odour, unconsolidated and moist.	
1.8					EOH @ 1.6m.	
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

(mAHD) metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

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SOIL BORE LOG

Bore No. TP44

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317129.984	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG)	1247742.87	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	20.18	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbtc):	N/A	Project Manager:	Lee Moore
Weather:	Raining	Final Depth (mbgl):	2.1m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL, Black to grey ash, loose unconsolidated, dry.	
0.2			TP44-0.2-0.3			Duplicate Collected
0.3						
0.4						
0.5						
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2					Red clay, low plasticity, firm, mottled with grey, some sandstone fragments (weathered).	
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0			TP44-2.0-2.1			
2.1					EOH @ 2.1m on clay.	
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

Soil Bore Log

Bore No. TP99

Sheet 1 of 1

Project No:	119158	Easting (AMG):	317214.570	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG):	1247774.179	Contractor:	JFT(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):	19.42	Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbgl):	N/A	Project Manager:	Lee Moore
Weather:	Raining	Final Depth (mbgl):	2.1m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1			TP99-0.0-0.1			Replaced BH20.
0.2					FILL: Ash, black to grey, loose, unconsolidated, moist coke pieces.	
0.3			TP99-0.3-0.5			
0.4						
0.5						
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2						
1.3					Light grey clay, moist, low to moderate plasticity, some red mottling.	
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1			TP99-2.0-2.1			
2.2					EOH @ 2.1m on clay.	
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes:

SOIL BORE LOG

Bore No. TPA

Sheet 1 of 1

Project No:	110158	Easting (AMG):	Was not	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG):	Surveyed	Contractor:	JET/PC45R
Site:	Macdonaldtown Triangle	Elevation (mAHD):		Logged By:	Kelly Chan
Date:	19-Apr-00	Water Level (mbgl):		Project Manager:	Lee Moore
Weather:	Rain	Final Depth (mbgl):	2.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1						
0.2					FILL: Light brown medium grained sand with some gravel, loose unconsolidated moist.	0.2 to end of hole 2.0m loose bricks
0.3						
0.4						
0.5						
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6			TPA - 1.6			
1.7					FILL: Free tar product migrating out of bricks seams, some clay, plastic, wet, tarry type odour.	
1.8						
1.9						
2.0						
2.1					EOH @ 2.0m refusal on possible concrete or brick footing.	
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Bore No. TPB

Sheet 1 of 1

Project No:	119155	Easting (AMG):	Was not	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG):	Surveyed	Contractor:	JET/PDASPL
Site:	Macdonaldtown Triangle	Elevation (mAHD):		Logged By:	Kelly Chan
Date:	19-Apr-01	Water Level (mbgl):		Project Manager:	Lee Moore
Weather:	Raining	Final Depth (mbgl):	1.0m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, slide collapse, etc.)
0.1					FILL: Dark brown sand with some clay bricks, moist, unconsolidated, minor clay inclusions	
0.2						
0.3						
0.4						
0.5						
0.6						
0.7						
0.8						
0.9						
1.0					EOH at 1m refusal on pipes and concrete footings.	
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Bore No. TPC

Sheet 1 of 1

Project No:	110158	Easting (AMG):	Was not	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (AMG):	Surveyed	Contractor:	JET(PC45R)
Site:	Macdonaldtown Triangle	Elevation (mAHD):		Logged By:	Kelly Chan
Date:	19/12/06	Water Level (mbgl):		Project Manager:	Lee Mouts
Weather:	Raining	Final Depth (mbgl):	1.6m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1						Brick wall located along eastern side of excavation
0.2						
0.3						
0.4						
0.5						
0.6						
0.7						
0.8					FILL: Bricks, minor clay, sand, very wet, visible hydrocarbon sheen, hydrocarbon odour, tar visible on bricks.	
0.9						
1.0			TPC-1.0			
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7					EOH @ 1.6m refusal on brick work.	
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Bore No. TPD

Sheet 1 of 1

Project No:	110150	Easting (AMG):	Was not	Equipment:	Excavator
Project:	Eveleigh Sasworks	Northing (AMG):	Surveyed	Contractor:	JFT(PC45R)
Site:	Macdonal town Triangle	Elevation (mAHD):		Logged By:	Kelly Chan
Date:	1/9/10-6/	Water Level (mbgl):		Project Manager:	Lee Moore
Weather:	Rainny	Final Depth (mbgl):	1.6m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size stiliness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL: Ash black to grey, loose, unconsolidated, dry	
0.2						
0.3						
0.4						
0.5						
0.6			TPD - 0.6			
0.7						
0.8						
0.9					Sand: cerided, bands: fine to medium grained, loosely consolidated, moist, light brownred well sorted.	
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6					EOH @ 1.6m in sand	
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Bore No. TP5

Sheet 1 of 1

Project No:	116158	Easting (MGA):	Was not	Equipment:	Excavator
Project:	Eveleigh Gasworks	Northing (MGA):	Surveyed	Contractor:	JET PO (SR)
Site:	Macdonaldtown Triangle	Elevation (mAHD):		Logged By:	Kelly Chan
Date:	15/Aug/18	Water Level (mbls):		Project Manager:	Lee Moore
Weather:	Raining	Final Depth (mbgl):	0.5m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0.1					FILL: Ash black to grey, loose, unconsolidated, dry.	
0.2						
0.3						
0.4						
0.5					EOH @ 0.5m on ash.	
0.6						
0.7						
0.8						
0.9						
1.0						
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						

Notes:

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GROUNDWATER MONITORING BORE LOG

Monitoring Bore No. MW03S

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317137.911	Excavation Equip:	Rotary Air Circulation
Project:	Eveleigh Gasworks	Northing (AMG)	1247683.304	Contractor:	Maquarie Drilling
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.38	Logged By:	Lee Moore
Date:	20-Apr-00	Water Level (mbtc):	2.31m	Project Manager:	Lee Moore
Weather:	Fine	Final Depth (mbgl):	3.5 m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)	Monitor. Bore Details
0.5					FILL, Sandy GRAVEL, gravel less than 3cm diameter, medium to coarse grained, grey/brown, dry, loose.		
1.0			MW03-1.00-1.10		Gravelly CLAY, low plasticity, soft/firm, sub-angular gravel less than 2cm diameter, light brown, moist.		
1.5	▽ 1.70 m						
2.0			MW03-2.00-2.10		Sandy CLAY, low plasticity, soft/firm, fine grained, grey/brown, slight organic odours.		
2.5	▽ 2.31 mbtc						
3.0			MW03-3.00-3.10		Silty CLAY, low to medium plasticity, stiff, brown, wet, no odours.		
3.5					EOH 3.5m		

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

Water Found

▽ Water Level | Water Inflow | Water Outflow

GNE Groundwater Not Encountered

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GROUNDWATER MONITORING BORE LOG

Monitoring Bore No. MW03D

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317139.485	Excavation Equip:	Rotary Air Circulation
Project:	Eveleigh Gasworks	Northing (AMG)	1247683.339	Contractor:	Maquarie Drilling
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.33	Logged By:	Lee Moore
Date:	19-Apr-00	Water Level (mbtc):	4.03m	Project Manager:	Lee Moore
Weather:	Fine	Final Depth (mbgl):	13.5 m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse etc.)	Monitor. Bore Details
0.5					FILL, Sandy GRAVEL, gravel less than 3cm diameter, medium to coarse grained, grey/brown, dry, loose.		
1.0			MW03-1.00-1.10		Gravelly CLAY, low plasticity, soft/firm, sub-angular gravel less than 2cm diameter, light brown, moist.		
1.5							
2.0			MW03-2.00-2.10		Sandy CLAY, low plasticity, soft/firm, fine grained, grey/brown, slight organic odours.		
2.5							
3.0			MW03-3.00-3.10				
3.5					Silty CLAY, low to medium plasticity, stiff, brown, wet, no odours.		
4.0	▽ 4.03 mbtc		MW03-4.00-4.10				
4.5							
5.0							
5.5							
6.0							
6.5							
7.0							
7.5							
8.0					Siltstone, low plasticity, stiff, brown/red/grey, dry, no odours		
8.5							
9.0							
9.5							
10.0							
10.5							
11.0	▽ 11.0 m						
11.5							
12.0					Shale, hard, grey, foliated, slight odour.		
12.5							
13.0							
13.5					EOH 13.5m		

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

Water Found

▽ Water Level | Water Inflow | Water Outflow

GNE Groundwater Not Encountered

CH2M HILL

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GROUNDWATER MONITORING BORE LOG

Monitoring Bore No. MW04S

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317159.418	Excavation Equip:	Rotary Air Circulation
Project:	Eveleigh Gasworks	Northing (AMG)	1247704.764	Contractor:	Maquarie Drilling
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.4	Logged By:	Lee Moore
Date:	20-Apr-00	Water Level (mbtc):	2.29m	Project Manager:	Lee Moore
Weather:	Fine	Final Depth (mbgl):	3.5 m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)	Monitor. Bore Details
0.5					FILL, Sandy GRAVEL, angular gravel less than 5cm diameter, coarse grained, grey/black, dry, loose, no odours		
1.0			MW04-1.00-1.10		Sandy CLAY, low plasticity, soft/firm, medium grained, red/brown, moist.		
1.5							
	1.80 m						
2.0			MW04-2.00-2.10		Silty CLAY, low plasticity, soft, grey/brown, wet, slight organics odour.		
	2.29 mbtc						
2.5							
3.0			MW04-3.00-3.10		Sandy CLAY, low plasticity, firm/stiff, medium grained, red/brown, wet		
3.5					EOH 3.5m		

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

Water Found

_ Water Level | Water Inflow | Water Outflow

GNE Groundwater Not Encountered

CH2M HILL

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GROUNDWATER MONITORING BORE LOG

Monitoring Bore No. MW04D

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317158.641	Excavation Equip:	Rotary Air Circulation
Project:	Eveleigh Gasworks	Northing (AMG)	1247703.451	Contractor:	Maquarie Drilling
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.37	Logged By:	Lee Moore
Date:	19-Apr-00	Water Level (mbtc):	3.78m	Project Manager:	Lee Moore
Weather:	Fine	Final Depth (mbgl):	11.5 m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse etc.)	Monitor. Bore Details
0.5					FILL, Sandy GRAVEL, angular gravel less than 5cm diameter, coarse grained, grey/black, dry, loose, no odours.		
1.0			MW04-1.00-1.10		Sandy CLAY, low plasticity, soft/firm, medium grained, red/brown, moist.		
1.5							
2.0			MW04-2.00-2.10		Silty CLAY, low plasticity, soft, grey/brown, wet, slight organics odour.		
2.5							
3.0			MW04-3.00-3.10		Sandy CLAY, low plasticity, firm/stiff, medium grained, red/brown, wet.		
3.5							
4.0	3.78 mbtc						
4.5							
5.0							
5.5							
6.0							
6.5							
7.0							
7.5					Siltstone, low plasticity, stiff, red/brown/grey, dry.		
8.0							
8.5							
9.0							
9.5							
10.0	10 m						
10.5					Shale, hard, grey, foliated, wet, no odours.		
11.0							
11.5					EOH 11.5m		
12.0							
12.5							
13.0							
13.5							

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

Water Found

Water Level ; Water Inflow ; Water Outflow

GNE Groundwater Not Encountered

CH2M HILL

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GROUNDWATER MONITORING BORE LOG

Monitoring Bore No. MW06S

Sheet 1 of 1

Project No:	110158	Easting (AMG):	317103.196	Excavation Equip:	Rotary Air Circulation
Project:	Eveleigh Gasworks	Northing (AMG):	1247719.155	Contractor:	Maquarie Drilling
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.96	Logged By:	Lee Moore
Date:	20-Apr-00	Water Level (mbtc):	2.33m	Project Manager:	Lee Moore
Weather:	Fine	Final Depth (mbgl):	3.5m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)	Monitor. Bore Details
					FILL, Bitumen		
			6-0.2-0.3		FILL, Brown/black, coke fill, dry, crumbly, light, minor coarse black sand.		
			6-0.3-0.4				
0.5					FILL, Red/grey, sandy clay, red weathered shale.		
1.0			6-1.0-1.1				
1.5					Dark grey plastic silty clay, roots.		
	1.80 m						
2.0			6-2.0-2.1				
	2.33 mbtc						
2.5					Red, clay, compacted, dry, weathered shale red.		
3.0			6-3.0-3.1				
3.5					EOH @ 3.5m		

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

Water Found

_ Water Level | Water Inflow | Water Outflow

GNE Groundwater Not Encountered

CH2M HILL

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GROUNDWATER MONITORING BORE LOG

Monitoring Bore No. MW06D

Sheet 1 of 1

Project No:	110158	Easting (AMG)	317102.514	Excavation Equip:	Rotary Air Circulation
Project:	Eveleigh Gasworks	Northing (AMG)	1247720.496	Contractor:	Maquarie Drilling
Site:	Macdonaldtown Triangle	Elevation (mAHD):	18.97	Logged By:	Lee Moore
Date:	19-Apr-00	Water Level (mbtc):	2.29m	Project Manager:	Lee Moore
Weather:	Fine	Final Depth (mbgl):	15.0 m	Checked By:	

Depth (m)	Water Found	Sample PID	Sample No.	Graphic Log	Soil Description (soil type, colour, moisture content, plasticity, grain size, stiffness, etc.)	Observation/Comments (visual contamination, odour, side collapse, etc.)	Monitor Bore Details
0.5			6-0.2-0.3		FILL, Brown/black, coke fill, dry, crumbly, light, minor coarse black sand		
			6-0.3-0.4		FILL, Red/grey, sandy clay, red weathered shale.		
1.0			6-1.0-1.1				
1.5					Dark grey plastic silty clay, roots.		
2.0			6-2.0-2.1				
2.5	2.29 mbtc						
3.0			6-3.0-3.1				
3.5							
4.0							
4.5					Red, clay, compacted, dry, weathered shale red.		
5.0							
5.5							
6.0							
6.5							
7.0							
7.5							
8.0							
8.5							
9.0							
9.5							
10.0							
10.5							
11.0	11.0 m				Shale, hard, grey, foliated, slight odour.		
11.5							
12.0							
12.5							
13.0							
13.5							
14.0							
14.5							
15.0					EOH @ 15.0m		

Notes

mAHD: metres Australian Height Datum mbgl: metres below ground level mbtc: metres below top of casing

Water Found

— Water Level | Water Inflow | Water Outflow

GNE Groundwater Not Encountered

CH2M HILL

SOIL BORE LOG

Bore No. MW07S

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317101.94	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247693.13	Contractor:	Macquarie Drilling
Site:	Former Gasworks Area	Elevation (mAHD):	19.575	Logged By:	VR
Date:	24-Sep-01	Water Level (mbtc):	2.67	Project Manager:	NR
Weather:	Fine, warm	Final Depth (mbgl):	1.82	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
					Bitumen (0.05 m)	NVO
	Groundwater @ 2.67 m below top monument		0.05-0.3		Fill: Sandy CLAY, brown, low plasticity, soft, coarse grain.	
					CLAY, red, firm, plastic, dry.	
1.0		MW07S	090100			PID = 0.0 ppm
2.0						
3.0					CLAY, red, firm, plastic, moist.	
4.0					End of Hole 4 m	
5.0						Water Sample: MW07S091001 taken 9/10/01 Slug test
6.0						
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						

Monument

0.5 Bentonite

Sand

Screen

Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW07D

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317102.91	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247692.36	Contractor:	Macquarie Drilling
Site:	Former Gasworks Area	Elevation (mAHD):	19.59	Logged By:	VR
Date:	21-Sep-01	Water Level (mbtc):	2.80	Project Manager:	NR
Weather:	Overcast, warm	Final Depth (mbgl):	1.95	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0	Groundwater @ 2.80 m below top monument	MW07D	140150		Fill: CLAY, brown, plastic, soft, moist, organic matter.	Hydrocarbon Odour PID = 0.0 ppm
4.0				Weathered Zone 10 - 11 m	CLAY, red, firm, plastic.	NVO PID = 0.0 ppm
10.0					CLAY, weathered shale, red grey, low plasticity, firm.	
11.0					Bedrock, grey, plastic, pieces of shale, wet.	
12.0					End of Hole @ 12 m	

Monument

Water Sample: MW07D041001 taken 4/10/01
Slug Test

Fill

Blank

Bentonite

Sand

Screen

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW08D

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317079.53	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247715.48	Contractor:	Macquarie Drilling
Site:	Former Gasworks Area	Elevation (mAHD):	19.54	Logged By:	VR
Date:	21-Sep-01	Water Level (mbtc):	1.15	Project Manager:	NR
Weather:	Hot, clear	Final Depth (mbgl):	0.30	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0					Fill: Sandy CLAY, dark brown, coarse grain, low plasticity, soft, organic matter.	NVO Monument
1.0	Groundwater @ 1.15 m below top of monument	MW08D	140150		CLAY, red, firm, plastic, dry.	PID = 0.0 ppm
2.0						
3.0						
4.0						
5.0						Water Sample: MW08D041001 taken 4/10/01
6.0						
7.0					CLAY, grey white, dry, friable, weathered shale.	
8.0						
9.0				Weathered Zone 7 - 11 m	CLAY, grey white, wet, weathered shale.	
10.0						
11.0					Bedrock, grey, plastic, pieces of shale, wet.	
12.0					End of Hole @ 12 m	

Fill
Bentonite
Sand
Blank
Screen

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW09S

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317093.92	Equipment:	Solid Flight Auger, Bunyip
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247701.36	Contractor:	Macquarie Drilling
Site:	Residences	Elevation (mAHD):	18.14	Logged By:	VR
Date:	19-Sep-01	Water Level (mbtc):	1.50	Project Manager:	NR
Weather:	Fine, warm	Final Depth (mbgl):	1.50	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
1.0	Groundwater @ 1.50 m below top gatic	MW09S	130140		Fill: Sandy CLAY, loamy, dark brown, low plasticity, soft, coarse grain, friable, high organic matter.	NVO PID = 3.2 ppm (max)
2.0					Sandy CLAY, red, soft, plastic, fine grain.	PID = 43 ppm (max) PID = 37.0 ppm (max)
3.0					End of Hole 2.9 m	
4.0						
5.0						Water Sample: MW09S091001 Taken 9/10/01 Slug Test
6.0						
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						

Roadbox
0.5 Bentonite
0.9 Sand
Screen

Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

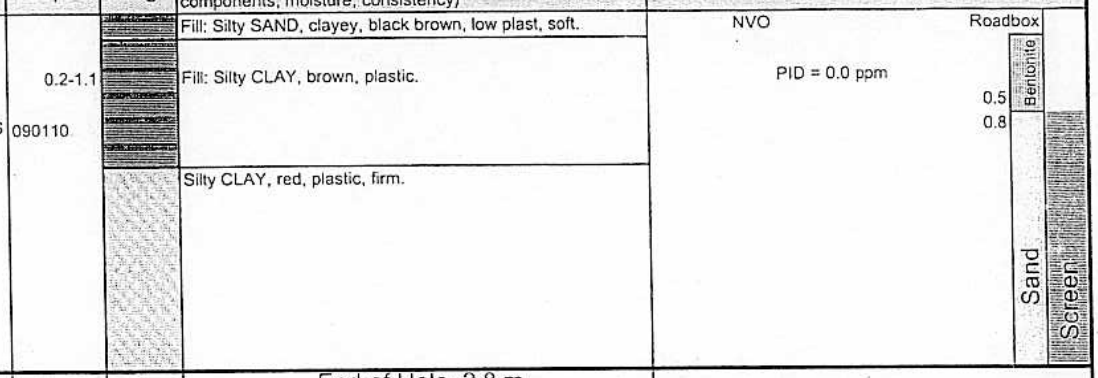
SOIL BORE LOG

Bore No. MW10S

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317096.16	Equipment:	Solid Flight Auger, Bunyip
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247668.41	Contractor:	Macquarie Drilling
Site:	Residences	Elevation (mAHD):	16.745	Logged By:	NR
Date:	20-Sep-01	Water Level (mbtc):	1.06	Project Manager:	NR
Weather:	Fine, warm	Final Depth (mbgl):	1.06	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0	Groundwater @ 1.0 m below top gatic				Fill: Silty SAND, clayey, black brown, low plast, soft.	NVO
			0.2-1.1		Fill: Silty CLAY, brown, plastic.	PID = 0.0 ppm
1.0		MW10S	090110			
2.0					Silty CLAY, red, plastic, firm.	
3.0					End of Hole 2.8 m	
4.0						
5.0						
6.0						
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						



A29BurrenSt taken from 0.0 to 0.2 m approximately 2 m south of MW10S. Surface soil covered with moss and waterlogged.

MW10S051001
taken 5/10/01
Slug test

Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW11S

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317099.41	Equipment:	Solid Flight Auger, Bunyip
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247654.35	Contractor:	Macquarie Drilling
Site:	Residences	Elevation (mAHD):	16.45	Logged By:	NR
Date:	21-Sep-01	Water Level (mbtc):	1.20	Project Manager:	NR
Weather:	Fine, warm	Final Depth (mbgl):	1.20	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0	Groundwater @ 1.20 m below top galic	A25BurrenSt			Fill: Silty SAND, black, low plast, soft, organic matter.	NVO
			0.1-0.9		Fill: Silty CLAY, black brown, mod plasticity, soft.	PID = 0.0 ppm
1.0		MW11S	060080		Silty CLAY, red grey, plastic, firm.	
2.0						
3.0					End of Hole 3 m	
4.0						
5.0						
6.0						
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						

Roadbox

0.5 Bentonite

Sand

Screen

A25BurrenSt taken northwest of MW11S, within 10m of the fenced boundary.

Sample: MW11S051001
taken 5/10/01

Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW12S

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317108.66	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247661.84	Contractor:	Macquarie Drilling
Site:	Former Gasworks Area	Elevation (mAHD):	19.99	Logged By:	VR
Date:	24-Sep-01	Water Level (mbtc):	4.91	Project Manager:	NR
Weather:	Fine, warm	Final Depth (mbgl):	4.06	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
1.0	Groundwater @ 4.91 m below top of monument	MW12S	0.05-0.3 090100		Fill: Sandy CLAY, brown, low plasticity, soft, coarse grain, friable.	NVO PID = 0.0 ppm
3.0					CLAY, red, plastic, firm.	
5.0					End of Hole 5 m	Water Sample: MW12S031001 taken 3/10/01 Slight odour

Monument; 0.5; Bentonite; Sand; Screen

Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW12D

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317108.48	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247659.80	Contractor:	Macquarie Drilling
Site:	Former Gasworks Area	Elevation (mAHD):	20.02	Logged By:	VR
Date:	24-Sep-01	Water Level (mbtc):	4.43	Project Manager:	NR
Weather:	Fine, warm	Final Depth (mbgl):	3.58	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0	Groundwater @ 4.43 m below top of monument				Fill: Sandy CLAY, brown, plastic, med firmness, fine grain.	NVO
1.0		MW12D	140150			PID = 40 ppm (max)
2.0					CLAY, red brown, firm, plastic.	
3.0						
4.0					CLAY, red, firm, plastic.	PID = 0.0 ppm
5.0						Water Sample: MW12D031001 taken 3/10/01
6.0						
7.0						
8.0				Weathered Zone 8 - 10	CLAY, grey, firm, high plasticity, moist.	
9.0						
10.0					Bedrock, grey, firm, high plasticity, wet.	
11.0						
12.0					End of Hole @ 12.8 m	

Monument

Fill

Blank

Bentonite

9.8

Sand

Screen

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW13S

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317112.03	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247646.52	Contractor:	Macquarie Drilling
Site:	Former Gasworks Area	Elevation (mAHD):	19.5	Logged By:	VR
Date:	24-Sep-01	Water Level (mbtc):	4.43	Project Manager:	NR
Weather:	Fine, hot	Final Depth (mbgl):	3.58	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
			0.05-0.3		Fill: Sandy CLAY, brown, low plasticity, soft, coarse grain, organic matter, gravel (iron stone ballast, 1-2 cm, 5%).	NVO
1.0	Groundwater @ 4.43 m below top o fmonument	MW13S	090100			PID = 0.0 ppm
2.0						
3.0						
4.0					CLAY, red, plastic, firm.	
5.0					End of Hole 5 m	
6.0						Water Sample: MW13S031001 taken 3/10/01 Slug test
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						



Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW13D

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317112.01	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247649.09	Contractor:	Macquarie Drilling
Site:	Former Gasworks Area	Elevation (mAHD):	19.47	Logged By:	VR
Date:	24-Sep-01	Water Level (mbtc):	5.45	Project Manager:	NR
Weather:	Fine, warm	Final Depth (mbgl):	4.60	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0					Fill: Sandy CLAY, brown, plastic, med firmness, coarse grain.	NVO
1.0						Monument
		MW13D	140150		Fill: Sandy CLAY, grey brown, plastic, friable, dry, coarse grain.	PID = 0.0 ppm (max)
2.0	Groundwater @ 5.45 m below top of monument					
3.0						
4.0						
					CLAY, red, firm, plastic.	PID = 0.0 ppm
5.0						
						Water Sample: MW13D031001 taken 3/10/01 Slug test
6.0						
7.0						
8.0				Weathered Zone 8.1-10	CLAY, grey, firm, high plasticity, moist.	
9.0						
						9.8
10.0					Bedrock, grey, firm, high plasticity, wet.	
11.0						
12.0					End of Hole @ 12.8 m	

Fill
Blank
Bentonite
Sand
Screen

Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

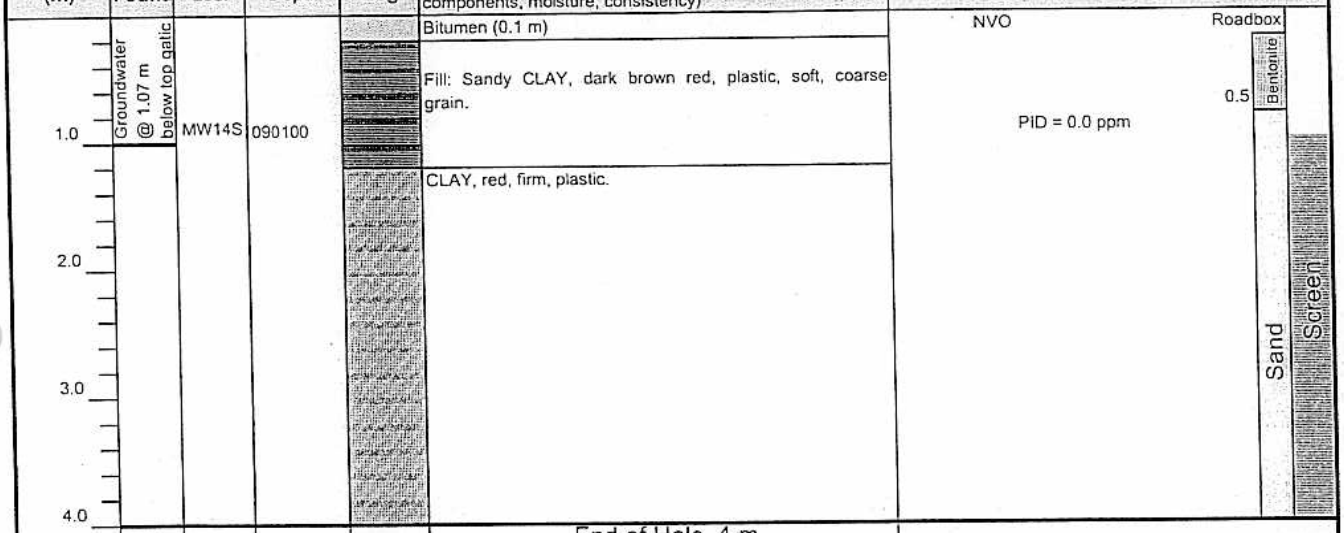
SOIL BORE LOG

Bore No. MW14S

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317065.2	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247636.9	Contractor:	Macquarie Drilling
Site:	East Burren Street	Elevation (mAHD):	16.19	Logged By:	VR
Date:	20-Sep-01	Water Level (mbtc):	1.07	Project Manager:	NR
Weather:	Fine, warm	Final Depth (mbgl):	1.07	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
					Bitumen (0.1 m)	NVO
1.0	Groundwater @ 1.07 m below top gatic	MW14S	090100		Fill: Sandy CLAY, dark brown red, plastic, soft, coarse grain.	PID = 0.0 ppm
2.0					CLAY, red, firm, plastic.	
3.0						
4.0					End of Hole 4 m	
5.0						Water Sample: MW14S041001 DUP02041001 taken 4/10/01 Slug test
6.0						
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						



Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW14D

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317065.4	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247635.4	Contractor:	Macquarie Drilling
Site:	East Burren Street	Elevation (mAHD):	16.16	Logged By:	VR
Date:	20-Sep-01	Water Level (mbtc):	0.00	Project Manager:	NR
Weather:	Fine, warm	Final Depth (mbgl):	0.00	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
					Bitumen (0.1 m)	NVO Roadbox
1.0	Water level at top of gatic cover	MW14D	140150		CLAY, red, plastic, firm, moist.	PID = 818 ppm (max)
2.0						
3.0						
4.0					CLAY, red grey, firm, plastic, dry.	
5.0				Weathered Zone (4.5 - 8 m)	Weathered Shale, dry, friable, clayey.	PID = 277 ppm (max)
					Weathered Shale, very moist, friable, clayey.	Water Sample: MW14D051001 taken 5/10/01
6.0					Weathered Shale, dry, friable, clayey.	
7.0						
8.0					CLAY, wet, runny, grey.	
9.0						
10.0						
11.0						
12.0					End of Hole @ 12 m	

Fill

Blank

Bentonite

Sand

Screen

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW15S

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317060.95	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247679.43	Contractor:	Macquarie Drilling
Site:	East Burren Street	Elevation (mAHD):	17.385	Logged By:	VR
Date:	19-Sep-01	Water Level (mbtc):	0.22	Project Manager:	NR
Weather:	Fine, warm	Final Depth (mbgl):	0.22	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
					Bitumen (0.1 m)	NVO
1.0	Groundwater @ 0.22 m below top gatic	MW15S	140150		CLAY, red grey, plastic, firm	PID = 0.0 ppm
2.0					CLAY, yellow grey, plastic, firm, drier than above.	
3.0					Silty CLAY, white red, low plasticity, firm, friable, dry.	
4.0					End of Hole 4 m	
5.0						Water Sample: MW15S051001
6.0						taken 5/10/01
7.0						Slug Test
8.0						
9.0						
10.0						
11.0						
12.0						

Roadbox

0.5

Bentonite

Sand

Screen

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW15D

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317060.63	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247681.25	Contractor:	Macquarie Drilling
Site:	East Burren Street	Elevation (mAHD):	17.44	Logged By:	VR
Date:	19-Sep-01	Water Level (mbtc):	0.00	Project Manager:	NR
Weather:	Fine, warm	Final Depth (mbgl):	0.000	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
					Bitumen (0.1 m)	NVO
1.0	Water level at top of gatic cover	MW15D	140150		CLAY, red grey, plastic, firm	PID = 0.0 ppm DUP01 taken
2.0					CLAY, yellow grey, plastic, firm, drier than above.	
3.0				Weathered Zone 5 - 8 m	Silty CLAY, white red, low plasticity, firm, friable, dry.	PID = 20 ppm (max) PID = 17 ppm (steady)
4.0						
5.0						PID = 35 ppm (max)
6.0						Water Sample:MW15D041001 Taken 4/10/01
7.0					Silty CLAY, red, plastic, pieces of shale (0-1cm), moist.	
8.0					Silty CLAY, red, plastic, pieces of shale (0-1cm), wet.	
9.0						
10.0						
11.0						
12.0					End of Hole @ 12 m	

Roadbox

Fill

Blank

Bentonite

Sand

Screen

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

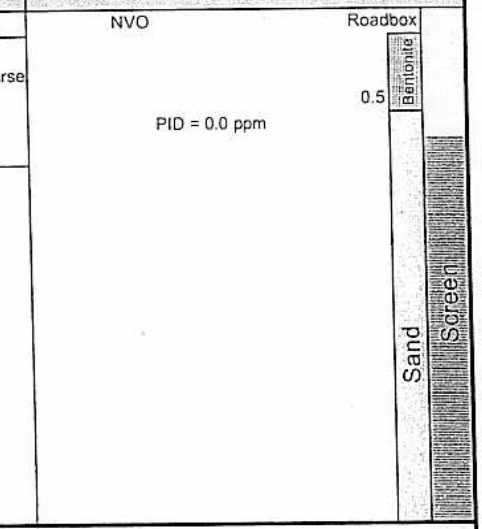
SOIL BORE LOG

Bore No. MW16S

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317063.2	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247655.5	Contractor:	Macquarie Drilling
Site:	East Burren Street	Elevation (mAHD):	16.655	Logged By:	VR
Date:	20-Sep-01	Water Level (mbtc):	0.995	Project Manager:	NR
Weather:	Overcast	Final Depth (mbgl):	0.995	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
					Bitumen (0.1 m)	NVO
1.0	Groundwater @ 0.995 m top of gatic	MW16S	090100		Fill: Sandy CLAY, dark brown red, plastic, soft, coarse grain.	PID = 0.0 ppm
2.0					CLAY, red, firm, plastic.	
3.0						
4.0					End of Hole 4 m	
5.0						Water Sample: MW16S041001 taken 4/10/01
6.0						
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						



Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW16D

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317063.2	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247654.0	Contractor:	Macquarie Drilling
Site:	East Burren Street	Elevation (mAHD):	16.6	Logged By:	VR
Date:	20-Sep-01	Water Level (mbtc):	0.00	Project Manager:	NR
Weather:	Fine	Final Depth (mbgl):	0.00	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
					Bitumen (0.1 m)	NVO
1.0	Water level at top of gatic cover	MW16D	140150		CLAY, red grey, plastic, firm	PID = 0.0 ppm
2.0					CLAY, yellow grey, plastic, firm, drier than above.	
3.0					Silty CLAY, white red, low plasticity, firm, friable, dry.	
4.0						
5.0						
6.0						
7.0					Silty CLAY, red, plastic, pieces of shale (0-1cm), moist.	
8.0					Silty CLAY, red, plastic, pieces of shale (0-1cm), wet.	Sample: MW16D091001 Taken 9/10/01
9.0						
10.0						
11.0						
12.0					End of Hole @ 12 m	

Weathered Zone 5 - 8 m

Roadbox
Fill
Blank
Bentonite
Sand
Screen

Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW17S

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317071.66	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247765.33	Contractor:	Macquarie Drilling
Site:	Former Gasworks Area	Elevation (mAHD):	21.36	Logged By:	VR
Date:	25-Sep-01	Water Level (mbtc):	3.30	Project Manager:	NR
Weather:	Raining	Final Depth (mbgl):	2.45	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0						NVO; Monument
0.5						Bentonite
1.0	Groundwater @ 3.30 below top monument	MW17S	090100		Fill: Sandy CLAY, brown, low plasticity, coarse grain, gravel.	PID = 0.0 ppm
2.0					CLAY, red, firm, plastic.	Sand; Screen
3.0						
4.0					End of Hole 4 m	
5.0						Water sample: MW17S041001 Taken 4/10/10
6.0						
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						

Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW17D

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317070.4	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247764.93	Contractor:	Macquarie Drilling
Site:	Former Gasworks Area	Elevation (mAHD):	21.33	Logged By:	VR
Date:	25-Sep-01	Water Level (mbtc):	2.07	Project Manager:	NR
Weather:	Hot, clear	Final Depth (mbgl):	1.22	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
	Groundwater @ 2.07 m below top monument		0-0.5		Fill: Sandy CLAY, brown, low plasticity, coarse grain, gravel.	NVO
			0.5-1.1		Fill: Silty SAND, clayey, med plasticity, grey.	PID = 0.0 ppm
1.0		MW17D	140150 1.1-1.8		Fill: Silty CLAY, grey, plastic.	
2.0					CLAY, red, plastic, firm.	
3.0						
4.0						
5.0						Water Sample: MW17D041001 DUP01041001 taken: 4/10/01 Slug Test
6.0				Weathered Zone 5.5 - 9 m	CLAY, grey, med plasticity, weathered siltstone.	
7.0						
8.0					Weathered Shale	
9.0					Shale	
10.0						
11.0						
12.0					End of Hole @ 12 m	

Monument: Fill; Bentonite; Sand; Blank; Screen

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW18D

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317106.55	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247671.16	Contractor:	Macquarie Drilling
Site:	Former Gasworks Area	Elevation (mAHD):	19.49	Logged By:	VR
Date:	21-Sep-01	Water Level (mbtc):	3.57	Project Manager:	NR
Weather:	Overcast, humid	Final Depth (mbgl):	2.72	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
0	Groundwater @ 3.57 m below top of monument				Fill: Sandy CLAY, brown, low plasticity, soft, loose, organic matter, fine grain.	NVO
1.0		MW18D	140150		CLAY, red, very firm, plastic	DUP02 and DUP03 taken PID = 15 ppm (max)
2.0						
3.0						
4.0						
5.0						Water Sample: MW18D031001 taken 3/10/01
6.0						
7.0					CLAY, grey, plastic, soft.	
8.0						
9.0						
10.0					Bedrock, grey, plastic, soft, moist. Water ingress.	
11.0						
12.0					End of Hole @ 12 m	

Weathered Zone 7 - 10 m

Monument

Fill

Blank

Bentonite

9.8

Sand

Screen

Notes

mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

SOIL BORE LOG

Bore No. MW19S

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317095.38	Equipment:	Solid Flight Auger, Bunyip
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247675	Contractor:	Macquarie Drilling
Site:	Residences	Elevation (mAHD):	16.935	Logged By:	NR
Date:	20-Sep-01	Water Level (mbtc):	0.99	Project Manager:	NR
Weather:	Fine, warm	Final Depth (mbgl):	0.99	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
1.0	Groundwater @ 0.99 m below top gatic		0.0-1.3		Fill: Silty SAND, clayey, black brown, low plast, soft, organic content.	NVO PID = 0.0 ppm
2.0		MW19S	120130		Silty CLAY, red brown, med plast, firm.	PID = 0.5 ppm
					CLAY, grey, high plasticity, soft.	
3.0					End of Hole 2.85 m	

Roadbox 0.35 Bent 0.85 Sand Screen

A31BurrenSt taken from 0.0 to 0.1 m approximately 2 m south of MW19S.

Sample: MW19S051001
DUP05051001
taken 5/10/01

4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0

Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CH2M HILL

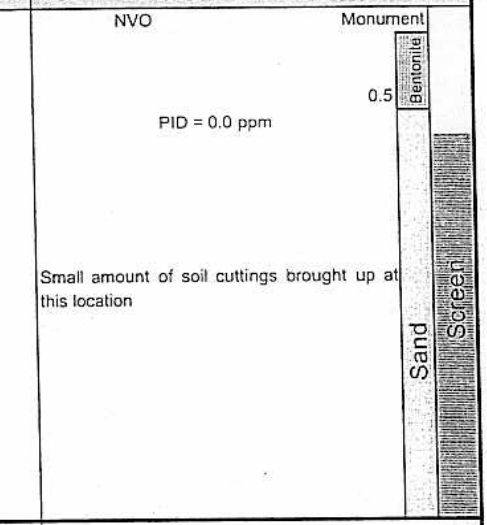
SOIL BORE LOG

Bore No. MW20S

Sheet 1 of 1

Project No:	110381	Easting (AMG)	317102.25	Equipment:	Solid Flight Auger
Project:	Macdonaldtown Triangle Offsite	Northing (AMG)	1247709.65	Contractor:	Macquarie Drilling
Site:	Former Gasworks Area	Elevation (mAHD):	19.66	Logged By:	VR
Date:	24-Sep-01	Water Level (mbtc):	3.52	Project Manager:	NR
Weather:	Fine, hot	Final Depth (mbgl):	2.67	Checked By:	

Depth (m)	Water Found	Sample Loc.	Sample Depth	Graphic Log	Soil Description (soil type, plasticity/grain size, colour, secondary/minor components, moisture, consistency)	Observation/Comments (visual contamination, odour, side collapse, etc.)
1.0	Groundwater @ 3.52 m below top monument	MW20S	0.05-0.3 090100		Fill: Sandy CLAY, brown, plastic, soft, coarse grain, wet.	NVO PID = 0.0 ppm
2.0						Small amount of soil cuttings brought up at this location
3.0					Wet	
4.0					End of Hole 4 m	
5.0						Water Sample: MW20S031001 taken 3/10/01
6.0						
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						



Notes
mAHD:metres Australian Height Datum mbgl:metres below ground level mbtc:metres below top of casing

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, EVELEIGH

JOB N°: EN01669

Easting: 332350.1978 Northing: 6247818.07

Borehole Location: REFER TO FIGURE 1

Surface RL: 20.375m
Datum: AHD

BOREHOLE: MW35D

SHEET 1 of 2

Drill Rig: EXPLORER
Inclination: V
Direction: NA
Borehole Diameter: 110mm

Logged by: AF
Date: 7/12/04
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA							
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
ATC	H			0.0					FILL: Blue metal	D			Road box and lockable cap
	L-M			0.5					RESIDUAL SOIL: Silty CLAY, light grey, soft to firm				No odour NC
				1m					RESIDUAL SOIL: Silty CLAY, red, powdery				
				1.5									
				2m									
				2.5									Ø50mm PVC blank screen
				3m									
				3.5									
				4m									
				4.5					RESIDUAL SOIL: Silty CLAY, brown				
				5m									
				5.5					SHALE: extremely weathered, darker brown	M			
				6m									
				6.5									
				7m									
				7.5					SHALE: becoming grey				
				8m									

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, EVELEIGH

JOB N°: EN01669

Easting: 332350.1978 Northing: 6247818.07

Borehole Location: REFER TO FIGURE 1

Surface RL: 20.375m
Datum: AHD

BOREHOLE: MW35D

SHEET 2 of 2

Drill Rig: EXPLORER
Inclination: V
Direction: NA
Borehole Diameter: 110mm

Logged by: AF
Date: 7/12/04
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
ATC		▼		8m 8.5 9m 9.5 10m 10.5 11m 11.5 12m					SHALE: becoming grey	W		Bentonite Ø50mm PVC blank section Sand Ø50mm PVC screen section End cap	
				12.5 13m 13.5 14m 14.5 15m 15.5 16m					END of BOREHOLE at 12.2m				

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, MACDONALDTOWN

JOB N°: EN01669

Easting: 332350.776 Northing: 6247815.223

Borehole Location: SEE PLAN

Surface RL: 20.402m
Datum: AHD

BOREHOLE: MW35S

SHEET 1 of 1

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 15.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	M	GWNE		0.0					FILL: Sandy GRAVEL, fine to coarse grained basalt, grey, fine to coarse grained sand	D-M	D	Monument with lock; Bentonite	FILL: compacted
	L/M			0.5					FILL: Gravelly SILT, non plastic, black, fine gravel			Bentonite; Ø50mm PVC blank section	FILL: ASH
				1m									
				1.5					FILL: Silty CLAY, medium plasticity, pale grey	M		Ø50mm PVC screen section	FILL: Possibly reworked material
	M			2m					FILL; Silty CLAY, low to medium plasticity, pale grey and brown, friable, trace rootlets	D			
				2.5									
	H	16.02.05, 08.45		3m					Clayey SHALE, recovered as Silty Sandy GRAVEL, grey, fine to medium angular gravels of SHALE and sub-rounded gravels of ironstone, grey, low plasticity fines			Sand	Weathered bedrock
				3.5									
	H			4m					END of BOREHOLE at 4.0m, limit of investigation			End cap	
				4.5									
				5m									
				5.5									
				6m									
				6.5									
				7m									
				7.5									
				8m									

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, MACDONALDTOWN

JOB N°: EN01669

Easting: 332281.77 Northing: 6247737.325

Borehole Location: SEE PLAN

Surface RL: 20.238m
Datum: AHD

BOREHOLE: MW36S

SHEET 1 of 1

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 15.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	M			0.0					FILL: GRAVEL, coarse grained, grey	D		Monument with lock	BALLAST
	L			0.5					FILL: Silty CLAY, low to medium plasticity, grey, ash fines, with some fine to medium sand, section of small diameter metal pipe ~150mm long	M		Concrete Bentonite Ø50mm PVC blank section	ASH reworked clay ?
	H			1m					FILL: SLAG, cobbles boulders, blocky	D			1.0m-1.2m hard impediment
	M												1.4m-1.5m hard impediment
	H			1.5					FILL: Silty CLAY, medium plasticity, dark grey, black ash inclusions	M		Ø50mm PVC screen section	Reworked soils
	L	▽ 16.02.05, 09.00		2m						W			Possibly perched water
				2.5				CI-CH	Silty CLAY, medium to high plasticity, brown	M			NATURAL
				3m								Sand	
				3.5									
				4m					END of BOREHOLE at 4.0m, limit of investigation			End cap	
				4.5									
				5m									
				5.5									
				6m									
				6.5									
				7m									
				7.5									
				8m									

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, MACDONALDTOWN

JOB N°: EN01669

Easting: 332279.971 Northing: 6247736.339

Borehole Location: SEE PLAN

Surface RL: 20.257m
Datum: AHD

BOREHOLE: MW36D

SHEET 1 of 2

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 15.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	M	16.02.05, 09.05		0.0					FILL: GRAVEL, coarse grained, grey	D		Gatic cover with lock	BALLAST
				0.5					FILL: Sandy GRAVEL, fine to coarse grained, grey, fine to coarse sand, one bolt	D/M			FILL
	L/M								FILL: Silty CLAY, medium plasticity, red brown and dark grey, trace fine gravel	M			FILL; reworked material
	H								FILL: Silty CLAY, medium plasticity, orange-brown, with some black ASH	D/M			
	L			1m					FILL: SLAG of cobble size ~100mm	D			FILL
				1.5					FILL: Silty CLAY, medium plasticity, orange-brown and grey, with some fine gravel	M/W		Loose backfill material	
				2m									Water perched above natural soil
				2.5						W/M			
	L/M			3m				CI-CH	Silty CLAY, medium to high plasticity, orange-brown, with pale grey banding				NATURAL ALLUVIUM
				3.5								Ø50mm PVC blank screen	
				4m					Silty CLAY, medium to high plasticity, red-brown, with grey bands				
				4.5									
				5m					Silty CLAY, medium to high plasticity, grey, trace of fine to medium gravel as ironstone inclusion			Bentonite	
				5.5									
				6m					Silty CLAY, medium to high plasticity, pale red-brown, with grey bands			Ø2mm sand	
				6.5									
				7m				CI	Silty CLAY, medium plasticity, pale grey	D/M		Ø50mm PVC slotted screen	Horizontal structure coloured bands
				7.5									
				8m									

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, MACDONALDTOWN

JOB N°: EN01669

Easting: 332279.971 Northing: 6247736.339

Borehole Location: SEE PLAN

Surface RL: 20.257m
Datum: AHD

BOREHOLE: MW36D

SHEET 2 of 2

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 15.02.05
Checked by:
Date:

DRILLING DATA				SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	L/M	▽	8m				CI	Silty CLAY, medium plasticity, pale grey	W			Perched groundwater also Soil/Rock interface
	M		9m					Shaley CLAY, medium plasticity, grey clay with dark grey shale bands	M	VSt		SHALE CLASS V
	H		10m					SHALE, low strength, grey				BEDROCK
			12m					END of BOREHOLE at 12.0m, limit of investigation				

8.5 9m 9.5 10m 10.5 11m 11.5 12m 12.5 13m 13.5 14m 14.5 15m 15.5 16m

Ø2mm sand

Ø50mm PVC screen section

End cap

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, EVELEIGH

JOB N°: EN01669

Easting: 332317.9292 Northing: 6247690.862

Borehole Location: REFER TO FIGURE 1

Surface RL: 18.363m
Datum: AHD

BOREHOLE: MW30

SHEET 1 of 1

Drill Rig: EXPLORER
Inclination: V
Direction: NA
Borehole Diameter: 110mm

Logged by: AF
Date: 7/12/04
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
ATC	L	GWNE		0.0	Jar SPT 0.0m-0.45m 8, 8, 22 N = 30 Sandstone cobble PID 130ppm				TOPSOIL, Silty CLAY, light brown, with rootlets	D		Lockable cap Sand Ø50mm PVC screen section End cap	OIL/GAS smell HC
				0.5					FILL: Silty Sandy CLAY, low plasticity, dark brown, with sandstone gravel and cobbles, <PL	D-M			
				1m					RESIDUAL CLAY: Silty CLAY, medium plasticity, grey with red, >PL				Possible OIL/GAS smell OSC
				1.5					END of BOREHOLE at 1.5m, limit of investigation				
				2m									
				2.5									
				3m									
				3.5									
				4m									
				4.5									
				5m									
				5.5									
				6m									
				6.5									
				7m									
				7.5									
				8m									

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, EVELEIGH

JOB N°: EN01669

Easting: 332338.176 Northing: 6247713.418

Borehole Location: REFER TO FIGURE 1

Surface RL: 18.446m

Datum: AHD

BOREHOLE: MW31

SHEET 1 of 1

Drill Rig: EXPLORER

Inclination: V

Direction: NA

Borehole Diameter: 110mm

Logged by: AF

Date: 7/12/04

Checked by:

Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA							
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
ATC	L	GWNE		0.0					TOPSOIL, Silty CLAY, light brown, with rootlets	D			
				0.5	Jar SPT 0.5m-0.95m 3, 2, 3 N = 5 PID 130ppm				FILL: Sandy Silty CLAY, dark brown/black	D-M			
				1m	Jar 1.4m PID 30.1ppm				FILL: Gravelly Sandy CLAY, dark brown/black	M			
				1.5					RESIDUAL CLAY: Silty CLAY, dark grey	W			
									END of BOREHOLE at 1.5m, limit of investigation Possible groundwater at 1.4m				
				2m									
				2.5									
				3m									
				3.5									
				4m									
				4.5									
				5m									
				5.5									
				6m									
				6.5									
				7m									
				7.5									
				8m									

WELL DETAILS: Road box and lockable cap; Sand; Ø50mm PVC screen section; End cap

STRUCTURE AND ADDITIONAL OBSERVATIONS: VHC; Slight OIL smell OMC; OIL smell OHC

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, EVELEIGH

JOB N°: EN01669

Easting: 332305.328 Northing: 6247667.544

Borehole Location: REFER TO FIGURE 1

Surface RL: 18.331m
Datum: AHD

BOREHOLE: MW32

SHEET 1 of 1

Drill Rig: EXPLORER
Inclination: V
Direction: NA
Borehole Diameter: 110mm

Logged by: AF
Date: 7/12/04
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
ATC	L	GWNE		0.0					TOPSOIL, Silty CLAY, light brown, with blue metal	D			Road box and lockable cap
									FILL: Silty CLAY, grey brown	D			
	H			0.5	SPT 1.0m-1.45m 2, 3, 3 N = 6 PID 39.7ppm				FILL: SANDSTONE boulder	D			NC
	L			1m	SPT No sample Blocked by gravel/ cobble-not enough soil in SPT sampler				FILL: Sandy Silty CLAY, brown	D-M			Sand Ø50mm PVC screen section No distict odour End cap
				1.5					END of BOREHOLE at 1.5m, limit of investigation				
				2m									
				2.5									
				3m									
				3.5									
				4m									
				4.5									
				5m									
				5.5									
				6m									
				6.5									
				7m									
				7.5									
				8m									

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, EVELEIGH

JOB N°: EN01669

Easting: 332293.5328 Northing: 6247699.587

Borehole Location: REFER TO FIGURE 1

Surface RL: 18.797m
Datum: AHD

BOREHOLE: MW33

SHEET 1 of 1

Drill Rig: EXPLORER
Inclination: V
Direction: NA
Borehole Diameter: 110mm

Logged by: AF
Date: 7/12/04
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
ATC	L	GWNE		0.0					TOPSOIL, Sandy Silty CLAY, light brown, thick grass	D		Road box and lockable cap	HC strong OIL/GAS odour present
				0.5	Jar SPT 0.5m-0.95m 5, 5, 4 N = 9 PID 354ppm				FILL: Sandy Silty CLAY, dark brown/black	D		Sand	
				1m					RESIDUAL CLAY: Silty CLAY, brown, grey, red, ironstone nodules, some rootlets present, (stiff)	D-M		Ø50mm PVC screen section	Odour HC
				1.5					END of BOREHOLE at 1.5m, limit of investigation			End cap	
				2m									
				2.5									
				3m									
				3.5									
				4m									
				4.5									
				5m									
				5.5									
				6m									
				6.5									
				7m									
				7.5									
				8m									

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

J:\EN\Projects\EN01669\Deliverables\Drawings\CAD\EN01669-MW33.dwg, 12/04/2004 9:44:41 AM

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, EVELEIGH

JOB N°: EN01669

Easting: 332304.4362 Northing: 6247717.435

Borehole Location: REFER TO FIGURE 1

Surface RL: 18.639m
Datum: AHD

BOREHOLE: MW34

SHEET 1 of 1

Drill Rig: EXPLORER
Inclination: V
Direction: NA
Borehole Diameter: 110mm

Logged by: AF
Date: 7/12/04
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
ATC	L	GWNE		0.0					FILL: Gravelly Sandy CLAY, dark grey	D			Road box and lockable cap
									FILL: Sandy CLAY, black <PL	D			VMC
				0.5	SPT 0.5m-0.95m 1, 1, 1 N = 2 PID 64.9ppm				Silty CLAY, medium to high plasticity, brown, grey red, (firm)	M			Sand OIL smell OHC
				1m									Ø50mm PVC screen section
					PID test at 1.4m PID 30.1ppm				RESIDUAL CLAY: Silty CLAY, medium plasticity, grey, oil sheen >PL	W			HC strong OIL smell
				1.5					END of BOREHOLE at 1.5m, limit of investigation				End cap
				2m									
				2.5									
				3m									
				3.5									
				4m									
				4.5									
				5m									
				5.5									
				6m									
				6.5									
				7m									
				7.5									
				8m									

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: RAILWAY PARADE, EVELEIGH

JOB N°: EN01669

Easting: 332423.662 Northing: 6247610.367

Borehole Location: SEE PLAN ARGUS COMPOUND

Surface RL: 13.675m

Datum: AHD

BOREHOLE: MW41D

SHEET 1 of 2

Drill Rig: EDSON 3000

Inclination: V

Direction: N/A

Borehole Diameter: 125mm

Logged by: AF

Date: 18.02.05

Checked by:

Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
ATC	L-M	▽		0.0					CONCRETE slab				Road box installed in concrete
				0.5					FILL: Clayey GRAVEL, medium to coarse grained	W			Hydrocarbon Tar smell of FILL material
				1m									
				1.5				CI	RESIDUAL SOIL: Silty CLAY, low to medium plasticity, brown/grey	M			Ø50mm PVC blank screen
				2m									
				2.5					RESIDUAL SOIL: Silty CLAY, medium plasticity, red brown laminated	M-D			
				3m									
				3.5					RESIDUAL SOIL: Silty CLAY, medium plasticity, grey				
				4m									
				4.5									
				5m					RESIDUAL SOIL: Silty CLAY, medium plasticity, grey, with ironstone bands				Bentonite
				5.5									
				6m					RESIDUAL SOIL: Silty CLAY, medium plasticity, grey with yellow and red-brown	M-D			Coarse sand
				6.5									
				7m	PID Jar			CH	Silty CLAY, high plasticity, grey	W			Ø50mm PVC slotted screen
				7.5									
				8m									

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: RAILWAY PARADE, EVELEIGH

JOB N°: EN01669

Easting: 332423.662 Northing: 6247610.367

Borehole Location: SEE PLAN ARGUS COMPOUND

Surface RL: 13.675m

Datum: AHD

BOREHOLE: MW41D

SHEET 2 of 2

Drill Rig: EDSON 3000

Inclination: V

Direction: N/A

Borehole Diameter: 125mm

Logged by: AF

Date: 18.02.05

Checked by:

Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
ATC				8m				CH	Silty CLAY, high plasticity, red brown	M			
				8.5									Coarse sand
				9m					Silty CLAY, high plasticity, red brown	M	S		
				9.5									
				10m									
				10.5									Ø50mm PVC screen section
	M-H			11m					Silty CLAY, dark grey bands of harder and softer material	M			
				11.5									
				12m					END of BOREHOLE at 12.0m, limit of investigation				End cap
				12.5									
				13m									
				13.5									
				14m									
				14.5									
				15m									
				15.5									
				16m									

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, EVELEIGH

JOB N°: EN01669

Easting: 332357.744 Northing: 6247737.653

Borehole Location: SEE PLAN

Surface RL: 18.484m
Datum: AHD

BOREHOLE: MW42S

SHEET 1 of 1

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AF
Date: 19.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
ATC	L-M	▽		0.0 0.5 1m 1.5 2m 2.5 3m 3.5 4m 4.5 5m 5.5 6m 6.5 7m 7.5 8m					TOPSOIL: Sandy SILT, dark brown FILL: Silty Clayey GRAVEL, black FILL: SAND, medium grained, light brown, clean FILL: Silty Sandy/Sandy CLAY, grey/brown RESIDUAL SOIL: Silty CLAY, high plasticity, red brown and grey RESIDUAL SOIL: Silty CLAY, high plasticity, red brown and grey, with some ironstone END of BOREHOLE at 4.0m, limit of investigation	M	F-St	Gatic cover with lock Bentonite Ø50mm PVC blank section Ø50mm PVC screen section Sand End cap	NC

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: RAILWAY PARADE, EVELEIGH

JOB N°: EN01669

Easting: 332356.477 Northing: 6247736.309

Borehole Location: SEE PLAN RAILWAY FENCE

Surface RL: 18.529m

Datum: AHD

BOREHOLE: MW42D

SHEET 1 of 2

Drill Rig: EDSON 3000

Inclination: V

Direction: N/A

Borehole Diameter: 125mm

Logged by: AF

Date: 18.02.05

Checked by:

Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA							
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
ATC	L			0.0					TOPSOIL: Sandy SILT, with rootlets				Road box installed in concrete NC
				0.5					FILL: Silty Sandy GRAVEL, black	M			
				1m					FILL: SAND, fine to medium grained, brown	M			
				1.5				CI	FILL; Clayey SAND/Sandy CLAY, grey brown	W			Ø50mm PVC blank screen
				2m									
				2.5				CH	RESIDUAL SOIL: Sandy Silty CLAY, high plasticity, grey and red brown	M			
				3m									
				3.5									
	M			4m					RESIDUAL SOIL: Sandy Silty CLAY, high plasticity, grey and red brown, ironstone bands, gravel				
				4.5									
				5m									Bentonite
				5.5									
				6m					RESIDUAL SOIL: Sandy Silty CLAY, high plasticity, red brown	M-D			Coarse sand
				6.5									
			▽	7m					RESIDUAL SOIL: Sandy Silty CLAY, high plasticity, brown	W			Ø50mm PVC slotted screen
				7.5									
				8m									

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: RAILWAY PARADE, EVELEIGH

JOB N°: EN01669

Easting: 332356.477 Northing: 6247736.309

Borehole Location: SEE PLAN RAILWAY FENCE

Surface RL: 18.529m

Datum: AHD

BOREHOLE: MW42D

SHEET 2 of 2

Drill Rig: EDSON 3000

Inclination: V

Direction: N/A

Borehole Diameter: 125mm

Logged by: AF

Date: 19.02.05

Checked by:

Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
ATC	M			8m 8.5 9m				CH	RESIDUAL SOIL: Silty CLAY, brown				Coarse sand
	H			9.5 10m 10.5 11m 11.5 12m					RESIDUAL SOIL: Silty CLAY, medium plasticity, brown, softer and harder bands				Ø50mm PVC screen section End cap
				12.5 13m 13.5 14m 14.5 15m 15.5 16m					END of BOREHOLE at 12.0m, limit of investigation				

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, MACDONALDTOWN

JOB N°: EN01669

Easting: 332303.068 Northing: 6247725.041

Borehole Location: SEE PLAN

Surface RL: 18.696
Datum: AHD

BOREHOLE: MW37S

SHEET 1 of 1

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 15.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	L	16.02.05, 08.45 ▽		0.0 0.5 1m 1.5 2m 2.5 3m 3.5 4m 4.5 5m 5.5 6m 6.5 7m 7.5 8m					FILL: GRAVEL, medium to coarse gravel	D-M		Monument with lock Concrete Bentonite Ø50mm PVC blank section Ø50mm PVC screen section Sand End cap	BALLAST FILL Reworked Clay
									FILL: ASH	D			
									FILL: Silty CLAY, medium plasticity, orange-brown	M			
								CI-CH	Silty CLAY, medium to high plasticity, red and orange-brown mottled grey	M/W			ALLUVIUM Tar-infused CLAY, soft
									END of BOREHOLE at 4.0m, limit of investigation				

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BOREHOLE REPORT

...01669\Drawings\EN01669-MW37S.dwg, 11/04/... 11:45:28 AM

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, MACDONALDTOWN

JOB N°: EN01669

Easting: 332300.917 Northing: 6247724.194

Borehole Location: SEE PLAN

Surface RL: 18.615m
Datum: AHD

BOREHOLE: MW37D

SHEET 1 of 2

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 16.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA							
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	M	▽		0.0					FILL: Sandy Silty GRAVEL, medium to coarse grained, grey and brown, low plasticity fines, medium sand, trace of rootlets	D/M			BALLAST
	H			0.5					FILL: cobbles of SLAG and BRICK fragments in a SILT/SAND matrix	D			Monument with lock FILL of industrial slag and building waste
				1m					FILL: Silty CLAY, medium plasticity, grey and brown, with some medium gravel of brick fragments	W			Odourous materials, chemicals
				1.5					FILL: Silty CLAY, medium to high plasticity, brown	M			Loose backfill material
	L/M			2.5				CI-CH	Silty CLAY, medium to high plasticity, red-brown, with some fine to medium ironstone gravel	M			NATURAL ALLUVIUM
				3m									Ø50mm PVC blank screen
				4.5					Silty CLAY, medium to high plasticity, pink-brown, with some fine to medium ironstone gravel				Bentonite
				5.5						M/W			Coarse sand
				6m									
				6.5									Ø50mm PVC slotted screen
				7m					Silty CLAY, medium to high plasticity, pink-brown, trace fine ironstone gravel				
				7.5									
				8m									

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, MACDONALDTOWN

JOB N°: EN01669

Easting: 332300.917 Northing: 6247724.194

Borehole Location: SEE PLAN

Surface RL: 18.615m
Datum: AHD

BOREHOLE: MW37D

SHEET 2 of 2

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 16.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT		▽		8m					Silty CLAY, medium to high plasticity, pink-brown, trace fine ironstone gravel				
				8.5					Silty CLAY, medium to high plasticity, grey and brown, trace of fine gravel	W			
	M/H			9m					Shaley CLAY/Clayey SHALE, interbedded, grey, low to medium plasticity, extremely low to very low strength	M/W	VSt		WEATHERED, CLASS V SHALE
				9.5									Sand
				10m					SHALE, low strength, grey				BEDROCK
				10.5									
				11m									Ø50mm PVC screen section
				11.5									
				12m					END of BOREHOLE at 12.0m, limit of investigation				End cap
				12.5									
				13m									
				13.5									
				14m									
				14.5									
				15m									
				15.5									
				16m									

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: RAILWAY PARADE, MACDONALDTOWN

JOB N°: EN01669

Easting: 332350.743 Northing: 6247622.247

Borehole Location: SEE PLAN

Surface RL: 15.746
Datum: AHD

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

BOREHOLE: MW39S

SHEET 1 of 1

Logged by: AK
Date: 17.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	M	▽		0.0					BITUMEN 40mm thick				PAVEMENT
				0.5					FILL: Gravelly SAND, fine to medium grained, brown, fine to medium igneous gravel	D/M		Road box installed in concrete	BASE
				1m					FILL: Gravelly Clayey SAND, fine to medium grained, grey, low plasticity fines, fine to medium igneous gravel	M		Bentonite	SUB-BASE
				1.5						W		Ø50mm PVC blank section	
				2m								Ø50mm PVC screen section	
				2.5				CI-CH	Silty CLAY, medium to high plasticity, red-brown and orange-brown, trace of fine gravel	M/W			NATURAL ALLUVIUM
				3m								Sand	
				3.5				CI	Silty CLAY, medium plasticity, red-brown				
				4m					END of BOREHOLE at 4.0m, limit of investigation			End cap	
				4.5									
				5m									
				5.5									
				6m									
				6.5									
				7m									
				7.5									
				8m									

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: RAILWAY PARADE, MACDONALDTOWN

JOB N°: EN01669

Easting: 332350.058 Northing: 6247620.928

Borehole Location: SEE PLAN

Surface RL: 15.73m
Datum: AHD

BOREHOLE: MW39D

SHEET 1 of 2

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 17.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	M H	▽		0.0					BITUMEN 40mm thick	D/M	D		PAVEMENT
				0.5					FILL: Gravelly SAND, fine to medium grained, grey, fine to medium igneous gravel				Road box installed in concrete BASE
				1m					FILL: Gravelly Clayey SAND, fine to medium grained, grey, low plasticity fines, fine to medium igneous gravel	M	MD		SUB-BASE
				1.5									Loose backfill material
				2m									
				2.5				CI-CH	Silty CLAY, medium to high plasticity, orange brown and grey, trace of fine gravel of ironstone	M/W	F		NATURAL ALLUVIUM
				3m									Ø50mm PVC blank screen
				3.5					Silty CLAY, medium to high plasticity, red-brown with grey laminae, trace of fine gravel of ironstone	M	St		
				4m									
				4.5									
				5m					Silty CLAY, medium to high plasticity, red-brown with grey laminae, trace of fine to medium ironstone gravel		St-VSt		Bentonite
				5.5					Silty CLAY,medium to high plasticity, grey stained red-brown and yellow-brown				
				6m									
				6.5									Coarse sand
				7m									Ø50mm PVC slotted screen
	M	▽		7.5					Silty CLAY, medium to high plasticity, pink-brown and grey, with some fine ironstone gravel	M/W			Possibile ironstone bands; soil has odour similar to naphthalene
				8m									

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: RAILWAY PARADE, MACDONALDTOWN

JOB N°: EN01669

Easting: 332350.058 Northing: 6247620.928

Borehole Location: SEE PLAN

Surface RL: 15.73m
Datum: AHD

BOREHOLE: MW39D

SHEET 2 of 2

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 17.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA							
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	M	▽		8m				CI-CH	Silty CLAY, medium to high plasticity, pink brown and grey, with some fine ironstone gravel	M/W		Coarse sand	ALLUVIUM, with regular bands of ironstone; on withdrawal of augers, groundwater contained slicks of a dark brown substance
				8.5				CI	Silty CLAY, medium plasticity, grey stained red-brown, with some fine ironstone gravel and weakly iron-cemented material				
				9m	PID 834ppm								
				9.5									
	L/M			10m				CI-CH	Silty CLAY, medium to high plasticity, grey stained red brown and pink brown, with some fine to medium ironstone gravel				
	M			10.5	Sample ~10.5m Glass Jar			CI	Silty CLAY, medium plasticity, grey, becoming Shaley CLAY with depth	M		Ø50mm PVC screen section	RESIDUAL SOIL /EXTREMELY WEATHERED SHALE; green-brown liquid on augers
				11m									
				11.5									
				12m					END of BOREHOLE at 12.0m, limit of investigation			End cap	
				12.5									
				13m									
				13.5									
				14m									
				14.5									
				15m									
				15.5									
				16m									

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: RAILWAY PARADE, MACDONALDTOWN

JOB N°: EN01669

Easting: 332418.926 Northing: 6247660.227

Borehole Location: SEE PLAN

Surface RL: 16.024m
Datum: AHD

BOREHOLE: MW40S

SHEET 1 of 1

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 17.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA							
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	M L	▽		0.0					BITUMEN 20mm thick				PAVEMENT
									FILL: Sandy GRAVEL, fine to medium grained, dark grey, fine to coarse sand	D/M	D		Road box installed in concrete BASE
				0.5					FILL: Gravelly Sandy CLAY, low plasticity, grey, fine to coarse sand, fine to medium gravel	M	D		Bentonite SUB-BASE
				1m					FILL: Gravelly SAND of crushed SANDSTONE, fine to coarse grained sand, fine to coarse gravel		MD		Ø50mm PVC blank section FILL
				1.5					FILL: Gravelly Sandy CLAY, medium plasticity, brown, fine to medium grained sand, fine gravel		F		FILL, gravel is igneous
									FILL: Crushed bricks, fine to coarse sand, fine to coarse gravel				Ø50mm PVC screen section
				2m					FILL: Gravelly Sandy CLAY, low to medium plasticity, dark grey, fine to coarse sand, fine to medium gravel, charcoal/ash fragments				
				2.5									
				3m					FILL: Silty CLAY, medium to high plasticity, brown and grey, with some fine to medium sand, trace of fine gravel, inclusions of charcoal up to fine gravel size				Sand
										W			
		▽		3.5					Silty CLAY, medium to high plsticity, red-brown with grey laminae, trace of fine gravel of ironstone and charcoal	M	St		ALLUVIUM; gravel is angular and sub-angular
				4m					END of BOREHOLE at 4.0m, limit of investigation				End cap
				4.5									
				5m									
				5.5									
				6m									
				6.5									
				7m									
				7.5									
				8m									

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BOREHOLE REPORT

...\EN01669\Drawings\EN01669-MW40S.dwg, 11/04/05 14:53:53 PM

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: RAILWAY PARADE, MACDONALDTOWN

JOB N°: EN01669

Easting: 332417.691 Northing: 6247659.115

Borehole Location: SEE PLAN

Surface RL: 16.005m
Datum: AHD

BOREHOLE: MW40D

SHEET 1 of 2

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 17.02.05
Checked by:
Date:

DRILLING DATA				SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	M	▽		0.0					BITUMEN 40mm thick	D/M	MD		PAVEMENT
				0.5					FILL: Gravelly Sandy CLAY mixture, low to medium plasticity, black, grey, red-brown and yellow brown, fine to coarse sand, fine to coarse gravel of both crushed sandstone and brick fragments, with some ash fines				Road box installed in concrete FILL; uncontrolled
				1m									
				1.5					FILL: Gravelly Clayey SAND, fine to medium grained, grey, low plasticity, fine to medium gravel, trace of timber fibres and ash, odour of diesel fuel	M			Ø50mm PVC blank screen
				2m									
				2.5						M/W			Bentonite
		▽		3m						W			Water per
				3.5				Cl	Silty CLAY, medium plasticity, orange-brown, with grey laminae, with some fine to medium ironstone gravel, with some fine sand	M	F-St		ALLUVIUM
				4m									
				4.5				Cl-CH	Silty CLAY, medium to high plasticity, red-brown and grey mottled, trace of fine to medium ironstone gravel				
				5m									Coarse sand
				5.5									
	M	▽		6m					Gravelly Silty CLAY, medium to high plasticity, red-brown mottled grey, fine to medium ironstone gravel	M/W			Ironstone bands
				6.5									
				7m									Ø50mm PVC slotted screen
				7.5					Silty CLAY, medium to high plasticity, grey stained red-brown and yellow brown, trace of fine ironstone gravel	M	VSt		Horizontal structure evident
				8m									

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: RAILWAY PARADE, MACDONALDTOWN

JOB N°: EN01669

Easting: 332417.691 Northing: 6247659.115

Borehole Location: SEE PLAN

Surface RL: 16.005m
Datum: AHD

BOREHOLE: MW40D

SHEET 2 of 2

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 17.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	M			8m				CI-CH	Silty CLAY, medium to high plasticity, grey stained red-brown and yellow-brown, trace of fine ironstone gravel	M	VSt		ALLUVIUM
				8.5									
				9m									
				9.5									Coarse sand
				10m									
				10.5									
	M/H			11m					Shaley CLAY, grey, with dark grey shale laminae, extremely low strength				RESIDUAL SOIL /EXTREMELY WEATHERED SHALE
				11.5									Ø50mm PVC screen section
				12m					END of BOREHOLE at 12.0m, limit of investigation				End cap
				12.5									
				13m									
				13.5									
				14m									
				14.5									
				15m									
				15.5									
				16m									

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, MACDONALDTOWN

JOB N°: EN01669

Easting: 332368.045 Northing: 6247592.663

Borehole Location: SEE PLAN

Surface RL: 14.298m
Datum: AHD

BOREHOLE: MW38D

SHEET 1 of 2

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 16.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	L			0.0					FILL: Sandy GRAVEL, fine to medium grained, grey, fine to coarse sand, trace low plasticity fines	D/M	D		ROAD BASE material
				0.5									Road box installed in concrete
				1m									Loose backfill material
				1.5					Orange plastic liner				Marker layer
				2m	SPT 2,4,4 N = 8 PID 0.0ppm			CI-CH	Silty CLAY, medium to high plasticity, orange-brown and grey mottled, trace of fine ironstone gravel	M	F-St		NATURAL/ ALLUVIUM
				2.5									Ø50mm PVC blank screen
				3m									
				3.5									Bentonite
				4m					Silty CLAY, medium to high plasticity, pink-brown mottled grey, trace of fine ironstone gravel				
				4.5									
				5m					Silty CLAY, medium to high plasticity, pink-brown with occasional grey laminae	M/W			
	M			5.5				CH	Silty CLAY, high plasticity, grey, with frequent ironstone bands containing fine to medium gravels, red-brown	M	VSt-H		RESIDUAL SOIL? banded structure
				6m									Coarse sand
				6.5									
				7m									Ø50mm PVC slotted screen
				7.5									
				8m									

Report of borehole must be read in conjunction with accompanying notes and abbreviations

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BOREHOLE REPORT

CLIENT: STATE RAIL

PROJECT: MACDONALDTOWN RISK ASSESSMENT

LOCATION: BURREN STREET, MACDONALDTOWN

JOB N°: EN01669

Easting: 332368.045 Northing: 6247592.663

Borehole Location: SEE PLAN

Surface RL: 14.298m
Datum: AHD

BOREHOLE: MW38D

SHEET 2 of 2

Drill Rig: EDSON 3000
Inclination: V
Direction: N/A
Borehole Diameter: 125mm

Logged by: AK
Date: 16.02.05
Checked by:
Date:

DRILLING DATA					SAMPLING DATA		MATERIAL DATA						
METHOD	PENETRATION RESISTANCE	WATER	RL	DEPTH (M)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	WELL DETAILS	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUGER TC BIT	M			8m				CH	Silty CLAY, high plasticity, grey, with frequent ironstone bands containing fine to medium gravels red-brown	M	VSt -H		RESIDUAL SOIL
	M/H			8.5									
				9m								Sand	
				9.5									
				10m					Silty CLAY, high plasticity, grey stained red-brown by frequent ironstone bands containing fine to medium gravel			Ø50mm PVC screen section	
	H/ NR			10.5					Clayey SHALE, low to medium strength, grey, dark grey, banded orange-brown and red-brown, with some ironstone inclusions		H		WEATHERED BEDROCK
	R			11m									
TRI CONE	H								SHALE, medium strength, grey				BEDROCK
				11.5									
				12m					END of BOREHOLE at 12.0m, limit of investigation			End cap	
				12.5									
				13m									
				13.5									
				14m									
				14.5									
				15m									
				15.5									
				16m									

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BOREHOLE REPORT

Appendix B Summary Chemical Analysis Tables

TABLE B

SUMMARY OF ALL SOIL LABORATORY RESULTS (FORMER GASWORKS SITE)

All results in mg/kg

Investigator	Investigation		CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
SAMPLE ID	Level		BH01	BH01	SB02	SB02	SB02	SB02	SB03	SB03	SB04	SB04	SB04	SB06	SB06	SB07	SB07	SB08	SB08	SB08	BH10	BH10	BH11	BH11	BH12	BH12	BH12
Date of Sampling	Human Health		April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000
Depth (m)	Industrial		0.00-0.10	3.30-3.40	0.00-0.10	0.20-0.30	2.50-2.60	4.40-4.50	0.00-0.10	1.00-1.10	0.00-0.10	0.70-0.80	1.50-1.60	0.20-0.30	0.30-0.40	0.00-0.10	1.40-1.50	0.00-0.10	1.00-1.10	1.60-1.70	0.00-0.10	0.3	1.20-1.30	3.00-3.10	0.00-0.10	0.90-1.00	2.00-2.10
Material			FILL	FILL	FILL	FILL	Natural	Natural	FILL	FILL	FILL	FILL	Natural	FILL	FILL	FILL	FILL	FILL	FILL	Natural	FILL	FILL	FILL	Natural	FILL	FILL	FILL
HEAVY METALS																											
Arsenic	500	1	15	nd	24	nd	nd		33	nd	200	17	nd	nd	5	nd	nd	15	41	5	25	7	nd	nd	40	nd	
Cadmium	100	1	0.5	nd	1.4	nd	nd		1.2	nd	nd	nd	nd	nd	nd	nd	nd	1.4	nd	nd	1.2	nd	nd	nd	nd	nd	
Chromium	500	1	11	12	41	30	10		49	18	9	26	14	35	28	74	20	37	14	22	28	11	9	18	20	7	
Copper	5000	1	100	7	260	18	14		210	9	98	66	12	74	nd	61	7	360	390	nd	240	65	nd	nd	86	9	
Nickel	3000	1	17	2	30	3	3		23	nd	10	10	4	58	5	75	30	25	48	2	29	17	2	2	18	nd	
Lead	1500	1	190	56	1200	26	130		730	14	120	190	97	210	33	120	17	200	120	13	370	49	17	13	170	19	
Zinc	35000	1	130	nd	1100	23	9		520	72	66	130	26	150	13	280	220	460	520	8	250	290	nd	8	200	9	
Mercury	50	1	0.13	0.14	0.57	nd	0.26		0.51	nd	0.09	0.41	0.26	0.07	nd	0.15	nd	0.36	0.1	nd	0.43	0.16	nd	nd	0.15	nd	
TOTAL CYANIDE	2500	1					nd			nd				0.7			98						nd	nd	3.4	3.4	3
BTEX																											
Benzene	1	2	nd	nd			nd	nd	nd	nd		nd	nd	nd	nd	nd	nd		nd	nd		nd				
Toluene	130	2	nd	nd			nd	nd	nd	nd		nd	nd	nd	nd	nd	nd		nd	nd		nd				
Ethylbenzene	50	2	nd	nd			nd	nd	nd	nd		nd	nd	nd	nd	nd	8		nd	nd		nd				
Total Xylenes	25	2	nd	nd			5	nd	nd	nd		nd	nd	3	nd	nd	**32**		nd	nd		nd				
TOTAL PETROLEUM HYDROCARBONS																											
C6-C9 Fraction	65	2	nd				12	nd	nd	nd		nd		11	nd	nd			nd			nd					
C10-C14 Fraction			20				50	nd	120	nd		1000		2600	70	1300			120			30					
C15-C28 Fraction			340				nd	nd	3300	300		9700		15000	580	11000			740			300					
C29-C36 Fraction			160				nd	nd	1600	260		1400		2400	260	2100			120			140					
Total TPH C10-C36	1000	2	520				50	0	**5020**	560		**12100**		**20000**	910	**14400**			980			470					
>C16-C35 Aromatics	450	1																									
>C16-C35 Aliphatics	28000	1																									
>C35 Aliphatics	280000	1																									
POLYCYCLIC AROMATIC HYDROCARBONS																											
Naphthalene			nd	3	0.6	nd	0.9	nd	3.4	nd	nd	28	nd	99	nd	51	650	1.8	7	2.8	1.2	nd			0.8	nd	0.6
Acenaphthylene			0.5	0.5	1.4	2.8	nd	nd	8	nd	nd	78	nd	72	2	68	35	1.4	3.6	2.8	2	nd			1.6	nd	nd
Acenaphthene			nd	5	nd	nd	nd	nd	0.8	nd	nd	12	nd	29	nd	15	41	nd	1.4	2.2	nd	nd			nd	nd	nd
Fluorene			nd	5.2	0.6	0.5	nd	nd	4.2	nd	nd	66	nd	120	nd	78	61	1.2	3.6	6	1.6	nd			nd	nd	nd
Phenanthrene			0.6	7.6	17	0.7	nd	nd	34	nd	nd	290	nd	390	1.4	270	100	5.4	15	4.8	12	2.2			3.2	nd	nd
Anthracene			nd	2	3.6	1.8	nd	nd	10	nd	nd	82	nd	120	0.9	87	30	1.8	6.2	6.8	3.6	nd			0.9	nd	nd
Fluoranthene			2.2	1.8	23	14	nd	nd	42	nd	nd	230	nd	290	5	270	51	6.8	12	11	16	4			5.4	nd	nd
Pyrene			4.4	3.4	25	40	nd	nd	48	nd	nd	240	nd	320	20	290	54	8.4	13	19	19	4.6			7	nd	nd
Benzo(a)anthracene			1.4	0.7	13	24	nd	nd	30	nd	nd	190	nd	280	7.6	250	31	5.4	8.2	6.4	12	3			4.8	nd	nd
Chrysene			2	0.5	8	10	nd	nd	21	nd	nd	80	nd	96	9.2	89	14	3.4	5.2	4.4	7.8	2.6			3.6	nd	nd
Benzo[b,k]fluoranthene			3	nd	18	35	nd	nd	37	nd	nd	170	nd	250	26	270	30	7	9	5	14	5			8	nd	nd
Benzo(a)pyrene	5	1	3	0.9	**14**	**35**	nd	nd	**27**	nd	nd	**140**	nd	**190**	**30**	**200**	**26**	**4.6**	**7**	**5.4**	**11**	2.8			**5.8**	nd	nd
Indeno(123-cd)pyrene			2.2	0.5	10	20	nd	nd	15	nd	nd	52	nd	70	16	84	13	3.2	4.2	2.6	6.2	2			4.2	nd	nd
Dibenz(ah)anthracene			nd	nd	1.2	2.6	nd	nd	3.4	nd	nd	11	nd	11	2.2	10	1.6	0.5	0.7	nd	1	nd			0.6	nd	nd
Benzo(ghi)perylene			2	0.5	6.4	17	nd	nd	11	nd	nd	28	nd	37	17	46	7.2	2.4	3.2	2.8	4.6	1.8			3.4	nd	nd
Total PAHs	100	1	21.3	31.6	**141.8**	**203.4**	0.9	0	**294.8**	0	0	**1697**	0	**2374**	**137.3**	**2078**	**1144.8**	53.3	99.3	82	**112**	28			49.3	0	0.6
TOTAL PHENOLS	42500	1			0	0			18.4			419		65	0	50	0		0		0						
OCPs	50 to 1000	1	nd			0										0											
PCBs	50	1															0			0							
VOCs (6)																											
n-Butylbenzene				nd													27									nd	
sec-Butylbenzene				nd													2									nd	
Ethylbenzene	50	2		nd													7									nd	
Isopropylene				nd													12									nd	
p-Isopropyltoluene				nd													17									nd	
Naphthalene				2													780									nd	
n-Propylbenzene				nd													10									nd	
ortho-Xylene	25	2		nd													**29**									nd	
m&p-Xylene				nd																						nd	

NOTES:

Exceeds HIL

1 Based on the Health Based Soil Investigation Level in Column F of the NEPM (1999)

2 Based on NSW EPA (1994) Guidelines for Assessing Service Station Sites

3 Located adjacent to borehole MW19S

4 Located adjacent to borehole MW10S

5 Located adjacent to borehole MW11S

6 Only VOCs that were detected by one or more analyses are listed

Reference CH2M Hill (2001) Macdonaldtown Triangle Erskinsville - Soil and Groundwater Investigations of the Former Gasworks Area and Offsite

Reference CH2M Hill (2000) Macdonaldtown Triangle Phase I and Phase II Environmental Site Assessment.

SKM 2005 investigation

TABLE B

SUMMARY OF ALL SOIL LABORATORY RESULTS (F

All results in mg/kg

Investigator	Investigation		CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
SAMPLE ID	Level		BH12	BH13	BH13	BH13	BH14	BH14	BH14	BH15	BH15	BH15	BH16	BH16	BH16	SB18	SB18	SB18	MW03	MW03	MW04	MW04	TPA	TPC	TPD	TPD	TP99
Date of Sampling	Human Health		April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000	April 2000
Depth (m)	Industrial		4.40-4.50	0.00-0.10	0.20-0.30	0.90-1.00	0.00-0.10	0.20-0.30	0.90-1.00	0.00-0.10	0.20-0.30	0.90-1.00	0.00-0.10	0.90-1.00	3.00-3.10	0.20-0.30	1.70-1.80	3.90-4.00	1.00-1.10	2.00-2.10	1.00-1.10	2.00-2.10	1.6	1	0.2	0.6	0.0-0.10
Material			Natural	FILL	FILL	Natural	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	Natural	FILL	FILL	Natural	Natural	Natural	Natural	Natural	FILL	FILL	FILL	Natural	FILL
HEAVY METALS																											
Arsenic	500	1		57	7		24	nd	7	11	6		16	5	9	22	nd	nd	11	5	15	nd	nd	nd	nd	nd	nd
Cadmium	100	1		nd	nd		0.9	nd	nd	0.5	nd		nd	nd	nd	0.6	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chromium	500	1		12	11		19	12	22	14	16		10	14	13	32	19	19	8	9	43	13	16	19	nd	6	17
Copper	5000	1		110	57		120	8	15	65	25		130	15	5	99	10	10	24	16	24	11	17	nd	32	nd	46
Nickel	3000	1		14	16		18	nd	5	13	9		11	2	nd	24	7	7	12	3	3	3	4	5	6	nd	110
Lead	1500	1		190	160		280	8	49	150	58		200	27	39	280	98	98	43	82	26	85	25	15	18	8	8
Zinc	35000	1		150	160		250	24	110	190	70		100	45	nd	300	310	310	130	26	17	17	28	31	73	68	58
Mercury	50	1		0.13	0.16		0.16	nd	nd	0.11	nd		0.15	0.07	nd	0.26	nd	nd	0.07	0.08	nd	0.08	nd	0.1	0.07	0.06	nd
TOTAL CYANIDE	2500	1	nd					nd						nd		8.8							5.6	34		nd	
BTEX																											
Benzene	1	2	1		**1.6**	nd		nd	**4.6**		nd	nd	nd	nd	nd	nd	**7**	nd	nd	nd	nd	**4**	**1.6**	nd	nd	nd	nd
Toluene	130	2	3		5	nd		nd	nd		nd	nd	nd	nd	nd	nd	11	nd	nd	nd	nd	nd	15	5	nd	nd	nd
Ethylbenzene	50	2	nd		nd	nd		nd	26		nd	nd	nd	nd	nd	nd	**80**	nd	nd	nd	nd	nd	7	9	nd	nd	nd
Total Xylenes	25	2	4		9	nd		nd	**48**		nd	nd	nd	nd	nd	nd	**210**	nd	nd	nd	nd	nd	**65**	**48**	nd	nd	nd
TOTAL PETROLEUM HYDROCARBONS																											
C6-C9 Fraction	65	2	9		24			nd			nd					nd			nd	nd	nd	nd	**100**				
C10-C14 Fraction			300		400			nd			90					3400			nd	nd	nd	nd	1600				
C15-C28 Fraction			420		3400			nd			2800					26000			nd	nd	nd	nd	1400				
C29-C36 Fraction			nd		3300			nd			1500					9000			nd	nd	nd	nd	200				
Total TPH C10-C36	1000	2	720		**7100**			0			**4390**					**38400**			nd	nd	nd	nd	**3200**				
>C16-C35 Aromatics	450	1																									
>C16-C35 Aliphatics	28000	1																									
>C35 Aliphatics	280000	1																									
POLYCYCLIC AROMATIC HYDROCARBONS																											
Naphthalene			84	0.5	5	nd	nd	nd	3.8	0.7	1.6	nd	0.7	nd	nd	280	1700	1.8	nd	nd	nd	3.6	320	520	0.6	nd	nd
Acenaphthylene			2.6	0.9	9.4	nd	0.7	nd	nd	0.6	3.6	nd	1.2	nd	nd	160	15	nd	nd	nd	nd	nd	20	14	1.2	nd	nd
Acenaphthene			2.6	nd	1	nd	nd	nd	nd	nd	1.2	nd	nd	nd	nd	33	17	nd	nd	nd	nd	nd	6.2	21	nd	nd	nd
Fluorene			14	nd	4.6	nd	nd	nd	nd	nd	2.8	nd	0.5	nd	nd	120	46	nd	nd	nd	nd	nd	24	27	nd	nd	nd
Phenanthrene			34	3.6	39	nd	1.4	nd	nd	3.2	21	1	5.8	nd	nd	740	94	nd	nd	nd	nd	nd	47	46	5.6	nd	nd
Anthracene			10	1	11	nd	0.5	nd	nd	1.2	6.8	nd	1.6	nd	nd	190	32	nd	nd	nd	nd	nd	15	17	1.4	nd	nd
Fluoranthene			20	5.2	50	0.6	3.4	nd	nd	7.2	33	1.2	9.4	nd	nd	580	50	nd	1	0.7	nd	nd	28	25	9	nd	nd
Pyrene			16	6.6	67	nd	5.2	nd	nd	11	56	2.2	12	nd	nd	600	65	nd	2.4	1	nd	nd	26	32	13	nd	nd
Benzo(a)anthracene			9	3.6	30	nd	3.2	nd	nd	7.6	43	1.4	8	nd	nd	320	29	nd	0.9	nd	nd	nd	11	11	6.6	nd	nd
Chrysene			6.4	2.6	25	nd	2	nd	nd	5	29	1	5.4	nd	nd	200	20	nd	0.8	nd	nd	nd	10	9.2	6.2	nd	nd
Benzo[b,k]fluoranthene			11	6	56	nd	6	nd	nd	16	60	3	13	nd	nd	310	31	nd	2	nd	nd	nd	13	12	11	nd	nd
Benzo(a)pyrene	5	1	**8.4**	**4.6**	**39**	nd	**5**	nd	nd	**16**	**58**	2.4	**11**	nd	nd	**220**	**28**	nd	1.4	0.5	nd	nd	**8.4**	**8.4**	**6.2**	nd	nd
Indeno(123-cd)pyrene			4	2.6	41	nd	3	nd	nd	9.8	30	1.2	6.4	nd	nd	110	17	nd	1.2	0.5	0.6	nd	4.2	3.8	3.8	nd	nd
Dibenz(ah)anthracene			nd	nd	6.2	nd	nd	nd	nd	1.2	6.8	nd	0.8	nd	nd	19	3.8	nd	nd	nd	nd	nd	0.9	0.8	0.9	nd	nd
Benzo(ghi)perylene			2.4	2	29	nd	2.4	nd	nd	9.2	25	1.4	4.8	nd	nd	71	13	nd	1.2	nd	0.7	nd	3.2	3.4	3.2	nd	nd
Total PAHs	100	1	**224.4**	39.2	**413.2**	0.6	32.8	0	3.8	88.7	**377.8**	14.8	80.6	0	0	**3953**	**2160.8**	1.8	10.9	2.7	1.3	3.6	**536.9**	**750.6**	68.7	0	0
TOTAL PHENOLS	42500	1	34.2		0						0					97	0						0	0			
OCPs	50 to 1000	1																									
PCBs	50	1					0																				
VOCs (6)																											
n-Butylbenzene						nd																					
sec-Butylbenzene						nd																					
Ethylbenzene	50	2				nd																					
Isopropylene						nd																					
p-Isopropyltoluene						nd																					
Naphthalene						nd																					
n-Propylbenzene						nd																					
ortho-Xylene	25	2				nd																					
m&p-Xylene						nd																					

NOTES:
Exceeds HIL
1 Based on the Healt
2 Based on NSW EP.
3 Located adjacent tc
4 Located adjacent tc
5 Located adjacent tc
6 Only VOCs that we
Reference CH2M H
Reference CH2M H
SKM 2005 investig

TABLE B
SUMMARY OF ALL SOIL LABORATORY RESULTS (F
All results in mg/kg

Investigator	Investigation		CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	SKM	SKM	SKM	SKM	SKM
SAMPLE ID	Level		TP99	TP99	A25 (5)	A29 (4)	A31 (3)	MW07D	MW08D	MW09S	MW10S	MW11S	MW12D	MW13S	MW13D	MW18D	MW19S	MW20S	MW30	MW31	MW32	MW33	MW34
Date of Sampling	Human Health		April 2000	April 2000	Oct 2001	Oct 2001	Oct 2001	Oct 2001	Oct 2001	Oct 2001	Oct 2001	Oct 2001	Oct 2001	Oct 2001	Oct 2001	Oct 2001	Oct 2001	Oct 2001	Dec 2004	Dec 2004	Dec 2004	Dec 2004	Dec 2004
Depth (m)	Industrial		0.20-0.30	2.00-2.10	0.0-0.10	0.0-0.10	0.0-0.10	1.4-1.5	1.4-1.5	1.3-1.4	0.9-1.1	0.6-0.8	1.4-1.5	0.9-1.0	1.4-1.5	1.4-1.5	1.2-1.3	0.9-1.0	0-0.45	0.50-0.95	1.2	0.50-0.95	1.4
Material			FILL	Natural	FILL	FILL	FILL	Natural	Natural	Natural	FILL	FILL	FILL	FILL	FILL	FILL	Natural	FILL	FILL	FILL	FILL	Natural	Natural
HEAVY METALS																							
Arsenic	500	1	nd	nd	5	14	14	4	11	14	18	14	4	178	7	10	15	13					
Cadmium	100	1	nd	nd	nd	2	1	nd	nd	2	2	2	nd	nd	nd	nd	1	nd					
Chromium	500	1	nd	nd	10	22	21	13	50	35	24	17	12	14	4	31	23	5					
Copper	5000	1	88	21	35	207	161	12	7	57	149	77	17	85	28	19	117	64					
Nickel	3000	1	12	nd	6	13	11	2	3	6	18	10	nd	9	2	nd	17	3					
Lead	1500	1	110	13	146	1220	1100	100	129	453	1160	772	32	474	27	30	1030	394					
Zinc	35000	1	120	11	184	512	451	31	21	383	545	818	55	177	75	22	593	166					
Mercury	50	1	nd	nd	0.1	0.7	0.5	0.2	nd	0.3	0.5	0.4				nd	0.6						
TOTAL CYANIDE	2500	1																					
BTEX																							
Benzene	1	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	130	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	50	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total Xylenes	25	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOTAL PETROLEUM HYDROCARBONS																							
C6-C9 Fraction	65	2			nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd					
C10-C14 Fraction					~	~	~	~	~	~	~	~	~	~	~	~	~	~					
C15-C28 Fraction					~	~	~	~	~	~	~	~	~	~	~	~	~	~					
C29-C36 Fraction					~	~	~	~	~	~	~	~	~	~	~	~	~	~					
Total TPH C10-C36	1000	2			792	**1654**	558	0	0	0	352	0	0	**6444**	0	0	0	398					
>C16-C35 Aromatics	450	1																	113	50	nd	**2124**	92
>C16-C35 Aliphatics	28000	1																	154	65	nd	217	nd
>C35 Aliphatics	280000	1																					
POLYCYCLIC AROMATIC HYDROCARBONS																							
Naphthalene			nd	nd	nd	0.6	nd	nd	nd	nd	nd	nd	nd	9.7	nd	nd	nd	nd					
Acenaphthylene			nd	nd	nd	2.6	1	nd	nd	nd	1.2	0.8	0.7	10.7	0.7	nd	nd	1.3					
Acenaphthene			nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	1	nd	nd	nd	nd					
Fluorene			nd	nd	nd	0.5	nd	nd	nd	nd	nd	nd	0.5	4.2	nd	nd	nd	0.5					
Phenanthrene			1.4	nd	nd	7.5	4.4	nd	0.7	nd	5	3.6	4.5	31.2	nd	nd	1.5	7.3					
Anthracene			nd	nd	nd	2.7	1.3	nd	nd	nd	1.5	0.9	1.5	10.1	nd	nd	nd	2.2					
Fluoranthene			1.6	nd	nd	20.3	8.6	nd	1.2	nd	10.6	4.9	6.6	41.8	0.6	nd	3.2	11.4					
Pyrene			1.8	nd	nd	24.7	9.7	nd	1.5	nd	12	4.9	9.1	63.3	1.2	nd	3.6	12.7					
Benzo(a)anthracene			1.2	nd	nd	13.6	4.8	nd	0.8	nd	6.7	2.4	4	23.5	0.6	nd	1.9	6.8					
Chrysene			1.2	nd	nd	12.7	5.6	nd	0.7	nd	6.7	2.4	4.2	26.9	0.8	nd	1.8	6.5					
Benzo[b,k]fluoranthene			2	nd	nd	20	8	nd	nd	nd	9	3	9	46	2	nd	3	8					
Benzo(a)pyrene	5	1	1.2	nd	nd	**12.3**	**5**	nd	0.7	nd	**5.7**	1.9	**7.7**	**34.9**	1	nd	1.6	**6.1**					
Indeno(123-cd)pyrene			0.8	nd	nd	5.6	2.4	nd	nd	nd	2.5	0.8	3.8	16	0.6	nd	0.7	2.4					
Dibenz(ah)anthracene			nd	nd	nd	1.9	0.7	nd	nd	nd	0.8	nd	1.2	4.6	nd	nd	nd	0.9					
Benzo(ghi)perylene			0.6	nd	nd	6.1	2.8	nd	nd	nd	2.8	0.8	5.4	22.1	0.8	nd	0.8	2.8					
Total PAHs	100	1	11.8	0	0	**131.1**	54.3	0	5.6	0	64.5	26.4	58.2	**346**	8.3	0	18.1	68.9					
TOTAL PHENOLS	42500	1				0		0		0				5.9	0	0		0					
OCPs	50 to 1000	1	nd																				
PCBs	50	1	nd																				
VOCs (6)																							
n-Butylbenzene			nd										nd	nd	nd			nd					
sec-Butylbenzene			nd										nd	nd	nd			nd					
Ethylbenzene	50	2	nd										nd	nd	nd			nd					
Isopropylene			nd																				
p-Isopropyltoluene			nd										nd	nd	nd			nd					
Naphthalene			nd										nd	nd	nd			nd					
n-Propylbenzene			nd										nd	nd	nd			nd					
ortho-Xylene	25	2	nd										nd	nd	nd			nd					
m&p-Xylene			nd										nd	nd	nd			nd					

NOTES:
Exceeds HIL
1 Based on the Healt
2 Based on NSW EP
3 Located adjacent to
4 Located adjacent to
5 Located adjacent to
6 Only VOCs that we
Reference CH2M H
Reference CH2M H
SKM 2005 investig

TABLE C

STATISTICAL ANALYSIS OF FILL CHEMICAL DATA - FORMER GASWORKS AREA

All results in mg/kg

	Investigation Level Human Health Industrial		Hot Spot Criteria	Count	Maxiumum	Minimum	Average	SD	CV	t-statistic	95% UCL
Material											
HEAVY METALS											
Arsenic	500	1	1250	45	200	nd	19.0	39.3	2.07	1.683	28.8
Cadmium	100	1	250	45	2	nd	0.3	0.6	1.88	1.683	0.5
Chromium	500	1	1250	45	74	nd	19.4	13.3	0.69	1.683	22.7
Copper	5000	1	12500	45	390	nd	83.1	91.7	1.10	1.683	106.1
Nickel	3000	1	7500	45	110	nd	16.2	21.0	1.29	1.683	21.5
Lead	1500	1	3750	45	1220	8	241.8	339.4	1.40	1.683	327.0
Zinc	35000	1	87500	45	1100	nd	210.2	227.4	1.08	1.683	267.2
Mercury	50	1	125	41	0.7	nd	0.2	0.2	1.17	1.687	0.2
TOTAL CYANIDE	2500	1	6250	12	98	nd	13.1	28.4	2.17	1.796	27.8
BTEX											
Benzene	1	2	2.5	38	7	nd	0.4	1.4	3.52	1.689	0.8
Toluene	130	2	325	38	15	nd	0.9	3.1	3.30	1.689	1.8
Ethylbenzene	50	2	125	38	80	nd	3.4	13.6	3.97	1.689	7.1
Total Xylenes	25	2	62.5	38	210	nd	10.9	36.6	3.35	1.689	20.9
TOTAL PETROLEUM HYDROCARBONS											
C6-C9 Fraction	65	2	162.5	24	100	nd	5.6	20.8	3.70	1.708	12.9
C10-C14 Fraction											
C15-C28 Fraction											
C29-C36 Fraction											
Total TPH C10-C36	1000	2	2500	24	38400	nd	4927.0	8843.9	1.79	1.708	**8010.4**
>C16-C35 Aromatics	450	1	1125	3	113	nd	54.3	56.6	1.04	2.920	149.8
>C16-C35 Aliphatics	28000	1	70000	3	154	nd	73.0	77.3	1.06	2.920	203.3
>C35 Aliphatics	280000	1	700000	0							
POLYCYCLIC AROMATIC HYDROCARBONS											
Naphthalene				46	1700	nd	80.2	278.1	3.47	1.683	149.2
Acenaphthylene				46	160	nd	11.4	29.0	2.56	1.683	18.6
Acenaphthene				46	41	nd	4.0	9.5	2.36	1.683	6.4
Fluorene				46	120	nd	12.4	29.6	2.38	1.683	19.8
Phenanthrene				46	740	nd	48.3	131.5	2.72	1.683	80.9
Anthracene				46	190	nd	14.1	36.1	2.56	1.683	23.0
Fluoranthene				46	580	nd	40.9	103.8	2.54	1.683	66.7
Pyrene				46	600	nd	46.4	108.8	2.35	1.683	73.4
Benzo(a)anthracene				46	320	nd	30.4	73.7	2.42	1.683	48.7
Chrysene				46	200	nd	16.0	35.3	2.21	1.683	24.7
Benzo[b,k]fluoranthene				46	310	nd	33.2	70.9	2.14	1.683	50.8
Benzo(a)pyrene	5	1	12.5	46	220	nd	25.7	52.8	2.06	1.681	**38.7**
Indeno(123-cd)pyrene				46	110	nd	12.4	23.3	1.88	1.683	18.2
Dibenz(ah)anthracene				46	19	nd	2.1	3.8	1.83	1.683	3.0
Benzo(ghi)perylene				46	71	nd	8.7	14.2	1.63	1.683	12.2
Total PAHs	100	1	250	46	3953	nd	386.0	804.5	2.08	1.681	**585.5**
TOTAL PHENOLS	42500	1	106250	21	419	nd	31.2	92.6	2.97	1.729	66.2
OCPs	50 to 1000	1	150 to 2500	4	nd	nd	0.0	0.0	--	1.729	nd
PCBs	50	1	125	3	nd	nd	0.0	0.0	--	1.729	nd
VOCs (6)											
n-Butylbenzene				8	nd	nd	3.4	9.5	--	1.943	nd
sec-Butylbenzene				8	nd	nd	0.3	0.7	--	1.943	nd
Ethylbenzene	50	2	125	8	nd	nd	0.9	2.5	--	1.943	nd
Isopropylene				4	nd	nd	3.0	6.0	--	2.920	nd
p-Isopropyltoluene				8	nd	nd	2.1	6.0	--	1.943	nd
Naphthalene				8	780	nd	97.8	275.7	2.82	1.943	287.1
n-Propylbenzene				8	nd	nd	1.3	3.5	--	1.943	nd
ortho-Xylene	25	2	62.5	8	nd	nd	3.6	10.3	--	1.943	nd
m&p-Xylene											

NOTES:

95% UCL exceeds HIL

Maximum concentration exceeds Hot Spot Criteria

1 Based on the Health Based Soil Investigation Level in Column F of the NEPM (1999)

2 Based on NSW EPA (1994) Guidelines for Assessing Service Station Sites

3 Located adjacent to borehole MW19S

4 Located adjacent to borehole MW10S

5 Located adjacent to borehole MW11S

6 Only VOCs that were detected by one or more analyses are listed

TABLE D

STATISTICAL ANALYSIS OF NATURAL SOILS CHEMICAL DATA - FORMER GASWORKS AREA

All results in mg/kg

	Investigation Level Human Health Industrial		Hot Spot Criteria	Count	Maxiumum	Minimum	Average	SD	CV	t-statistic	95% UCL
Material											
HEAVY METALS											
Arsenic	500	1	1250	17	15	nd	5.2	6.0	1.14	1.740	7.8
Cadmium	100	1	250	17	2	nd	0.2	0.5	3.00	1.740	0.4
Chromium	500	1	1250	17	50	nd	18.5	13.2	0.71	1.740	24.1
Copper	5000	1	12500	17	117	nd	20.0	28.4	1.42	1.740	32.0
Nickel	3000	1	7500	17	17	nd	4.4	4.5	1.02	1.740	6.2
Lead	1500	1	3750	17	1030	8	144.5	250.2	1.73	1.740	250.1
Zinc	35000	1	87500	17	593	nd	115.8	174.6	1.51	1.740	189.5
Mercury	50	1	125	17	0.6	nd	0.1	0.2	1.46	1.740	0.2
TOTAL CYANIDE	2500	1	6250	4	0	nd	0.0	0.0	#DIV/0!	2.353	0.0
BTEX											
Benzene	1	2	2.5	21	7	nd	0.6	1.7	3.01	1.725	**1.2**
Toluene	130	2	325	21	11	nd	0.7	2.5	3.68	1.725	1.6
Ethylbenzene	50	2	125	21	80	nd	3.8	17.5	4.58	1.725	10.4
Total Xylenes	25	2	62.5	21	210	nd	10.4	45.7	4.39	1.725	**27.6**
TOTAL PETROLEUM HYDROCARBONS											
C6-C9 Fraction	65	2	162.5	11	12	nd	1.9	4.3	2.25	1.833	4.3
C10-C14 Fraction											
C15-C28 Fraction											
C29-C36 Fraction											
Total TPH C10-C36	1000	2	2500	11	720	nd	70.0	216.1	3.09	1.833	189.4
>C16-C35 Aromatics	450	1	1125	2	2124	92	1108.0	1436.8	1.30	6.314	**7523.0**
>C16-C35 Aliphatics	28000	1	70000	2	217	nd	108.5	153.4	1.41	6.314	793.6
>C35 Aliphatics	280000	1	700000	0							
POLYCYCLIC AROMATIC HYDROCARBONS											
Naphthalene											
Acenaphthylene											
Acenaphthene											
Fluorene											
Phenanthrene											
Anthracene											
Fluoranthene											
Pyrene											
Benzo(a)anthracene											
Chrysene											
Benzo[b,k]fluoranthene											
Benzo(a)pyrene	5	1	12.5	19	28	nd	2.4	6.6	2.71	1.734	**5.0**
Indeno(123-cd)pyrene											
Dibenz(ah)anthracene											
Benzo(ghi)perylene											
Total PAHs	100	1	250	19	2160.8	nd	132.2	494.1	3.74	1.734	**328.8**
TOTAL PHENOLS	42500	1	106250	4	nd	nd	nd	17.1	0.00	1.740	nd
OCPs	50 to 1000	1	150 to 2500	0							
PCBs	50	1	125	1	nd	nd	nd	#DIV/0!	0.00	6.314	nd
VOCs (6)											
n-Butylbenzene				1	nd	nd	nd				nd
sec-Butylbenzene				1	nd	nd	nd				nd
Ethylbenzene	50	2	125	1	nd	nd	nd				nd
Isopropylene				1	nd	nd	nd				nd
p-Isopropyltoluene				1	nd	nd	nd				nd
Naphthalene				1	nd	nd	nd				nd
n-Propylbenzene				1	nd	nd	nd				nd
ortho-Xylene	25	2	62.5	1	nd	nd	nd				nd
m&p-Xylene											

NOTES:

95% UCL exceeds HIL

Maximum concentration exceeds Hot Spot Criteria

1 Based on the Health Based Soil Investigation Level in Column F of the NEPM (1999)

2 Based on NSW EPA (1994) Guidelines for Assessing Service Station Sites

3 Located adjacent to borehole MW19S

4 Located adjacent to borehole MW10S

5 Located adjacent to borehole MW11S

6 Only VOCs that were detected by one or more analyses are listed

TABLE E
SUMMARY OF HISTORICAL WATER LABORATORY RESULTS FROM THE SHALLOW AQUIFER WELLS
All results in µg/l

Reference	Threshold Concentration			CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
SAMPLE ID				MW14S	MW16S	MW15S	MW09S	MW19S	MW10S	MW11S	MW03S	MW03S	MW04S	MW04S	MW06S	MW07S	MW12S	MW13S	MW17S	MW26S
Date of Sampling	Freshwater	Health	Aesethic	4/10/2001	4/10/2001	5/10/2001	9/10/2001	5/10/2001	5/10/2001	5/10/2001	5/11/2000	4/10/2001	5/11/2000	4/10/2001	4/10/2001	4/10/2001	3/10/2001	3/10/2001	4/10/2001	3/10/2001
HEAVY METALS																				
Arsenic (total)	24 [2]	7	—	nd	nd	nd	nd	nd	nd	nd	1	0.001	2	0.002	nd	nd	nd	nd	nd	0.023
Cadmium	0.2	2	—	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chromium	3.3	55000 [3]	—	nd	nd	nd	nd	nd	nd	nd	4	nd	15	nd	nd	nd	nd	nd	nd	nd
Copper	1.4	2000	1000	0.004	0.004	0.003	0.002	0.003	0.001	0.002	3	0.002	nd	0.001	0.002	0.002	nd	0.002	0.004	0.001
Lead	3.4	10	—	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.01	0.006
Mercury (inorganic)	0.06	1		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Nickel	11	20	—	0.016	0.011	0.006	0.005	0.005	0.002	0.004	4	0.024	10	0.003	0.002	nd	0.002	0.008	0.003	0.001
Zinc	8	—	3000	0.092	0.276	0.061	0.337	0.165	0.33	0.171	12	0.055	13	0.045	0.041	0.044	0.033	0.135	0.184	0.034
Cyanide	7	80		nd	nd	nd	nd	nd	nd	nd	-	0.176	-	0.283	0.02	0.475	0.051	0.189	0.129	0.479
Iron (II)			300	-	-	-	-	-	-	-	55600	-	35300	-	-	-	-	-	-	-
BTEX																				
Benzene	950	1	—	nd	nd	nd	nd	nd	nd	nd	74	nd	nd	nd	17	704	nd	nd	nd	nd
Toluene	180	800	25	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	10	117	nd	nd	nd	nd
Chlorobenzene	50	300	3	nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	350	600	20	nd	nd	nd	nd	nd	nd	nd	28	nd	nd	nd	8	213	nd	nd	nd	7
Total Xylene	200	—	—	nd	nd	nd	nd	nd	nd	nd	15	nd	nd	nd	72	417	nd	nd	nd	5
		600	20																	
Total Petroleum Hydrocarbons																				
C6-C9 Fraction	150			nd	nd	nd	nd	nd	nd	nd	140	nd	nd	nd	177	2170	373	26	nd	26
Total TPH C10-C36	600 [4]	—	—	nd	nd	nd	nd	nd	nd	nd	1393	nd	nd	67	389	9495	2112	374	65	429
		—	—																	
Monocyclic Aromatic Hydrocarbons																				
Benzene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	15	644	nd	nd	nd	nd
Toluene		1		nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	9	90	nd	nd	nd	nd
Ethylbenzene		800	25	nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	7	187	nd	nd	nd	6
meta- & para-Xylene*				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	29	166	nd	nd	nd	nd
Styrene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	42	nd	nd	nd	nd
ortho-Xylene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	36	208	nd	nd	nd	nd
Isopropylbenzene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	10	nd	nd	nd	nd
n-Propylbenzene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	22	nd	nd	nd	nd
1.3.5-Trimethylbenzene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	7	50	nd	nd	nd	nd
sec-Butylbenzene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.2.4-Trimethylbenzene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	7	339	nd	nd	nd	nd
tert-Butylbenzene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
p-Isopropyltoluene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
n-Butylbenzene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Oxygenated Compounds																				
Vinyl Acetate				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
2-Butanone (MEK)				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
4-Methyl-2-pentanone (MIBK)				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
2-Hexanone (MBK)				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Fumigants																				
2.2-Dichloropropane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.2-Dichloropropane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
cis-1.3-Dichloropropylene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
trans-1.3-Dichloropropylene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.2-Dibromoethane (EDB)				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Halogenated Aliphatic Compounds																				
Dichlorodifluoromethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Chloromethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Vinyl chloride				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Bromomethane		0.3		nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Chloroethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.1-Dichloroethene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Iodomethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
trans-1.2-Dichloroethene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.1-Dichloroethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
cis-1.2-Dichloroethene		30		nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.1.1-Trichloroethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.1-Dichloropropylene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.2-Dichloroethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Trichloroethene		60		nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Dibromomethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.1.2-Trichloroethane	6500 [1]			nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.3-Dichloropropane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.1.1.2-Tetrachloroethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
trans-1.4-Dichloro-2-butene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
cis-1.4-Dichloro-2-butene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.1.2.2-Tetrachloroethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.2.3-Trichloropropane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Pentachloroethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.2-Dibromo-3-chloropropane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Hexachlorobutadiene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Halogenated Aromatics																				
Chlorobenzene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Bromobenzene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
2-Chlorotoluene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
4-Chlorotoluene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.3-Dichlorobenzene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.4-Dichlorobenzene			20	nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.2-Dichlorobenzene		40	3	nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.2.4-Trichlorobenzene		1500	1	nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
1.2.3-Trichlorobenzene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Trihalomethanes																				
Chloroform				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Bromoform				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Other																				
Carbon disulfide				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Naphthalene	16 [1]			nd	nd	nd	nd	nd	nd	nd	-	nd	-	16	330	1600	nd	nd	nd	nd
Nitrate as N	700 [1]			-	-	-	-	-	-	-	nd	-	nd	-	-	-	-	-	-	-
Sulphate		50000		-	-	-	-	-	-	-	240	-	41	-	-	-	-	-	-	-
Electrical Conductivity				-	-	-	-	-	-	-	870	-	420	-	-	-	-	-	-	-
pH				-	-	-	-	-	-	-	6	-	6.2	-	-	-	-	-	-	-
Dissolved Methane				-	-	-	-	-	-	-	230	-	2500	-	-	-	-	-	-	-
Phenols																				
Phenol	320 [1]			nd	16	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2-Chlorophenol	340 [1]			nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2-Methylphenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
3- & 4-Methylphenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	13	nd	nd	nd	nd
2-Nitrophenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2.4-Dimethylphenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	38	nd	nd	nd	nd
2.4-Dichlorophenol	120 [1]			nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2.6-Dichlorophenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
4-Chloro-3-Methylphenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2.4.6-Trichlorophenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2.4.5-Trichlorophenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Pentachlorophenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total Phenols				nd	16	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	51	nd	nd	nd	nd
Polynuclear Aromatics																				
Naphthalene	16 [1]			nd	nd	nd	nd	nd	nd	nd	86	nd	5	nd	nd	1460	2	nd	nd	23
2-Methylnaphthalene		70		nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	143	nd	nd	nd	4
2-Chloronaphthalene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Acenaphthylene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	43	5	nd	nd	nd
Acenaphthene				nd	nd	nd	nd	nd	nd	nd	2	nd	nd	nd	nd	14	9	5	nd	5
Fluorene				nd	nd	nd	nd	nd	nd	nd	1	nd	nd	nd	nd	15	10	7	nd	3
Phenanthrene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	2	8	2	nd	4
Anthracene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	2	nd	nd	nd
Fluoranthene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Pyrene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
N-2-Fluorenylacetamide				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Benzo(a)anthracene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chrysene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Benzo[b,k]fluoranthene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
7.12-Dimethylbenz(a)anthracene				nd	nd	nd	nd	nd	nd	nd	-	nd	-	nd	nd	nd	nd	nd	nd	nd
Benzo(a)pyrene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Indeno(123-cd)pyrene		0.01		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Dibenz(ah)anthracene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Benzo(ghi)perylene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total PAHs				nd	nd	nd	nd	nd	nd	nd	89	nd	5	nd	nd	1677	36	14	nd	39

NOTES:
Concentration exceeds the ANZECC Freshwater 95% Protection Level Criteria (2000)
Concentration exceeds the Health Based Preliminary US EPA Drinking Water Theshold Concentrations
Concentration exceeds the Aesthetic Based Drinking Water Theshold Concentrations
[1] ANZECC (1992) freshwater criteria
[2] NEPC (1999a) freshwater criteria
[3] USEPA Preliminary Remedial Goal for tap water
[4] Dutch 2000 Groundwater Intervention Value
[5] ANZECC (2000) Arsenic (III) criteria adopted for freshwater ecosystems
[6] A cyanide (total) criteria of 7 should only be used of no free cyanide results are available
ND Not Detected
- Not Analysed
Reference State Rail Authority (2001) Macdonaldtown Triangle Erekinsville - Soil and Groundwater Investigations of the Former Gasworks Area and Offsite
Reference State Rail Authority (2000) Macdonaldtown Triangle Phase I and Phase II Environmental Site Assessment.

June 2005
EN01669

TABLE F
SUMMARY OF HISTORICAL WATER LABORATORY RESULTS FROM THE DEEP AQUIFER WELLS
All results in µg/l

Reference	Threshold Concentration			CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
SAMPLE ID				MW14D	MW16D	MW15D	MW03D	MW3D	MW4D	MW4D	MW5D	MW06D	MW08D	MW07D	MW12D	MW13D	MW17D	MW18D
Date of Sampling	Freshwater	Health	Aesthic	5/10/2001	9/10/2001	10/10/2001	5/11/2000	4/10/2001	5/11/2000	4/10/2001	5/11/2000	4/10/2001	4/10/2001	4/10/2001	3/10/2001	3/10/2001	4/10/2001	3/10/2001
HEAVY METALS																		
Arsenic (total)	24 [5]	7	—	nd	nd	nd	9	nd	5	0.002	3	nd	nd	nd	nd	nd	nd	nd
Cadmium	0.2	2	—	nd	0.022	nd	nd	nd	nd	nd	0.1	nd	nd	nd	nd	nd	nd	nd
Chromium	3.3	55000 [3]	—	nd	nd	nd	4	nd	7	nd	3	nd	nd	nd	nd	nd	nd	nd
Copper	1.4	2000	1000	0.003	0.002	0.001	6	0.001	8	0.001	14	0.006	0.002	0.01	0.006	0.005	0.001	0.001
Lead	3.4	10	—	nd	nd	nd	nd	nd	nd	nd	7	nd	nd	nd	nd	0.002	nd	nd
Mercury (inorganic)	0.06	1		nd	nd	nd	nd	0.0003	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Nickel	11	20	—	0.015	0.016	0.007	19	0.003	14	0.001	19	0.013	0.01	0.015	0.019	0.019	nd	0.001
Zinc	8	—	3000	0.017	1.39	0.076	49	0.022	62	0.015	88	0.066	0.054	0.073	0.115	0.187	0.022	0.047
Cyanide	7	80		nd	nd	nd	~	14.9	~	0.04		nd	nd	0.017	nd	nd	0.008	0.014
Iron (II)			300				36500		12800		6800							
BTEX																		
Benzene	950	1	—	nd	nd	nd	74	14000	16	1050	140	14	nd	1230	911	nd	nd	150
Toluene	180	800	25	nd	nd	nd	nd	792	nd	nd	17	nd	nd	13	nd	nd	nd	nd
Ethylbenzene	50	300	3	nd	nd	nd	25	nd	nd	nd	11	nd	nd	nd	nd	nd	nd	nd
o-Xylene	350	600	20	nd	nd	nd	~	1480	~	46	~	nd	nd	3	3	nd	nd	5
p-Xylene	200	—	—	nd	nd	nd	~	3530	~	38	~	0	nd	29	2	nd	nd	3
Total Xylene	70 [4]	600	20				15		nd		39							
Total Petroleum Hydrocarbons																		
C6-C9 Fraction	150	—	—	nd	nd	nd	140	28800	20	1040	200	nd	nd	1280	960	nd	nd	210
Total TPH C10-C36	600 [4]	—	—	nd	nd	nd	1393	13244	220	5062	480	nd	nd	204	241	nd	59	1164
Monocyclic Aromatic Hydrocarbons																		
Benzene	30 [4]	1		nd	nd	nd	~	12700	~	953	~	13	nd	1110	828	nd	nd	136
Toluene	1000 [4]	600	25	nd	nd	nd	~	710	~	nd	~	nd	nd	12	nd	nd	nd	nd
Ethylbenzene				nd	nd	nd	~	1290	~	41	~	nd	nd	nd	nd	nd	nd	nd
meta- & para-Xylene*				nd	nd	nd	~	1900	~	31	~	nd	nd	14	nd	nd	nd	nd
Styrene	300 [4]			nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
ortho-Xylene				nd	nd	nd	~	1210	~	nd	~	nd	nd	12	nd	nd	nd	nd
Isopropylbenzene				nd	nd	nd	~	5	~	30	~	nd	nd	nd	nd	nd	nd	nd
n-Propylbenzene				nd	nd	nd	~	8	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.3.5-Trimethylbenzene				nd	nd	nd	~	26	~	19	~	nd	nd	nd	nd	nd	nd	nd
sec-Butylbenzene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.2.4-Trimethylbenzene				nd	nd	nd	~	448	~	19	~	nd	nd	8	nd	nd	nd	nd
tert-Butylbenzene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
p-Isopropyltoluene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
n-Butylbenzene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Oxygenated Compounds																		
Vinyl Acetate				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
2-Butanone (MEK)				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
4-Methyl-2-pentanone (MIBK)				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
2-Hexanone (MBK)				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Fumigants																		
2.2-Dichloropropane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.2-Dichloropropane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
cis-1.3-Dichloropropylene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
trans-1.3-Dichloropropylene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.2-Dibromoethane (EDB)				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Halogenated Aliphatic Compounds																		
Dichlorodifluoromethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Chloromethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Vinyl chloride		0.3		nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Bromomethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Chloroethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.1-Dichloroethene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Iodomethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
trans-1.2-Dichloroethene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.1-Dichloroethane		30		nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
cis-1.2-Dichloroethene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.1.1-Trichloroethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.1-Dichloropropylene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.2-Dichloroethane		60		nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Trichloroethene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Dibromomethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.1.2-Trichloroethane	6500 [1]			nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.3-Dichloropropane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.1.1.2-Tetrachloroethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
trans-1.4-Dichloro-2-butene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
cis-1.4-Dichloro-2-butene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.1.2.2-Tetrachloroethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.2.3-Trichloropropane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Pentachloroethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.2-Dibromo-3-chloropropane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Hexachlorobutadiene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Halogenated Aromatics																		
Chlorobenzene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Bromobenzene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
2-Chlorotoluene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
4-Chlorotoluene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.3-Dichlorobenzene			20	nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.4-Dichlorobenzene		40	3	nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.2-Dichlorobenzene		1500	1	nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.2.4-Trichlorobenzene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
1.2.3-Trichlorobenzene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Trihalomethanes																		
Chloroform				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Bromoform				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Other																		
Carbon disulfide				nd	nd	nd	~	8	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Naphthalene	16 [1]			nd	nd	nd	~	3300	~	932	~	15	10	32	17	7	nd	31
Nitrate as N	700 [1]	50000		~	~	~	0.01	~	0.02	~	nd							
Sulphate				~	~	~	580	~	610	~	650							
Electrical Conductivity				~	~	~	3100	~	2300	~	2100							
pH				~	~	~	5.4	~	5	~	5							
Dissolved Methane				~	~	~	83	~	22	~	47							
Phenols																		
Phenol	320 [1]			nd	16	nd	16	34	nd	4	7	nd	nd	37	49	nd	nd	46
2-Chlorophenol	340 [1]			nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2-Methylphenol				nd	nd	nd	19	520	nd	nd	7	nd	nd	nd	nd	nd	nd	nd
3- & 4-Methylphenol				nd	nd	nd	10	304	nd	nd	nd	nd	nd	4	nd	nd	nd	nd
2-Nitrophenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2.4-Dimethylphenol				nd	nd	nd	37	1460	11	366	21	nd	nd	10	nd	nd	nd	nd
2.4-Dichlorophenol	120 [1]			nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2.6-Dichlorophenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
4-Chloro-3-Methylphenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2.4.6-Trichlorophenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2.4.5-Trichlorophenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Pentachlorophenol				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total Phenols				nd	16	nd	82	2318	11	370	35	nd	nd	51	nd	nd	nd	nd
Polynuclear Aromatics																		
Naphthalene	16 [1]	70		nd	nd	nd	210	2330	37	381	nd	nd	nd	nd	3	4	nd	10
2-Methylnaphthalene				nd	nd	nd	~	72	~	33	~	nd	nd	nd	nd	nd	nd	nd
2-Chloronaphthalene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Acenaphthylene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Acenaphthene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Fluorene				nd	nd	nd	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Phenanthrene	5 [4]			nd	nd	nd	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Anthracene	5 [4]			nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Fluoranthene	1 [4]			nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Pyrene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
N-2-Fluorenylacetamide				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Benzo(a)anthracene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chrysene	0.5 [4]			nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Benzo[b,k]fluoranthene	0.05 [4]			nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
7.12-Dimethylbenz(a)anthracene				nd	nd	nd	~	nd	~	nd	~	nd	nd	nd	nd	nd	nd	nd
Benzo(a)pyrene	0.05 [4]	0.01		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Indeno(123-cd)pyrene	0.05 [4]			nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Dibenz(ah)anthracene				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Benzo(ghi)perylene	0.05 [4]			nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total PAHs				nd	nd	nd	210	2402	37	414	1	nd	nd	nd	3	4	nd	10

NOTES:
Concentration exceeds the ANZECC Freshwater 95% Protection Level Criteria (2000)
Concentration exceeds the Health Based Preliminary US EPA Drinking Water Theshold Concentrations
Concentration exceeds the Aesthetic Based Drinking Water Theshold Concentrations
[1] ANZECC (2000) freshwater criteria
[2] NEPC (1999a) freshwater criteria
[3] USEPA Preliminary Remedial Goal for tap water
[4] Dutch 2000 Groundwater Intervention Value
[5] ANZECC (2000) Arsenic (III) criteria adopted for freshwater ecosystems
[6] A cyanide (total) criteria of 7 should only be used of no free cyanide results are available
nd Not Detected
~ Not Analysed
Reference State Rail Authority (2001) Macdonaldtown Triangle Erskinsville - Soil and Groundwater Investigations of the Former Gasworks Area and Offsite
Reference State Rail Authority (2000) Macdonaldtown Triangle Phase I and Phase II Environmental Site Assessment.

Table G

Analysis of Water Samples - Nutrients, Cations and Physical Parameters (ug/L)

Threshold Concentration		Total Hardness	Calcium	Magnesium	Sodium	Potassium	NOX as N	TKN	Total Nitrogen	TOC	COD	BOD	Ammonia
Health		-	-	-	-		-	-	-	-	-		-
Aesthetic		200,000	-	-	180,000	-	-	-	-	-	-	-	500
Freshwater		-	-	-	-	-	-	-	-	-	-	-	900
Sample ID: March 2005													
MW36S													
MW35S							361	100	500	10000	121000		283
MW41D		28000	2000	6000	146000	2000	<10	100	100	2000	14000	<2000	46
MW39S		202000	62000	12000	na	na	2570	1200	3800	3000	9000	<2000	1110
MW39D		53000	4000	11000	na	na	194	4000	4200	2000	24000	<2000	257
DUP 3		59000	na	na	na	na	110	5600	58000	2000	100000	<2000	90
MW40S		237000	81000	9000	na	na	3250	700	3900	3000	33000	<2000	58
MW40D		80000	16000	9000	na	na	74	700	700	3000	19000	<2000	52
MW42D		20000	2000	4000	na	na	18	1800	1800	9000	96000	2000	114
DUP 4		19000	2000	4000	na	na	20	1700	1800	11000	107000	<2000	101
MW42S		133000	40000	8000	na	na	237	8900	9200	16000	125000	<2000	1080
MW37D		116000	6000	24000	na	na	61	8700	8700	12000	115000	<2000	108
MW37S		196000	46000	19000	na	na	11	15300	15300	18000	173000	<2000	9680
MW03D		142000	12000	27000	na	na	62	8600	8700	16000	69000	17000	208
MW36D		67000	5000	14000	na	na	70	8000	8000	10000	461000	<2000	130
MW38D		114000	7000	23000	na	na	81	1000	1000	10000	173000	<2000	74
MW14 S		96000	na	na	na	na	781	<100	800	7000	22000	2000	13
MW14 D		139000	na	na	na	na	15	300	300	13000	45000	<2000	82
MW16 S		126000	na	na	na	na	54	600	700	10000	38000	<2000	135
MW17 S		111000	na	na	na	na	160	1100	1200	7000	122000	2000	15
MW04 S		130000	na	na	na	na	95	1700	1800	12000	26000	14000	1340
MW04 D		126000	na	na	na	na	45	1700	1800	18000	48000	<2000	188
DUP 1		120000	na	na	na	na	40	1600	1800	9000	40000	<2000	150
DUP 2		128000	14000	22000	na	na	65	1600	1600	19000	60000	<2000	147
MW12 S		176000	na	na	na	na	38	7300	7300	11000	36000	<2000	3190
MW13 S		430000	na	na	na	na	43	5100	5100	11000	76000	<2000	2780
MW06S		142000	43000	8000	na	na	382	5500	5900	28000	126000	2000	2550
MW06D		100000	7000	20000	na	na	59	100	200	16000	26000	<2000	67
MW20S		306000	109000	8000	na	na	<10	6500	6500	66000	260000	<2000	219
MW07D		68000	2000	15000	na	na	32	1200	1300	20000	68000	3000	181
MW18D		191000	8000	41000	na	na	21	2500	2600	14000	19000	<2000	549
MW13D		308000	14000	66000	na	na	39	200	200	13000	190000	<2000	107
MW17D		145000	11000	28000	na	na	25	2200	2200	14000	309000	<2000	55
MW35D		238000	14000	50000	na	na	36	37400	37400	36000	1270000	2000	1160

Note

^ Cyanide as un-ionised HCN

na not analysed

Concentration exceeds the ANZECC Freshwater 95% Protection Level Criteria (2000)

Concentration exceeds the Health Based Australian Drinking Water Guideline (2004)

Concentration exceeds the Aesthetic Based Drinking Water Theshold Concentrations

Table H
Analysis of Soil Samples - BTEX and TPH (mg/kg)

	Date	Depth (m)	>nC9-C12 aliphatic*	>nC12-C16 aliphatic*	>nC16-C28 aliphatic*	>nC28-C35 aliphatic*	>nC9-C12 aromatic*	>nC12-C16 aromatic*	>nC16-C28 aromatic*	>nC28-C35 aromatic*		C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction		Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene
Criteria																					
HIL's[(1)]			-	-	-	-	-	-	-	-		65		1000			1	130	50	25	
MW30	*7/12/2004*	0-0.45	nd	nd	75	79	nd	nd	113	131		na	na	na	na		nd	nd	nd	nd	nd
MW31	*7/12/2004*	0.5-0.95	nd	nd	65	nd	nd	nd	nd	50		na	na	na	na		nd	nd	nd	nd	nd
MW31	*7/12/2004*	1.4	na	na	na	na	na	na	na	na		na	na	na	na		nd	nd	nd	nd	nd
MW32	*7/12/2004*	1.2	nd	nd	nd	nd	nd	nd	nd	nd		na	na	na	na		nd	nd	nd	nd	nd
MW33	*7/12/2004*	0.5-0.95	13	218	217	nd	24	151	2124	nd		na	na	na	na		nd	nd	nd	nd	nd
MW34	*7/12/2004*	0.5-0.95	na	na	na	na	na	na	na	na		na	na	na	na		nd	nd	nd	nd	nd
MW34	*7/12/2004*	1.4	55	30	nd	nd	30	29	92	nd		na	na	na	na		nd	nd	nd	nd	nd
EN01669 DUP - MW31	*7/12/2004*	0.5-0.95	nd	nd	220	nd	nd	nd	nd	nd		na	na	na	na		na	na	na	na	na
MW39D	*17/02/2005*	10.5	nd	nd	nd	nd	nd	45	116	nd		nd	40	80	nd		nd	nd	nd	nd	nd
MW41D	*18/02/2005*	7	na	na	na	na	na	na	na	na		nd	nd	nd	nd		nd	nd	nd	nd	nd
MW38D	*16/02/2005*	2-2.45	na	na	na	na	na	na	na	na		nd	nd	nd	nd		nd	nd	nd	nd	nd

Table I

Total Concentration of Metals in soil (mg/kg)

	Date	Depth	Arsenic	Cadmium	Chromium (Total) (2)	Copper	Molybdenum	Nickel	Lead	Zinc	Mercury	Free Cyanide	Cyanide (Total)
Criteria (1)													
		HIL's	500	100	60%	5000	-	3000	1500	35000	75	-	-
		EIL's	20	3	400	100	1050	60	600	200	1	-	-
MW39D	*17/02/2005*	10.5	nd	nd	6	24	na	3	6	10	0.08	na	na
MW41D	*18/02/2005*	7	nd	nd	12	17	na	nd	7	6	0.05	na	na
MW38D	*16/02/2005*	2-2.45	nd	nd	9	nd	na	3	9	nd	0.05	na	na

Notes

Note: "nd" denotes below the detection limit of the method specified

"na" not analysed

Table J
Volatile and Semi-Volatile Organic Compounds in Soil (mg/kg)

		PQL (mg/kg)	MW38D	MW41D	MW39D
			16/02/2005	18/02/2005	17/02/2005
	Depth		2-2.45	7	10.5
Benzene		0.5	nd	nd	nd
Toluene		1	nd	nd	nd
Ethylbenzene		1	nd	nd	nd
meta- & para-Xylene*		2	nd	nd	nd
Styrene		1	nd	nd	nd
ortho-Xylene		1	nd	nd	nd
Isopropylbenzene		1	nd	nd	nd
n-Propylbenzene		1	nd	nd	nd
1.3.5-Trimethylbenzene		1	nd	nd	nd
sec-Butylbenzene		1	nd	nd	nd
1.2.4-Trimethylbenzene		1	nd	nd	nd
tert-Butylbenzene		1	nd	nd	nd
p-Isopropyltoluene		1	nd	nd	nd
n-Butylbenzene		1	nd	nd	nd
Vinyl Acetate		1	nd	nd	nd
2-Butanone (MEK)		1	nd	nd	nd
4-Methyl-2-pentanone (MIBK)		1	nd	nd	nd
2-Hexanone (MBK)		1	nd	nd	nd
trans-1.3-Dichloropropylene		1	nd	nd	nd
1.2-Dibromoethane (EDB)		1	nd	nd	nd
Dichlorodifluoromethane		1	nd	nd	nd
Chloromethane		1	nd	nd	nd
Vinyl chloride		1	nd	nd	nd
Bromomethane		1	nd	nd	nd
Chloroethane		1	nd	nd	nd
Trichlorofluoromethane		1	nd	nd	nd
1.1-Dichloroethene		1	nd	nd	nd
Iodomethane		1	nd	nd	nd
trans-1.2-Dichloroethene		1	nd	nd	nd
1.1-Dichloroethane		1	nd	nd	nd
cis-1.2-Dichloroethene		1	nd	nd	nd
1.1.1-Trichloroethane		1	nd	nd	nd
1.1-Dichloropropylene		1	nd	nd	nd
Carbon Tetrachloride		1	nd	nd	nd
1.2-Dichloroethane		1	nd	nd	nd
Trichloroethene		1	nd	nd	nd
Dibromomethane		1	nd	nd	nd
1.1.2-Trichloroethane		1	nd	nd	nd
1.3-Dichloropropane		1	nd	nd	nd
Tetrachloroethene		1	nd	nd	nd
1.1.1.2-Tetrachloroethane		1	nd	nd	nd
trans-1.4-Dichloro-2-butene		1	nd	nd	nd
cis-1.4-Dichloro-2-butene		1	nd	nd	nd
1.1.2.2-Tetrachloroethane		1	nd	nd	nd
1.2.3-Trichloropropane		1	nd	nd	nd
Pentachloroethane		1	nd	nd	nd
1.2-Dibromo-3-chloropropane		1	nd	nd	nd
Hexachlorobutadiene		1	nd	nd	nd
Chlorobenzene		1	nd	nd	nd
Bromobenzene		1	nd	nd	nd
2-Chlorotoluene		1	nd	nd	nd
4-Chlorotoluene		1	nd	nd	nd
1.3-Dichlorobenzene		1	nd	nd	nd
1.4-Dichlorobenzene		1	nd	nd	nd
1.2-Dichlorobenzene		1	nd	nd	nd
1.2.4-Trichlorobenzene		1	nd	nd	nd
1.2.3-Trichlorobenzene		1	nd	nd	nd
Chloroform		1	nd	nd	nd
Bromodichloromethane		1	nd	nd	nd
Dibromochloromethane		1	nd	nd	nd
Bromoform		1	nd	nd	nd
Carbon disulfide		1	nd	nd	nd
Naphthalene		1	nd	nd	8
beta-Endosulfan		1	nd	nd	nd
Heptachlor epoxide		1	nd	nd	nd
1.3.5-Trichlorobenzene		1	nd	nd	nd
1.2.4.5-Tetrachlorobenzene		1	nd	nd	nd
Methanesulfonate methyl		1	nd	nd	nd
Methanesulfonate ethyl		1	nd	nd	nd
cis-Isosafrole		1	nd	nd	nd
trans-Isosafrole		1	nd	nd	nd
Safrole		1	nd	nd	nd
Diallate		1	nd	nd	nd
2.3.4.6-Tetrachlorophenol		1	nd	nd	nd
Prothiofos		1	nd	nd	nd
Ethion		1	nd	nd	nd
Dimethyl phthalate		1	nd	nd	nd
Diethyl phthalate		1	nd	nd	nd
Di-n-butyl phthalate		1	nd	nd	nd
Butyl benzyl phthalate		1	nd	nd	nd
bis(2-ethylhexyl) phthalate		1	nd	nd	nd
Di-n-octylphthalate		1	nd	nd	nd
N-Nitrosomethylethylamine		1	nd	nd	nd
N-Nitrosodiethylamine		1	nd	nd	nd
N-Nitrosopyrrolidine		1	nd	nd	nd
N-Nitrosomorpholine		1	nd	nd	nd
N-Nitrosodi-n-propylamine		1	nd	nd	nd
N-Nitrosopiperidine		1	nd	nd	nd
N-Nitrosodibutylamine		1	nd	nd	nd
N-Nitrosodiphenyl & Diphenylamine		10	nd	nd	nd
Methapyrilene		1	nd	nd	nd
2-Picoline		1	nd	nd	nd
Acetophenone		1	nd	nd	nd
Nitrobenzene		1	nd	nd	nd
Isophorone		1	nd	nd	nd
2.6-Dinitrotoluene		1	nd	nd	nd
2.4-Dinitrotoluene		1	nd	nd	nd
1-Naphthylamine		1	nd	nd	nd
4-Nitroquinoline-N-oxide		1	nd	nd	nd
5-Nitro-o-toluidine		1	nd	nd	nd
Azobenzene		10	nd	nd	nd
1.3.5-Trinitrobenzene		1	nd	nd	nd
Phenacetin		1	nd	nd	nd
4-Aminobiphenyl		1	nd	nd	nd
Pentachloronitrobenzene		1	nd	nd	nd
Pronamide		1	nd	nd	nd
Dimethylaminoazobenzene		1	nd	nd	nd
Chlorobenzilate		1	nd	nd	nd
Bis(2-chloroethyl) ether		1	nd	nd	nd
Bis(2-chloroethoxy) methane		1	nd	nd	nd
4-Chlorophenyl phenyl ether		1	nd	nd	nd
4-Bromophenyl phenyl ether		1	nd	nd	nd
1.4-Dichlorobenzene		1	nd	nd	nd
1.3-Dichlorobenzene		1	nd	nd	nd
1.2-Dichlorobenzene		1	nd	nd	nd
Hexachloroethane		1	nd	nd	nd
1.2.4-Trichlorobenzene		1	nd	nd	nd
Hexachloropropylene		1	nd	nd	nd
Hexachlorobutadiene		1	nd	nd	nd
Hexachlorocyclopentadiene		1	nd	nd	nd
Pentachlorobenzene		1	nd	nd	nd
Hexachlorobenzene (HCB)		1	nd	nd	nd
Aniline		1	nd	nd	nd
4-Chloroaniline		1	nd	nd	nd
2-Nitroaniline		1	nd	nd	nd
3-Nitroaniline		1	nd	nd	nd
Dibenzofuran		1	nd	nd	nd
4-Nitroaniline		1	nd	nd	nd
Carbazole		1	nd	nd	nd
3.3'-Dichlorobenzidine		10	nd	nd	nd
alpha-BHC		1	nd	nd	nd
beta-BHC		1	nd	nd	nd
gamma-BHC		1	nd	nd	nd
delta-BHC		1	nd	nd	nd
Heptachlor		1	nd	nd	nd
Aldrin		1	nd	nd	nd
alpha-Endosulfan		1	nd	nd	nd
4.4'-DDE		1	nd	nd	nd
Dieldrin		1	nd	nd	nd
Endrin		1	nd	nd	nd
4.4'-DDD		1	nd	nd	nd
Endosulfan sulfate		1	nd	nd	nd
4.4'-DDT		1	nd	nd	nd
Dichlorvos		1	nd	nd	nd
Dimethoate		1	nd	nd	nd
Diazinon		1	nd	nd	nd
Chlorpyrifos-methyl		1	nd	nd	nd
Malathion		1	nd	nd	nd
Fenthion		1	nd	nd	nd
Chlorpyrifos		1	nd	nd	nd
Pirimphos-ethyl		1	nd	nd	nd
Chlorfenvinphos		1	nd	nd	nd

Table J-2

QA Soil Analysis - BTEX and TPH (mg/kg)

	>nC9-C12 aliphatic*	>nC12-C16 aliphatic*	>nC16-C28 aliphatic*	>nC28-C35 aliphatic*	>nC9-C12 aromatic*	>nC12-C16 aromatic*	>nC16-C28 aromatic*	>nC28-C35 aromatic*	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene
QA/QC Criteria	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%
MW31	nd	nd	65	nd	nd	nd	nd	50	nd	nd	nd	nd	nd
EN01669 DUP	nd	nd	220	nd	nd	nd	nd	nd	na	na	na	na	na
RPD	N/A	N/A	367	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes

Note: "nd" denotes below the detection limit of the method specified

Table K
Field Duplicate Water Results - BTEX and TPH (µg/L)

	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36
QA/QC Criteria	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%
Samples									
MW 04D	14	<5	<5	<5	<5	30	80	100	<50
Dup1 (Amdel)	20	ND	1	<2	<1	20	90	<100	<100
Dup2 (ALS)	2	<2	<2	<2	<2	30	70	<100	<50
RPD (Dup 1)	35.3	N/A	N/A	N/A	N/A	40.0	11.8	N/A	N/A
RPD (Dup 2)	109.1	N/A	N/A	N/A	N/A	0.0	12.5	N/A	N/A
MW 39D	22	<5	9	13	8	60	150	500	<50
Dup3	29	3	12	18	11	70	120	<100	<100
RPD	27.5	N/A	28.6	32.3	31.6	15.4	22.2	N/A	N/A
MW 42D	<5	<5	<5	<5	<5	<20	60	200	<50
Dup4	<1	<2	<2	<2	<2	<20	170	600	<50
RPD	N/A	N/A	N/A	N/A	N/A	N/A	95.7	100.0	N/A

Table L
Field Duplicate Water Results - Polycyclic Aromatic Hydrocarbons (PAHs) (ug/L)

	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b)&(k)fluorant	Benzo(a)pyrene	Indeno(1.2.3.cd)pyrene	Dibenzo(a.h)anthracene	Benzo(g.h.i)perylene
QA/QC Criteria	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%	<50%
Samples															
MW 04D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2
Dup1 (Amdel)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dup2 (ALS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD (Dup 1)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RPD (Dup 2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW 39D	<2	<2	2	8	15	3	2	4	<2	<2	<4	<2	<2	<2	<2
Dup3	<1	<1	2	7	9	2	<1	1	<1	<1	<1	<1	<1	<1	<1
RPD	N/A	N/A	0.0	13.3	50.0	40.0	N/A	120.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW 42D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2
Dup4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0
RPD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table M
Field Duplicate Water Results - Metals (mg/L)

	Arsenic	Cadmium	Chromium	Copper	Nickel	Lead	Zinc	Mercury
QA/QC Criteria	<30%	<30%	<30%	<30%	<30%	<30%	<30%	<30%
Samples								
MW 04D	0.005	<0.0001	<1.00	0.001	0.011	0.009	0.056	<0.0001
Dup1 (Amdel)	0.004	<0.0001	<0.05	<0.001	0.009	0.013	0.039	<0.001
Dup2 (ALS)	0.005	<0.0001	<1.00	0.001	0.011	0.009	0.056	<0.0001
RPD (Dup1)	0.0	N/A	N/A	N/A	20.0	36.4	35.8	N/A
RPD (Dup 2)	0.0	N/A	N/A	0.0	0.0	0.0	0.0	N/A
MW 39D	0.001	<0.0001	<0.010	<0.001	0.002	0.002	0.111	<0.0001
Dup3	<0.001	<0.0001	<0.05	<0.001	0.003	<0.001	0.021	<0.001
RPD	N/A	N/A	N/A	N/A	40.0	N/A	136.4	N/A
MW 42D	0.02	0.0003	<0.100	0.208	0.119	0.069	0.325	<0.0001
Dup4	0.019	0.0004	<0.100	0.21	0.122	0.072	0.289	<0.0001
RPD	5.1	28.6	N/A	1.0	2.5	4.3	11.7	N/A

TABLE O

SUMMARY OF BACKGROUND WATER LABORATORY RESULTS AT NORTH EVERLEIGH WORKSHOPS

All results in ug/L

Reference	Threshold Concentration									
SAMPLE ID				E1GW	E2GW	E3GW	E4GW	E5GW	E6GW	E7GW	E8GW
Date of Sampling	Freshwater	Health	Aesethic								
HEAVY METALS											
Arsenic (total)	24 [5]	7	---	<5	<5	<5	<5	<5	<5	<5	<5
Cadmium	0.2	2	---	0.1	0.1	0.3	0.2	0.1	nd	0.2	0.1
Chromium	3.3	55000 [3]	---	2	1	nd	2	nd	nd	nd	nd
Copper	1.4	2000	1000	13	19	8	22	2	6	3	5
Manganese				154	804	914	1100	824	1133	287	54
Nickel	11	20	---	4	33	8	24	28	18	3	4
Lead	3.4	10	---	3	nd	nd	10	nd	nd	nd	2
Zinc	8	---	3000	61	86	43	616	40	69	55	50
Iron				600	950	9110	1330	370	280	1920	3250
Mercury	0.05	1		nd	nd	nd	nd	nd	nd	nd	nd
Ammonia				50	40	110	140	40	10	50	70
Cyanide	7	80		nd	nd	nd	~	~	nd	~	~
BTEX											
Benzene	950	1	---	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	180	800	25	nd	nd	nd	2	nd	nd	nd	nd
Ethylbenzene	50	300	3	nd	nd	nd	nd	nd	nd	nd	nd
Total Xylene	70 [4]	600	20	nd	nd	nd	nd	nd	nd	nd	nd
Total Petroleum Hydrocarbons											
C6-C9 Fraction	150	---	---	nd	nd	nd	nd	nd	nd	nd	nd
Total TPH C10-C36	600 [4]	---	---	nd	nd	nd	nd	nd	nd	247	nd
PCBs				nd	~	~	~	~	nd	nd	nd
PAHs											
Naphthalene	16 [1]	70		nd	nd	nd	nd	nd	nd	208	5
Acenaphthylene				nd	nd	nd	nd	nd	nd	1	nd
Acenaphthene				nd	nd	nd	nd	nd	nd	7	1
Fluorene				nd	nd	nd	nd	nd	nd	5	1
Phenanthrene	5 [4]			nd	nd	nd	nd	nd	nd	2	1
Anthracene	5 [4]			nd	nd	nd	nd	nd	nd	nd	nd
Fluoranthene	1 [4]			nd	nd	nd	nd	nd	nd	nd	nd
Pyrene				nd	nd	nd	nd	nd	nd	nd	nd
Benzo(a)anthracene				nd	nd	nd	nd	nd	nd	nd	nd
Chrysene	0.5 [4]			nd	nd	nd	nd	nd	nd	nd	nd
Benzo[b,k]fluoranthene	0.05 [4]			nd	nd	nd	nd	nd	nd	nd	nd
Benzo(a)pyrene	0.05 [4]	0.01		nd	nd	nd	nd	nd	nd	nd	nd
Indeno(123-cd)pyrene	0.05 [4]			nd	nd	nd	nd	nd	nd	nd	nd
Dibenz(ah)anthracene				nd	nd	nd	nd	nd	nd	nd	nd
Benzo(ghi)perylene	0.05 [4]			nd	nd	nd	nd	nd	nd	nd	nd
Total PAHs				nd	nd	nd	nd	nd	nd	223	8
VHCs				nd	nd	nd	nd	nd	nd	nd	nd

NOTES:

Concentration exceeds the ANZECC Freshwater 95% Protection Level Criteria (1992)

Concentration exceeds the Health Based Preliminary US EPA Drinking Water Theshold Concentrations

Concentration exceeds the Aesthetic Based Drinking Water Theshold Concentrations

[1] ANZECC (1992) freshwater criteria

[2] NEPC (1999a) freshwater criteria

[3] USEPA Preliminary Remedial Goal for tap water

[4] Dutch 2000 Groundwater Intervention Value

[5] ANZECC (2000) Arsenic (III) criteria adopted for freshwater ecosystems

[6] A cyanide (total) criteria of 7 should only be used of no free cyanide results are available

nd Not Detected

~ Not Analysed

Reference *State Rail Authority* (2000) North Eveleigh Workshops - Baseline Groundwater Investigation

Intrinsic Water Quality Parameters for Groundwater Wells at Macdonaldtown						
Location	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (C)	Salinity (%)
MW36S	5.12	0.692	942	8.88	21.8	0.02
MW36S	5.22	0.707	> 999*	9.08	21.4	0.02
MW36S	5.31	0.735	-10	8.87	21.3	0.03
MW35S	5.51	1.7	-10	8.98	23.6	0.08
MW35S	5.04	2.04	> 999*	10.03	22.2	0.09
MW35S	5.03	2.01	-10	8.94	22.3	0.09
MW41D	5.97	0.868	-10	9.12	23.1	0.03
MW41D	6.02	0.908	> 999*	8.92	21.9	0.04
MW41D	6.03	1.01	-10	9.14	21.5	0.04
MW39S	6.06	1.07	42	5.81	24	0.04
MW39S	6.04	0.897	> 999*	7.11	24	0.03
MW39S	6	0.835	> 999*	6.49	23.9	0.03
MW39D	5.17	2.92	> 999*	8.45	21.2	0.14
MW39D	5.2	2.92	> 999*	5.34	20.8	0.16
MW39D	5.22	3.63	> 999*	8.51	20.9	0.18
MW40S	6	0.767	-10	9.85	20.6	0.03
MW40S	5.97	0.737	396	9.91	23.8	0.03
MW40S	5.97	0.728	> 999*	9.1	23.7	0.03
MW40D	5.38	1.08	-10	8.96	21.8	0.04
MW40D	5.06	0.78	-10	9.06	21.4	0.03
MW40D	5.16	1.26	148	8.49	21.6	0.05
MW42D	5.57	0.97	-10	9.34	20.1	0.04
MW42D	5.39	1.13	> 999*	9.27	20.1	0.04
MW42D	5.36	1.14	-10	9.3	20.1	0.05
MW42S	6.09	0.782	364	8.46	21.8	0.03
MW42S	6.16	0.779	> 999*	10.6	22.2	0.03
MW42S	6.19	0.762	> 999*	10.3	22.3	0.03
MW37D	5.29	3.26	> 999*	10.31	20.9	0.16
MW37D	5.25	3.27	> 999*	10	20.5	0.16
MW37D	5.25	3.32	> 999*	9.26	20.3	0.16
MW37S	6.05	1.12	945	9.01	23.2	0.05
MW37S	6.27	1.25	> 999*	8.9	22.9	0.05
MW37S	6.3	1.22	> 999*	7.1	22.7	0.05
MW03D	5.35	1.13	65	8.92	21.5	0.04
MW03D	5.55	3.96	-10	9.27	22.1	0.2
MW03D	5.56	3.82	-10	9.13	21.8	0.19
MW36D	5.09	2.5	> 999*	9.17	20.4	0.12
MW36D	5.06	2.39	-10	7.6	19.8	0.11
MW36D	4.98	2.42	-10	8.48	19.8	0.11
MW38D	5.03	3.25	-10	9.29	22.4	0.16
MW38D	4.88	3.17	-10	8.88	21.9	0.15
MW38D	4.85	3.14	> 999*	8.97	21.1	0.15
MW14 S	4.35	0.722	-10	5.89	23.2	0.03
MW14 S	4.23	1.46	> 999*	9.3	22.1	0.06
MW14 S	4.31	0.98	> 999*	7.3	22.9	0.04
MW14 D	5.07	2.26	> 999*	5.02	21.3	0.1
MW14 D	5.07	2.26	> 999*	4.94	20.8	0.1
MW14 D	5.07	2.26	> 999*	4.96	20.8	0.1
MW16 S	4.59	1.88	> 999*	8.49	22.3	0.09
MW16 S	5.04	1.94	-10	9.49	22.5	0.09
MW16 S	4.59	1.96	> 999*	8.21	21.3	0.09
MW17 S	6.03	0.575	-10	6.06	22.5	0.02
MW17 S	5.84	0.418	> 999*	8.52	21.9	0.01
MW17 S	5.84	0.419	-10	9.6	21.6	0.01
MW04 S	5.83	0.45	-10	9.14	23.1	0.01
MW04 S	5.47	0.405	300	8.96	23.5	0.01
MW04 S	5.48	0.442	143	9.06	22.9	0.01
MW04 D	5.85	0.419	-10	10.95	22.4	0.01
MW04 D	4.77	1.95	-10	6.355	20.7	0.09
MW04 D	4.7	2.01	-10	7.31	20.5	0.09
MW12 S	4.23	0.738	-10	ER	24.8	0.03
MW12 S	4.26	0.697	> 999*	7.34	22.2	0.02
MW12 S	5.84	0.572	624	8.94	27.2	0.02
MW13 S	4.15	1.75	-10	7.24	22.3	0.08
MW13 S	4.27	0.852	> 999*	5.45	22.1	0.03
MW06S	5.87	0.73	113	10.49	25.2	0.03
MW06S	5.72	0.569	> 999*	8.51	23.2	0.02
MW06S	6.05	0.578	410	6.34	23.6	0.02
MW06D	5.52	1.92	-10	8.1	25.4	0.09
MW06D	5.08	2.39	-10	8.2	21.5	0.11
MW06D	4.94	2.41	-10	4.47	20.3	0.11
MW20S	6.29	1.12	-10	3.89	22.8	0.05
MW20S	6.02	0.93	> 999*	5.81	21.9	0.04
MW20S	6.26	0.91	> 999*	7.52	22.8	0.04
MW07D	5.59	1.1	70	7.89	19.7	0.04
MW07D	5.52	1.06	10	7.38	20.1	0.04
MW07D	5.66	1.02	-10	5.04	20.5	0.04
MW18D	5.32	0.717	-10	8.65	20.4	0.03
MW18D	4.93	3.16	-10	10.97	21.1	0.15
MW18D	4.95	3.05	-10	9.53	22.1	0.15
MW13D	3.78	1.76	-10	ER	22.3	0.08
MW13D	4.14	4.56	-10	5.85	20.9	0.23
MW13D	4.2	4.6	-10	5.95	21	0.19
MW17D	5.69	1.4	-10	10.87	22.9	0.06
MW17D	5.75	2.19	> 999*	9.05	21.6	0.1
MW17D	5.64	2.21	-10	8.27	20.4	0.1
MW35D	5.21	3.43	> 999*	ER	19.8	0.17
MW35D	5.67	3.4	> 999*	ER	19.2	0.17
MW35D	5.81	3.42	> 999*	ER	18.8	0.17

ER - instrument error; reading not obtained
> 999* - turbidity greater than instrument range

Analysis of Water Samples - Metals in Water (ug/L)									
	Arsenic (total)	Cadmium	Chromium (*)	Chromium (VI)	Copper	Nickel	Lead	Zinc	Mercury
Australian Drinking Water 1996 - Health	7	2	55000[2]	50	2,000	20	10	-	0.001
Australian Drinking Water 1996 - Aesthetic	-	-	-	-	1,000	-	-	3,000	-
Trigger Values for 95% Protection of Species - Freshwater	24[1]	0.2	3.3	1.0	1.4	11.0	3.4	8.0	0.06
PQL	1.0	0.1	1.0	10.0	1.0	1.0	1.0	5.0	0.1
Monitoring Well Samples									
Mar-05									
MW36S	2	0.1	<1	na	<1	**12**	**9**	**270**	<0.1
MW35S	<1	0.2	<1	na	**5**	9	3	**325**	<0.1
MW41D	<1	0.1	<1	na	**2**	3	3	**265**	<0.1
MW39S	<1	1	<1	<10	**6**	2	3	**2230**	<0.1
MW39D	1	<0.1	<1	<10	<1	2	2	**111**	<0.1
DUP3	<1	<0.1	na	<50	<1	3	<1	**21**	<1
MW40S	<1	<0.1	<1	<10	<1	<1	**4**	**16**	<0.1
MW40D	<1	0.2	<1	<10	**7**	7	**4**	**54**	<0.1
MW42D	20	**0.3**	<1	<100	**208**	**69**	**119**	**325**	<0.1
DUP4	19	**0.4**	<1	<100	**210**	**72**	**122**	**289**	<0.1
MW42S	12	**0.8**	<1	<100	**220**	**30**	**174**	**869**	<0.1
MW37D	17	**0.6**	<1	<100	**191**	**89**	**109**	**422**	<0.1
MW37S	5	<0.1	<1	<100	**10**	4	**52**	**13**	<0.1
MW03D	8	**0.5**	<1	<100	**85**	**26**	**140**	**556**	<0.1
MW36D	**36**	**0.5**	<1	<100	**473**	**92**	**104**	**416**	<0.1
MW38D	17	**0.8**	<1	<100	**245**	**87**	**126**	**369**	<0.1
MW14 S	<1	0.1	na	**1680**	**2**	6	2	**54**	<0.1
MW14 D	1	<0.1	na	<1000	<1	**14**	<1	**61**	<0.1
MW16 S	<1	<0.1	na	<1000	**2**	**12**	<1	**76**	<0.1
MW17 S	<1	<0.1	na	<1000	1	<1	<1	**24**	<0.1
MW04 S	2	<0.1	na	<1000	1	4	<1	**94**	<0.1
MW04 D	4	<0.1	na	<1000	1	9	**11**	**52**	<0.1
DUP1	4	<0.1	na	<50	<1	9	**13**	**39**	<1
DUP2	5	<0.1	na	<1000	1	9	**11**	**56**	<0.1
MW12 S	<1	**0.4**	na	<1000	**2**	**12**	**4**	**362**	<0.1
MW13 S	<1	**2.6**	na	<1000	**23**	**80**	**5**	**1570**	<0.1
MW06S	<1	<0.1	<1	<10	1	1	<1	**29**	<0.1
MW06D	1	**1.5**	2	<10	**6**	**12**	**7**	**72**	<0.1
MW20S	13	<0.1	**<5**	<10	1	2	**5**	**20**	<0.1
MW07D	3	0.1	**5**	**38**	**2**	2	<1	**30**	<0.1
MW18D	4	0.2	**<5**	<10	1	**12**	<1	**100**	<0.1
MW13D	<1	**0.6**	<1	<10	**4**	**22**	1	**159**	<0.1
MW17D	1	**0.3**	<1	**20**	<1	3	<1	**43**	<0.1
MW35D	2	<0.1	<1	0	1	**14**	<1	**12**	<0.1

Note:
(*) Chromium as Cr(III)

(1) ANZECC (2000) Arsenic (III) criteria adopted for freshwater ecosystems
(2) USEPA Preliminary Remedial Goal for tap water
na - not analysed

16	Concentration exceeds ANZECC Freshwater trigger value and Aesthetic Drinking Water Guideline
16	Concentration exceeds ANZECC Freshwater trigger value
16	Concentration exceeds Aesthetic Drinking Water Guideline

Analysis of Water Samples - BTEX and TPH in water (ug/L)

Location	Benzene	Toluene (1)	Ethyl benzene (1)	m&p-Xylene (1)	o-Xylene (1)	T.P.H. C6 -C9	T.P.H. C10-C14	T.P.H. C15-C28	T.P.H. C29-C36	T.P.H. C10-C36
Australian Drinking Water 1996 - Health	1	800	300	600		-	-	-	-	-
Australian Drinking Water 1996 - Aesthetic	-	25	3	20		-	-	-	-	-
Trigger Values for 95% Protection of Species - Freshwater	950	180	50	350	200	150(1)	-	-	-	600(1)
PQL (ug/L)	5	5	5	5	5	20	50	100	50	-
Monitoring Well Samples										
Mar-05										
MW36S	<5	<5	<5	<5	<5	<20	<50	800	<100*	800
MW35S	<5	<5	<5	<5	<5	<20	<50	400	<80*	400
MW41D	<5	<5	<5	<5	<5	<20	<50	200	<50	200
MW39S	<5	<5	<5	<5	<5	<20	<50	<100	<50	<110
MW39D	22	<5	9	13	8	60	150	500	<50	710
DUP3	29	3	12	18	11	70	120	<100	<100	190
MW40S	<5	<5	<5	<5	<5	<20	<50	<100	<50	<110
MW40D	<5	<5	<5	<5	<5	<20	810	<100	<50	810
MW42D	<5	<5	<5	<5	<5	<20	60	200	<50	260
MW42S	<5	<5	<5	<5	<5	<20	<50	<100	<50	<110
MW37D	<5	<5	<5	<5	<5	<20	220	700	<50	920
MW37S	<5	<5	<5	<5	<5	<20	280	1200	<50	1480
MW03D	1380	9	317^	146	119	1680	1330	1600	160	3770
MW36D	<5	<5	<5	<5	<5	<20	<50	400	<50	400
MW38D	<5	<5	<5	<5	<5	<20	200	300	<50	500
DUP4	<1	<2	<2	<2	<2	<20	170	600	<50	770
DUP2	2	<2	<2	<2	<2	30	70	<100	<50	100
MW14 S	<5	<5	<5	<5	<5	<20	<50	<100	<50	<110
MW14 D	<5	<5	<5	<5	<5	<20	<50	<100	<50	<110
MW16 S	<5	<5	<5	<5	<5	<20	<50	<100	<50	<110
MW17 S	<5	<5	<5	<5	<5	<20	<50	<100	<50	<110
MW04 S	<5	<5	<5	<5	<5	<20	<50	400	300	700
MW04 D	14	<5	<5	<5	<5	30	80	100	<50	210
DUP 1	20	<1	1	<2	<1	20	90	<100	<100	110
MW12 S	<5	<5	<5	<5	<5	<20	160	200	<50	360
MW13 S	<5	<5	<5	<5	<5	<20	<50	100	<50	100
MW06S	<5	<5	<5	<5	<5	<20	150	200	70	420
MW06D	16	<5	<5	<5	<5	<20	60	<100	<50	60
MW20S	<5	<5	<5	<5	<5	<20	<50	<100	<50	<110
MW07D	6370	50	201^^	66	157	5220	11600	1400	<50	18220
MW18D	17	<5	<5	<5	<5	<20	110	<100	<50	110
MW13D	<5	<5	<5	<5	<5	<20	<50	<100	<50	<110
MW17D	<5	<5	<5	<5	<5	<20	60	200	<50	260
MW35D	<5	<5	<5	<5	<5	<20	<50	<100	<50	<110

Note: * denotes a raised LOR
Note: "-" no relevant critieria
(1) Dutch 2000 Groundwater Intervention Value

^ Concentration exceeds Freshwater trigger value and health and aesthetic drinking water guidelines
^^ Concentration exceeds ANZECC Freshwater trigger value and Aesthetic Drinking Water Guidelines

16	Concentration exceeds ANZECC Freshwater trigger value and Health Drinking Water Guideline
16	Concentration exceeds ANZECC Freshwater trigger value
16	Concentration exceeds Aesthetic Drinking Water Guideline
16	Concentration exceeds Health Drinking Water Guideline

Analysis of Water Samples - Volatile Organic Compounds (µg/L)

| | Monocyclic Aromatic Hydrocarbons | | | | | | | | | | | | | | | Oxygenated Compounds | | | | Fumigants | | | | | Halogenated Aliphatic Compounds | | | | | | | | | | | | | | |

Concentration of Polynuclear Aromatic Hydrocarbons (PAH) in water (ug/L)

	Naphthalene	2-Methylnaphthalene	2-Chloronaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	N-2-Fluorenyl Acetamide	Benz(a)anthracene	Chrysene	Benzo(b) & Benzo(k)fluoranthene	7.12-Dimethylbenz(a)anthracene	Benzo(a)pyrene	3-Methylcholanthrene	Indeno(1.2.3.cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	PAHs (total)
Australian Drinking Water 1996 - Health	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Australian Drinking Water 1996 - Aesthetic	6.2 (3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	-	-
Trigger Values for 95% Protection of Species - Freshwater	16(1,2)	-	-	-	-	-	0.05(4)	0.05(4)	1(4)	-	-	0.05(4)	-	0.05(4)	-	0.05(4)	-	0.05(4)	-	0.05(4)	3
PQL (ug/L)	2	2	2	2	2	2	2	2	2	2	2	2	2	4	2	2	2	2	2	2	<21
Monitoring Wells																					
Mar-05																					
MW36S	<2	<2	<2	<2	<2	<2	3	<2	<2	2	<4	<2	<2	<4	<2	<2	<2	<2	<2	<2	5
MW35S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20
MW41D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20
MW39S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW39D	<2	<2	<2	<2	2	8	15	3	2	4	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	32
DUP3	<1	<1	<1	<1	2	7	9	2	<1	1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	21
MW40S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW40D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW42D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW42S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW37D	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	5
MW37S	<2	<2	<2	<2	14	15	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	29
MW03D	4	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	6
MW36D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW38D	12	2	<2	<2	<2	<2	2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	18
DUP4	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
DUP2	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW14 S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW14 D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW16 S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW17 S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW04 S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW04 D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
DUP1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1
MW12 S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW13 S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW06S	24	<2	<2	4	<2	<2	<2	<2	<2	2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	28
MW06D	14	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	14
MW20S	9	<2	<2	<2	4	3	3	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	19
MW07D	3840	321	<2	26	9	12	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	4208
MW18D	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	60
MW13D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW17D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<21
MW35D	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<20	<10	<10	<10	<10	<10	<10	<100

Note:
(1) ANZECC (1992) freshwater criteria
(2) NEPC (1999a) freshwater criteria
(3) USEPA Preliminary Remedial Goal for tap water
(4) Dutch 2000 Groundwater Intervention Value

na - not analysed
Note: "-" no relevant critieria

16	Concentration exceeds ANZECC Freshwater trigger value and Aesthetic Drinking Water Guideline
16	Concentration exceeds ANZECC Freshwater trigger value
16	Concentration exceeds Aesthetic Drinking Water Guideline

Analysis of Water Samples - Semi Volatile Organic Compounds (µg/L)

| | Phthalate Esters | | | | | | Nitrosamines | | | | | | | | | Nitroaromatics and Ketones | | | | | | | | |

Analysis of Groundwater Samples - Phenols (µg/L)												
Location	Phenol	2-Chlorophenol	2-Methylphenol	3- & 4- Methylphenol	2-Nitrophenol	2.4-Dimethylphenol	2.4-Dichlorophenol	2.6-Dichlorophenol	4-Chloro-3-Methylphenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	Pentachlorophenol
Australian Drinking Water 1996 - Health	22,000	-	1,800	-	-	730	-	-	-	-	-	-
Australian Drinking Water 1996 - Aesthetic	-	-	-	-	-	-	-	-	-	-	-	-
Trigger Values for 95% Protection of Species - Freshwater	320	490	-	-	-	-	160	-	-	20	-	10
PQL (ug/L)	2	2	2	2	2	2	2	2	2	2	2	4
Monitoring Well Samples												
Mar-05												
MW36S	<2	<2	<2	<4*	<2	<2	<2	<2	<2	<2	<2	<4
MW35S	<2	<2	<2	<3*	<2	<2	<2	<2	<2	<2	<2	<4
MW41D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW39S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW39D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
Dup3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
MW40S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW40D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW42D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW42S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW37D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW37S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW03D	12	<2	9	6	<2	53	<2	<2	<2	<2	<2	<4
MW36D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW38D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
DUP4	na	na	na	na	na	na	na	na	na	na	na	na
DUP2	na	na	na	na	na	na	na	na	na	na	na	na
MW14 S	<2	<2	<2	<4*	<2	<2	<2	<2	<2	<2	<2	<4
MW14 D	<2	<2	<2	<4*	<2	<2	<2	<2	<2	<2	<2	<4
MW16 S	<2	<2	<2	<4*	<2	<2	<2	<2	<2	<2	<2	<4
MW17 S	<2	<2	<2	<4*	<2	<2	<2	<2	<2	<2	<2	<4
MW04 S	<2	<2	<2	<4*	<2	<2	<2	<2	<2	<2	<2	<4
MW04 D	<2	<2	<2	<4*	<2	4	<2	<2	<2	<2	<2	<4
Dup1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
MW12 S	<2	<2	<2	<4*	<2	<2	<2	<2	<2	<2	<2	<4
MW13 S	<2	<2	<2	<4*	<2	<2	<2	<2	<2	<2	<2	<4
MW06S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW06D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW20S	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW07D	8	<2	<2	<2	<2	98	<2	<2	<2	<2	<2	<4
MW18D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW13D	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4
MW17D	<2	<2	<2	<4*	<2	<2	<2	<2	<2	<2	<2	<4
MW35D	<10*	<10*	<10*	<10*	<10*	<10*	<10*	<10*	<10*	<10*	<10*	<20*

Note: "-" no relevant critieria
Note: "nd" denotes below the detection limit of the method specified
Note: * denotes a raised LOR
na - not analysed

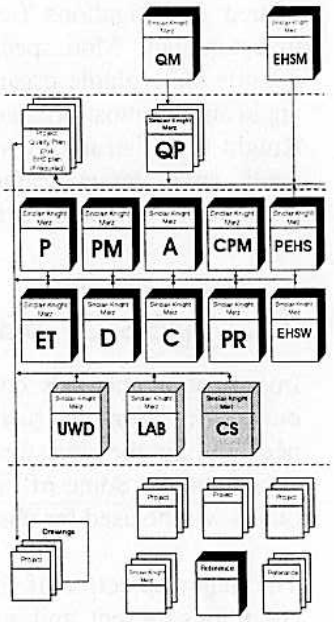
Appendix C SKM Standard Sampling Procedures

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1. Introduction

This environmental soil sampling standard operating procedure (SOP) was developed to orient and assist Sinclair Knight Merz employees in the collection and handling of soil samples for hazard waste-related investigations (referred to as environmental sampling herein) rather than geotechnical investigations. More specifically, the document outlines environmental sampling procedures for semi-volatile and volatile organic compounds in soil. In general, the practices described in this SOP are applicable to most organic and inorganic contaminants that are encountered during a typical Sinclair Knight Merz hazardous waste investigation. Although many of the geotechnical sampling principles apply, environmental sample stresses immediate containment and preservation of the soil to minimise the loss of contaminants through volatilisation as well as proper documentation and handling of the soil.

2. Types of Sampling Methods and Samples

Investigation methods commonly used during the completion of environmental investigations are outlined in Work Instruction No. 4. Once an investigation method has been selected, there will be need during the investigation to collect soil samples representative of the sub-surface conditions encountered. Some of the soil samples will be collected for subsequent laboratory analysis, while others will be used for observing and logging of the sub-surface conditions.

The major objective of soil sampling is to collect a sample that is representative of the sub-surface conditions present, and in particular, the chemical composition of the sample should be representative of the chemical composition of the sampling interval. Therefore, considerable care needs to be taken during the investigation and collection of the sample not to introduce chemical compounds to the sample. The field supervisor needs to closely monitor the investigation methods to ensure that the integrity of the samples and to ensure the potential of cross-contamination of samples is minimised.

For a detailed review of some of the sampling methods, the reader references are listed above, however, methods commonly used in environmental investigations are discussed below.

Soil sampling used routinely in environmental investigations can be broken into four main types:

1) Drive sampling methods where a sampler is hammered (drive) into the soils.
2) Push sampling methods where a sampler is pushed into the soils with the sample recovered when the sampler is recovered.
3) Continuous sampling methods where a sampler can be used to obtain a continuous core of soil.
4) Grab sampling where a sample is collected from soil brought to the surface during drilling, test pitting operations, directly from the face of a test pit or soil exposure or is collected from a soil stockpile.

From the various types of sampling methods, two main types of sample are collected.

i. *Disturbed samples* are samples where the soil has been disturbed loosing its natural soil structure, moisture and physical properties. Disturbed samples are collected from drive sampling, continuous samples can be collected by push sampling methods.
ii. *Undisturbed samples* are samples where the soil remains more-or-less in its undisturbed state, retaining its natural soil structure, moisture content and physical properties. Undisturbed samples can be collected by push sampling methods.

From a geotechnical view, where they are concerned with the physical properties (eg. strength, permeability, etc.) of soils, it is important to know whether a sample is disturbed or undisturbed as this can effect the types of physical testing that should be undertaken on soil samples.

Normally, from an environmental contamination view, whether a sample is disturbed or undisturbed is not that important, as we are normally mainly concerned about the chemical composition of the soil samples. Generally, the chemical composition of a soil sample would not be expected to change if it is undisturbed, apart from the possibility of significant disturbance may lead to loss of some volatile compounds. However, there may be situations when we are concerned with the physical properties of the soils and may wish to undertake physical testing of the soils (eg. permeability testing to assess the expected flow rates of contaminants through the soil) when it may be necessary to obtain undisturbed soils samples.

Therefore, it is necessary before commencing a field investigative program, to clearly understand the objectives of the study, and sampling and testing requirements in order to select the appropriate sampling methodologies.

Samples collected during investigations may be either *discrete samples* or *composite samples.* Discrete samples are samples collected over a discrete sampling interval that is representative of that interval, but based on observations and may also be assessed to be representative of the surrounding soils. Composite samples comprise a sample that is made up of a series of sub-samples from a range of locations, material types or depth intervals. Composite samples are representative of the composite sample, therefore, actual contaminant concentrations may be higher than laboratory results in some sub-samples and lower in other sub-samples.

Composite samples should be prepared in accordance with the details given later in this General Operating Procedure.

3. Equipment

This section lists various types of equipment that can be used to collect surface and sub-surface soil samples. In addition, several instruments used in the monitoring of contaminated soils for volatile organic compounds during soil sampling are mentioned.

3.1 Samplers

Commonly used surface and sub-surface samplers include:

Drive Samplers:
- Standard Penetration Test (SPT) sampler

Push Samplers
- Shelby tube

- U50 and U75 tubes

Continuous Samplers:
- Core barrels
- Drive and push samplers used continuously

Grab Samplers:
- Hand augers
- Shovel and towel

These various sampling methods and the associated procedures for use are discussed below.

3.2 Field Monitors

It is common in most environmental investigations to undertake field monitoring to provide information on contamination levels. Most of this field equipment is used for the detection and monitoring of volatile vapours and gases. Field equipment monitors include:

- Organic Vapour Analysers (OVA), which include photo ionisation detectors (PID) and flame ionisation detectors (FID)
- Combustible Gas Indicator (CGI)
- Toxic Gas Monitors

4. Sampling Methods

4.1 Drive Sampling Methods

Drive sampling methods can be used in conjunction with hollow-stem and solid stem auger and various rotary-drilling techniques. The drive sampler can be lowered down the centre of the hollow stem augers and rotary drill rods, but if using solid stem augers, the augers will need to be removed before the sampler can be inserted to the base of the borehole. Drive samplers include the Standard Penetration Test (SPT) split spoon samplers. The split spoon samplers are driven 450mm into the ground using a standard 760mm drop of a 63.5kg hammer.

Before attaching the sampler to the drill rods, the sampler splits and any other parts that are likely to come into contact with the soil should be checked to see that they are clean and free from contamination. If there is any doubt, it should be decontaminated before use.

When the borehole has been drilled to the required sampling depth, the drive sampler is attached to the drill rods and lowered to the base of the borehole. (Note that, if drilling with solid stem augers, a check should be made so that the drive sampler is at the base of the hole and that the hole has not caved in. If the sampler is not within 50mm of the base of the hole, the sampler should be withdrawn and augers placed down the hole to clean it out.) When the sampler is at the base of the borehole, mark the rods at the top of the borehole or drill rods, and mark off 3 x 150mm intervals above this. Count the blows for each of the 150mm intervals and record each separately, and add the number of blows for the last two intervals (300-400mm) to obtain the penetration resistance "N".

For example: 4, 6, 15 N = 19

The first 150mm interval is considered to be the seating drive. If the sampler is driven less than 450mm, this should be recorded on the log with the number of blows before penetration is achieved. The standard penetration resistance "N" provides information on the density of uncohesive soils (sand) and strength of cohesive soils (clays and silts). There are numerous reference charts, which provide this information for the SPT sampler.

As stated above, samples recovered from the standard split spoon, are altered by the driving action and are considered to be "disturbed" samples. Upon retrieval of the SPT sampler, the sampler can be broken open and the soils monitored with an Organic Vapour Analyser (OVA), logged and sub-samples transferred to appropriate sample jars for subsequent laboratory testing. The sampler is then decontaminated, and reassembled for the next sampling event. One disadvantage of the SPT sampler is that the soil comes into direct contact with the splits. Which are commonly rusty and have been used on numerous occasions for collection of contaminated soils samples, thus, even with good decontamination procedures there is still potential for cross-contamination of the soils samples. Therefore, it is necessary to ensure that the splits, and core catcher, are properly decontaminated (steam clean is the preferred method) before reuse.

As decontamination can take some time to properly complete, having a second sampler or even second set of splits present will keep the drilling moving along at a good rate. Once the first sampler is removed, the second one can be used, and drilling can commence straight away, while sampling from and decontamination of the second sampler is carried out.

Drive samplers can be used to obtain samples at selected intervals or for continuous sampling of unconsolidated soils. They cannot normally be used in rock. Sub-surface soil samples are generally retrieved at regular intervals (ie, every 0.5m or 1.5m) or at changes in strata. However, if during drilling, more data is needed to fully evaluated conditions, such as stratigraphy or the extent of a contaminated soil zone, then additional samples should be obtained or continuous sampling can be undertaken using the drive sampler. If continuous sampling is undertaken using the drive sampler, after the completion of each sampling event, the borehole should be advanced to the level of the base of the last sample, before proceeding to the collection of the next sample.

If a sample is lost during retrieval, then the sampler should be driven again before continuing ontot the next sampling interval. In uncohesive sediments, a core catcher will probably be required to prevent the sample from falling out of the sampler during its recovery. In some situations where the soils are loose and granular, it may not be possible to recover a sample. However, an idea of the composition of the soils can be obtained by close inspection of the inside of the splits (a small amount of soil tends to remain in the split).

Duplicate samples can be collected from the recovered soil sample by slicing segments of the recovered core into longitudinal sections over the one sampling interval and transferring soil from each side of the equivalent section intervals to separate containers. The duplicate sample can be saved for additional laboratory testing, if required, or for further inspection.

4.2 Push Sampling Methods

Push tube sampling involves the use of a thin walled, open ended, tube sampler, which has a bevelled cutting edge on the bottom of the tube. Push tube sampling methods can be used in conjunction with hollow stem auguring, solid stem auguring, the various rotary drilling techniques, hand augers, and with backhoes and excavators in test pits of trenches and hand operated systems can be used in soft soils and sediments.

A range of push tube samplers exist, including the Shelby tube, U50 (51mm ID tube) and U75 (76mm ID) tubes, Dimension sampler, and Pitch sampler.

4.2.1 Sampling with Drilling Rig

Thin walled sampling tubes can be connected to a sample boss or adaptor attached to drilling rods (generally A sized rods). Like drive sampling, the thin walled tube attached to the drill rods can be lowered down the centre of the hollow stem augers and rotary drill rods, but when using solid stem augers, these will need to be removed from the borehole.

The cutting edge of the thin walled sampling tube is normally recessed to give a slightly reduced internal diameter at the point of sample entry. This recessing allows the sample to slide more freely into the sample tube, but permits some swelling of the sample.

Before attaching the sampler to the drill rods, the sampling tube and any other equipment likely to come into contact with soil should be checked to see that it is clean and free of contamination. If there is any doubt, it should be decontaminated before use.

The sample boss or adaptor is normally fitted with ports to permit the escape of water or air as the sample is pushed in and also contains a non return valve to assist with sample retention during removal of the sample. If the samples are continually lost during retrieval, these should be checked to see that they are functioning correctly.

When the borehole has been drilled to the required sampling depth, the thin walled sampler is lowered on the drill rods to the base of the borehole. (Note that, if drilling with solid stem augers, a check should be made so that the drive sampler is at the base of the hole and that the hole has not caved in. If the sampler is not within 50mm of the base of the hole, the sampler should be withdrawn and augers placed down the hole to clean it out.) When the sampler is on the base of the borehole, mark the rods attached to the sampler at the top of the borehole or drill rods and measure off and mark the required distance to be pushed (this should be about 0.1-0.15m less than the length of the sampler). The rods attached to the sampler should be attached to the head of the drilling rig and using the weight of the drilling rig or the hydraulics, if necessary, the sampler should be pushed to the required distance into the soils at the base of the borehole.

If the sampler reaches refusal measure the achieved penetration and record on log sheet. Remove the sampler.

Upon retrieval of the thin walled sampler, clean any loose material off, measure the recovery and monitor the soils for organic vapours with an Organic Vapour Analyser (OVA) and log the soils. The sample should be trimmed, and sealed with teflon sheeting placed over each end and, if possible, plastic caps should then be fitted over the teflon sleeve ends. The plastic caps should then be sealed with teflon or electrical tape. The sample should then be place "deep" end down in a plastic sample container, sealed, and labelled.

Alternatively, the sample may be pushed out of the tube and transferred to appropriate sample containers.

Push sampling can be used to obtain samples at selected intervals or for continuous sampling of unconsolidated cohesive soils. They cannot normally be used in rock or in uncohesive soils. Sub-surface soil samples are generally retrieved at regular intervals (ie, every 0.5m or 1.5m) or at changes in strata. However, if during drilling, more data is needed to fully evaluate conditions such as

stratigraphy or the extent of a contaminated soil zone, then additional samples should be obtained or continuous sampling can be undertaken using the push sampler. If continuous sampling is undertaken using the push sampler, after the completion of each sampling event, the borehole should be advanced to the level of the base of the last sample before proceeding to the collection of the next sample.

If a sample is lost during retrieval, the hole should be cleaned out and then the sampler should be driven again before continuing onto the next sampling interval.

Duplicate samples can be collected from the recovered soil sample and pushed out of the tube by slicing segments of the recovered core into longitudinal sections over the one sampling interval and transferring soil from each side of the equivalent section intervals to separate containers.

4.2.2 Sampling with Hand Auger and Backhoe

As stated above, push sampling using thin walled tube samples can be collected from shallow hand auger holes or from test pits excavated with a backhoe or excavator.

The sampling method is similar to that detailed above, except that it is usually necessary to drive the thin walled tubes with a sliding hammer or by blows from a sledge hammer. It is possible with a backhoe or excavator to hammer the tube slightly into the ground, then push the tube into the soils using the bottom of the bucket. When doing this, care need to be taken to push the tube straight into the soil (the operator will need guidance, as he will not be able to see the tube). Remember that you should not enter a trench or pit over 1.5m deep unless it is shored up.

Alternatively, it is sometimes possible, in cohesive soils, to obtain with the backhoe, a large bulk sample from the test pit of the trench. When this is brought to the surface, it may be possible to hammer a tube into this sample.

The sample handling, labelling, and preservation requirements are as discussed above.

4.2.3 Sediment Samplers

It is also possible to collect push tube samples from very soft soils and sediments, both above and below the water surface. Such samples are usually obtained using a piston sampler or sediment sampler, both of which operate on the same principle. This is to push the sampler into the ground, then create a vacuum to hold the sample in the sampler while withdrawing the sampler and sample form the soil.

A piston sampler may be one complete unit with a thin walled sampler permanently attached to the sampler, or alternatively a thin walled sampler may be able to be attached and removed.

The piston sampler and sampling tube are pushed through soft soils to an undisturbed layer with the piston positioned at the bottom of the sample tube. The sample tube is then pushed into the ground, at the same time the piston is pulled up, until it reaches the top of stroke. The piston is then kept at a constant level and the piston sampler is withdrawn. Contact of the sample with the piston helps keeps the sample in the tube. Piston samplers are normally used in soft deposits and are pushed into the ground rather than driven.

Once the sample has been recovered, the soil tube can be removed and the ends sealed, and the complete tube kept for future reference or forwarded to a laboratory for chemical analysis. Alternatively, the core can be extruded, logged, monitored with an OVA and sub-samples transferred

to appropriate sample jars for storage and/or laboratory analysis. Use of a clear thin walled tube allows the identification of any layering (which can be of particular importance for sediment samples) before extrusion of the sample.

With use casing, which can be advanced as sampling proceeds, it is possible to extend the sampling to depth.

4.3 Continuous Sampling Methods

As discussed above, continuous sampling can be undertaken using both driven and push sampling methods. However, a disadvantage of these systems is that they require the hole to be drilled out to the base of the last sample, before the next sample can be collected. This can result in very slow drilling, which means that it becomes fairly expensive.

However, the use of a continuous sampling system, utilising a small split tube core barrel with hollow stem auger drilling methods provides a much more effective method of continuous sampling. The core barrel, which comprises a barrel, drill bit, core catcher and split spoons, that is inserted inside of and at the base of the augers while drilling, recovers a soil core, which determines the length of the drilled interval. The bore barrel is recovered after each interval is drilled.

Representative sub-samples of the soil can be transformed to appropriate sample containers for future reference and/or laboratory analysis or the entire length of the soil cores shall be placed in core boxes, should it be necessary to retain them. If placing the core in core boxes, it is possible that samples may be collected at a future time for laboratory analysis, the core box should be lined with an inert material to prevent cross-contamination of the soil core.

Photographs can also be taken of the soil core for future reference.

After the soil core has been removed from the sampler, it should then be decontaminated, and reassembled for the next sampling event. One disadvantage of the continuous sampler is that the soils come into direct contact with the splits, which are commonly rusty and have been used on numerous occasions for collection of contaminated soil samples, thus even with good decontamination procedures, there is potential for cross-contamination of the soil samples. Therefore, it is necessary to ensure that the splits, bit and core catcher are properly decontaminated (steam cleaning is the preferred method) before reuse.

As decontamination can take some time to properly complete, having a second core barrel or even set of splits, drill bit and core catcher present, will keep the drilling moving along at a good rate. Once the first core barrel is removed, the second one can be used and drilling can commence straight away, while sampling from and decontamination of the second core barrel is carried out.

4.4 Grab Samples

Grab samples can be collected from distributed soils. Common situations of where grab samples can be collected include:

- drill cuttings
- surface sampling
- soil from test pit
- soil stockpile

4.4.1 Grab Sample of Drill Cuttings

Soil cuttings brought to the surface during drilling operations can be collected for future reference and, if required for laboratory analysis. However, undertaking of chemical analysis on grab samples of soil cuttings is not normally recommended as there are a number of potential problems that could affect the results of the testing and/or assessment of results. These include:

- The sampling interval is not accurately known: due to there being a time lag between the cutting of the soils a t the drill bit and the discharge of these soils at the surface. In fact, it is not uncommon where for cuttings from depth not to reach the surface for significant time intervals, of course this is dependent on the rate of drilling.
- Possibility of cross-contamination of uncontaminated soils: relatively uncontaminated soils from depth when being brought to the surface may come into contact with contaminated soils closer to the surface. This casts doubt over the reliability of such data, and results may not be representative of the in-ground concentrations.
- Loss of volatile compounds: drilling can generate quite high temperatures at the drill bit, which can result in the volatilisation of volatile contaminants. Thus, analytical results may not be representative of the in-ground volatile concentrations.
- Cross-contamination of soils by drilling fluids: drilling fluids that come into contact with a narrow zone of contamination can distribute this contamination to areas of soil relatively uncontaminated. Again, results of chemical analysis of samples of drill cuttings may not be representative of actual in-ground concentration.

Therefore, while soil cuttings are useful for logging of holes and can be monitored during drilling with OVA, they should not normally be sampled for subsequent laboratory analysis. Samples for analysis should be collected by one of the methods discussed above.

4.4.2 Surface Grab Samples

Grab samples can be collected from the ground surface or an exposed excavation face using a towel, shovel or similar. Provided the sampling equipment is properly decontaminated there should be no major concerns with the collection of grab samples using this method.

Sample containers can be filled directly from the sampling equipment or compositing of a sample either from a number of different locations or from a shallow depth interval at the one location may be undertaken.

When selecting the location of the surface grab samples the objectives of the sampling should be borne in mind. For example, is the objective to collect a sample of stained soil or is it to collect a sample of soil representative of a larger area? Obviously, this will effect the type of location selected.

The condition of the surface soils in the area sampled and the surrounding area should be recorded. It may be prudent to complete a sketch plan of the area and/or take some photographs for records.

4.4.3 Grab Sample from Test Pit

Grab samples can be collected from the walls or base of a test pit or from the bucket of the backhoe. If collecting a sample from the bucket, it is preferable to collect the sample from the centre of the bucket, where the soil has not come into contact with the bucket. This will minimise the risk of cross-contamination, which can arise by the bucket, including some contaminated soil from higher up in the pit. If collecting from the walls of the our is preferable to excavate a sample from the walls of the pit,

and discarding the soil in the original wall if the pit, which may have been cross-contaminated by the action of the backhoe bucket.

Sample containers can be filled directly or a composite sample from a number of different locations within the test pit may be collected.

When selecting the location of the grab samples, the objectives of the sampling should be borne in mind. For example, is the objective to collect sample of stained soil or is it to collect sample of soils representative of the main soils in the pit. Obviously, this will effect the type of location selected.

The condition of the soils in the area sampled and the surrounding area should be recorded. It may be prudent to complete a sketch plan of the area and/or take some photographs for records.

4.4.4 Grab Sample from Soil Stockpile

Grab samples can be collected from a soil stockpile. Provided the sampling equipment is properly decontaminated, there should be no major concerns with the collection of grab samples using this method.

Similar comments apply to grab surface soil samples.

5. Field Monitoring and Testing

As discussed above, field monitoring for volatile compounds, typically volatile organic compounds and gases can be carried out during the field investigations. The monitoring enables the in-field screening of samples and cuttings generated during the investigations. Results of the screening can be used to select samples for laboratory analysis.

In the field, screening of soils is conducted to preliminarily evaluate the distribution of soil contamination, and to select soil samples for subsequent laboratory analysis. OVA, CGI, or other detector is used to obtain organic vapour measurements from soils contained in various types of samplers and of cuttings and soil excavated during investigations.

As samples, cuttings, bulk samples, etc. are recovered the field monitors are passed over the materials with results of monitoring recorded on the log. The soil materials should be separated enough to allow for insertion of the monitors' probe into the space created in the soil. After inserting the probe, the void should be sealed with the covered, as well as the free hand. Peak instrument readings should be noted from a number of locations in each sample. The range of readings should be recorded on the boring log.

Alternatively, ambient temperature headspace (AHT) testing may be carried out. A portion of the sample may be placed in a half-filled container, which is sealed, and allowed to sit for at least 1 hour (where possible) prior to measuring the concentration of vapour accumulating in the headspace above the soil sample, using a field monitor. Details of the ATH testing procedure are given in the Work Instruction titled ***"Field Measurements"***.

6. Sample Management

The Work Instruction ***"Selection of Sample Containers, Sample Preservation, Sample Handling, Labelling and Documentation"*** in this manual provides details of sample containers, handling, labelling and documentation for soil samples.

7. Quality Assurance / Quality Control

The Work Instruction titled ***"Quality Assurance/Quality Control"*** in this manual, provides details of the QA/QC requirements for soil sampling programs. However, in general, QA/AC samples for soil investigations typically include:

- Duplicate samples: used to check the analytical laboratory QA/QC. Two or more samples are collected from the same material at the same time and sent anonymously to the same laboratory (blind duplicates) or to a check laboratory (field split duplicate).
- Equipment and trip blankets: used as control or external QA/QC samples to detect contamination that may be introduced in the field or during transportation.

8. Decontamination

All sampling equipment should be decontaminated between sampling events. The Work Instruction titled ***"Decontamination"*** in this manual provides details on the decontamination procedures to be followed.

9. Logging of Soils & Rock

All soils and rock are to be logged in accordance with AS1726-1993 Geotechnical site investigations and SKM geotechnical standards for the logging of soil samples.

10. General Soil Sampling Procedures

Included below are general soil sampling procedures for the collection of soil samples from:

- Hand auger boreholes
- Drilling rig borehole
- Trenches and test pits
- Surface soil sampling
- Sediment sampling
- Field compositing procedures

10.1 Hand Auguring

The soils sampling procedure when using the hand auger shall be as follows:

1) Prepare borehole log or sampling record form.
2) Lay out equipment on plastic sheeting, adjacent to sampling location to prevent direct contact with the ground surface.
3) Ensure the hand auger and all sample equipment has been decontaminated before use at a new location.
4) Remove surface vegetation, leaves, debris and other surface material not designated for sampling from the vicinity of the sample location.
5) Auger to the desired sampling depth is reached or the auger is full of soil. Record the depth. Carefully remove the auger from the hole with the soil sample. If the desired depth has not been reached, continue auguring, emptying the auger as needed.
6) Collect sample for ambient temperature headspace.

7) Collect soil sample using appropriate sampling method discussed above. If collecting a composite sample, transfer the collected material to a quartering or compositing tray, mix thoroughly and quarter.
8) Collect required number of representative sub-samples, and place in appropriate sample containers. To prevent loss of volatile, the soil will be mixed and transferred to the jars as quickly as possible. Care should be taken to fully fill the sample jars, leaving no headspace.
9) Immediately cover the top of the jars with aluminium foil and tightly screw on the lid.
10) Lithologically log all samples and borings.
11) Label the jars and store in a cooled esky.
12) Complete a Chain of Custody Form.
13) Either discard or decontaminate all items, which contact the sample before proceeding to the next sampling location.

10.2 Boreholes

The soil sampling procedure to be followed in boreholes, when using the drill rig shall be as follows:

1) Prepare a borehole log or Sampling Record Form.
2) Lay out equipment on plastic sheeting adjacent to sampling location to prevent direct contact with the ground surface.
3) Ensure all drilling and sampling equipment has been decontaminated before use at a new location.
4) Remove surface vegetation, leaves, debris and other surface material not designated for sampling from the vicinity of the sample location.
5) Drill until the desired depth is reached, record the depth.
6) Insert drive, push or continuous sample to the base of the borehole and drive (450mm), push or drill sampler into the soil as discussed above. Record the depth of the sampler before and after completion of sampling event.
7) Remove the sampler from the borehole, and open the split spoon.
8) Collect sample for ambient temperature headspace.
9) Collect representative soil sample(s) directly from the splits, or if collecting composite sample transfer the soil from the splits to a quartering or compositing tray, mix thoroughly and quarter.
10) Collect required number of representative sub-samples, and place in appropriate sample containers. To prevent loss of volatile, the soil should be transferred to the jars as quickly as possible. Take care to fully fill the sample containers, leaving no headspace, except for volatile vials, which some laboratories require to be only half-filled.
11) Immediately cover the top of the jars with aluminium foil and tightly screw or crimp on the lid.
12) Lithologically log all samples and borings.
13) Label the jars and store in a cooled esky.
14) Complete a Chain of Custody Form.
15) Either discard or decontaminate all items, which contact the sample before proceeding to the next sampling location.

10.3 Trenches and Test Pits

The soil sampling procedure when using the backhoe or excavator shall be as follows:

1) Prepare a test pit or Sampling Record Form.
2) Lay out equipment on plastic sheeting adjacent to sampling location to prevent direct contact with the ground surface.
3) Ensure the backhoe or excavator bucket and all sampling equipment has been decontaminated before use at each new location, where possible.

4) Remove surface vegetation, leaves, debris and other surface material not designated for sampling from the vicinity of the sample location.
5) Excavate trench or pit to the required sampling length.
6) Recover sample over required sampling interval with excavator or backhoe bucket. Note to minimise cross-contamination, sample should be selected from soil in the middle of the excavator bucket, which is less likely to have come into contact with the excavator bucket.
7) Collect sample for ambient temperature headspace.
8) Collect sample of representative sample form bucket, and transfer directly to sample containers, or if collecting composite samples to quartering, or compositing tray where the sample is mixed thoroughly and quartered.
9) Collect required number of sub-samples, and place in appropriate sample containers. To prevent loss of volatile, the soil should be mixed and transferred to the jars as quickly as possible. Take care to fully fill the sample containers, leaving no headspace, except in volatile vials, which some laboratories require to be only half-filled.
10) Immediately cover the top of the jars with aluminium foil and tightly screw or crimp on the lid.
11) Lithologically log all samples and borings.
12) Label the jars and store in a cooled esky.
13) Complete a Chain of Custody Form.
14) Either discard or decontaminate all items, which contact the sample before proceeding to the next sampling location.

10.4 Surface Soil Sampling

The soil sampling procedure when collecting grab samples shall be as follows:

1) Prepare a Sampling Record Form.
2) Lay out equipment on plastic sheeting adjacent to sampling location to prevent direct contact with the ground surface.
3) Ensure that all equipment to be used for sampling has been decontaminated.
4) Remove surface vegetation, leaves, debris and other surface material not designated for sampling from the vicinity of the sample location.
5) Collect a number of trowel-fulls of the surface or near surface soils.
6) If collecting discrete samples, transfer directly to sample containers, or if collecting composite samples, transfer soil from the trowel to a quartering or compositing tray, where it is mixed thoroughly and quartered.
7) Collect sample for ambient temperature headspace.
8) Collect required number of sub-samples, and place in appropriate sample containers. Take care to fully fill the sample containers, leaving no headspace, except in volatile vials, which some laboratories require to be only half-filled.
9) Immediately cover the top of the jars with aluminium foil and tightly screw or crimp on the lid.
10) Lithologically log all samples and borings.
11) Label the jars and store in a cooled esky.
12) Complete a Chain of Custody Form.
13) Either discard or decontaminate all items, which contact the sample before proceeding to the next sampling location.

10.5 Sediment Sampling

The sediment sampling procedure when collecting sediment samples shall be as follows:

1) Prepare a borehole log or Sampling Record Form.

2) Ensure that all equipment to be used for sampling has been decontaminated.
3) Remove surface vegetation, leaves, debris and other surface material not designated for sampling from the vicinity of the sample location.
4) Push sediment sampler up to 1 meter or refusal into the sediment by hand.
5) Use vacuum to withdraw the tube and sample with minimum disturbance and place end caps on the tube.
6) Measure and describe any layering visible in the tube.
7) Carefully extrude the sample into a stainless steel tray.
8) Collect sample for ambient temperature headspace.
9) Collect required sub-samples of core and place in appropriate sample containers.
10) Immediately cover the sample jars with aluminium foil, and tightly screw or crimp on the lid.
11) Lithologically log all samples and borings.
12) Label the jars and store in a cool esky.
13) Complete a Chain of Custody Form.
14) Either discard or decontaminate all items, which contact the sample before proceeding to the next sampling location.

10.6 Compositing

Sample compositing will normally be conducted in accordance with the mixing bowl compositing procedures described in AS 4482.1-1997 Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds. Samples for volatile organics will not be composited in the field. The procedures are as follows:

1) A clean steel mixing bowl or tray and steel scoop are decontaminated. Stainless steel is the preferred type of equipment, however other materials can be used, provided that they do not consist of materials that are of concern. For example painted trowel – paint chips could contain lead or other metals, which may end up in the sample.
2) The sample fractions being composited are placed in equal volumes into the mixing bowel or tray.
3) The resultant composite sample is stirred until homogenous (it may be necessary to break up soil aggregates with the scoop or a decontaminated stainless steel knife or spatula).
4) The mixed sample is then spread evenly in the bottom of the bowl or tray and quartered.
5) Equal amounts of sample are taken from each quarter to fill each of the sample bottles. Duplicate samples will be collected from pone of the other quarters.

1. Introduction

This document provides general procedures and guidelines for sampling groundwater at hazardous and non-hazardous waste sites. The information presented is applicable to both initial investigations of groundwater quality or periodic monitoring of existing wells at a site. Because the suspected or known contaminants, hydrogeologic conditions, purpose and objectives of groundwater sampling programs, and well construction details vary from site to site, a site specific groundwater sampling/monitoring plan should be prepared for each site. Implementation of the procedures and guidelines presented herein will significantly increase the potential of meeting the principle objective of all groundwater sampling: ***collection of groundwater samples that are representative of the physical and chemical properties of groundwater in water bearing strata.***

The state-of-the-art of groundwater sampling is rapidly evolving and various types of new and innovative sampling devices are being developed. The information presented herein reflects standards and protocol generally accepted within the industry in Australia. However, requirements may vary depending on the type of facility, regulatory agency responsible for review of the groundwater data obtained, and the personal biases of individual regulators. The applicable requirements should be established, when possible, prior to development and implementation of a sampling plan. An extensive bibliography is included so that other documents may be used when establishing site specific protocol. In addition, professional journals such as Ground water and Groundwater Monitoring Review, and publications of the National Water Well Association contain numerous articles regarding groundwater sampling for various types of facilities and contaminants.

In preparing this manual, it was assumed that monitoring wells to be sampled are properly constructed (including placement of the well screen at the appropriate interval and use of well materials compatible with the suspected or known contaminants) and located to obtain the desired groundwater quality data (ie, up-gradient, down-gradient, detection monitoring, verification monitoring, etc.). Implementation of the procedures and protocol presented herein require a significant amount of pre-field and pre-sampling preparation and documentation. Much of the necessary documentation can be accomplished by use of checklists. However, the costs associated with this increased level of effort are more than justified, considering the cost of laboratory chemical analysis, re-sampling, additional site assessment, or remedial measures that could be required due to false positive or negative data caused by poor field protocol.

It is important to consider that at some sites, monitoring may continue for several years or more and at some later time, all data may be re-evaluated by regulators, other consultants, or other Sinclair Knight Merz personnel not involved in the project from its inception. Improper documentation or inadequate information regarding the circumstances of collection and/or subsequent disposition of the samples (ie, chain of custody) may render any resulting data useless. Comprehensive, consistent and accurate documentation of field tests, field and calibration measurements, and field observations is also extremely important.

2. Sampling Plan

A written sampling plan should be prepared for each site. The plan should include:

- Procedures and equipment checklists
- Map of wells to be sampled and sampling order
- Well locations (up-gradient, down-gradient, lateral)
- Well construction details and boring logs
- Previous water level and field parameter data
- Pre-field equipment preparation and protocol
- Pre-purging field procedures
- Field measurements and reference points
- Purging protocol (including volume and purge recharge rates if known)
- Sampling equipment and collection protocol
- Decontamination procedures
- Number of trip blanks, field blanks and duplicate samples
- Sample preservation, handling and shipment
- Chain of custody control
- Analytical parameters and appropriate sample containers
- Any other information that will help ensure that sampling protocol is consistent and reliable

The purpose of the plan is to provide the necessary information so that field-sampling personnel understood and implemented the proper sampling strategy for the site. Since field personnel are typically involved in several investigations/monitoring programs concurrently, it is important that the objectives and protocol be clearly defined so that procedures unique to a particular site are not erroneously implemented at other sites. Furthermore, the plan allows different field personnel not previously familiar with a site to implement consistent purging and sampling methodology. Revisions to the sampling plan may be required as an investigation proceeds and new data on the site hydrogeology and the nature and distribution of contaminants are obtained, or changes in regulatory requirements occur. These revisions should be dated and inserted into the original sampling plan and the pages or sections, which include out of date information should be stamped "Revised (*date*), see page/section ...". This will provide documentation of changes and allow evaluation of groundwater quality data relative to changes in sampling protocol.

3. Equipment

Equipment needed to conduct a sampling event generally includes at a minimum:

- A purging device
- Sampling devices
- Water level measuring devices
- Metres to measure pH, electrical conductivity and temperature
- Calibration solutions
- Sample bottles and preservatives (if necessary)
- Decontamination materials
- Filtering apparatus
- Esky and ice or frozen ice packs
- Miscellaneous field supplies, forms, labels, etc.

Other equipment that may be necessary depending on the site, include an organic vapour analyser or similar device to measure organic vapours in the well, and devices for measuring and/or sampling light non-aqueous phase layers (NAPL – eg petroleum hydrocarbons) or dense non-aqueous phase layers DNAPL (DNAPL – eg Trichloroethylene (TCE)).

There are numerous sampling devices available. Each has certain advantages, disadvantages and limitations based on the type of suspected contaminants, monitoring well construction, and hydrogeology. ***Selection of the proper sampling device is probably the most crucial element, which influences whether or not groundwater samples are representative.*** Some questions to consider when selecting the sampling device are listed below:

- Will the device fit inside the monitoring well(s) to be sample?
- Will contaminants either be leached into or absorbed from the sample by the construction materials of the device?
- Will the pH or redox potential (Eh) of the groundwater sample be altered by the device?
- Will volatile organic constituents be stripped from the sample due to sample aeration or degassing as a result of the device operation?
- Will the device also be suitable for purging?
- Can the rate of delivery be controlled and is it sufficiently low?
- Will it operate under the carious hydrogeologic conditions of the site?

Other considerations include cost, ease of maintenance, operation and cleaning; the portability of the device and required accessory equipment; and the reliability and durability of the device. In general, bailers constructed of Teflon or stainless steel, or gas operated bladder pumps with a Teflon bladder and tubing and a Teflon or stainless steel body is the preferred purging and sampling tools (US EPA, 1986b; Barcelona et al, 1984; 1985). Nielsen and Yeates (1985) present a fairly comprehensive discussion of these and other sampling devices, and a suction side sampling device is described by Armstrong and McLaren (1984).

Most parameter measuring devices typically used during groundwater sampling (ie, pH meter, water level meter, etc.) are portable field operated devices that are readily available from numerous manufacturers. Some manufacturers (In-situ, YSI, Martek) have recently developed down hole devices for measuring several groundwater parameters in-situ. In line flow through cells have also been developed to allow parameter measurements within the discharge line at the sampling point (Barcelona, et al. 1985). The type of meter selected should be durable and easily calibrated.

Whenever possible, dedicated equipment should be used at a site. Use of dedicated equipment will significantly decrease the potential for cross contamination and increase sample reliability. While initial costs of dedicated equipment may be relatively high, these may be offset by the savings in the labour costs that are associated with non-dedicated equipment, and re-sampling and analysis if suspect analytical data are obtained. Use of dedicated equipment is not limited to sampling devices or bailer analytical ropes/cables. Cross contamination can also occur by use of a contaminated water level measuring device. Water level devices with lead weights (ie, power sounders) should not be used at sites where there is potential for metals contaminations or acidic water. Hydrocarbon measuring devices (ie, interface probes) should not be used to measure water levels unless hydrocarbons are suspected. At sites where pH, conductivity, Eh or other field parameters are considered indicator parameters of contamination (eg, landfills), dedicated meters and/or probes should be used to minimise potential effects of field instrumentation variability. Use of dedicated probes is relatively inexpensive and is essential for wells with highly conductive, low or high pH, or highly contaminated groundwater. These conditions could affect the ability of probes to detect lower concentrations

accurately during subsequent use. Clean disposable beakers from a laboratory supply house should also be used if accuracy of field parameters is a critical component of the sampling objectives.

Instruction manuals for the specific types of brands of equipment to be used should be reviewed, and calibration and operation procedures incorporated into the sampling plan to ensure proper field operation of the equipment.

4. Procedures

4.1 Pre-Field Procedures

Prior to conducting a sampling event, a great deal of pre-planning must be done to ensure a flawless sampling even. These pre-sampling procedures include the procurement and calibration of equipment, obtaining and checking sample bottles and review of the sampling plan and field forms. It is suggested that preparation for a sampling event begin at least one to two weeks before the sampling is to take place. Pre-field Procedure checklists should be modified as necessary for each site. All items should be checked as they are completed. If more than one person is involved in the pre-filed preparation, they should initial the item when checking it off the list.

4.1.1 Review Sampling Plan

The filed personnel should thoroughly review the site Sampling Plan, well locations, and site characteristics prior to ordering sample bottles and organising the equipment. Particular attention should be made to the sampling order, protocol, and parameters to be analysed. Any questions or uncertainties should be immediately rectified with the Project Manager. Any sample labels or forms to be used should have pertinent information such as job number, client, etc.

4.1.2 Equipment and Materials

All equipment necessary for a sampling event should be cleaned, checked and calibrated to ensure that it is working properly prior to going to the site. As much preparation as possible should be done ahead of time since neither the facilities (ie, water, electricity, etc.) nor the material required for equipment cleaning and calibration may be available at the site. In addition, if too much is required to set up at the site, it could affect your ability to collect samples and ship or deliver them to the laboratory on the same day. A typical equipment checklist is presented in Appendix 8A. This checklist can be modified for each site checklist or N/A should be placed opposite items that are not applicable. All other items should be checked as each piece of equipment is loaded in the field vehicle.

If dedicated equipment such as bailers, pH meters, pumps, etc. are to be used, they should be ordered from the manufacturer several weeks in advanced, to allow for replacement if wrong or malfunctioning equipment is sent. This is especially important if the sampling event has a specified regulatory time frame (ie 30 days) and a delay could cause serious problems for the client. The equipment should be closely inspected for defects, cleaned and calibrated (if necessary). All non-reusable equipment and supplies should be obtained and packs of frozen ice (if required) should be frozen. One option is to purchase dry ice and use it to keep the packs of ice frozen in the field until the samples are obtained.

The necessary sample bottles should be ordered from the lab on to two weeks prior to the sampling event. Verify the type of bottles (ie VOA vial, amber jar, plastic bottle) needed for each parameter to be analysed and whether the sample bottle will include or require preservative. Make sure you specify the number and types of blanks and duplicates needed. If possible, have the bottle labelled with the parameter (VOC, metals, etc.). Verify what samples should be filtered. When the bottles arrive

inventory them immediately to make sure the correct number and type of bottles were sent, they are intact (check to see if the caps are tight), and have preservative. Contact the laboratory immediately to obtain additional replacement bottles if needed.

All meters should be cleaned and calibrated against fresh, known standards in accordance with the manufacturer procedures prior to arriving at the site. The calibration for pH is temperature correlated and the pH of the buffers at the temperature of calibration (usually in a chart provided with the buffer) should be noted. If possible, calibrate the conductivity meter using a standard similar to the expected at the site. The electrical conductivity should be measured at 25 degrees Celsius or converted to specific conductivity (Table 1). Some meters are temperature corrected and measure specific conductivity directly. If specific conductivity is a crucial parameter, then an additional calibration using a cooled standard with the same conductivity as the initial standard or a standard with a different conductivity can be used. Measurement of a cooled standard should be within 1% of the expected value (either temperature compensated or calculated) and measurement of a standard with different conductivity should be within 5% of the expected value.

Decontamination of meter probes consists of triple rising in distilled water. Non-dedicated bailers, pumps and discharge lines should be cleaned with a dilute non-phosphate detergent/soap and clean (tap) water mixture, rinsed with tap water and triple rinsed in distilled water. The US EPA (1986b) recommends an initial rinse of dilute (0.1 N) hydrochloric or nitric acid and a final rinse of the type II reagent grade water if inorganic are principal constituents; and final rinse of acetone followed by pesticide-quality hexane for organics.

The sample bottles and clean, calibrated equipment should be stored in a secure clean area prior to loading in the field vehicle or shipment to the site.

4.2 Field Procedures

This section provides guidelines for field procedures and is divided into five sub-sections: Pre-purging Procedures; Well Purging; Well Sampling; Shipment; and Post Sampling Procedure.

4.2.1 Pre-Purging Procedures

It is very important that prior to purging and sampling that various observations concerning the condition of the well are made. Also required are specific measurements during a sampling event such as purge volume, water and depth of well. These observations and measurements are all documented on a Field Parameter Form, which should be completed for each well.

During a sampling event, wells should not be sampled if:

- The well has been damaged or destroyed
- The well is dry or an insufficient volume of water is obtained after purging
- The well has obviously been tampered with or contaminated at the well head

The Project Manager should be notified if any of these conditions occur.

4.2.1.1 Well Inspection and Fluid Level Measurements

The conditions of the well and surrounding area should be observed and recorded on the Field Parameter Form upon arrival at the well location. Information that should be noted includes, but is not limited to:

- Presence and condition of the well's identification sign
- Is the well locked and does the key work
- Physical surroundings (high weeds, standing water, cleanliness, activities nearby, all of which can impact on the well)
- Conditions of the protective casing/monument
- Condition of the well head
- Obstructions or kinks in well casing
- Condition of cement footing (cracked, raised)
- Water is annular space
- Grease around top of well on threaded caps
- Does cap fit securely so contaminants can not penetrate
- Is reference point clearly marked
- Weather conditions: include wind direction for volatiles and note if sampling was performed downwind
- Evidence of contamination (eg, animal or insect parts in well, etc.)

If organic contaminants are known or suspected, then an Organic Vapour Analyser (eg, PID) or similar device should be used to measure vapour emissions from the well. This is useful for both evaluating changes in groundwater within the well and health and safety of the sampling personnel. The equipment used should be calibrated in accordance with the manufacturer specifications.

The depth of groundwater at each monitoring well is measured to the nearest 0.01m prior to purging and samples withdrawal. The elevation of the groundwater is then determined by the following equation:

Groundwater Elevation = Elevation of reference point – Depth to water

Note: all well measurements must be made from the reference point at which the elevation was measured. The reference point could commonly be the top of the monitoring well casing or the top of the protective casing/monument. This point must be noted on the Field Parameter Form. If water-measuring device is used, which requires a correction because of previous repairs, the actual reading, correction factor, and resulting calculated value should be recorded.

If floating or immiscible liquids are present in the well, the depths to the water-immiscible liquid interface should be measured and recorded on the Field Parameter Form.

All measurements should be checked twice to verify the accuracy of the measurement. The measurements obtained should be compared against previous measurements for the well as a check against mismeasured or anomalous data. The water level measuring device and/or interface probe should be thoroughly rinsed in deionised water and dried prior to use in each well. If the water is oily, immiscible fluids are present, or previous analysis indicate significant contamination, then a dilute trisodium phosphate/water solution followed by a thorough rinse with deionised water should be used to clean the device.

4.2.1.2 Well Purging

Subsequent to measurement of the depth to water in the monitoring well, the volume of standing water in the well (casing volume) should be calculated as follows:

$$1 \text{ casing volume (litres)} = \pi r^2 h \times 1000$$

where,

$\pi = 3.14$
r = radius of well casing in metres
h = height of water column in well in metres

OR

For 25mm diameter well casing, casing volume (litres per m depth) ≈ 0.5 h
For 50mm diameter well casing, casing volume (litres per m depth) ≈ 1.95 h
For 75mm diameter well casing, casing volume (litres per m depth) ≈ 4.4 h
For 100mm diameter well casing, casing volume (litres per m depth) ≈ 7.85 h
For 150mm diameter well casing, casing volume (litres per m depth) ≈ 17.7 h
For 300mm diameter well casing, casing volume (litres per m depth) ≈ 70.7 h

This value is then used to calculate the volume of water purged from the well prior to sampling. The calculation of well volume, the duration of purging, and purge volume should be included on the Field Parameter Form.

The purpose of purging a monitoring well is to ensure that a water sample representative of the groundwater in the water-bearing strata is collected. The amount of water purged prior to sampling is somewhat controversial and debated topic (Giddings, 1983). Depending on the hydrogeologic conditions, the necessary volumes could range from one to as many as tens of well volumes. However, regulatory requirements may specify a set amount (eg US EPA 1986b). the regulatory requirements that apply to the groundwater monitoring being conducted should be verified when developing the site-sampling plan.

The optimum volume to be purged is the minimum amount needed to obtain representative water. Over purging in wells completed in highly transmissive strata may induce migration of water from areas within the water-bearing strata, which are relatively remote from the well. Under purging will result in a non-representative sample.

The optimum method for determining the purging volume is to conduct a test in each well in which samples are collected after several different volumes have been purged and analysed for parameters of interest. Comparison of the results will indicate the volume at which the concentrations become relatively stable (Gibb, Schuller and Griffin, 1981). However, this is both costly and time consuming. ***As a general rule, purge a minimum volume of three to five time the volume of water in the well for wells completed in moderate to highly transmissive strata; and at least one well volume for wells in strata with a low transmissivity (wells that do not yield three well volumes)(US EPA, 1986b).*** In order to evaluate whether representative water is obtained, periodically measure the pH, conductivity, and temperature during purging until relatively stable measurements are obtained. The amount purged and temperature during purging until relatively stable measurements are obtained. The amount purged and visual and olfactory observations of the purged water should be recorded with these measurements on the Field Parameter Form.

Prior to taking pH, conductivity, and temperature measurements on the first monitoring well to be sampled, recheck the calibration of the field meters. The pH reading must be within 0.1 pH unit of the expected value (ie pH 4 buffer, calibrated to within pH 3.90 – 4.10). The specific conductivity value must be within 5% of the expected value (ie, 1413 umhos/cm standard, calibrated to within 1342 – 1484). If the recheck of the calibration of the instrument does not fall within these limits the instrument must be re-calibrated. The calibration of the field instruments must be checked at the end of the day, or as required. If the calibration check is not within the limits listed above, the meter must be re-calibrated.

The single most important objective while purging a well is minimising the contamination. Equipment should never touch the ground or any other possible contamination sources. For example, a drum or garbage bin lined with a new plastic bag can be used to collect the rope when using a bailer. Purged water should be discarded away from the well footing. This will prevent the possibility of contamination due to the formation of mud. A calibrated 20L drum or bucket can be used to collect and measure the volume of water purged.

The well can be purged with the sample equipment used to sample the well or a separate piece of equipment (ie, pump or bailer). When using a bailer for purging, the largest available bailer that will fit into the well should be used in order to minimise purge time. Nylon rope, preferably braided, or Teflon coated stainless steel cable should be used. It is imperative that a new or dedicated rope be used. In addition, the rope should be of adequate length and strength – thicker rope is easier to grip.

Suggested precautions while purging a well:

1) Lower the bailer slowly into the well;
   - So as to prevent contamination from rust or other sediment, which may accumulate around the top of the well casing
   - To minimise the upwelling of bottom sediments
   - To minimise the possibility of the bailer becoming lodged in the well due to a kink in the well casing
   - To minimise the chance of the rope becoming untied from the bailer
2) Never allow the bailer to come in contact with any surface other than your hands and the inside of the well.
3) Check the rope where it attaches to the bailer with each bail
4) Always wash your hands and use clean powderless PVC, latex or nitrile gloves to help prevent contamination. If a non-dedicated bailer or pump is used it should be thoroughly cleaned inside and out prior to use in each well. No dedicated pumps are most often used for purging when large volumes of water must be removed from the well prior to sampling.

In high-yielded wells, where the water level is above the screen the water should be purged from the uppermost part of the water column above the screen. This will cause the water to move upward in the well thereby effectively flushing it. In low-yield wells the water should be purged from the bottom of the water column (US EPA, 1986b). The well should be purged at a relatively constant rate, which maximises the rate or purging without inducing sufficient drawdown to cause cascading water within the well. Purge rates for a particular well should be as consistent with previous purge rates for the well.

If the purge water is significantly contaminated, it should be place in a drum.

4.2.1.3 Sampling the Well

Groundwater samples should be collected as soon as possible after purging. Low-yield wells that were purged to dryness should be sampled as soon as the water level recovers sufficiently and pH, conductivity and temperature have stabilised. If the well does not recover sufficiently within 24 hours of purging, the well should be considered dry. The equipment used to collect the groundwater sample from the well should be selected based on the parameters to be analysed and is typically the same as that used for purging. All precautions should be made to minimise physical alteration or chemical contamination during sample collection. This sample order will minimise potential for least contaminated to most contaminated well. This sapling order will minimise potential for contamination from use of non-dedicated sampling and/or filtering equipment.

Samples for each well should be collected in order of most volatile to least volatile parameters. The preferred collection order (US EPA, 1986b) for some common parameters are:

- Volatile organics (VOA)
- Purgable organic carbon (POC)
- Purgable halogens (POX)
- Total organic halogens (TOX)
- Total organic carbon (TOC)
- Extractable organics
- Total metals
- Dissolved metals
- Phenol
- Cyanide
- Sulphate and chloride
- Turbidity
- Nitrate and ammonia
- Radionuclides

Temperature, pH, and specific conductivity measurements should be made in the field before and after sample collection as a check on the stability of the water sampled over time. These measurements should be recorded on the Field Parameter Form. When collecting samples for analysis of volatile constituents or gases using a bladder pump, the rate should not exceed 100 mls/minute. If a bailer is used, it is preferable to use one with single or double check valve and a bottom-emptying device.

4.2.1.3.1 Immiscible Liquid Sampling

Light phase immiscible liquids greater than 600 mm thick can be sampled with a bottom valve bailer. A top filling bailer on a stainless steel weighted rope is the desired sampling method if the layer is less than 600 mm thick. If the depth to this layer is less than about 6 m, then a peristaltic pump can be used to "vacuum" a sample. Dense non-aqueous phase liquids (DNAPL's) are best sampled using a double check valve bailer or Kemmer-style sample (US EPA 1986).

4.2.1.3.2 Filtration

Regulatory guidelines may vary regarding filtration of samples in field. However, all samples (except those listed below) should be filtered through a 0.45-micron membrane pressure filter unless regulatory requirements specify otherwise.

Parameter Not Requiring Field Filtering

- ❑ Alkalinity
- ❑ Turbidity
- ❑ Total Suspended Solids (TSS)
- ❑ Semi-volatile Organics (base, neutral, acid organics)
- ❑ Volatile Organics (VOA)
- ❑ Total Organic Carbon (TOC)
- ❑ Total Organic Halogen (TOX)
- ❑ Total Heavy Metals
- ❑ Any other parameters listed as ***total*** (refers to unfiltered samples. If it does not say total, assume dissolved)
- ❑ Coliform
- ❑ pH
- ❑ Specific Conductivity
- ❑ Oil and Grease

Filtration and preservation of groundwater samples is an integral part of the monitoring program. Improper techniques during this process can destroy the integrity of the sample. Therefore, all possible precautions should be taken to ensure that no contamination sources are introduced during filtration of preservation.

Filtration equipment should be decontaminated in the same manner as purging and sampling equipment. In addition, rinse the inside of the filter and discharge tube with purge water just prior to sampling. If significant contamination is known to be present, it is good practice to replace the discharge tubing prior to sampling each well.

NOTES:

- Filtering should be performed **immediately** upon collection of the samples. Filtration should be done in the field. Where this is not possible, it should be completed as soon as possible after the sample has been taken (**within two hours**), and should be done under the most sanitary conditions available.
- Refer to the Sampling Plan to assist in determining the order of filtering. Any sample that is suspected or known to contain high contamination levels, are to be filtered last to prevent possible contamination of the clean samples due to use of the same filtering equipment.

When using an in-line filter cartridge, a minimum of three (3) pump cycles of water must be allowed to pass through the filter before obtaining a sample. These filters should only be used for filtering inorganic parameters, unless analytical data is available to support that no sample contamination will occur.

4.2.1.3.3 Filling Sample Bottles

Sample bottles for non-filtered samples should be filled directly from the bailer or pump with a minimal amount of air contact. TOC, TOX, and volatile organics bottles should be headspace free, unless requested otherwise by testing laboratory. All samples that are filtered should be collected in the sample bottle directly from the filter discharge line. When filling sample bottles, these important procedures and precautions should be followed:

1) Bottle caps should be removed carefully so that the inside of the cap is not touched. **Caps should never be put on the ground.** Caps for VOA vials contain a Teflon septum. The Teflon side of the septum must be facing the sample to prevent contamination of the sample through the septum.

2) VOA vials should be filled as follows:
   - Carefully remove Teflon septum cap being careful not to contact cap with potential contaminants. **Vials must not be opened prior to sampling.** The vial should be open for a minimum amount to time, no longer than 3 minutes.
   - Carefully fill vial with sample using the submerge-fill technique (immerse and fill tube to bottom of vial) until meniscus (mound of water) forms on top. Avoid agitating sample as this may cos loss of volatiles.
   - Carefully replace a septum and cap on meniscus. This will force a small amount of water off the top. Check sample for air bubbles. If bubbles are present, remove cap, top up sample and repeat step.
3) The sample bottles should be filled with minimal amount of air contact, and without allowing the sample equipment or personnel to contact the inside of the bottles.
4) Samples that are to be filtered and preserved should be placed in bottles directly from the filter with sufficient space available in the sample for the addition of required preservatives. The bottle caps should then be replaced tightly.
5) Samples that require preservation usually have preservatives in the bottles when received. These bottles should be completely filled with the sample with as little overflow as possible and bottle caps replaced tightly. If required preservatives have not been received in the bottles, the bottles should be filled so that adequate space is left in the bottles for the preservative to be added.
6) TOX, TOC and VOA vials must be filled so that they are "headspace free" (ie, no air bubbles in the sample bottle) unless the samples are to be only partially filled. These sample bottles, therefore, need to be over-filled (water tension will remain a convex water surface in the bottle). The caps for these bottles should be replaced gently, so as to eliminate any air bubbles in the sample. These must then be checked, by inverting the bottle and snapping the sharply with a finger. If any air bubbles appear, discard sample and refill vial.
7) Air space should be left in coliform bottles, as these samples must be shaken before analysis.
8) Sample bottles, caps or septums that fall on the ground before filling should be thoroughly rinsed with sample water before being used. All circumstances regarding dropped caps or bottles, and their subsequent rinsing and use, **must** be noted on the Field Parameter Form.

4.2.1.3.4 Quality Assurance/Quality Control Samples

Details of quality assurance/quality control (QA/QC) samples are provided in the General Operating Procedure tilted ***"Quality Assurance/Quality Control"*** in this manual.

However, briefly, there are four main types of QA/QC samples for groundwater investigations, these are:

- Field (equipment) and trip blanks are used as control or external QA/QC samples to detect contamination that may be introduced in the field (either atmospheric or from sampling equipment)
- Trip blanks are samples of organic free water that are prepared by the analytical lab, which is providing the bottles to be used for sampling.
- Field blanks are prepared in the field (at the sampling site) using empty bottles and the deionised water used for the cleaning of sampling equipment. A field blank is not necessary if a dedicated pump is permanently installed in the well.
- A duplicate sample is another way of checking the analytical laboratory QA/QC. Two samples are collected, one right after the other, and sent to the lab for analysis.

4.2.1.3.5 Selection of Sample Containers, Preservation, Storage and Shipment

Details of selection of selection of sample containers, preservation, storage and shipment of samples are provided in the General Operating Procedure titled ***"Selection of Sample Containers, Preservation, Storage and Shipment of Samples"*** in this manual.

However, samples should be preserved immediately after filtering or immediately after sample collection if not filtered. Pre-measured amounts of preserving reagents are placed in the sample bottles or are contained on small ampoules attached to the sample bottles. **If provided separately, the preservative should be added to the sample bottle after the bottle has been filled.** Bottles must not be overfilled, and should be inverted (once capped) to mix the preservative and sample. The bottle lids should be tightened and checked prior to shipment to prevent them from coming loose during shipment. Bottle lids must not be placed on the ground or interchanged between sample bottles.

The samples from each well should be labelled in a consistent manner to the other wells and to previous sampling events at the site.

All sample bottles, once filled and preserved as required, should be properly labelled, stored and shipped in accordance with General Operating Procedures No. 12.

4.2.1.4 Post-Sampling

After completion of the sampling event and packaging of the samples, all non-dedicated equipment should be thoroughly decontaminated as specified in this manual.

Dedicated equipment not left in the well(s) should be placed in clean plastic bags or other suitable storage device and sealed. All dedicated equipment should be kept in a clean, secure storage area to prevent use at other sites and contamination from other sources.

SKM

Environmental Investigations
Work Instruction No. 11

Decontamination

This General Operating Procedure was developed to provide guidance for the decontamination of sampling equipment.

The main objective of environmental sampling is to collect samples (normally soil and/or groundwater) for chemical analysis, to provide data on the chemical contamination in the sample. ***Obviously it is undesirable for the chemical composition of the collected sample to be unrepresentative of the actual sub-surface conditions.*** Therefore, a prime consideration of any sampling program is to take all appropriate and practical steps to ensure the chemical integrity of the sample is maintained and that "foreign" chemicals are not added or chemicals present in the sample lost.

One potential source for the addition of foreign chemicals to a sample is by the use of sampling equipment that contains or includes chemical residues from an earlier sample event or from simple atmospheric exposure to contaminants. Therefore, to ensure the integrity of the sample being collected all traces of foreign chemical residues ***have to be removed*** from the sampling equipment.

Thus, decontamination of sampling equipment is undertaken to ***minimise the potential for introduction of foreign contamination to a sample*** during the collection of that sample.

Therefore, all sampling equipment must be decontaminated between sampling events, or in the case of some pieces of equipment (eg, drill rods, etc.), between investigation locations and before commencing investigations. This includes all new and old equipment, as it is often not possible to know what contaminant equipment (out of the samplers' control) may have been exposed to.

Further, ***all sampling equipment should be thoroughly decontaminated before leaving a site.*** This should be undertaken for health and safety reasons (so as not to transfer contaminants from the site to a vehicle used to get to and from the site or to the office), and so that the equipment will be free of contaminants for the next project. Nevertheless, it is recommended that all sampling equipment be decontaminated before commencing sampling each day. To reduce the potential for contamination of sampling equipment from atmospheric fall out, sampling equipment can be sealed inside plastic bags. If for some reason it is not possible to decontaminate a piece of sampling equipment on site, the equipment should be sealed in a plastic bag that is clearly marked to identify to other personnel that it has not been decontaminated. Arrangements should be made as soon as possible to get the equipment decontaminated or the equipment should be discarded.

Equipment that will typically require decontamination includes: Hand augers; Composite trays; Push and drive samples, eg SPT split spoon sampler; Trowels; Bailers; Drill rods; PVC casing etc. Equipment decontaminated by others (eg drillers) should be checked to see that it has been carried out to an acceptable standard before use of the equipment.

Decontamination is commonly undertaken by:

- High pressure steam cleaner
- Detergent washes and water rinse

High-pressure steam cleaning is the preferred decontamination method, particularly for large bulky items such as drill rods, PVC, push and drive samplers, etc. The high-pressure steam cleaner, which requires water and a power source to function, can remove most residues.

However, it is not always possible to have a steam cleaner on site when undertaking environmental investigations. On these occasions, the decontamination should be undertaken using the detergent wash and tap water rinse.

The following equipment will be needed for the detergent washes and water rinse decontamination process.

- Laboratory (phosphate-free) detergent or Decon 90
- Tap water and deionised water
- Buckets or tubs (sufficient for size of equipment to be cleaned)
- Stiff brushes for cleaning

All sampling equipment will be decontaminated before use, between each sample, and at the completion of the sampling program. The following procedures shall be followed for decontamination of sampling equipment, by detergent and water rinse methods.

1) Buckets or tubs for decontamination shall be cleaned with tap water and detergent and rinsed with tap water before sampling commences.
2) Fill first bucket or tub with tap water, and phosphate free detergent.
3) Fill second bucket or tub with tap water.
4) Clean equipment thoroughly in detergent water, using brushes.
5) Rinse equipment in tap water.
6) Dry equipment with disposable towels.
7) Rinse equipment by thoroughly spraying with tap water and/or distilled water (as appropriate).
8) Allow equipment to thoroughly air dry.
9) Change water and detergent solution after each sampling site.

In some cases, it may be necessary to rinse with a 10% nitric acid/distilled water solution after step 7. Where this is undertaken, the equipment should then be rinsed thoroughly with distilled water followed by methanol.

Equipment that cannot be thoroughly decontaminated using the detergent wash and water rinse should be steam cleaned or if a steam cleaner is not available, do not use for further sampling marking clearly "not decontaminated" or discard. Equipment decontaminated using the high-pressure steam cleaner will be treated until all signs of contamination have been removed.

Any equipment that cannot be decontaminated to the satisfaction of the sampling team shall be discarded and replaced.

If a pump is used to develop, purge or sample a well, it should be cleaned in the following manner:

1) Clean the buckets with tap water and detergent, rinse with tap water, and finally, rinse with distilled water before cleaning equipment.
2) Fill first bucket with detergent and tap water.
3) Fill second bucket with tap water
4) Submerse the pump intake device into the detergent water and operate for 5 minutes.
5) Submerse the pump intake device into the tap water and operate for 5 minutes.

6) Tubing will be dedicated to each well.

Decontamination/Cleaning of sample Containers

Details of the decontamination/cleaning procedures for sample containers are given in the General Operating Procedure titled ***"Selection of Sample Containers, Sample Preservation, Handling and Documentation"*** in this manual.

Appendix D Chain of Custody Documentation

Project: EN01669
Quote: SY/252/041A

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT:email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS												
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N, Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)#
1 MW06S	WATER	7		1/3/05	✓	✓	✓	✓	✓	✓	✓	✓	✓				Bottle
2 MW06D	"	7		"	✓	✓	✓	✓	✓	✓	✓	✓	✓				"
3 MW20S	"	7		"	✓	✓	✓	✓	✓	✓	✓	✓	✓				"
4 MW07D	"	7		"	✓	✓	✓	✓	✓	✓	✓	✓	✓				"
5 MW18D	"	7		"	✓	✓	✓	✓	✓	✓	✓	✓	✓				"
6 MW13D	"	7		"	✓	✓	✓	✓	✓	✓	✓	✓	✓				"
7 MW17D	"	7		2/3/05	✓	✓	✓	✓	✓	✓	✓	✓	✓				"

ALS Environmental
Sydney
Work Order
ES0501569
Report Version: WOLabel 1.00
Telephone : 61-2-87848555

Notes: **Metals include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg** 2 x esks

RELINQUISHED BY (SIGN / PRINT): Simon Opper DATE: 2/3/05 TIME: 9am
OF: Sinclair Knight Merz

RECEIVED BY (SIGN / PRINT): Margaret
OF: ALS
(ARRIVAL TEMP: deg. C) DATE: 2/3/05 TIME: 1.00pm

S = (Yellow)Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

Project: EN01669
Quote: SY/252/041A

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT:email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS												
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N, Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)#
1 MW06S	WATER	7		1/3/05	/	/	/	/	/	/	/	/	/				Bottle
2 MW06D	"	7		"	/	/	/	/	/	/	/	/	/				"
3 MW20S	"	7		"	/	/	/	/	/	/	/	/	/				"
4 MW07D	"	7		"	/	/	/	/	/	/	/	/	/				"
5 MW18D	"	7		"	/	/	/	/	/	/	/	/	/				"
6 MW13D	"	7		"	/	/	/	/	/	/	/	/	/				"
7 MW17D	"	7		2/3/05	/	/	/	/	/	/	/	/	/				"

ALS Environmental
Sydney
Work Order
ES0501569
Report Version: WOLabel 1.00
Telephone : 61-2-87848555

Notes: Metals include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg 2 x esks

RELINQUISHED BY (SIGN / PRINT): Simon Opper DATE: 2/3/05 TIME: 9am
OF: Sinclair Knight Merz

RECEIVED BY (SIGN / PRINT): Margaret DATE: 2/3/05
OF: ALS (ARRIVAL TEMP: deg. C) TIME: 1.00pm

S = (Yellow)Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

Project: EN01669
Quote: SY/252/041A

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT:email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
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277 Woodlark Road,
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SAMPLE INFORMATION					LABORATORY PARAMETERS												
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N, Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)#
1 MW06S	WATER	7		1/3/05	✓	✓	✓	✓	✓	✓	✓	✓	✓				Bottle
2 MW06D	"	7		"	✓	✓	✓	✓	✓	✓	✓	✓	✓				"
3 MW20S	"	7		"	✓	✓	✓	✓	✓	✓	✓	✓	✓				"
4 MW07D	"	7		"	✓	✓	✓	✓	✓	✓	✓	✓	✓				"
5 MW18D	"	7		"	✓	✓	✓	✓	✓	✓	✓	✓	✓				"
6 MW13D	"	7		"	✓	✓	✓	✓	✓	✓	✓	✓	✓				"
7 MW17D	"	7		2/3/05	✓	✓	✓	✓	✓	✓	✓	✓	✓				"

ALS Environmental
Sydney
Work Order
ES0501569
Report Version: WOLabel 1.00
Telephone : 61-2-87848555

Notes: Metals include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg 2 x eskes

RELINQUISHED BY (SIGN / PRINT): Simon Opper DATE: 2/3/05
OF: Sinclair Knight Merz TIME: 9am

RECEIVED BY (SIGN / PRINT): Margaret DATE: 2/3/05
OF: ALS (ARRIVAL TEMP: deg. C) TIME: 1.00pm

S = (Yellow)Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

CHAIN OF CUSTODY DOCUMENTATION

ALS Environmental

CLIENT: SKM

POSTAL ADDRESS:

SEND REPORT TO: LOUISE MACDONALD SEND INVOICE TO:

DATA NEEDED BY: REPORT NEEDED BY:

PROJECT ID: QUOTE NO.: SY/252/0.4 A1

P.O. NO.: COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

FOR LAB USE ONLY

COOLER SEAL

(Yes) ..... No .....

Broken ..... (Intact) .....

COOLER TEMP. 10 deg. C

LABORATORY BATCH NO.:

SAMPLERS:

PHONE: FAX: EMAIL:

REPORT FORMAT: HARD: ☐ FAX: ☐ E-MAIL: ☐

QC LEVEL: QCS1: ☐ QCS2: ☐ QCS3: ☐ QCS4: ☐

ANALYSIS REQUIRED

SAMPLE DATA				*CONTAINER DATA			Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N (ammonia)	Speciated Phenols	PAH	BTEX
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.	pH												
1 Dup 2																		
2 MW14S																		
3 MW14D																		
4 MW16S																		
5 MW17S																		
6 MW17D																		
7 MW04S																		
8 MW04D																		
9 MW12S																		
10 MW13S																		

NOTES: metals include= As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg

No Next bottle supplied returned samples appr 3/3/05 1pm

ALS Environmental
Sydney
Work Order
ES0501612

Report Version: WOLabel 1.00

Telephone : 61-2-87848555

RELINQUISHED BY

NAME: DATE:

OF: SKM TIME:

NAME: DATE:

OF: TIME:

RECEIVED BY

NAME: Ibani DATE: 3-3-05

OF: ALS TIME: 11.45

NAME: DATE:

OF: TIME:

METHOD OF SHIPMENT

CONSIGNMENT NOTE NO.

TRANSPORT CO. NAME

*Container Type and Preservative Codes: **P** = Natural Plastic; **N** = Nitric Acid Preserved; **C** = Sodium Hydroxide Preserved; **J** = Solvent Washed Acid Rinsed Jar; **S** = Solvent Washed Acid Rinsed Glass Bottle; **V** = Vial; **VC** = Hydrochloric Acid Preserved Vial; **VS** = Sulphuric Acid Preservative Vial; **BS** = Sulphuric Acid Preserved Glass Bottle; **PS** = Sulphuric Acid Preserved Plastic Bottle; **Z** = Zinc Acetate Preserved Bottle; **E** = EDTA Preserved Bottle; **H** = Hydrochloric Acid Preserved Plastic Bottle; **F** = Formaldehyde Preserved; **ST** = Sterile Bottle; **B** = Plastic Bag; **O** = Other

CHAIN OF CUSTODY DOCUMENTATION

ALS Environmental

CLIENT: SKM	LABORATORY BATCH NO:
POSTAL ADDRESS:	SAMPLERS:
SEND REPORT TO: LOUISE MACDONALD SEND INVOICE TO:	PHONE: FAX: EMAIL:
DATA NEEDED BY: REPORT NEEDED BY:	REPORT FORMAT: HARD: ☐ FAX: ☐ E-MAIL: ☐
PROJECT ID: QUOTE NO.: SY/252/0.4 A1	QC LEVEL: QCS1: ☐ QCS2: ☐ QCS3: ☐ QCS4: ☐
P.O. NO.: COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:	
FOR LAB USE ONLY	
COOLER SEAL	
(Yes) ..... No	
Broken ..... (Intact)	
COOLER TEMP. 10 deg. C	

SAMPLE DATA				*CONTAINER DATA		
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.	pH
(1) Dup 2						
(2) MW14S						
(3) MW14D						
(4) MW16S						
(5) MW17S						
(6) MW17D						
(7) MW04S						
(8) MW04D						
(9) MW12S						
(10) MW13S						

No Next bottle supplied returned same day 3/3/05 1pm

ANALYSIS REQUIRED

HEAVY METALS	TPH	SVOC	VOC	HARDNESS	BOD	COD	TOC	TOTAL N, AMMONIA	SPECIATED PHENOLS	PAH	BTEX	NOTES
/	/			/	/	/	/	/	/	/		metals include= As, Cd, Cr(vi), Cu, Ni, Pb, Zn Hg
/	/	/	/	/	/	/	/	/				
/	/	/	/	/	/	/	/	/				
/	/	/	/	/	/	/	/	/				
/	/	/	/	/	/	/	/	/				
/	/	/	/	/	/	/	/	/				
/	/	/	/	/	/	/	/	/				
/	/	/	/	/	/	/	/	/				
/	/	/	/	/	/	/	/	/				
/	/	/	/	X	/	/	/	/				

ALS Environmental
Sydney
Work Order
ES0501612

Report Version: WOLabel 1.00

Telephone : 61-2-87848555

RELINQUISHED BY	RECEIVED BY	
NAME:	NAME: Ibahia	METHOD OF SHIPMENT
OF: SKM	OF: ALS	
DATE:	DATE: 3.3.05	CONSIGNMENT NOTE NO.
TIME:	TIME: 11.45	
NAME:	NAME:	TRANSPORT CO. NAME
OF:	OF:	
DATE:	DATE:	
TIME:	TIME:	

*Container Type and Preservative Codes: **P** = Natural Plastic; **N** = Nitric Acid Preserved; **C** = Sodium Hydroxide Preserved; **J** = Solvent Washed Acid Rinsed Jar; **S** = Solvent Washed Acid Rinsed Glass Bottle; **V** = Vial; **VC** = Hydrochloric Acid Preserved Vial; **VS** = Sulphuric Acid Preservative Vial; **BS** = Sulphuric Acid Preserved Glass Bottle; **PS** = Sulphuric Acid Preserved Plastic Bottle; **Z** = Zinc Acetate Preserved Bottle; **E** = EDTA Preserved Bottle; **H** = Hydrochloric Acid Preserved Plastic Bottle; **F** = Formaldehyde Preserved; **ST** = Sterile Bottle; **B** = Plastic Bag; **O** = Other

CHAIN OF CUSTODY DOCUMENTATION

ALS Environmental

CLIENT: SKM

POSTAL ADDRESS:

SEND REPORT TO: LOUISE MACDONALD SEND INVOICE TO:

DATA NEEDED BY: REPORT NEEDED BY:

PROJECT ID: QUOTE NO.: SY/252/0.4 A1

P.O. NO.: COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

FOR LAB USE ONLY

COOLER SEAL

Yes ..... No .....

Broken ..... Intact .....

COOLER TEMP. 10 deg. C

LABORATORY BATCH NO.:

SAMPLERS:

PHONE: FAX: EMAIL:

REPORT FORMAT: HARD: ☐ FAX: ☐ E-MAIL: ☐

QC LEVEL: QCS1: ☐ QCS2: ☐ QCS3: ☐ QCS4: ☐

ANALYSIS REQUIRED

SAMPLE DATA				*CONTAINER DATA		
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.	pH
1) Dup 2						
2) MW14S						
3) MW14D						
4) MW16S						
5) MW17S						
6) MW17D						
7) MW04S						
8) MW04D						
9) MW12S						
10) MW18S						

No Next bottle supplied delivered same day 3/3/05 1pm

HEAVY METALS | TPH | SVOC | VOC | HARDNESS | BOD | COD | TOC | TOTAL N | AMMONIA | SPECIATED PHENOLS | PAH | BTEX

NOTES

metals include= As, Cd, Cr (vi), Cu, Ni, Pb, Zn Hg

ALS Environmental
Sydney
Work Order
ES0501612

Report Version: WOLabel 1.00

Telephone : 61-2-87848555

RELINQUISHED BY		RECEIVED BY		
NAME:	DATE:	NAME: Ibani	DATE: 3.3.05	METHOD OF SHIPMENT
OF: SKM	TIME:	OF: ALS	TIME: 11.45	CONSIGNMENT NOTE NO.
NAME:	DATE:	NAME:	DATE:	TRANSPORT CO. NAME
OF:	TIME:	OF:	TIME:	

*Container Type and Preservative Codes: **P** = Natural Plastic; **N** = Nitric Acid Preserved; **C** = Sodium Hydroxide Preserved; **J** = Solvent Washed Acid Rinsed Jar; **S** = Solvent Washed Acid Rinsed Glass Bottle; **V** = Vial; **VC** = Hydrochloric Acid Preserved Vial; **VS** = Sulphuric Acid Preservative Vial; **BS** = Sulphuric Acid Preserved Glass Bottle; **PS** = Sulphuric Acid Preserved Plastic Bottle; **Z** = Zinc Acetate Preserved Bottle; **E** = EDTA Preserved Bottle; **H** = Hydrochloric Acid Preserved Plastic Bottle; **F** = Formaldehyde Preserved; **ST** = Sterile Bottle; **B** = Plastic Bag; **O** = Other

01 615 532

Project: EN01669
Quote: SY/252/041A

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT:email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N, Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)#
MW42D (1)	WATER	8		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW42S (2)	"	"		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW37D (3)	"	"		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW37S (4)	"	"		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW030 (5)	"	"		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW36D (6)	"	"		3/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW38D (7)	"	"		3/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
DUP4 (8)	"	"		4/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
Trip Spike (9)	"	#2		4/3												✓	
Rinsate 1 (10)	"	"		4/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
Rinsate 2 (11)	"	"		4/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
Extra ?																	
MW39S (missing 250ml H2SO4, IL not.																	
MW39D																	
MW40S																	
MW40D																	
↓ Samples part of another C.O.C lose faxed later. 4/4/03 FB																	

ALS Environmental
Sydney
Work Order
ES0501668

Report Version: WOLabel 1.00

Telephone : 61-2-87848555

Notes: **Metals include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg**

RELINQUISHED BY (SIGN / PRINT): Simon Opper
OF: Sinclair Knight Merz
DATE: 4/3
TIME: 10am

RECEIVED BY (SIGN / PRINT): Margaret
OF: ALS
DATE: 2-00pm
TIME: ALS
(ARRIVAL TEMP: deg. C)

S = (Yellow) Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

01 615.532

Project: EN01669
Quote: SY/252/041A

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT:email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS											
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N, Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)#
MW42D (1)	WATER	8		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW42S (2)	"	"		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW37D (3)	"	"		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW37S (4)	"	"		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW030 (5)	"	"		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW36D (6)	"	"		3/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW38D (7)	"	"		3/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
DUP4 (8)	"	"		4/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
Trip Spike (9)	"	#2		4/3												✓	
Rinsate 1 (10)	"	"		4/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
Rinsate 2 (11)	"	"		4/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
Extra ?																	
MW39S missing 250ml H2SO4, IL Nad.																	
MW39D																	
MW40S																	
MW40D																	
↓ Samples part of another C.O.C lose fixed later. 4/3/08 FB																	

ALS Environmental
Sydney
Work Order
ES0501668

Report Version: WOLabel 1.00

Telephone : 61-2-87848555

Notes: Metals include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg

RELINQUISHED BY (SIGN / PRINT): Simon Opper
OF: Sinclair Knight Merz
DATE: 4/3
TIME: 10am

RECEIVED BY (SIGN / PRINT): Margaret
OF: ALS
DATE: 2-04-08
(ARRIVAL TEMP: deg. C) TIME: 4:30pm

S = (Yellow) Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

01 615 532

Project: EN01669
Quote: SY/252/041A

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT:email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS											
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N, Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)#
MW42D (1)	WATER	8		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW42S (2)	"	"		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW37D (3)	"	"		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW37S (4)	"	"		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW030 (5)	"	"		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW36D (6)	"	"		3/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW38D (7)	"	"		3/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
DUP4 (8)	"	"		4/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
Trip Spike (9)	"	#2		4/3												✓	
Rinsate 1 (10)	"	"		4/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
Rinsate 2 (11)	"	"		4/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
Extra ?																	
MW39S missing 250ml H2SO4, IL Nad.																	
MW39D																	
MW40S																	
MW40D																	
↓ Samples part of another C.O.C Jose Forced later. 4/4/03 FB																	

ALS Environmental
Sydney
Work Order
ES0501668

Report Version: WOLabel 1.00
Telephone : 61-2-87848555

Notes: **Metals include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg**

RELINQUISHED BY (SIGN / PRINT): Simon Opper
OF: Sinclair Knight Merz
DATE: 4/3
TIME: 10am

RECEIVED BY (SIGN / PRINT): Margaret
OF: ALS
DATE: 2-00pm
(ARRIVAL TEMP: deg. C) TIME: 4.15pm

S = (Yellow) Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

Project: EN01669
Quote: SY/252/041A

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT:email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS													
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals (Field Filtered)	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N, Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)#
MW36S (1)	WATER	5		4/3	✓	✓	✓	✓	[redacted]	[redacted]	[redacted]	✓	[redacted]				Semi VOLATILE Bottles only part full
MW35S (2)	" "	6		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW41D (3)	" "	8		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				

ALS Environmental
Sydney
Work Order
ES0501691

Report Version: WOLabel 1.00

Telephone : 61-2-87848555

Notes: **Metals include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg**

RELINQUISHED BY (SIGN / PRINT): Simon Opp DATE: 4/3 TIME: 2:30pm
OF: Sinclair Knight Merz

RECEIVED BY (SIGN / PRINT): FADI DATE: 7/3/05
OF: (ARRIVAL TEMP: deg. C) TIME: Mon

S = (Yellow) Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

Project: EN01669
Quote: SY/252/041A

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT:email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS													
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals (Field Filtered)	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N, Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)#
MW36S (1)	WATER	5		4/3	/	/	/	/	[redacted]	[redacted]	[redacted]	/	[redacted]				Semi VOLATILE Bottles only part full
MW35S (2)	" "	6		4/3	/	/	/	/	/	/	/	/	/				
MW41D (3)	" "	8		4/3	/	/	/	/	/	/	/	/	/				

ALS Environmental
Sydney
Work Order
ES0501691

Report Version: WOLabel 1.00

Telephone : 61-2-87848555

Notes: **Metals include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg**

RELINQUISHED BY (SIGN / PRINT): Simon Opper DATE: 4/3 TIME: 2:30pm
OF: Sinclair Knight Merz

RECEIVED BY (SIGN / PRINT): FADI DATE: 7/3/06
OF: (ARRIVAL TEMP: deg. C) TIME: Am

S = (Yellow) Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

Project: EN01669
Quote: SY/252/041A

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT:email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS													
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals (Field Filtered)	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N, Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)#
MW36S (1)	WATER	5		4/3	✓	✓	✓	✓	[redacted]	[redacted]	[redacted]	✓	[redacted]				Semi VOLATILE Bottles only part full
MW35S (2)	" "	6		4/3	✓	✓	✓	✓			✓	✓	✓				
MW41D (3)	" "	8		4/3	✓	✓	✓	✓	✓	✓	✓	✓	✓				

ALS Environmental
Sydney
Work Order
ES0501691

Report Version: WOLabel 1.00

Telephone : 61-2-87848555

Notes: **Metals include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg**

RELINQUISHED BY (SIGN / PRINT): Simon Opper DATE: 4/3
TIME: 2:30pm
OF: Sinclair Knight Merz

RECEIVED BY (SIGN / PRINT): FADI DATE: 7/3/05
OF: (ARRIVAL TEMP: deg. C) TIME: Mon

S = (Yellow) Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

ect: EN01669
uote: SY/252/041A

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT:email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS												
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N; Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)#
MW39S (1)	Water	6		2/3/05	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW39D (2)	Water	3		2/3/05	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW40S (3)	Water	3		2/3/05	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW40D (4)	Water	8		2/3/05	✓	✓	✓	✓	✓	✓	✓	✓	✓				

ALS Environmental
Sydney
Work Order
ES0501695



Report Version: WOLabel 1.00
Telephone : 61-2-87848555

Notes: Metals Include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg
As per discussion with Simon Opper.

RELINQUISHED BY (SIGN / PRINT): L MacDonald DATE: 3/3/05
OF: Sinclair Knight Merz TIME:

RECEIVED BY (SIGN / PRINT): FATOI DATE: 7/3/05
OF: ALS (ARRIVAL TEMP: deg. C) TIME:

S = (Yellow) Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKN UPON RECIEPT

AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

07/03/2005 10:33 NO.938 P001

Project: EN01669
Quote: SY/252/041A

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT:email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS												
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N; Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)#
MW39S (1)	Water	6		3/3/04	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW39D (2)	Water	3		2/3/04	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW40S (3)	Water	3		2/3/04	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW40D (4)	Water	3		2/3/04	✓	✓	✓	✓	✓	✓	✓	✓	✓				

ALS Environmental
Sydney
Work Order
ES0501695
Report Version: WOLabel 1.00
Telephone : 61-2-87848555

Notes: Metals Include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg
As per discussion with Simon Opper.

RELINQUISHED BY (SIGN / PRINT): L MacDonald DATE: 3/3/04
OF: Sinclair Knight Merz TIME:

RECEIVED BY (SIGN / PRINT): FADJ DATE: 7/3/05
OF: ALS (ARRIVAL TEMP: deg. C) TIME:

S = (Yellow) Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKM UPON RECIEPT
AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

07/03/2005 10:33 NO.938 P001

07/03/2005 10:33

ect: EN01669
Quote: SY/252/041A

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT:email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS												
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N; Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)#
MW39S (1)	Water	6		3/3/04	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW39D (2)	Water	3		2/3/04	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW40S (3)	Water	3		2/3/04	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MW40D (4)	Water	3		2/3/04	✓	✓	✓	✓	✓	✓	✓	✓	✓				

ALS Environmental
Sydney
Work Order
ES0501695



Report Version: WOLabel 1.00
Telephone : 61-2-87848555

Notes: Metals Include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg
As per discussion with Simon Opper.

RELINQUISHED BY (SIGN / PRINT): L MacDonald DATE: 3/3/04
OF: Sinclair Knight Merz TIME:

RECEIVED BY (SIGN / PRINT): FADJ DATE: 7/3/05
OF: ALS (ARRIVAL TEMP: deg. C) TIME:

S = (Yellow) Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

NO.938 P001

FAX. 8874 0515.

SKM

Chain of Custody Record

Form ET8 August 96

PROJECT NO.	PROJECT NAME	SAMPLE TYPE						AMDEL QUOTATION E040901.ETH 8/9/04.	
EN01669	MACDONALDTOWN	WATER	SOIL	SEDIMENT	TISSUE	AIR	OTHER		
SAMPLERS (signature)				NO. OF CONTAINERS				REMARKS	LAB ID NO.
DATE	TIME	SAMPLE ID							
18/2/05	E179645	MW41D 7.0m		1		✓			BTEX, TPH, 8 METALS, SVOC, VOC
17/2/05	46	MW39D 10.5m		1		✓			ON HOLD
16/2/05	47	MW38D 2-2.45m		1		✓			BTEX, TPH, 8 METALS, SVOC, VOC

1 FEB 2005
E0674

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	METHOD OF SHIPMENT
L. MacDonald	21/2/05		Emily Tan	COURIER
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	LABORATORY: AMDEL
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	Send results to: LOUISE MACDONALD (address) PO BOX 1604 ST LEONARDS NSW 2065
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RESULTS BY 1 MARCH 2005 Phone: 9928 2237 Fax:: 9928 2272

FORM STATUS
Mandatory ..... ☐
Optional (but with intent on file) ... ☑
Guideline ..... ☐

Sampler initiates → Custodian 1 actions, signs, passes on → Custodian 2 actions, signs, passes on etc. → Project Manager closes out → File

Copy to: .....
.....

Sent ☐

Comment .....
.....

Prepared by: ..../...../...

File: .....

7200

Fax. 8874 0515.

SKM

Chain of Custody Record

Form ET8 August 96

PROJECT NO.	PROJECT NAME
EN01669	MACDONALDTOWN

SAMPLE TYPE

AMDEL QUOTATION E040901.ETH 8/9/04.

SAMPLERS (signature)			NO. OF CONTAINERS	WATER	SOIL	SEDIMENT	TISSUE	AIR	OTHER	REMARKS	LAB ID NO.
DATE	TIME	SAMPLE ID									
18/2/05	E179645	MW41D 7.0m	1		✓					BTEX, TPH, 8 METALS, SVOC, VOC	
17/2/05	46	MW39D 10.5m	1		✓					ON HOLD	
16/2/05	47	MW38D 2-2.45m	1		✓					BTEX, TPH, 8 METALS, SVOC, VOC	

21 FEB 2005 E0674

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
L. MacDonald	21/2/05		Emily Tran
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

METHOD OF SHIPMENT: COURIER

LABORATORY: AMDEL

Send results to: LOUISE MACDONALD

(address) PO BOX 164
ST LEONARDS NSW 2065

RESULTS BY 1 MARCH 2005

Phone: 9928 2237 Fax:: 9928 2272

FORM STATUS
Mandatory ..... ☐
Optional (but with intent on file) ... ☑
Guideline ..... ☐

Sampler initiates → Custodian 1 actions, signs, passes on → Custodian 2 actions, signs, passes on etc. → Project Manager closes out → File

Copy to: .....

Sent ☐ Comment .....

Prepared by: ..../../..

File: .....

7200

Fax. 8874 0515.

SKM

Chain of Custody Record

Form ET8 August 96

PROJECT NO.	PROJECT NAME	SAMPLE TYPE						AMDEL QUOTATION
EN01669	MACDONALDTOWN							E040901.ETH 8/9/04.

SAMPLERS (signature)			NO. OF CONTAINERS	WATER	SOIL	SEDIMENT	TISSUE	AIR	OTHER	REMARKS	LAB ID NO.
DATE	TIME	SAMPLE ID									
18/2/05	E179645	MW41D 7.0m	1		✓					BTEX, TPH, 8 METALS, SVOC, VOC	
17/2/05	46	MW39D 10.5m	1		✓					ON HOLD	
16/2/05	47	MW38D 2-2.45m	1		✓					BTEX, TPH, 8 METALS, SVOC, VOC	

21 FEB 2005
E0674

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	METHOD OF SHIPMENT
L. MacDonald	21/2/05		Emily Tran	COURIER
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	LABORATORY: AMDEL
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	Send results to: LOUISE MACDONALD
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	(address) PO BOX 164 ST LEONARDS NSW 2065
				RESULTS BY 1 MARCH 2005
				Phone: 9928 2237 Fax: 9928 2272

FORM STATUS
Mandatory ..... ☐
Optional (but with intent on file) ... ☑
Guideline ..... ☐

Sampler initiates → Custodian 1 actions, signs, passes on → Custodian 2 actions, signs, passes on etc. → Project Manager closes out → File

Copy to: .....
.....

Sent ☐

Comment .....
.....

Prepared by: ..../...../.....

File: .....

7200

Project: EN01669
Quote: EQ40MCT-12TH

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT: email
HARD / E-MAIL / FAX

CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

AMDEL LTD
99 MICHAEL ST
CARDIFF, NSW 2285
02 4902 4800

SAMPLE INFORMATION					LABORATORY PARAMETERS												
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N, Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)*
DUP1 E(8185	WATER	7		2/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
DUP3 E(8185]	"	7		3/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	

J MAR 2005
EQ0835

Notes: Metals include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg

RELINQUISHED BY (SIGN / PRINT): Simon Opper DATE: 3/3/05
OF: Sinclair Knight Merz TIME: 9:30a

RECEIVED BY (SIGN / PRINT): DATE: 3/3
OF: TIME: 1:15.
ARRIVAL TEMP: 9 deg. C)

P, S = Teflon Solvent Washed And Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed And Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

[redacted]

Project: EN01669
Quote: EQ40[illegible]12TH

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT: email
HARD / E-MAIL / FAX

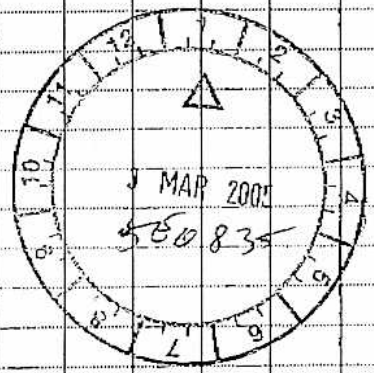
CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

AMDEL LTD
99 MICHAEL RD
CARDIFF, NSW 2285
02 4902 4800

SAMPLE INFORMATION					LABORATORY PARAMETERS												
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N, Ammonia	Speciated Phenols	PAH	BTEX	COMMENTS (Container Type)*
DUP1 E18185	WATER	7		2/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
DUP3 E18185	"	7		3/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	



Notes: Metals include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg

RELINQUISHED BY (SIGN / PRINT): Simon Opp
DATE: 3/3/05
TIME: 9:30a
OF: Sinclair Knight Merz

RECEIVED BY (SIGN / PRINT): E. Brandt Emily Yan
DATE: 3/3
ARRIVAL TEMP: 9 deg. C
TIME: 1:15

P, S = (Yellow) Solvent Washed And Baked Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed And Baked Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

[redacted]

Project: EN01669
Quote: EC40601-12TH

DATE DUE:
REPORT TO: Simon Opper/ Louise MacDonald
REQUIRED REPORT FORMAT: email
HARD / E-MAIL / FAX

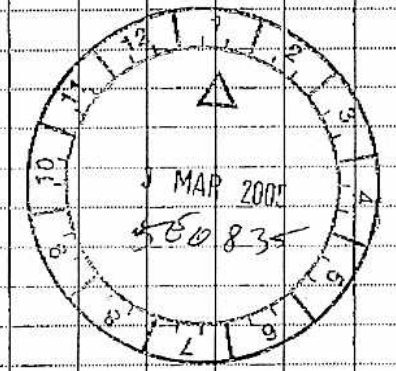
CHAIN OF CUSTODY

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARD NSW 1590

TEL: (02) 9928 2237
FAX: (02) 9928 2272

AMDEL LTD
99 MICHAEL RD
CARDIFF, NSW 2285
02 4902 4800

SAMPLE INFORMATION					LABORATORY PARAMETERS												
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	Heavy Metals	TPH	SVOC	VOC	Hardness	BOD	COD	TOC	Total N, Ammonia	Specated Phenols	PAH	BTEX	COMMENTS (Container Type)*
DUP1 E(8185	WATER	7		2/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
DUP3 E(8185	"	7		3/3	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	



Notes: Metals include = As, Cd, Cr (vi), Cu, Ni, Pb, Zn, Hg

RELINQUISHED BY (SIGN / PRINT): Simon Opper DATE: 3/3/05
OF: Sinclair Knight Merz TIME: 9:30a

RECEIVED BY (SIGN / PRINT): Emily Yan DATE: 7/3
OF: [ARRIVAL TEMP: 9 deg. C] TIME: 1.15.

(S = (Solvent Washed And Baked) Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other)

PLEASE SIGN AND FAX TO SKM UPON RECIEPT

[redacted]

Project: ENO1669
Quote: SY/252/041A
INVOICE: SKM
DATE DUE: ASAP
REPORT TO: Simon Opper
sopper@skm.com.au
REQUIRED REPORT FORMAT:
EMAIL

CHAIN OF CUSTODY

FROM: **SINCLAIR KNIGHT MERZ**
100 Christie Street,
ST. LEONARD NSW 1590
sopper@skm.com.au
TELL: (02) 9032 1829
FAX: (02) 9928 2272

aAustralian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS												
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	BTEX	PAH											COMMENTS (Container Type)*
MW30 (1)	Air	1		22-Mar	X												Carbon Tube
MW32 (2)	Air	1		22-Mar	X												Carbon Tube
MW33 (3)	Air	1		22-Mar	X												Carbon Tube
MW34 (4)	Air	2		22-Mar	X	X											Carbon Tube
																	Carbon Tube

Batch No. ☐ ORG
NET326
Batched Date: 29/3/05
☐ Soil ☑ Ambient
☐ Water ☐ Chilled
☑ Other ___ °C
☐ Subcontract Work
☐ Bottle Return
☐ Inorg. Anal. Actioned

4x Charcoal tubes
1x Sarpent tube

Notes:

RELINQUISHED BY (SIGN / PRINT): Simon Opper DATE: 23/03/2005
OF: SKM TIME: ~~9am~~ 11am.

RECEIVED BY (SIGN / PRINT): Dianne Arano DATE: 29/3/05
OF: AIS Newcastle (ARRIVAL TEMP: deg. C) TIME: 10am

* S = Sulfuric Acid Preserved Bottle, N = Nitric Acid Preserved Bottle, J = Glass Solvent Washed Acid Rinsed Jar, VS = Vial(s) Sulfuric Acid Preserved Vial, O = Other

PLEASE SIGN AND FAX TO SKM UPON RECIEPT
AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

24/03/2005 10:55 NO. 982 P001

Project: ENO1669
Quote: SY/252/041A
INVOICE: SKM
DATE DUE: ASAP
REPORT TO: Simon Opper
sopper@skm.com.au
REQUIRED REPORT FORMAT:
EMAIL

CHAIN OF CUSTODY

FROM: **SINCLAIR KNIGHT MERZ**
100 Christie Street,
ST. LEONARD NSW 1590
sopper@skm.com.au
TELL: (02) 9032 1829
FAX: (02) 9928 2272

aAustralian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS												
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	BTEX	PAH											COMMENTS (Container Type)*
MW30 (1)	Air	1		22-Mar	X												Carbon Tube
MW32 (2)	Air	1		22-Mar	X												Carbon Tube
MW33 (3)	Air	1		22-Mar	X												Carbon Tube
MW34 (4)	Air	2		22-Mar	X	X											Carbon Tube
																	Carbon Tube

Batch No. ☐ ORG
NET326
Batched Date: 29/3/05
☐ Soil ☑ Ambient
☐ Water ☐ Chilled
☑ Other °C
☐ Subcontract Work
☐ Bottle Return
☐ Isom, Anal, Actioned
4x Charcoal Tubes
1x Sarpent Tube

Notes:

RELINQUISHED BY (SIGN / PRINT): Simon Opper DATE: 23/03/2005
OF: SKM TIME: ~~9am~~ 11am.

RECEIVED BY (SIGN / PRINT): Dianne Cirono
OF: AIS Newcastle
DATE: 29/3/05
(ARRIVAL TEMP: deg. C) TIME: 10am

Y, S = (Other) Special Washed Acid Rinsed Glass Amber Bottle, P = (Clear) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Violet) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SKM UPON RECIEPT
AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

24/03/2005 10:55 NO.982 P001

Project: ENO1669
Quote: SY/252/041A
INVOICE: SKM
DATE DUE: ASAP
REPORT TO: Simon Opper
sopper@skm.com.au
REQUIRED REPORT FORMAT:
EMAIL

CHAIN OF CUSTODY

FROM: **SINCLAIR KNIGHT MERZ**
100 Christie Street,
ST. LEONARD NSW 1590
sopper@skm.com.au
TELL: (02) 9032 1829
FAX: (02) 9928 2272

aAustralian Laboratory Services Pty. Ltd.
277 Woodlark Road,
SMITHFIELD NSW 2164
TELL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS												
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	BTEX	PAH											COMMENTS (Container Type)*
MW30 (1)	Air	1		22-Mar	X												Carbon Tube
MW32 (2)	Air	1		22-Mar	X												Carbon Tube
MW33 (3)	Air	1		22-Mar	X												Carbon Tube
MW34 (4)	Air	2		22-Mar	X	X											Carbon Tube
																	Carbon Tube

Batch No. ☐ ORG
NE17326
Batched Date: 29/3/05
☐ Soil ☑ Ambient
☐ Water ☐ Chilled
☑ Other °C
☐ Silicagmrace Wurf
☐ Bottle Return
☐ Ipom, Acid, Ashaned
4x Charcoal Tubes
1x Sarpent Tube

Notes:

RELINQUISHED BY (SIGN / PRINT): Simon Opper DATE: 23/03/2005
OF: SKM TIME: ~~after~~ 11am.

RECEIVED BY (SIGN / PRINT): Dianne Cirono
OF: AIS Newcastle
DATE: 29/3/05
(ARRIVAL TEMP: deg. C) TIME: 10am

* S = (Silica) Special Washed Acid Rinsed Glass Amber Bottle, P = (Plain) Plastic Natural Bottle, N = (Nitric) Purified Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = (Other)

PLEASE SIGN AND FAX TO SKM UPON RECIEPT
AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

24/03/2005 10:55 NO. 982 0001

NO. 999 P001

CHAIN OF CUSTODY

Project: EN01669
Quote: SY/379/02

DATE DUE:
REPORT TO: Christine Tropman
REQUIRED REPORT FORMAT:
HARD / EMAIL / FAX
Due 18/4/05

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARDS NSW 1590

TEL: (02) 9928 2484
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodpark Road,
SMITHFIELD NSW 2164
TEL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE ID	MATRIX	NUMBER	TIME	DATE	LABORATORY PARAMETERS: BTEX	PAH	COMMENTS (Container Type)
MW30 (1)	Air			4/4/05	x	x	
MW31 (2)	↓			↓		x	
MW33 (3)						x	
MW32 (4)							

Lab No. NE17394
Batched Date: 7/4/05

- [ ] Soil
- [x] Ambient
- [ ] Water
- [ ] Chilled
- [x] Other °C
- [ ] Subcontract Work
- [ ] Bottle Return
- [ ] Imm. Anal. Actioned

4x Sabent tubes
1x charcoal tube

Notes: Metals include = As, Cd, Cr, Cu, Ni, Pb, Zn and Hg.

RELINQUISHED BY (SIGN / PRINT): Christine Tropman DATE: 6/4/05
OF: Sinclair Knight Merz TIME: 9pm

RECEIVED BY (SIGN / PRINT): DATE: 7/4/05
OF: Dianne Grono ALS Newcastle (ARRIVAL TEMP: deg. C) TIME: 10.30am

B - (Yellow) Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Preserved Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SIGN UPON RECIEPT

AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

Page 1 of 1.

06/04/2005 09:12

NO. 999 P001

CHAIN OF CUSTODY

Project: EN01669
Quote: SY/379/02

DATE DUE:
REPORT TO: Christine Tropman
REQUIRED REPORT FORMAT:
HARD / EMAIL / FAX
Due 18/4/05

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARDS NSW 1590

TEL: (02) 9928 2484
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodpark Road,
SMITHFIELD NSW 2164
TEL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS			COMMENTS
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	BTEX	PAH		(Container Type)*
MW30 (1)	Air			4/4/05	x	x		
MW31 (2)						x		
MW33 (3)						x		
MW32 (4)						x		

ALS No.
NE17394
Batched Date: 7/4/05
☐ Soil ☑ Ambient
☐ Water ☐ Chilled
☑ Other °C
☐ Subcontract Work
☐ Bottle Return
☐ Imm. Anal. Actioned
4x Sabent tubes
1x charcoal tube

Notes: Metals include = As, Cd, Cr, Cu, Ni, Pb, Zn and Hg.

RELINQUISHED BY (SIGN / PRINT): Christine Tropman DATE: 6/4/05
OF: Sinclair Knight Merz TIME: 9pm

RECEIVED BY (SIGN / PRINT): DATE: 7/4/05
OF: Dianne Grano ALS Newcastle (ARRIVAL TEMP: deg. C) TIME: 10.30am

A S - (Yellow) Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SIGN UPON RECIEPT

AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

Page 1 of 1.

06/04/2005 09:12

NO. 999 P001

CHAIN OF CUSTODY

Project: EN01669
Quote: SY/379/02

DATE DUE:
REPORT TO: Christine Tropman
REQUIRED REPORT FORMAT:
HARD / EMAIL / FAX
Due 18/4/05

FROM: SINCLAIR KNIGHT MERZ
100 Christie Street,
ST. LEONARDS NSW 1590

TEL: (02) 9928 2484
FAX: (02) 9928 2272

Australian Laboratory Services Pty. Ltd.
277 Woodpark Road,
SMITHFIELD NSW 2164
TEL: (02) 8784 8555
FAX: (02) 8784 8500

SAMPLE INFORMATION					LABORATORY PARAMETERS		COMMENTS
SAMPLE ID	MATRIX	NUMBER	TIME	DATE	BTEX	PAH	(Container Type)*
MW30 (1)	Air			4/4/05	x	x	
MW31 (2)						x	
MW33 (3)						x	
MW32 (4)							

Job No. NE17394
Batched Date: 7/4/05
☐ Soil ☑ Ambient
☐ Water ☐ Chilled
☑ Other °C
☐ Subcontract Work
☐ Bottle Return
☐ Imm. Anal. Actioned
4x Sorbent tubes
1x charcoal tube

Notes: Metals include = As, Cd, Cr, Cu, Ni, Pb, Zn and Hg.

RELINQUISHED BY (SIGN / PRINT): Christine Tropman DATE: 6/4/05
OF: Sinclair Knight Merz TIME: 9am

RECEIVED BY (SIGN / PRINT): DATE: 7/4/05
OF: Dianne Grasso ALS Newcastle (ARRIVAL TEMP: deg. C) TIME: 10.30am

*S = (Yellow) Solvent Washed Acid Rinsed Glass Amber Bottle, P = (Green) Plastic Natural Bottle, N = (Red) Plastic Nitric Acid Preserved Bottle, J = (Orange) Glass Solvent Washed Acid Rinsed Jar, VS = (Maroon) Sulphuric Acid Preserved Vial, O = Other.

PLEASE SIGN AND FAX TO SIGN UPON RECIEPT

AUSTRALIAN LABORATORY SERVICES P/L ABN 84 009 936 029

Page 1 of 1.

06/04/2005 09:12

SKM

Chain of Custody Record

Form ET8 August 96

PROJECT NO.	PROJECT NAME	SAMPLERS (signature)
EN01669	MACDONALDTOWN RISK ASSESSMENT	A. Faulkner

SAMPLE TYPE

AMDEL QUOTATION E040901.RTH [8/9/04].

DATE	TIME	SAMPLE ID	NO. OF CONTAINERS	WATER	SOIL	SEDIMENT	TISSUE	AIR	OTHER	REMARKS	LAB ID NO.
7/12/04		MW30 0-0.45	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04		MW31 0.5-0.95	1		✓					TPH, BTEX, SPECIATED TPH.	
7/12/04		MW31 1.4m	1		✓					ON HOLD	
7/12/04		MW32 1.2	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04		MW33 0.5-0.95	1		✓					TPH, BTEX, Speciated TPH	
7/12/04		MW34 0.5-0.95	1		✓					ON HOLD	
7/12/04		MW34 1.4	1		✓					TPH, BTEX, SPECIATED TPH	
		EN01669 Dup.								SPECIATED TPH	

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
AF.	7/12/04	3.30	
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

METHOD OF SHIPMENT: COURIER

LABORATORY: AMDEL LABORATORY

Send results to: LOUISE MACDONALD

(address) PO BOX 164 ST LEONARDS NSW 2065

RESULTS BY 17/12/2004.

Phone: 9925 2237 Fax:: 9925 2272

FORM STATUS

Mandatory ..... ☐
Optional (but with intent on file) ... ✓
Guideline ..... ☐

Sampler initiates → Custodian 1 actions, signs, passes on → Custodian 2 actions, signs, passes on etc. → Project Manager closes out → File

Copy to: .....

Sent ☐

Comment .....

Prepared by: ..../...../..

File: .....

7200

SKM

Chain of Custody Record

Form ET8 August 96

PROJECT NO.	PROJECT NAME	SAMPLERS (signature)
EN01669	MACDONALDTOWN RISK ASSESSMENT	A. Faulkner

AMDEL QUOTATION E04090 01. RTH [8/9/04].

DATE	TIME	SAMPLE ID	NO. OF CONTAINERS	WATER	SOIL	SEDIMENT	TISSUE	AIR	OTHER	REMARKS	LAB ID NO.
7/12/04		MW30 0-0.45	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04		MW31 0.5-0.95	1		✓					TPH, BTEX, SPECIATED TPH.	
7/12/04		MW31 1.4m	1		✓					ON HOLD	
7/12/04		MW32 1.2	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04		MW33 0.5-0.95	1		✓					TPH, BTEX, Speciated TPH	
7/12/04		MW34 0.5-0.95	1		✓					ON HOLD	
7/12/04		MW34 1.4	1		✓					TPH, BTEX, SPECIATED TPH	
		EN01669 D&P.								SPECIATED TPH	

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
AT.	8/12/04	3.30	
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

METHOD OF SHIPMENT: COURIER

LABORATORY: AMDEL LABORATORY

Send results to: LOUISE MACDONALD

(address) PO BOX 164 ST LEONARDS NSW 2065

RESULTS BY 17/12/2004.

Phone: 9925 2237 Fax:: 9925 2272

FORM STATUS

Mandatory ..... ☐
Optional (but with intent on file) ... ✓
Guideline ..... ☐

Sampler initiates → Custodian 1 actions, signs, passes on → Custodian 2 actions, signs, passes on etc. → Project Manager closes out → File

Copy to: .....

Sent ☐

Comment .....

Prepared by: ..../...../.....

File: .....

7200

SKM

Chain of Custody Record

Form ET8 August 96

PROJECT NO.	PROJECT NAME
EN01669	MACDONALDTOWN RISK ASSESSMENT

SAMPLERS (signature) A. Faulkner

AMDEL QUOTATION E040901.RTH [8/9/04].

DATE	TIME	SAMPLE ID	NO. OF CONTAINERS	WATER	SOIL	SEDIMENT	TISSUE	AIR	OTHER	REMARKS	LAB ID NO.
7/12/04		MW30 0-0.45	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04		MW31 0.5-0.95	1		✓					TPH, BTEX, SPECIATED TPH.	
7/12/04		MW31 1.4m	1		✓					ON HOLD	
7/12/04		MW32 1.2	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04		MW33 0.5-0.95	1		✓					TPH, BTEX, Speciated TPH	
7/12/04		MW34 0.5-0.95	1		✓					ON HOLD	
7/12/04		MW34 1.4	1		✓					TPH, BTEX, SPECIATED TPH	
		EN01669 D.P.								SPECIATED TPH	

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
MF.	7/12/04	3.30	
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

METHOD OF SHIPMENT: COURIER

LABORATORY: AMDEL LABORATORY

Send results to: LOUISE MACDONALD

(address) PO BOX 164 ST LEONARDS NSW 2065

RESULTS BY 17/12/2004.

Phone: 9925 2237 Fax:: 9925 2272

FORM STATUS

Mandatory ..... ☐
Optional (but with intent on file) ... ✓
Guideline ..... ☐

Sampler initiates → Custodian 1 actions, signs, passes on → Custodian 2 actions, signs, passes on etc. → Project Manager closes out → File

Copy to: .....

Sent ☐

Comment .....

Prepared by: ..../...../..

File: .....

SKM

Chain of Custody Record

Form ETB August 96

PROJECT NO.	PROJECT NAME	SAMPLERS (signature)
EN01669	MACDONALDTOWN RISK ASSESSMENT	A. Faulkner

DATE	TIME	SAMPLE ID	NO. OF CONTAINERS	SAMPLE TYPE: WATER	SOIL	SEDIMENT	TISSUE	AIR	OTHER	REMARKS	LAB ID NO.
7/12/04		MW30 0-0.45	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04		MW31 0.5-0.95	1		✓					TPH, BTEX, SPECIATED TPH.	
7/12/04		MW31 1.4m	1		✓					ON HOLD	
7/12/04		MW32 1.2	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04		MW33 0.5-0.95	1		✓					TPH, BTEX, Speciated TPH	
7/12/04		MW34 0.5-0.95	1		✓					ON HOLD	
7/12/04		MW34 1.4	1		✓					TPH, BTEX, SPECIATED TPH	
										SPECIATED TPH	

AMDEL QUOTATION E040901.RTH [8/9/04].

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

METHOD OF SHIPMENT: COURIER

LABORATORY: AMDEL LABORATORY

Send results to: LOUISE MACDONALD

(address) PO BOX 164 ST LEONARDS NSW 2065

RESULTS BY 17/12/2004.

Phone: 9928 2237 Fax: 9928 2272

FORM STATUS
Mandatory .....
Optional (but with intent on file) ... ✓
Guideline .....

Sampler initiates → Custodian 1 actions, signs, passes on → Custodian 2 actions, signs, passes on etc. → Project Manager closes out → File

Copy to:

Sent

Comment

Prepared by:

File

7200

MESSAGE CONFIRMATION

08/12/2004 14:36

DATE	S,R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT	S.C.
08/12	00'22"	+61 2 88740515	TX	001	OK	0000

08/12/2004 14:35 NO.744 P001

SKM

Chain of Custody Record

Form ETB August 96

PROJECT NO.	PROJECT NAME	SAMPLE TYPE						AMDEL QUOTATION E040901.RTH [8/9/04].	
EN01669	MACDONALDTOWN RISK ASSESSMENT	WATER	SOIL	SEDIMENT	TISSUE	AIR	OTHER		
SAMPLERS (signature) A.Faulkner								REMARKS	LAB ID NO.
DATE	TIME	SAMPLE ID	NO. OF CONTAINERS						
7/12/04		MW30 0-0.4S	1		✓				
7/12/04		MW31 0.5-0.95	1		✓				
7/12/04		MW31 1.4m	1		✓				
7/12/04		MW32 1.2	1		✓				
7/12/04		MW33 0.5-0.95	1		✓				
7/12/04		MW34 0.5-0.95	1		✓				
7/12/04		MW34 1.4	1		✓				

TPH, BTEX, SPECIATED TPH

TPH, BTEX, SPECIATED TPH.

ON HOLD

TPH, BTEX, SPECIATED TPH

TPH, BTEX, SPECIATED TPH

ON HOLD

TPH, BTEX, SPECIATED TPH

SPECIATED TPH

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

METHOD OF SHIPMENT: COURIER

LABORATORY: AMDEL LABORATORY

Send results to: LOUISE MACDONALD

(address) PO Box 164 ST LEONARDS NSW 2065

RESULTS BY 17/12/2004.

Phone: 9928 2237 Fax:: 9928 2272

FORM STATUS

Mandatory .....

Optional (but with intent on file) ... ✓

Guideline .....

Sampler initiates → Custodian 1 actions, signs, passes on → Custodian 2 actions, signs, passes on etc. → Project Manager closes out → File

Copy to: Sent ☐ Comment

Prepared by:

File:

7200

MESSAGE CONFIRMATION

08/12/2004 14:36

DATE	S.R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT	S.C.
08/12	00'22"	+61 2 88740515	TX	001	OK	0000

08/12/2004 14:35 NO.744 P001

SKM

Chain of Custody Record

Form ET8 August 96

PROJECT NO.	PROJECT NAME	SAMPLE TYPE						AMDEL QUOTATION E040901.RTH [8/9/04]	
ENO1669	MACDONALDTOWN RISK ASSESSMENT	WATER	SOIL	SEDIMENT	TISSUE	AIR	OTHER	REMARKS	LAB ID NO.
SAMPLERS (signature) A.Faulkner	NO. OF CONTAINERS								
DATE / TIME / SAMPLE ID									
7/12/04 MW30 0-0.45	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04 MW31 0.5-0.95	1		✓					TPH, BTEX, SPECIATED TPH.	
7/12/04 MW31 1.4m	1		✓					ON HOLD	
7/12/04 MW32 1.2	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04 MW33 0.5-0.95	1		✓					TPH, BTEX, Speciated TPH	
7/12/04 MW34 0.5-0.95	1		✓					ON HOLD	
7/12/04 MW34 1.4	1		✓					TPH, BTEX, SPECIATED TPH	
								SPECIATED TPH	

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	METHOD OF SHIPMENT
				COURIER
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	LABORATORY: AMDEL LABORATORY
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	Send results to: LOUISE MACDONALD
				(address) PO Box 164 ST LEONARDS NSW 2065
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RESULTS BY 17/12/2004.
				Phone: 9928 2237 Fax:: 9928 2272

FORM STATUS
Mandatory ..... ☐
Optional (but with intent on file) ... ☑
Guideline ..... ☐

Sampler initiates → Custodian 1 actions, signs, passes on → Custodian 2 actions, signs, passes on etc. → Project Manager closes out → File

Copy to: Sent ☐ Comment

Prepared by: ..... / ..

File: .....

7200

08/12/2004 14:35 NO.744 D001

MESSAGE CONFIRMATION

08/12/2004 14:36

DATE	S.R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT	S.C.
08/12	00'22"	+61 2 88740515	TX	001	OK	0000

SKM

Chain of Custody Record

Form ET8 August 96

PROJECT NO.	PROJECT NAME
EN01669	MACDONALDTOWN RISK ASSESSMENT

SAMPLERS (signature)	A. Faulkner

DATE	TIME	SAMPLE ID	NO. OF CONTAINERS	WATER	SOIL	SEDIMENT	TISSUE	AIR	OTHER	REMARKS	LAB ID NO.
7/12/04		MW30 0-0.45	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04		MW31 0.5-0.95	1		✓					TPH, BTEX, SPECIATED TPH.	
7/12/04		MW31 1.4m	1		✓					ON HOLD	
7/12/04		MW32 1.2	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04		MW33 0.5-0.95	1		✓					TPH, BTEX, Speciated TPH	
7/12/04		MW34 0.5-0.95	1		✓					ON HOLD	
7/12/04		MW34 1.4	1		✓					TPH, BTEX, SPECIATED TPH	
										SPECIATED TPH	

AMDEL QUOTATION E040901.RTH [8/9/04].

9 DEC 2004

QE234

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
A. Faulkner	8/12/04		
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

METHOD OF SHIPMENT: COURIER

LABORATORY: AMDEL LABORATORY

Send results to: LOUISE MACDONALD

(address) PO BOX 164 ST LEONARDS NSW 2065

RESULTS BY 17/12/2004.

Phone: 9928 2237 Fax: 9928 2272

FORM STATUS
Mandatory ..... ☐
Optional (but with intent on file) ... ☑
Guideline ..... ☐

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Prepared by:

File

Comment

7200

SKM

Chain of Custody Record

Form ET8 August 96

PROJECT NO.	PROJECT NAME	SAMPLE TYPE						AMDEL QUOTATION E040901.RTH [8/9/04].	
EN01669	MACDONALDTOWN RISK ASSESSMENT	WATER	SOIL	SEDIMENT	TISSUE	AIR	OTHER		
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7/12/04		MW31 0.5-0.95	1		✓			TPH, BTEX, SPECIATED TPH.	
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7/12/04		MW32 1.2	1		✓			TPH, BTEX, SPECIATED TPH	
7/12/04		MW33 0.5-0.95	1		✓			TPH, BTEX, Speciated TPH	
7/12/04		MW34 0.5-0.95	1		✓			ON HOLD	
7/12/04		MW34 1.4	1		✓			TPH, BTEX, SPECIATED TPH	
								SPECIATED TPH	

9 DEC 2004

QE234

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	METHOD OF SHIPMENT
A. Faulkner	8/12/04			COURIER
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	LABORATORY: AMDEL LABORATORY
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	Send results to: LOUISE MACDONALD
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	(address) PO Box 164 ST LEONARDS NSW 2065

RESULTS BY 17/12/2004.

Phone: 9928 2237 Fax:: 9928 2272

FORM STATUS
Mandatory ....
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Sampler initiates → Custodian 1 actions, signs, passes on → Custodian 2 actions, signs, passes on etc. → Project Manager closes out → File

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Chain of Custody Record

Form ET8 August 96

PROJECT NO.	PROJECT NAME
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7/12/04		MW34 1.4	1		✓					TPH, BTEX, SPECIATED TPH	
										SPECIATED TPH	

AMDEL QUOTATION E040901. RTH [8/9/04].

9 DEC 2004

9E234

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
A. Faulkner	8/12/04		
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

METHOD OF SHIPMENT: COURIER

LABORATORY: AMDEL LABORATORY

Send results to: LOUISE MACDONALD

(address) PO BOX 164 ST LEONARDS NSW 2065

RESULTS BY 17/12/2004.

Phone: 9928 2237 Fax: 9928 2272

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Prepared by:

File

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100 Christie Street
PO Box 164
St Leonards NSW
Australia 1590

Tel: +61 2 9928 2100
Fax: +61 2 9928 2500
Web: www.skmconsulting.com

SKM

Facsimile

To	AMDEL	**From**	Louise MacDonald
Attention	Client Services - Cardiff	**Project No**	EN01810.34
Fax No	02 4902 4899	**Date**	9 December 2004
CC			
Pages	3 *(including this page)*		
Subject	**4E2321**		
	Analytical Schedule		

I have just received the sample receipt acknowledgment for the aforementioned batch. Please note that the following analysis was also requested, this was noted on the COC as speciated TPH:

- HRAF for health based guidelines (Speciated TPH) – Method Code E1224.

This is required on all samples excluding the two on hold.

Should you have any questions, please do not hesitate to contact me.

Yours sincerely

Louise MacDonald.

Louise MacDonald
Senior Environmental Scientist
Phone: 02 9928 2237
Fax: 02 9928 2272
E-mail: lmacdonald@skm.com.au

SINCLAIR KNIGHT MERZ ABN 37 001 024 095

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Australia 1590

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Fax: +61 2 9928 2500
Web: www.skmconsulting.com

SKM

Facsimile

To	AMDEL	**From**	Louise MacDonald
Attention	Client Services - Cardiff	**Project No**	EN01810.34
Fax No	02 4902 4899	**Date**	9 December 2004
CC			
Pages	3 *(including this page)*		
Subject	**4E2321**		
	Analytical Schedule		

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Yours sincerely

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Louise MacDonald
Senior Environmental Scientist
Phone: 02 9928 2237
Fax: 02 9928 2272
E-mail: lmacdonald@skm.com.au

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Fax No	02 4902 4899	**Date**	9 December 2004
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DEC. 9. 2004 13:59 AMDEL LTD NEWCASTLE NO. 1693 P. 2

SKM

Chain of Custody Record

Form ET8 August 96

PROJECT NO.	PROJECT NAME
ENO1669	MACDONALDTOWN RISK ASSESSMENT

SAMPLERS (signature): A. Faulkner

AMDEL QUOTATION E040901. RTH [8/9/04].

DATE	TIME	SAMPLE ID	NO. OF CONTAINERS	WATER	SOIL	SEDIMENT	TISSUE	AIR	OTHER	REMARKS	LAB ID NO.
7/12/04		MW30 0-0.45	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04		MW31 0.5-0.95	1		✓					TPH, BTEX, SPECIATED TPH.	
7/12/04		MW31 1.4m	1		✓					ON HOLD	
7/12/04		MW32 1.2	1		✓					TPH, BTEX, SPECIATED TPH	
7/12/04		MW33 0.5-0.95	1		✓					TPH, BTEX, Speciated TPH	
7/12/04		MW34 0.5-0.95	1		✓					ON HOLD	
7/12/04		MW34 1.4	1		✓					TPH, BTEX, SPECIATED TPH	
		ENO1669 DUP			✓					SPECIATED TPH	

9 DEC 2004
95234

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
A. Faulkner	8/12/04		
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

METHOD OF SHIPMENT: COURIER

LABORATORY: AMDEL LABORATORY

Send results to: LOUISE MACDONALD

(address) PO BOX 164 ST LEONARDS NSW 2065

RESULTS BY 17/12/2004.

Phone: 9928 2237 Fax:: 9928 2272

FORM STATUS
Mandatory ..... ☐
Optional (but with intent on file) ... ☑
Guideline ..... ☐

Sampler initiales → Custodian 1 actions, signs, passes on → Custodian 2 actions, signs, passes on etc. → Project Manager closes out → File

Copy to:

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Comment

Prepared by: ..... / /

File: .....

7200

NO. 1693 P. 2
AMDEL LTD NEWCASTLE
DEC. 9. 2004 13:59

SKM

Chain of Custody Record

Form ET8 August 96

PROJECT NO.	PROJECT NAME
EN01669	MACDONALDTOWN RISK ASSESSMENT

SAMPLERS (signature) A. Faulkner

AMDEL QUOTATION E040901.RTH [8/9/04].

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7/12/04		MW34 0.5-0.95	1		✓					ON HOLD	
7/12/04		MW34 1.4	1		✓					TPH, BTEX, SPECIATED TPH	
		EN01669 DUP			✓					SPECIATED TPH	

9 DEC 2004
QE234

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
A. Faulkner	8/12/04		
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

METHOD OF SHIPMENT: COURIER

LABORATORY: AMDEL LABORATORY

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RESULTS BY 17/12/2004.

Phone: 9928 2237 Fax:: 9928 2272

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Optional (but with intent on file) ... ☑
Guideline ..... ☐

Sampler initiates → Custodian 1 actions, signs, passes on → Custodian 2 actions, signs, passes on etc. → Project Manager closes out → File

Copy to: ..... Sent ☐

Prepared by: ..... / /

File: .....

Comment .....

7200

NO. 1693 P. 2
AMDEL LTD NEWCASTLE
DEC. 9. 2004 13:59

SKM

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Form ET8 August 96

PROJECT NO.	PROJECT NAME
EN01669	MACDONALDTOWN RISK ASSESSMENT

SAMPLERS (signature)	
A. Faulkner	

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		EN01669 DUP			✓					SPECIATED TPH	

9 DEC 2004
QE234

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
A. Faulkner	8/12/04		
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
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METHOD OF SHIPMENT: COURIER

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Copy to: Sent ☐

Comment

Prepared by: ..... / /

File: .....

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MESSAGE CONFIRMATION

09/12/2004 14:28

DATE	S.R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT	S.C.
09/12	00'31"	61249024899	TX	003	OK	0000

09/12/2004 14:27 NO.747 P001

Sinclair Knight Merz
100 Christie Street
PO Box 164
St Leonards NSW
Australia 1590

Tel: +61 2 9928 21)0
Fax: +61 2 9928 2[illegible])0
Web: www.skmcons ilting.com

SKM

Facsimile

To	AMDEL	**From**	Louise MacDonald
Attention	Client Services - Cardiff	**Project No**	EN01810.34
Fax No	02 4902 4899	**Date**	9 December 2004
CC			
Pages	3 *(including this page)*		
Subject	**4E2321**		
	Analytical Schedule		

I have just received the sample receipt acknowledgment for the aforementioned batch. Please note that the following analysis was also requested, this was not ad on the COC as speciated TPH:

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Louise MacDonald
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Fax: 02 9928 2272
E-mail: lmacdonald@skm.com.au

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09/12	00'31"	61249024899	TX	003	OK	0000

09/12/2004 14:27 NO.747 0001

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Fax No	02 4902 4899	**Date**	9 December 2004
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SINCLAIR KNIGHT MERZ ABN 37 001 024 095

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DATE	S.R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT	S.C.
09/12	00'31"	61249024899	TX	003	OK	0000

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E-mail: lmacdonald@skm.com.au

SINCLAIR KNIGHT MERZ ABN 37 001 024 095

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SKM

Facsimile

To	AMDEL	**From**	Louise MacDonald
Attention	Client Services - Cardiff	**Project No**	EN01810.34
Fax No	02 4902 4899	**Date**	9 December 2004
CC			
Pages	3 *(including this page)*		
Subject	**4E2321**		
	Analytical Schedule		

I have just received the sample receipt acknowledgment for the aforementioned batch. Please note that the following analysis was also requested, this was not ad on the COC as speciated TPH:

- HRAF for health based guidelines (Speciated TPH) – Meth d Code E1224.

This is required on all samples excluding the two on hold.

Should you have any questions, please do not hesitate to contact me.

Yours sincerely

Louise MacDonald.

Louise MacDonald
Senior Environmental Scientist
Phone: 02 9928 2237
Fax: 02 9928 2272
E-mail: lmacdonald@skm.com.au

SINCLAIR KNIGHT MERZ ABN 37 001 024 095

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Appendix E Laboratory Test Certificates

ALS Environmental

CERTIFICATE OF ANALYSIS

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	:	ALS Environmental Sydney	**Page**	: 1 of 18
Contact	:	MS LOUSIE MACDONALD	**Contact**	:	Greg Vogel		
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	:	277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	: **ES0501569**
Project	:	ENO1669	**Quote number**	:	SY/221/04	**Date received**	: 2 Mar 2005
Order number	:	- Not provided -				**Date issued**	: 11 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	:	Greg.Vogel@alsenviro.com	**No. of samples**	
Telephone	:	(02) 9928-2100	**Telephone**	:	61-2-87848555	**Received**	: 7
Facsimile	:	(02) 9928-2272	**Facsimile**	:	61-2-87848500	**Analysed**	: 7

This final report for the ALSE work order reference ES0501569 supersedes any previous reports with this reference.
Results apply to the samples as submitted. All pages of this report have been checked and approved for release.
This report contains the following information:

- Analytical results for samples submitted
- Surrogate control limits

Work order specific comments

LOR raised for some samples for Cr due to matrix interference

ALSE - QUALITY, SERVICE and TECHNOLOGY provided GLOBALLY

NATA Accredited Laboratory - 825

The Laboratory is accredited by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with its scope of accreditation. This document shall not be reproduced except in full.

This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Department
Celine Conceicao	Inorganics - NATA 10911 (Sydney)
Peter Dickenson	Inorganics - NATA 10911 (Sydney)
Rassem Ayoubi	Organics - NATA 10911 (Sydney)
Sarah Millington	Inorganics - NATA 10911 (Sydney)

When moisture determination has been performed, results are reported on a dry weight basis. When a reported 'less than' result is higher than the LOR, this may be due to primary sample extracts/digestion dilution and/or insuffient sample amount for analysis. Surrogate Recovery Limits are static and based on USEPA SW846 or ALS-QWI/EN38 (in the absence of specified USEPA limits).
Abbreviations: ***CAS number*** = *Chemical Abstract Services number,* ***LOR*** = *Limit of Reporting.* ***# Indicates a raised LOR, * Indicates failed Surrogate Recoveries.***
When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes.

Analytical Results

				Client Sample ID :	MW06S	MW06D	MW20S	MW07D	MW18D
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER
				Sample Date / Time :	1 Mar 2005 0:00	1 Mar 2005 0:00	1 Mar 2005 0:00	1 Mar 2005 0:00	1 Mar 2005 0:00
				Laboratory Sample ID :					
Analyte	*CAS number*	*LOR*	*Units*		ES0501569-001	ES0501569-002	ES0501569-003	ES0501569-004	ES0501569-005
EA065: Total Hardness as CaCO3									
Total Hardness as CaCO3		1	mg/L		142	100	306	68	191
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		43	7	109	2	8
Magnesium	7439-95-4	1	mg/L		8	20	8	15	41
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	0.001	0.013	0.003	0.004
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	0.0015	<0.0001	0.0001	0.0002
Chromium	7440-47-3	0.001	mg/L		<0.001	0.002	# <0.005	0.005	# <0.005
Copper	7440-50-8	0.001	mg/L		0.001	0.006	0.001	0.002	0.001
Lead	7439-92-1	0.001	mg/L		<0.001	0.007	0.005	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		0.001	0.012	0.002	0.002	0.012
Zinc	7440-66-6	0.005	mg/L		0.029	0.072	0.020	0.030	0.100
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG050F: Hexavalent Chromium - Filtered									
Hexavalent Chromium	18540-29-9	0.010	mg/L		<0.010	<0.010	<0.010	0.038	<0.010
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.010	mg/L		2.55	0.067	0.219	0.181	0.549
EK059G: NOX as N by Discrete Analyser									
Nitrite + Nitrate as N		0.010	mg/L		0.382	0.059	<0.010	0.032	0.021
EK061: Total Kjeldahl Nitrogen (TKN)									
Total Kjeldahl Nitrogen as N		0.1	mg/L		5.5	0.1	6.5	1.2	2.5
EK062: Total Nitrogen as N (TKN + NOx)									
Total Nitrogen as N		0.1	mg/L		5.9	0.2	6.5	1.3	2.6
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon		1	mg/L		28	16	66	20	14
EP026: Chemical Oxygen Demand (COD)									
Chemical Oxygen Demand		5	mg/L		126	26	260	68	19
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand		2	mg/L		2	<2	<2	3	<2
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	5	µg/L		<5	16	<5	6370	17

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW06S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-001	Client Sample ID: MW06D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-002	Client Sample ID: MW20S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-003	Client Sample ID: MW07D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-004	Client Sample ID: MW18D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-005
EP074A: Monocyclic Aromatic Hydrocarbons								
Toluene	108-88-3	5	µg/L	<5	<5	<5	50	<5
Ethylbenzene	100-41-4	5	µg/L	<5	<5	<5	201	<5
meta- & para-Xylene	108-38-3 106-42-3	5	µg/L	<5	<5	<5	66	<5
Styrene	100-42-5	5	µg/L	<5	<5	<5	24	<5
ortho-Xylene	95-47-6	5	µg/L	<5	<5	<5	157	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	27	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	90	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW06S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-001	Client Sample ID: MW06D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-002	Client Sample ID: MW20S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-003	Client Sample ID: MW07D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-004	Client Sample ID: MW18D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-005
EP074E: Halogenated Aliphatic Compounds								
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	664	<7

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW06S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-001	Client Sample ID: MW06D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-002	Client Sample ID: MW20S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-003	Client Sample ID: MW07D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-004	Client Sample ID: MW18D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-005
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	<2	8	<2
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	<2	<2	<2
2-Methylphenol	95-48-7	2	µg/L	<2	<2	<2	<2	<2
3- & 4-Methylphenol	1319-77-3	4	µg/L	<2	<2	<2	<2	<2
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	<2	<2	<2
2,4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	<2	98	<2
2,4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	<2	<2	<2
2,6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	<2	<2	<2
4-Chloro-3-Methylphenol	59-50-7	2	µg/L	<2	<2	<2	<2	<2
2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	<2	<2	<2
2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	<2	<2	<2
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	<4	<4	<4
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	24	14	9	3840	40
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	<2	321	<2
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	<2	<2	<2
Acenaphthylene	208-96-8	2	µg/L	4	<2	<2	26	<2
Acenaphthene	83-32-9	2	µg/L	<2	<2	4	9	<2
Fluorene	86-73-7	2	µg/L	<2	<2	3	12	<2
Phenanthrene	85-01-8	2	µg/L	<2	<2	3	<2	<2
Anthracene	120-12-7	2	µg/L	<2	<2	<2	<2	<2
Fluoranthene	206-44-0	2	µg/L	<2	<2	<2	<2	<2
Pyrene	129-00-0	2	µg/L	2	<2	<2	<2	<2
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	<2	<2	<2
Benz(a)anthracene	56-55-3	2	µg/L	<2	<2	<2	<2	<2
Chrysene	218-01-9	2	µg/L	<2	<2	<2	<2	<2
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4	<4	<4	<4
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2	<2	<2	<2
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	<2	<2	<2
Indeno(1,2,3,cd)pyrene	193-39-5	2	µg/L	<2	<2	<2	<2	<2
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	<2	<2	<2	<2
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	<2	<2	<2	<2
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	<2	<2	<2
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	<2	<2	<2

ALS Environmental

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW06S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-001	MW06D WATER / WATER 1 Mar 2005 0:00 ES0501569-002	MW20S WATER / WATER 1 Mar 2005 0:00 ES0501569-003	MW07D WATER / WATER 1 Mar 2005 0:00 ES0501569-004	MW18D WATER / WATER 1 Mar 2005 0:00 ES0501569-005
EP075C: Phthalate Esters								
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	<2	<2	<2
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	<2	<2	<2
bis(2-ethylhexyl) phthalate	117-81-7	20	µg/L	<20	<20	<20	<20	<20
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	<2	<2	<2
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	<4	<4	<4
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosodiphenyl & Diphenylamine	86-30-6	4	µg/L	<4	<4	<4	<4	<4
Methapyrilene	91-80-5	2	µg/L	<2	<2	<2	<2	<2
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	<2	<2	<2	<2
Acetophenone	98-86-2	2	µg/L	<2	<2	<2	<2	<2
Nitrobenzene	98-95-3	2	µg/L	<2	<2	<2	<2	3
Isophorone	78-59-1	2	µg/L	<2	<2	<2	<2	<2
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	<4	<4	9
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	<4	<4	<4
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	<2	<2	<2
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	<2	<2	<2
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	<2	<2	<2
Azobenzene	103-33-3	2	µg/L	<2	<2	<2	<2	<2
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	<2	<2	<2
Phenacetin	62-44-2	2	µg/L	<2	<2	<2	<2	<2
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	<2	<2	<2
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	<2	<2	<2
Pronamide	23950-58-5	2	µg/L	<2	<2	<2	<2	<2
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	<2	<2	<2
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	<2	<2	<2
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	<2	<2	<2
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	<2	<2	<2
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	<2	<2	<2

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW06S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-001	Client Sample ID: MW06D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-002	Client Sample ID: MW20S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-003	Client Sample ID: MW07D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-004	Client Sample ID: MW18D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-005
EP075F: Haloethers								
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	<2	<2	<2
EP075G: Chlorinated Hydrocarbons								
1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	<2	<2	<2
1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	<2	<2	<2
1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	<2	<2	<2
Hexachloroethane	67-72-1	2	µg/L	<2	<2	<2	<2	<2
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	<2	<2	<2
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	<2	<2	<2
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	<2	<2	<2
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	<10	<10	<10
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	<2	<2	<2
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	<4	<4	<4
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	<2	<2	<2
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	<2	<2	<2
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	<4	<4	<4
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	<4	<4	<4
Dibenzofuran	132-64-9	2	µg/L	<2	<2	2	7	<2
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	<2	<2	<2
Carbazole	86-74-8	2	µg/L	<2	<2	<2	15	<2
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	<2	<2	<2
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	<2	<2	<2	<2
beta-BHC	319-85-7	2	µg/L	<2	<2	<2	<2	<2
gamma-BHC	58-89-9	2	µg/L	<2	<2	<2	<2	<2
delta-BHC	319-86-8	2	µg/L	<2	<2	<2	<2	<2
Heptachlor	76-44-8	2	µg/L	<2	<2	<2	<2	<2
Aldrin	309-00-2	2	µg/L	<2	<2	<2	<2	<2
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	<2	<2	<2
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	<2	<2	<2
4,4'-DDE	72-55-9	2	µg/L	<2	<2	<2	<2	<2
Dieldrin	60-57-1	2	µg/L	<2	<2	<2	<2	<2
Endrin	72-20-8	2	µg/L	<2	<2	<2	<2	<2
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	<2	<2	<2
4,4'-DDD	72-54-8	2	µg/L	<2	<2	<2	<2	<2
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	<2	<2	<2

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW06S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-001	Client Sample ID: MW06D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-002	Client Sample ID: MW20S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-003	Client Sample ID: MW07D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-004	Client Sample ID: MW18D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-005
EP075I: Organochlorine Pesticides								
4,4'-DDT	50-29-3	4	µg/L	<4	<4	<4	<4	<4
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	<2	<2	<2	<2
Dimethoate	60-51-5	2	µg/L	<2	<2	<2	<2	<2
Diazinon	333-41-5	2	µg/L	<2	<2	<2	<2	<2
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	<2	<2	<2
Malathion	121-75-5	2	µg/L	<2	<2	<2	<2	<2
Fenthion	55-38-9	2	µg/L	<2	<2	<2	<2	<2
Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	<2	<2	<2
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2	<2	<2	<2
Chlorfenvinphos	470-90-6	2	µg/L	<2	<2	<2	<2	<2
Prothiofos	34643-46-4	2	µg/L	<2	<2	<2	<2	<2
Ethion	563-12-2	2	µg/L	<2	<2	<2	<2	<2
EP075K: Miscellaneous Compounds								
1,3,5-Trichlorobenzene	108-70-3	2	µg/L	<2	<2	<2	<2	<2
1,2,4,5-Tetrachlorobenzene	95-94-3	2	µg/L	<2	<2	<2	<2	<2
Methanesulfonate methyl	66-27-3	2	µg/L	<2	<2	<2	<2	54
Methanesulfonate ethyl	62-50-0	2	µg/L	<2	<2	<2	<2	<2
cis-Isosafrole	17627-76-8	2	µg/L	<2	<2	<2	<2	<2
trans-Isosafrole	4043-71-4	2	µg/L	<2	<2	<2	<2	<2
Safrole	94-59-7	2	µg/L	<2	<2	<2	<2	<2
Diallate	2303-16-4	2	µg/L	<2	<2	<2	<2	<2
2,3,4,6-Tetrachlorophenol	58-90-2	2	µg/L	<2	<2	<2	<2	<2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		20	µg/L	<20	<20	<20	5220	<20
C10 - C14 Fraction		50	µg/L	150	60	<50	11600	110
C15 - C28 Fraction		100	µg/L	200	<100	<100	1400	<100
C29 - C36 Fraction		50	µg/L	70	<50	<50	<50	<50
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	110	107	101	----
Toluene-D8	2037-26-5	0.1	%	99.2	99.7	99.0	96.0	----
4-Bromofluorobenzene	460-00-4	0.1	%	94.5	95.3	91.7	99.4	----
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1	%	48.4	54.4	48.0	38.8	53.3
Phenol-d6	13127-88-3	0.1	%	40.2	40.8	39.3	46.7	26.4
2-Chlorophenol-D4	93951-73-6	0.1	%	70.5	73.1	73.6	79.6	68.5

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW06S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-001	Client Sample ID: MW06D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-002	Client Sample ID: MW20S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-003	Client Sample ID: MW07D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-004	Client Sample ID: MW18D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-005
EP075S: Acid Extractable Surrogates								
2,4,6-Tribromophenol	118-79-6	0.1	%	87.8	85.7	85.2	93.4	75.7
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	0.1	%	70.7	74.4	74.2	75.1	70.9
1,2-Dichlorobenzene-D4	2199-69-1	0.1	%	65.5	73.3	68.6	66.7	66.1
2-Fluorobiphenyl	321-60-8	0.1	%	69.4	71.8	75.3	52.0	79.0
Anthracene-d10	1719-06-8	0.1	%	70.9	74.6	77.8	74.6	75.3
4-Terphenyl-d14	1718-51-0	0.1	%	76.8	69.5	74.1	73.5	72.3
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	110	107	101	102
Toluene-D8	2037-26-5	0.1	%	99.2	99.7	99.0	96.0	99.4
4-Bromofluorobenzene	460-00-4	0.1	%	94.5	95.3	91.7	99.4	94.1

Analytical Results

	Client Sample ID :	MW13D	MW17D			
	Sample Matrix Type / Description :	WATER / WATER	WATER / WATER			
	Sample Date / Time :	1 Mar 2005 0:00	2 Mar 2005 0:00			
	Laboratory Sample ID :	ES0501569-006	ES0501569-007			
Analyte	*CAS number*	*LOR*	*Units*			
EA065: Total Hardness as CaCO3						
Total Hardness as CaCO3		1	mg/L	308	145	
ED093F: Dissolved Major Cations						
Calcium	7440-70-2	1	mg/L	14	11	
Magnesium	7439-95-4	1	mg/L	66	28	
EG020F: Dissolved Metals by ICP-MS						
Arsenic	7440-38-2	0.001	mg/L	<0.001	0.001	
Cadmium	7440-43-9	0.0001	mg/L	0.0006	0.0003	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L	0.004	<0.001	
Lead	7439-92-1	0.001	mg/L	0.001	<0.001	
Nickel	7440-02-0	0.001	mg/L	0.022	0.003	
Zinc	7440-66-6	0.005	mg/L	0.159	0.043	
EG035F: Dissolved Mercury by FIMS						
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	
EG050F: Hexavalent Chromium - Filtered						
Hexavalent Chromium	18540-29-9	0.010	mg/L	<0.010	0.020	
EK055G: Ammonia as N by Discrete Analyser						
Ammonia as N	7664-41-7	0.010	mg/L	0.107	0.055	
EK059G: NOX as N by Discrete Analyser						
Nitrite + Nitrate as N		0.010	mg/L	0.039	0.025	
EK061: Total Kjeldahl Nitrogen (TKN)						
Total Kjeldahl Nitrogen as N		0.1	mg/L	0.2	2.2	
EK062: Total Nitrogen as N (TKN + NOx)						
Total Nitrogen as N		0.1	mg/L	0.2	2.2	
EP005: Total Organic Carbon (TOC)						
Total Organic Carbon		1	mg/L	13	14	
EP026: Chemical Oxygen Demand (COD)						
Chemical Oxygen Demand		5	mg/L	190	309	
EP030: Biochemical Oxygen Demand (BOD)						
Biochemical Oxygen Demand		2	mg/L	<2	<2	
EP074A: Monocyclic Aromatic Hydrocarbons						
Benzene	71-43-2	5	µg/L	<5	<5	
Toluene	108-88-3	5	µg/L	<5	<5	
Ethylbenzene	100-41-4	5	µg/L	<5	<5	
meta- & para-Xylene	108-38-3 106-42-3	5	µg/L	<5	<5	
Styrene	100-42-5	5	µg/L	<5	<5	

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW13D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-006	Client Sample ID: MW17D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 0:00 Laboratory Sample ID: ES0501569-007			
EP074A: Monocyclic Aromatic Hydrocarbons								
ortho-Xylene	95-47-6	5	µg/L	<5	<5			
Isopropylbenzene	98-82-8	5	µg/L	<5	<5			
n-Propylbenzene	103-65-1	5	µg/L	<5	<5			
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5			
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5			
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5			
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5			
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5			
n-Butylbenzene	104-51-8	5	µg/L	<5	<5			
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50			
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50			
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50			
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50			
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5			
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5			
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5			
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5			
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5			
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5			
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50			
Chloromethane	74-87-3	50	µg/L	<50	<50			
Vinyl chloride	75-01-4	50	µg/L	<50	<50			
Bromomethane	74-83-9	50	µg/L	<50	<50			
Chloroethane	75-00-3	50	µg/L	<50	<50			
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50			
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5			
Iodomethane	74-88-4	5	µg/L	<5	<5			
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5			
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5			
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5			
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5			
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5			

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Analytical Results

	Client Sample ID :	MW13D	MW17D			
	Sample Matrix Type / Description :	WATER / WATER	WATER / WATER			
	Sample Date / Time :	1 Mar 2005 0:00	2 Mar 2005 0:00			
	Laboratory Sample ID :	ES0501569-006	ES0501569-007			
Analyte	*CAS number*	*LOR*	*Units*				
EP074E: Halogenated Aliphatic Compounds							
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5		
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5		
Trichloroethene	79-01-6	5	µg/L	<5	<5		
Dibromomethane	74-95-3	5	µg/L	<5	<5		
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5		
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5		
Tetrachloroethene	127-18-4	5	µg/L	<5	<5		
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5		
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5		
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5		
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5		
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5		
Pentachloroethane	76-01-7	5	µg/L	<5	<5		
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5		
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5		
EP074F: Halogenated Aromatic Compounds							
Chlorobenzene	108-90-7	5	µg/L	<5	<5		
Bromobenzene	108-86-1	5	µg/L	<5	<5		
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5		
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5		
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5		
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5		
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5		
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5		
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5		
EP074G: Trihalomethanes							
Chloroform	67-66-3	5	µg/L	<5	<5		
Bromodichloromethane	75-27-4	5	µg/L	<5	<5		
Dibromochloromethane	124-48-1	5	µg/L	<5	<5		
Bromoform	75-25-2	5	µg/L	<5	<5		
EP074H: Naphthalene							
Naphthalene	91-20-3	7	µg/L	<7	<7		
EP075A: Phenolic Compounds							
Phenol	108-95-2	2	µg/L	<2	<2		
2-Chlorophenol	95-57-8	2	µg/L	<2	<2		
2-Methylphenol	95-48-7	2	µg/L	<2	<2		

ALS Environmental

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW13D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-006	Client Sample ID: MW17D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 0:00 Laboratory Sample ID: ES0501569-007
EP075A: Phenolic Compounds					
3- & 4-Methylphenol	1319-77-3	4	µg/L	<2	<4
2-Nitrophenol	88-75-5	2	µg/L	<2	<2
2,4-Dimethylphenol	105-67-9	2	µg/L	<2	<2
2,4-Dichlorophenol	120-83-2	2	µg/L	<2	<2
2,6-Dichlorophenol	87-65-0	2	µg/L	<2	<2
4-Chloro-3-Methylphenol	59-50-7	2	µg/L	<2	<2
2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	<2
2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	<2
Pentachlorophenol	87-86-5	4	µg/L	<4	<4
EP075B: Polynuclear Aromatic Hydrocarbons					
Naphthalene	91-20-3	2	µg/L	<2	<2
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2
Acenaphthylene	208-96-8	2	µg/L	<2	<2
Acenaphthene	83-32-9	2	µg/L	<2	<2
Fluorene	86-73-7	2	µg/L	<2	<2
Phenanthrene	85-01-8	2	µg/L	<2	<2
Anthracene	120-12-7	2	µg/L	<2	<2
Fluoranthene	206-44-0	2	µg/L	<2	<2
Pyrene	129-00-0	2	µg/L	<2	<2
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2
Benz(a)anthracene	56-55-3	2	µg/L	<2	<2
Chrysene	218-01-9	2	µg/L	<2	<2
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2
Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2
Indeno(1,2,3,cd)pyrene	193-39-5	2	µg/L	<2	<2
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	<2
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	<2
EP075C: Phthalate Esters					
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2
Diethyl phthalate	84-66-2	2	µg/L	<2	<2
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	7
bis(2-ethylhexyl) phthalate	117-81-7	20	µg/L	<20	70

Analytical Results

	Client Sample ID :	MW13D	MW17D			
	Sample Matrix Type / Description :	WATER / WATER	WATER / WATER			
	Sample Date / Time :	1 Mar 2005 0:00	2 Mar 2005 0:00			
	Laboratory Sample ID :	ES0501569-006	ES0501569-007			
Analyte	*CAS number*	*LOR*	*Units*			
EP075C: Phthalate Esters						
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	
EP075D: Nitrosamines						
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	
N-Nitrosodiphenyl & Diphenylamine	86-30-6	4	µg/L	<4	<4	
Methapyrilene	91-80-5	2	µg/L	<2	<2	
EP075E: Nitroaromatics and Ketones						
2-Picoline	109-06-8	2	µg/L	<2	<2	
Acetophenone	98-86-2	2	µg/L	<2	<2	
Nitrobenzene	98-95-3	2	µg/L	<2	<2	
Isophorone	78-59-1	2	µg/L	<2	<2	
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	
Azobenzene	103-33-3	2	µg/L	<2	<2	
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	
Phenacetin	62-44-2	2	µg/L	<2	<2	
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	
Pronamide	23950-58-5	2	µg/L	<2	<2	
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	
EP075F: Haloethers						
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	
EP075G: Chlorinated Hydrocarbons						
1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	

Analytical Results

	Client Sample ID :	MW13D	MW17D			
	Sample Matrix Type / Description :	WATER / WATER	WATER / WATER			
	Sample Date / Time :	1 Mar 2005 0:00	2 Mar 2005 0:00			
	Laboratory Sample ID :	ES0501569-006	ES0501569-007			
Analyte	CAS number	LOR	Units			
EP075G: Chlorinated Hydrocarbons						
1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	
1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	
Hexachloroethane	67-72-1	2	µg/L	<2	<2	
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	
EP075H: Anilines and Benzidines						
Aniline	62-53-3	2	µg/L	<2	<2	
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	
Dibenzofuran	132-64-9	2	µg/L	<2	<2	
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	
Carbazole	86-74-8	2	µg/L	<2	<2	
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	
EP075I: Organochlorine Pesticides						
alpha-BHC	319-84-6	2	µg/L	<2	<2	
beta-BHC	319-85-7	2	µg/L	<2	<2	
gamma-BHC	58-89-9	2	µg/L	<2	<2	
delta-BHC	319-86-8	2	µg/L	<2	<2	
Heptachlor	76-44-8	2	µg/L	<2	<2	
Aldrin	309-00-2	2	µg/L	<2	<2	
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	
4,4'-DDE	72-55-9	2	µg/L	<2	<2	
Dieldrin	60-57-1	2	µg/L	<2	<2	
Endrin	72-20-8	2	µg/L	<2	<2	
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	
4,4'-DDD	72-54-8	2	µg/L	<2	<2	
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	
4,4'-DDT	50-29-3	4	µg/L	<4	<4	
EP075J: Organophosphorus Pesticides						
Dichlorvos	62-73-7	2	µg/L	<2	<2	

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW13D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 1 Mar 2005 0:00 Laboratory Sample ID: ES0501569-006	Client Sample ID: MW17D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 0:00 Laboratory Sample ID: ES0501569-007			
EP075J: Organophosphorus Pesticides								
Dimethoate	60-51-5	2	µg/L	<2	<2			
Diazinon	333-41-5	2	µg/L	<2	<2			
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2			
Malathion	121-75-5	2	µg/L	<2	<2			
Fenthion	55-38-9	2	µg/L	<2	<2			
Chlorpyrifos	2921-88-2	2	µg/L	<2	<2			
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2			
Chlorfenvinphos	470-90-6	2	µg/L	<2	<2			
Prothiofos	34643-46-4	2	µg/L	<2	<2			
Ethion	563-12-2	2	µg/L	<2	<2			
EP075K: Miscellaneous Compounds								
1,3,5-Trichlorobenzene	108-70-3	2	µg/L	<2	<2			
1,2,4,5-Tetrachlorobenzene	95-94-3	2	µg/L	<2	<2			
Methanesulfonate methyl	66-27-3	2	µg/L	<2	<2			
Methanesulfonate ethyl	62-50-0	2	µg/L	<2	<2			
cis-Isosafrole	17627-76-8	2	µg/L	<2	<2			
trans-Isosafrole	4043-71-4	2	µg/L	<2	<2			
Safrole	94-59-7	2	µg/L	<2	<2			
Diallate	2303-16-4	2	µg/L	<2	<2			
2,3,4,6-Tetrachlorophenol	58-90-2	2	µg/L	<2	<2			
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		20	µg/L	<20	<20			
C10 - C14 Fraction		50	µg/L	<50	60			
C15 - C28 Fraction		100	µg/L	<100	200			
C29 - C36 Fraction		50	µg/L	<50	<50			
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	110			
Toluene-D8	2037-26-5	0.1	%	100	97.6			
4-Bromofluorobenzene	460-00-4	0.1	%	95.2	92.0			
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1	%	55.8	57.4			
Phenol-d6	13127-88-3	0.1	%	40.2	34.2			
2-Chlorophenol-D4	93951-73-6	0.1	%	80.9	87.7			
2,4,6-Tribromophenol	118-79-6	0.1	%	91.2	98.3			
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	0.1	%	73.6	98.0			

Analytical Results

	Client Sample ID :	MW13D	MW17D			
	Sample Matrix Type / Description :	WATER / WATER	WATER / WATER			
	Sample Date / Time :	1 Mar 2005 0:00	2 Mar 2005 0:00			
	Laboratory Sample ID :	ES0501569-006	ES0501569-007			
Analyte	*CAS number*	*LOR*	*Units*			
EP075T: Base/Neutral Extractable Surrogates						
1,2-Dichlorobenzene-D4	2199-69-1	0.1	%	71.9	78.9	
2-Fluorobiphenyl	321-60-8	0.1	%	79.7	84.8	
Anthracene-d10	1719-06-8	0.1	%	78.2	89.3	
4-Terphenyl-d14	1718-51-0	0.1	%	75.7	84.4	
EP080S: TPH(V)/BTEX Surrogates						
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	110	
Toluene-D8	2037-26-5	0.1	%	100	97.6	
4-Bromofluorobenzene	460-00-4	0.1	%	95.2	92.0	

Surrogate Control Limits

The analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house procedure 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 herein. Reference methods from which ALSE methods are based are provided in parenthesis.

Matrix Type: WATER

		Surrogate Control Limits	
Method name	***Analyte name***	***Lower Limit***	***Upper Limit***
EP074: Volatile Organic Compounds			
EP074S: VOC Surrogates	1,2-Dichloroethane-D4	80	120
	Toluene-D8	88	110
	4-Bromofluorobenzene	86	115
EP075: Semivolatile Organic Compounds			
EP075S: Acid Extractable Surrogates	2-Fluorophenol	21	100
	Phenol-d6	10	94
	2-Chlorophenol-D4	23	134
	2,4,6-Tribromophenol	10	123
EP075T: Base/Neutral Extractable Surrogates	Nitrobenzene-D5	35	114
	1,2-Dichlorobenzene-D4	32	129
	2-Fluorobiphenyl	43	116
	Anthracene-d10	27	133
	4-Terphenyl-d14	33	141
EP080: TPH Volatiles/BTEX			
EP080S: TPH(V)/BTEX Surrogates	1,2-Dichloroethane-D4	80	120
	Toluene-D8	88	110
	4-Bromofluorobenzene	86	115

ALS Environmental

QUALITY CONTROL REPORT

Client	: SINCLAIR KNIGHT MERZ	**Laboratory**	: ALS Environmental Sydney	**Page**	:	1 of 36	
Contact	: MS LOUSIE MACDONALD	**Contact**	: Greg Vogel				
Address	: P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	: 277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	:	ES0501569	
				Amendment No.	:		
Project	: ENO1669	**Quote number**	: SY/221/04	**Date received**	:	2 Mar 2005	
Order number	: - Not provided -			**Date issued**	:	11 Mar 2005	
C-O-C number	: - Not provided -						
Site	: - Not provided -						
E-mail	: lmacdonald@skm.com.au	**E-mail**	: Greg.Vogel@alsenviro.com	**No. of samples**			
Telephone	: (02) 9928-2100	**Telephone**	: 61-2-87848555	**Received**	:	7	
Facsimile	: (02) 9928-2272	**Facsimile**	: 61-2-87848500	**Analysed**	:	7	

This final report for the ALSE work order reference ES0501569 supersedes any previous reports with this reference.
Results apply to the samples as submitted. All pages of this report have been checked and approved for release.
This report contains the following information:

- Laboratory Duplicates (DUP); Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Samples (LCS); Recovery and Acceptance Limits
- Matrix Spikes (MS); Recovery and Acceptance Limits

Work order specific comments
LOR raised for some samples for Cr due to matrix interference

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This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Department
Celine Conceicao	Inorganics - NATA 10911 (Sydney)
Peter Dickenson	Inorganics - NATA 10911 (Sydney)
Rassem Ayoubi	Organics - NATA 10911 (Sydney)
Sarah Millington	Inorganics - NATA 10911 (Sydney)

Quality Control Report - Laboratory Duplicates (DUP)

The quality control term **Laboratory Duplicate** refers to an intralaboratory split sample randomly selected from the sample batch. Laboratory duplicates provide information on method precision and sample heterogeneity.
- Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations: **LOR** = Limit of Reporting, **RPD** = Relative Percent Difference.*
* Indicates failed QC. The permitted ranges for the RPD of Laboratory Duplicates (relative percent deviation) 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%

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
ED093F: Dissolved Major Cations						
ED093F: Dissolved Major Cations - (QC Lot: 48918)				mg/L	mg/L	%
ES0501498-016	Anonymous	Calcium	1 mg/L	223	224	0.7
		Magnesium	1 mg/L	212	213	0.0
ES0501501-001	Anonymous	Calcium	1 mg/L	15	15	0.0
		Magnesium	1 mg/L	2	2	0.0
ED093F: Dissolved Major Cations - (QC Lot: 48920)				mg/L	mg/L	%
ES0501569-006	MW13D	Calcium	1 mg/L	14	14	0.0
		Magnesium	1 mg/L	66	66	0.0
ES0501599-004	Anonymous	Calcium	1 mg/L	107	107	0.0
		Magnesium	1 mg/L	179	178	0.0
EG020F: Dissolved Metals by ICP-MS						
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 47782)				mg/L	mg/L	%
ES0501551-011	Anonymous	Arsenic	0.001 mg/L	0.017	0.016	7.2
		Cadmium	0.0001 mg/L	0.0007	0.0007	0.0
		Chromium	0.001 mg/L	0.012	0.012	0.0
		Copper	0.001 mg/L	0.021	0.022	0.0
		Lead	0.001 mg/L	0.002	0.002	0.0
		Nickel	0.001 mg/L	0.004	0.006	19.7
		Zinc	0.005 mg/L	0.098	0.101	2.9
ES0501569-003	MW20S	Arsenic	0.001 mg/L	0.013	0.013	0.0
		Cadmium	0.0001 mg/L	<0.0001	<0.0001	0.0
		Chromium	0.001 mg/L	<0.005	<0.005	0.0
		Copper	0.001 mg/L	0.001	0.001	0.0
		Lead	0.001 mg/L	0.005	0.005	0.0
		Nickel	0.001 mg/L	0.002	0.002	0.0
		Zinc	0.005 mg/L	0.020	0.018	11.2

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EG035F: Dissolved Mercury by FIMS						
EG035F: Dissolved Mercury by FIMS - (QC Lot: 49640)				mg/L	mg/L	%
ES0501551-011	Anonymous	Mercury	0.0001 mg/L	<0.0001	<0.0001	0.0
ES0501554-010	Anonymous	Mercury	0.0001 mg/L	<0.0001	<0.0001	0.0
EG035F: Dissolved Mercury by FIMS - (QC Lot: 49641)				mg/L	mg/L	%
ES0501569-007	MW17D	Mercury	0.0001 mg/L	<0.0001	<0.0001	0.0
ES0501596-010	Anonymous	Mercury	0.0001 mg/L	<0.0001	<0.0001	0.0
EG050F: Hexavalent Chromium - Filtered						
EG050F: Hexavalent Chromium - Filtered - (QC Lot: 47321)				mg/L	mg/L	%
ES0501569-001	MW06S	Hexavalent Chromium	0.010 mg/L	<0.010	<0.010	0.0
EK055G: Ammonia as N by Discrete Analyser						
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 47439)				mg/L	mg/L	%
ES0501554-001	Anonymous	Ammonia as N	0.010 mg/L	1.81	1.77	2.3
ES0501554-010	Anonymous	Ammonia as N	0.010 mg/L	2.21	1.86	17.2
EK059G: NOX as N by Discrete Analyser						
EK059G: NOX as N by Discrete Analyser - (QC Lot: 47331)				mg/L	mg/L	%
ES0501569-001	MW06S	Nitrite + Nitrate as N	0.010 mg/L	0.382	0.364	4.8
EK061: Total Kjeldahl Nitrogen (TKN)						
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 47830)				mg/L	mg/L	%
ES0501501-001	Anonymous	Total Kjeldahl Nitrogen as N	0.1 mg/L	0.8	0.6	34.3
EP005: Total Organic Carbon (TOC)						
EP005: Total Organic Carbon (TOC) - (QC Lot: 47633)				mg/L	mg/L	%
EB0501750-001	Anonymous	Total Organic Carbon	1 mg/L	47	45	4.3
ES0501580-002	Anonymous	Total Organic Carbon	1 mg/L	13	13	0.0
EP026: Chemical Oxygen Demand (COD)						
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 47779)				mg/L	mg/L	%
ES0501528-001	Anonymous	Chemical Oxygen Demand	5 mg/L	64	65	1.6
ES0501569-004	MW07D	Chemical Oxygen Demand	5 mg/L	68	67	1.5
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 48044)				mg/L	mg/L	%
ES0501569-005	MW18D	Chemical Oxygen Demand	5 mg/L	19	19	0.0
EP030: Biochemical Oxygen Demand (BOD)						
EP030: Biochemical Oxygen Demand (BOD) - (QC Lot: 47538)				mg/L	mg/L	%
ES0501569-001	MW06S	Biochemical Oxygen Demand	2 mg/L	2	<2	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074A: Monocyclic Aromatic Hydrocarbons						
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 48425)				µg/L	µg/L	%
ES0501569-001	MW06S	Benzene	5 µg/L	<5	<5	0.0
		Toluene	5 µg/L	<5	<5	0.0
		Ethylbenzene	5 µg/L	<5	<5	0.0
		meta- & para-Xylene	5 µg/L	<5	<5	0.0
		Styrene	5 µg/L	<5	<5	0.0
		ortho-Xylene	5 µg/L	<5	<5	0.0
		Isopropylbenzene	5 µg/L	<5	<5	0.0
		n-Propylbenzene	5 µg/L	<5	<5	0.0
		1,3,5-Trimethylbenzene	5 µg/L	<5	<5	0.0
		sec-Butylbenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trimethylbenzene	5 µg/L	<5	<5	0.0
		tert-Butylbenzene	5 µg/L	<5	<5	0.0
		p-Isopropyltoluene	5 µg/L	<5	<5	0.0
		n-Butylbenzene	5 µg/L	<5	<5	0.0
ES0501569-005	MW18D	Benzene	5 µg/L	17	22	23.3
		Toluene	5 µg/L	<5	<5	0.0
		Ethylbenzene	5 µg/L	<5	<5	0.0
		meta- & para-Xylene	5 µg/L	<5	<5	0.0
		Styrene	5 µg/L	<5	<5	0.0
		ortho-Xylene	5 µg/L	<5	<5	0.0
		Isopropylbenzene	5 µg/L	<5	<5	0.0
		n-Propylbenzene	5 µg/L	<5	<5	0.0
		1,3,5-Trimethylbenzene	5 µg/L	<5	<5	0.0
		sec-Butylbenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trimethylbenzene	5 µg/L	<5	<5	0.0
		tert-Butylbenzene	5 µg/L	<5	<5	0.0
		p-Isopropyltoluene	5 µg/L	<5	<5	0.0
		n-Butylbenzene	5 µg/L	<5	<5	0.0
EP074B: Oxygenated Compounds						
EP074B: Oxygenated Compounds - (QC Lot: 48425)				µg/L	µg/L	%
ES0501569-001	MW06S	Vinyl Acetate	50 µg/L	<50	<50	0.0
		2-Butanone (MEK)	50 µg/L	<50	<50	0.0
		4-Methyl-2-pentanone (MIBK)	50 µg/L	<50	<50	0.0
		2-Hexanone (MBK)	50 µg/L	<50	<50	0.0
ES0501569-005	MW18D	Vinyl Acetate	50 µg/L	<50	<50	0.0
		2-Butanone (MEK)	50 µg/L	<50	<50	0.0
		4-Methyl-2-pentanone (MIBK)	50 µg/L	<50	<50	0.0
		2-Hexanone (MBK)	50 µg/L	<50	<50	0.0

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074C: Sulfonated Compounds						
EP074C: Sulfonated Compounds - (QC Lot: 48425)				µg/L	µg/L	%
ES0501569-001	MW06S	Carbon disulfide	5 µg/L	<5	<5	0.0
ES0501569-005	MW18D	Carbon disulfide	5 µg/L	<5	<5	0.0
EP074D: Fumigants						
EP074D: Fumigants - (QC Lot: 48425)				µg/L	µg/L	%
ES0501569-001	MW06S	2,2-Dichloropropane	5 µg/L	<5	<5	0.0
		1,2-Dichloropropane	5 µg/L	<5	<5	0.0
		cis-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		trans-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		1,2-Dibromoethane (EDB)	5 µg/L	<5	<5	0.0
ES0501569-005	MW18D	2,2-Dichloropropane	5 µg/L	<5	<5	0.0
		1,2-Dichloropropane	5 µg/L	<5	<5	0.0
		cis-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		trans-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		1,2-Dibromoethane (EDB)	5 µg/L	<5	<5	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074E: Halogenated Aliphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 48425)				µg/L	µg/L	%
ES0501569-001	MW06S	Dichlorodifluoromethane	50 µg/L	<50	<50	0.0
		Chloromethane	50 µg/L	<50	<50	0.0
		Vinyl chloride	50 µg/L	<50	<50	0.0
		Bromomethane	50 µg/L	<50	<50	0.0
		Chloroethane	50 µg/L	<50	<50	0.0
		Trichlorofluoromethane	50 µg/L	<50	<50	0.0
		1,1-Dichloroethene	5 µg/L	<5	<5	0.0
		Iodomethane	5 µg/L	<5	<5	0.0
		trans-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1-Dichloroethane	5 µg/L	<5	<5	0.0
		cis-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1,1-Trichloroethane	5 µg/L	<5	<5	0.0
		1,1-Dichloropropylene	5 µg/L	<5	<5	0.0
		Carbon Tetrachloride	5 µg/L	<5	<5	0.0
		1,2-Dichloroethane	5 µg/L	<5	<5	0.0
		Trichloroethene	5 µg/L	<5	<5	0.0
		Dibromomethane	5 µg/L	<5	<5	0.0
		1,1,2-Trichloroethane	5 µg/L	<5	<5	0.0
		1,3-Dichloropropane	5 µg/L	<5	<5	0.0
		Tetrachloroethene	5 µg/L	<5	<5	0.0
		1,1,1,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		trans-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		cis-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		1,1,2,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		1,2,3-Trichloropropane	5 µg/L	<5	<5	0.0
		Pentachloroethane	5 µg/L	<5	<5	0.0
		1,2-Dibromo-3-chloropropane	5 µg/L	<5	<5	0.0
		Hexachlorobutadiene	5 µg/L	<5	<5	0.0
ES0501569-005	MW18D	Dichlorodifluoromethane	50 µg/L	<50	<50	0.0
		Chloromethane	50 µg/L	<50	<50	0.0
		Vinyl chloride	50 µg/L	<50	<50	0.0
		Bromomethane	50 µg/L	<50	<50	0.0
		Chloroethane	50 µg/L	<50	<50	0.0
		Trichlorofluoromethane	50 µg/L	<50	<50	0.0
		1,1-Dichloroethene	5 µg/L	<5	<5	0.0
		Iodomethane	5 µg/L	<5	<5	0.0
		trans-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1-Dichloroethane	5 µg/L	<5	<5	0.0

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
ES0501569-005	MW18D	cis-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1,1-Trichloroethane	5 µg/L	<5	<5	0.0
		1,1-Dichloropropylene	5 µg/L	<5	<5	0.0
		Carbon Tetrachloride	5 µg/L	<5	<5	0.0
		1,2-Dichloroethane	5 µg/L	<5	<5	0.0
		Trichloroethene	5 µg/L	<5	<5	0.0
		Dibromomethane	5 µg/L	<5	<5	0.0
		1,1,2-Trichloroethane	5 µg/L	<5	<5	0.0
		1,3-Dichloropropane	5 µg/L	<5	<5	0.0
		Tetrachloroethene	5 µg/L	<5	<5	0.0
		1,1,1,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		trans-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		cis-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		1,1,2,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		1,2,3-Trichloropropane	5 µg/L	<5	<5	0.0
		Pentachloroethane	5 µg/L	<5	<5	0.0
		1,2-Dibromo-3-chloropropane	5 µg/L	<5	<5	0.0
		Hexachlorobutadiene	5 µg/L	<5	<5	0.0
EP074F: Halogenated Aromatic Compounds						
				µg/L	µg/L	%
EP074F: Halogenated Aromatic Compounds - (QC Lot: 48425)						
ES0501569-001	MW06S	Chlorobenzene	5 µg/L	<5	<5	0.0
		Bromobenzene	5 µg/L	<5	<5	0.0
		2-Chlorotoluene	5 µg/L	<5	<5	0.0
		4-Chlorotoluene	5 µg/L	<5	<5	0.0
		1,3-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,4-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,3-Trichlorobenzene	5 µg/L	<5	<5	0.0
ES0501569-005	MW18D	Chlorobenzene	5 µg/L	<5	<5	0.0
		Bromobenzene	5 µg/L	<5	<5	0.0
		2-Chlorotoluene	5 µg/L	<5	<5	0.0
		4-Chlorotoluene	5 µg/L	<5	<5	0.0
		1,3-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,4-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,3-Trichlorobenzene	5 µg/L	<5	<5	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074G: Trihalomethanes						
EP074G: Trihalomethanes - (QC Lot: 48425)				µg/L	µg/L	%
ES0501569-001	MW06S	Chloroform	5 µg/L	<5	<5	0.0
		Bromodichloromethane	5 µg/L	<5	<5	0.0
		Dibromochloromethane	5 µg/L	<5	<5	0.0
		Bromoform	5 µg/L	<5	<5	0.0
ES0501569-005	MW18D	Chloroform	5 µg/L	<5	<5	0.0
		Bromodichloromethane	5 µg/L	<5	<5	0.0
		Dibromochloromethane	5 µg/L	<5	<5	0.0
		Bromoform	5 µg/L	<5	<5	0.0
EP074H: Naphthalene						
EP074H: Naphthalene - (QC Lot: 48425)				µg/L	µg/L	%
ES0501569-001	MW06S	Naphthalene	5 µg/L	<7	<5	33.3
ES0501569-005	MW18D	Naphthalene	5 µg/L	<7	<5	33.3
EP080/071: Total Petroleum Hydrocarbons						
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 48424)				µg/L	µg/L	%
ES0501569-001	MW06S	C6 - C9 Fraction	20 µg/L	<20	<20	0.0
ES0501569-005	MW18D	C6 - C9 Fraction	20 µg/L	<20	<20	0.0

Quality Control Report - Method Blank (MB) and Laboratory Control Samples (LCS)

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 type is to monitor potential laboratory contamination. The quality control term **Laboratory Control Sample (LCS)** refers to a known, interference free matrix spiked with target analytes or certified reference material. The purpose of this QC type is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of actual laboratory data. Abbreviations: LOR = Limit of

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
ED093F: Dissolved Major Cations						
ED093F: Dissolved Major Cations - (QC Lot: 48918)		mg/L	mg/L	%	%	%
Calcium	1 mg/L	----	50	101	70	130
	1 mg/L	<1	----	----	----	----
Magnesium	1 mg/L	----	50	99.2	70	130
	1 mg/L	<1	----	----	----	----
ED093F: Dissolved Major Cations - (QC Lot: 48920)		mg/L	mg/L	%	%	%
Calcium	1 mg/L	<1	----	----	----	----
	1 mg/L	----	50	102	70	130
Magnesium	1 mg/L	<1	----	----	----	----
	1 mg/L	----	50	98.9	70	130
EG020F: Dissolved Metals by ICP-MS						
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 47782)		mg/L	mg/L	%	%	%
Arsenic	0.001 mg/L	----	0.1	110	70	130
	0.001 mg/L	<0.001	----	----	----	----
Cadmium	0.0001 mg/L	----	0.1	100	70	130
	0.0001 mg/L	<0.0001	----	----	----	----
Chromium	0.001 mg/L	----	0.1	98.6	70	130
	0.001 mg/L	<0.001	----	----	----	----
Copper	0.001 mg/L	----	0.1	103	70	130
	0.001 mg/L	<0.001	----	----	----	----
Lead	0.001 mg/L	----	0.1	102	70	130
	0.001 mg/L	<0.001	----	----	----	----
Nickel	0.001 mg/L	----	0.1	107	70	130
	0.001 mg/L	<0.001	----	----	----	----
Zinc	0.005 mg/L	----	0.1	97.5	70	130
	0.005 mg/L	<0.005	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EG035F: Dissolved Mercury by FIMS						
EG035F: Dissolved Mercury by FIMS - (QC Lot: 49640)		mg/L	mg/L	%	%	%
Mercury	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.010	82.1	70	130
EG035F: Dissolved Mercury by FIMS - (QC Lot: 49641)		mg/L	mg/L	%	%	%
Mercury	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.010	95.9	70	130
EG050F: Hexavalent Chromium - Filtered						
EG050F: Hexavalent Chromium - Filtered - (QC Lot: 47321)		mg/L	mg/L	%	%	%
Hexavalent Chromium	0.010 mg/L	<0.010	----	----	----	----
	0.01 mg/L	----	0.50	99.7	70	130
EK055G: Ammonia as N by Discrete Analyser						
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 47439)		mg/L	mg/L	%	%	%
Ammonia as N	0.01 mg/L	----	1.00	116	70	130
	0.010 mg/L	<0.010	----	----	----	----
EK059G: NOX as N by Discrete Analyser						
EK059G: NOX as N by Discrete Analyser - (QC Lot: 47331)		mg/L	mg/L	%	%	%
Nitrite + Nitrate as N	0.01 mg/L	----	0.96	91.6	70	130
	0.010 mg/L	<0.010	----	----	----	----
EK061: Total Kjeldahl Nitrogen (TKN)						
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 47830)		mg/L	mg/L	%	%	%
Total Kjeldahl Nitrogen as N	0.1 mg/L	<0.1	----	----	----	----
	0.1 mg/L	----	10.0	117	70	130
EP005: Total Organic Carbon (TOC)						
EP005: Total Organic Carbon (TOC) - (QC Lot: 47633)		mg/L	mg/L	%	%	%
Total Organic Carbon	1 mg/L	----	5	89.6	70	130
	1 mg/L	<1	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP026: Chemical Oxygen Demand (COD)						
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 47779)		mg/L	mg/L	%	%	%
Chemical Oxygen Demand	5 mg/L	<5	----	----	----	----
	5 mg/L	----	100	108	70	130
	5 mg/L	----	500	104	70	130
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 48044)		mg/L	mg/L	%	%	%
Chemical Oxygen Demand	5 mg/L	<5	----	----	----	----
	5 mg/L	----	100	104	70	130
	5 mg/L	----	500	96.6	70	130
EP030: Biochemical Oxygen Demand (BOD)						
EP030: Biochemical Oxygen Demand (BOD) - (QC Lot: 47538)		mg/L	mg/L	%	%	%
Biochemical Oxygen Demand	2 mg/L	----	200	89.0	70	130
	2 mg/L	<2	----	----	----	----

ALS Environmental

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074A: Monocyclic Aromatic Hydrocarbons						
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 48425)		µg/L	µg/L	%	%	%
Benzene	5 µg/L	----	10	102	71	126
	5 µg/L	<5	----	----	----	----
Toluene	5 µg/L	----	10	100	73	123
	5 µg/L	<5	----	----	----	----
Ethylbenzene	5 µg/L	----	10	103	74	126
	5 µg/L	<5	----	----	----	----
meta- & para-Xylene	5 µg/L	----	20	101	45	125
	5 µg/L	<5	----	----	----	----
Styrene	5 µg/L	----	10	101	76	125
	5 µg/L	<5	----	----	----	----
ortho-Xylene	5 µg/L	----	10	103	72	125
	5 µg/L	<5	----	----	----	----
Isopropylbenzene	5 µg/L	----	10	103	75	125
	5 µg/L	<5	----	----	----	----
n-Propylbenzene	5 µg/L	----	10	104	73	123
	5 µg/L	<5	----	----	----	----
1,3,5-Trimethylbenzene	5 µg/L	----	10	103	76	126
	5 µg/L	<5	----	----	----	----
sec-Butylbenzene	5 µg/L	----	10	104	78	124
	5 µg/L	<5	----	----	----	----
1,2,4-Trimethylbenzene	5 µg/L	----	10	101	74	123
	5 µg/L	<5	----	----	----	----
tert-Butylbenzene	5 µg/L	----	10	105	72	123
	5 µg/L	<5	----	----	----	----
p-Isopropyltoluene	5 µg/L	----	10	102	76	126
	5 µg/L	<5	----	----	----	----
n-Butylbenzene	5 µg/L	----	10	100	75	128
	5 µg/L	<5	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP074B: Oxygenated Compounds						
EP074B: Oxygenated Compounds - (QC Lot: 48425)		µg/L	µg/L	%	%	%
Vinyl Acetate	50 µg/L	----	100	104	70	125
	50 µg/L	<50	----	----	----	----
2-Butanone (MEK)	50 µg/L	----	100	104	70	130
	50 µg/L	<50	----	----	----	----
4-Methyl-2-pentanone (MIBK)	50 µg/L	----	100	97.4	70	130
	50 µg/L	<50	----	----	----	----
2-Hexanone (MBK)	50 µg/L	----	100	98.1	72	125
	50 µg/L	<50	----	----	----	----
EP074C: Sulfonated Compounds						
EP074C: Sulfonated Compounds - (QC Lot: 48425)		µg/L	µg/L	%	%	%
Carbon disulfide	5 µg/L	----	10	104	76	126
	5 µg/L	<5	----	----	----	----
EP074D: Fumigants						
EP074D: Fumigants - (QC Lot: 48425)		µg/L	µg/L	%	%	%
2,2-Dichloropropane	5 µg/L	----	10	112	76	126
	5 µg/L	<5	----	----	----	----
1,2-Dichloropropane	5 µg/L	----	10	101	76	126
	5 µg/L	<5	----	----	----	----
cis-1,3-Dichloropropylene	5 µg/L	----	20	96.2	72	125
	5 µg/L	<5	----	----	----	----
trans-1,3-Dichloropropylene	5 µg/L	----	20	94.3	73	128
	5 µg/L	<5	----	----	----	----
1,2-Dibromoethane (EDB)	5 µg/L	----	10	100	72	126
	5 µg/L	<5	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074E: Halogenated Aliphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 48425)		µg/L	µg/L	%	%	%
Dichlorodifluoromethane	50 µg/L	----	100	116	70	129
	50 µg/L	<50	----	----	----	----
Chloromethane	50 µg/L	----	100	109	76	118
	50 µg/L	<50	----	----	----	----
Vinyl chloride	50 µg/L	----	100	113	70	126
	50 µg/L	<50	----	----	----	----
Bromomethane	50 µg/L	----	100	102	71	123
	50 µg/L	<50	----	----	----	----
Chloroethane	50 µg/L	----	100	104	76	120
	50 µg/L	<50	----	----	----	----
Trichlorofluoromethane	50 µg/L	----	100	106	76	126
	50 µg/L	<50	----	----	----	----
1,1-Dichloroethene	5 µg/L	----	10	104	76	125
	5 µg/L	<5	----	----	----	----
Iodomethane	5 µg/L	----	10	115	70	129
	5 µg/L	<5	----	----	----	----
trans-1,2-Dichloroethene	5 µg/L	----	10	102	76	126
	5 µg/L	<5	----	----	----	----
1,1-Dichloroethane	5 µg/L	----	10	100	80	126
	5 µg/L	<5	----	----	----	----
cis-1,2-Dichloroethene	5 µg/L	----	10	103	72	126
	5 µg/L	<5	----	----	----	----
1,1,1-Trichloroethane	5 µg/L	----	10	98.4	73	126
	5 µg/L	<5	----	----	----	----
1,1-Dichloropropylene	5 µg/L	----	10	107	74	126
	5 µg/L	<5	----	----	----	----
Carbon Tetrachloride	5 µg/L	----	10	97.4	76	126
	5 µg/L	<5	----	----	----	----
1,2-Dichloroethane	5 µg/L	----	10	95.6	75	123
	5 µg/L	<5	----	----	----	----
Trichloroethene	5 µg/L	----	10	103	74	124
	5 µg/L	<5	----	----	----	----
Dibromomethane	5 µg/L	----	10	87.6	73	125
	5 µg/L	<5	----	----	----	----
1,1,2-Trichloroethane	5 µg/L	----	10	96.7	75	120
	5 µg/L	<5	----	----	----	----
1,3-Dichloropropane	5 µg/L	----	10	98.7	76	120

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074E: Halogenated Aliphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 48425)		µg/L	µg/L	%	%	%
1,3-Dichloropropane	5 µg/L	<5	----	----	----	----
Tetrachloroethene	5 µg/L	----	10	105	78	125
	5 µg/L	<5	----	----	----	----
1,1,1,2-Tetrachloroethane	5 µg/L	----	10	97.8	76	124
	5 µg/L	<5	----	----	----	----
trans-1,4-Dichloro-2-butene	5 µg/L	----	10	102	76	126
	5 µg/L	<5	----	----	----	----
cis-1,4-Dichloro-2-butene	5 µg/L	----	10	84.7	75	125
	5 µg/L	<5	----	----	----	----
1,1,2,2-Tetrachloroethane	5 µg/L	----	10	98.6	73	124
	5 µg/L	<5	----	----	----	----
1,2,3-Trichloropropane	5 µg/L	----	10	98.7	76	123
	5 µg/L	<5	----	----	----	----
Pentachloroethane	5 µg/L	----	10	102	75	126
	5 µg/L	<5	----	----	----	----
1,2-Dibromo-3-chloropropane	5 µg/L	----	10	97.5	72	122
	5 µg/L	<5	----	----	----	----
Hexachlorobutadiene	5 µg/L	----	10	98.5	76	124
	5 µg/L	<5	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP074F: Halogenated Aromatic Compounds						
EP074F: Halogenated Aromatic Compounds - (QC Lot: 48425)		µg/L	µg/L	%	%	%
Chlorobenzene	5 µg/L	----	10	100	72	125
	5 µg/L	<5	----	----	----	----
Bromobenzene	5 µg/L	----	10	101	71	126
	5 µg/L	<5	----	----	----	----
2-Chlorotoluene	5 µg/L	----	10	103	70	128
	5 µg/L	<5	----	----	----	----
4-Chlorotoluene	5 µg/L	----	10	98.8	75	123
	5 µg/L	<5	----	----	----	----
1,3-Dichlorobenzene	5 µg/L	----	10	101	74	126
	5 µg/L	<5	----	----	----	----
1,4-Dichlorobenzene	5 µg/L	----	10	98.6	75	128
	5 µg/L	<5	----	----	----	----
1,2-Dichlorobenzene	5 µg/L	----	10	99.4	75	126
	5 µg/L	<5	----	----	----	----
1,2,4-Trichlorobenzene	5 µg/L	----	10	99.1	74	124
	5 µg/L	<5	----	----	----	----
1,2,3-Trichlorobenzene	5 µg/L	----	10	99.0	74	123
	5 µg/L	<5	----	----	----	----
EP074G: Trihalomethanes						
EP074G: Trihalomethanes - (QC Lot: 48425)		µg/L	µg/L	%	%	%
Chloroform	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	97.5	72	127
Bromodichloromethane	5 µg/L	----	10	90.0	74	125
	5 µg/L	<5	----	----	----	----
Dibromochloromethane	5 µg/L	----	10	93.8	75	126
	5 µg/L	<5	----	----	----	----
Bromoform	5 µg/L	----	10	96.0	72	126
	5 µg/L	<5	----	----	----	----
EP074H: Naphthalene						
EP074H: Naphthalene - (QC Lot: 48425)		µg/L	µg/L	%	%	%
Naphthalene	5 µg/L	----	10	101	73	125
	5 µg/L	<5	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075A: Phenolic Compounds						
EP075A: Phenolic Compounds - (QC Lot: 48039)		µg/L	µg/L	%	%	%
Phenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	48.2	21	69
2-Chlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.7	63	115
2-Methylphenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.9	48	109
3- & 4-Methylphenol	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	71.5	35	103
2-Nitrophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.5	62	113
2,4-Dimethylphenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.9	46	123
2,4-Dichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.7	60	113
2,6-Dichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.4	57	121
4-Chloro-3-Methylphenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.0	52	122
2,4,6-Trichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.6	53	121
2,4,5-Trichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.5	46	126
Pentachlorophenol	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	89.2	4	101
EP075A: Phenolic Compounds - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Phenol	2 µg/L	----	5	47.5	21	69
	2 µg/L	<2	----	----	----	----
2-Chlorophenol	2 µg/L	----	5	81.0	63	115
	2 µg/L	<2	----	----	----	----
2-Methylphenol	2 µg/L	----	5	77.8	48	109
	2 µg/L	<2	----	----	----	----
3- & 4-Methylphenol	4 µg/L	----	10	69.3	35	103
	4 µg/L	<4	----	----	----	----
2-Nitrophenol	2 µg/L	----	5	81.2	62	113
	2 µg/L	<2	----	----	----	----
2,4-Dimethylphenol	2 µg/L	----	5	77.0	46	123
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075A: Phenolic Compounds						
EP075A: Phenolic Compounds - (QC Lot: 48758)		µg/L	µg/L	%	%	%
2,4-Dichlorophenol	2 µg/L	----	5	79.3	60	113
	2 µg/L	<2	----	----	----	----
2,6-Dichlorophenol	2 µg/L	----	5	90.5	57	121
	2 µg/L	<2	----	----	----	----
4-Chloro-3-Methylphenol	2 µg/L	----	5	91.6	52	122
	2 µg/L	<2	----	----	----	----
2,4,6-Trichlorophenol	2 µg/L	----	5	88.0	53	121
	2 µg/L	<2	----	----	----	----
2,4,5-Trichlorophenol	2 µg/L	----	5	85.9	46	126
	2 µg/L	<2	----	----	----	----
Pentachlorophenol	4 µg/L	----	10	34.8	4	101
	4 µg/L	<4	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075B: Polynuclear Aromatic Hydrocarbons						
EP075B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 48039)		µg/L	µg/L	%	%	%
Naphthalene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	78.9	63	111
2-Methylnaphthalene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.3	58	119
2-Chloronaphthalene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.3	58	120
Acenaphthylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.0	59	120
Acenaphthene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.1	67	116
Fluorene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.6	67	112
Phenanthrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.0	68	107
Anthracene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.8	68	110
Fluoranthene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.2	67	107
Pyrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.6	64	109
N-2-Fluorenyl Acetamide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.9	60	109
Benz(a)anthracene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.4	63	112
Chrysene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	78.8	65	115
Benzo(b) & Benzo(k)fluoranthene	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	83.2	60	118
7,12-Dimethylbenz(a)anthracene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.8	39	107
Benzo(a)pyrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.0	64	115
3-Methylcholanthrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.0	50	105
Indeno(1,2,3,cd)pyrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.5	55	103
Dibenz(a,h)anthracene	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075B: Polynuclear Aromatic Hydrocarbons						
EP075B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 48039)		µg/L	µg/L	%	%	%
Dibenz(a,h)anthracene	2 µg/L	----	5	79.1	54	105
Benzo(g,h,i)perylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.1	55	105
EP075B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Naphthalene	2 µg/L	----	5	93.2	63	111
	2 µg/L	<2	----	----	----	----
2-Methylnaphthalene	2 µg/L	----	5	92.3	58	119
	2 µg/L	<2	----	----	----	----
2-Chloronaphthalene	2 µg/L	----	5	90.2	58	120
	2 µg/L	<2	----	----	----	----
Acenaphthylene	2 µg/L	----	5	91.3	59	120
	2 µg/L	<2	----	----	----	----
Acenaphthene	2 µg/L	----	5	89.8	67	116
	2 µg/L	<2	----	----	----	----
Fluorene	2 µg/L	----	5	85.8	67	112
	2 µg/L	<2	----	----	----	----
Phenanthrene	2 µg/L	----	5	92.6	68	107
	2 µg/L	<2	----	----	----	----
Anthracene	2 µg/L	----	5	92.8	68	110
	2 µg/L	<2	----	----	----	----
Fluoranthene	2 µg/L	----	5	89.2	67	107
	2 µg/L	<2	----	----	----	----
Pyrene	2 µg/L	----	5	89.3	64	109
	2 µg/L	<2	----	----	----	----
N-2-Fluorenyl Acetamide	2 µg/L	----	5	85.4	60	109
	2 µg/L	<2	----	----	----	----
Benz(a)anthracene	2 µg/L	----	5	89.3	63	112
	2 µg/L	<2	----	----	----	----
Chrysene	2 µg/L	----	5	87.1	65	115
	2 µg/L	<2	----	----	----	----
Benzo(b) & Benzo(k)fluoranthene	4 µg/L	----	10	84.2	60	118
	4 µg/L	<4	----	----	----	----
7,12-Dimethylbenz(a)anthracene	2 µg/L	----	5	82.6	39	107
	2 µg/L	<2	----	----	----	----
Benzo(a)pyrene	2 µg/L	----	5	83.6	64	115
	2 µg/L	<2	----	----	----	----
3-Methylcholanthrene	2 µg/L	----	5	87.8	50	105

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075B: Polynuclear Aromatic Hydrocarbons						
EP075B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 48758)		µg/L	µg/L	%	%	%
3-Methylcholanthrene	2 µg/L	<2	----	----	----	----
Indeno(1,2,3,cd)pyrene	2 µg/L	----	5	80.7	55	103
	2 µg/L	<2	----	----	----	----
Dibenz(a,h)anthracene	2 µg/L	----	5	79.2	54	105
	2 µg/L	<2	----	----	----	----
Benzo(g,h,i)perylene	2 µg/L	----	5	82.8	55	105
	2 µg/L	<2	----	----	----	----
EP075C: Phthalate Esters						
EP075C: Phthalate Esters - (QC Lot: 48039)		µg/L	µg/L	%	%	%
Dimethyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.7	61	122
Diethyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.4	71	117
Di-n-butyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.8	70	115
Butyl benzyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.2	64	112
bis(2-ethylhexyl) phthalate	20 µg/L	<20	----	----	----	----
	20 µg/L	----	5	86.7	71	119
Di-n-octylphthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.1	74	110
EP075C: Phthalate Esters - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Dimethyl phthalate	2 µg/L	----	5	90.7	61	122
	2 µg/L	<2	----	----	----	----
Diethyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	89.4	71	117
Di-n-butyl phthalate	2 µg/L	----	5	99.1	70	115
	2 µg/L	<2	----	----	----	----
Butyl benzyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.1	64	112
bis(2-ethylhexyl) phthalate	20 µg/L	----	5	98.8	71	119
	20 µg/L	<20	----	----	----	----
Di-n-octylphthalate	2 µg/L	----	5	88.4	74	110
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075D: Nitrosamines						
EP075D: Nitrosamines - (QC Lot: 48039)		µg/L	µg/L	%	%	%
N-Nitrosomethylethylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	93.3	50	125
N-Nitrosodiethylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.7	65	118
N-Nitrosopyrrolidine	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	62.6	23	99
N-Nitrosomorpholine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.0	31	109
N-Nitrosodi-n-propylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.8	69	112
N-Nitrosopiperidine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.3	72	105
N-Nitrosodibutylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	89.5	67	111
N-Nitrosodiphenyl & Diphenylamine	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	85.0	64	124
Methapyrilene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	63.8	11	148
EP075D: Nitrosamines - (QC Lot: 48758)		µg/L	µg/L	%	%	%
N-Nitrosomethylethylamine	2 µg/L	----	5	76.1	50	125
	2 µg/L	<2	----	----	----	----
N-Nitrosodiethylamine	2 µg/L	----	5	80.5	65	118
	2 µg/L	<2	----	----	----	----
N-Nitrosopyrrolidine	4 µg/L	----	5	67.7	23	99
	4 µg/L	<4	----	----	----	----
N-Nitrosomorpholine	2 µg/L	----	5	62.2	31	109
	2 µg/L	<2	----	----	----	----
N-Nitrosodi-n-propylamine	2 µg/L	----	5	84.4	69	112
	2 µg/L	<2	----	----	----	----
N-Nitrosopiperidine	2 µg/L	----	5	79.1	72	105
	2 µg/L	<2	----	----	----	----
N-Nitrosodibutylamine	2 µg/L	----	5	91.6	67	111
	2 µg/L	<2	----	----	----	----
N-Nitrosodiphenyl & Diphenylamine	4 µg/L	----	10	90.0	64	124
	4 µg/L	<4	----	----	----	----
Methapyrilene	2 µg/L	----	5	31.2	11	148
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075E: Nitroaromatics and Ketones						
EP075E: Nitroaromatics and Ketones - (QC Lot: 48039)		µg/L	µg/L	%	%	%
2-Picoline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	65.7	16	128
Acetophenone	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.0	74	112
Nitrobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.2	79	110
Isophorone	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.2	78	108
2,6-Dinitrotoluene	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	82.0	58	121
2,4-Dinitrotoluene	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	75.4	59	125
1-Naphthylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.7	49	109
4-Nitroquinoline-N-oxide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	38.9	9	124
5-Nitro-o-toluidine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.9	56	122
Azobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.6	73	110
1,3,5-Trinitrobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.1	46	125
Phenacetin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.0	62	104
4-Aminobiphenyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.8	23	123
Pentachloronitrobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.7	63	112
Pronamide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.6	57	114
Dimethylaminoazobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.2	62	109
Chlorobenzilate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.0	62	114
EP075E: Nitroaromatics and Ketones - (QC Lot: 48758)		µg/L	µg/L	%	%	%
2-Picoline	2 µg/L	----	5	52.9	16	128
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075E: Nitroaromatics and Ketones						
EP075E: Nitroaromatics and Ketones - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Acetophenone	2 µg/L	----	5	85.0	74	112
	2 µg/L	<2	----	----	----	----
Nitrobenzene	2 µg/L	----	5	85.9	79	110
	2 µg/L	<2	----	----	----	----
Isophorone	2 µg/L	----	5	83.7	78	108
	2 µg/L	<2	----	----	----	----
2,6-Dinitrotoluene	4 µg/L	----	5	85.8	58	121
	4 µg/L	<4	----	----	----	----
2,4-Dinitrotoluene	4 µg/L	----	5	78.5	59	125
	4 µg/L	<4	----	----	----	----
1-Naphthylamine	2 µg/L	----	5	78.5	49	109
	2 µg/L	<2	----	----	----	----
4-Nitroquinoline-N-oxide	2 µg/L	----	5	41.1	9	124
	2 µg/L	<2	----	----	----	----
5-Nitro-o-toluidine	2 µg/L	----	5	75.1	56	122
	2 µg/L	<2	----	----	----	----
Azobenzene	2 µg/L	----	5	90.1	73	110
	2 µg/L	<2	----	----	----	----
1,3,5-Trinitrobenzene	2 µg/L	----	5	77.4	46	125
	2 µg/L	<2	----	----	----	----
Phenacetin	2 µg/L	----	5	78.4	62	104
	2 µg/L	<2	----	----	----	----
4-Aminobiphenyl	2 µg/L	----	5	62.5	23	123
	2 µg/L	<2	----	----	----	----
Pentachloronitrobenzene	2 µg/L	----	5	77.3	63	112
	2 µg/L	<2	----	----	----	----
Pronamide	2 µg/L	----	5	91.2	57	114
	2 µg/L	<2	----	----	----	----
Dimethylaminoazobenzene	2 µg/L	----	5	86.4	62	109
	2 µg/L	<2	----	----	----	----
Chlorobenzilate	2 µg/L	----	5	90.1	62	114
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075F: Haloethers						
EP075F: Haloethers - (QC Lot: 48039)		µg/L	µg/L	%	%	%
Bis(2-chloroethyl) ether	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.2	81	111
Bis(2-chloroethoxy) methane	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.1	74	111
4-Chlorophenyl phenyl ether	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.4	67	113
4-Bromophenyl phenyl ether	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.5	63	117
EP075F: Haloethers - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Bis(2-chloroethyl) ether	2 µg/L	----	5	83.5	81	111
	2 µg/L	<2	----	----	----	----
Bis(2-chloroethoxy) methane	2 µg/L	----	5	83.1	74	111
	2 µg/L	<2	----	----	----	----
4-Chlorophenyl phenyl ether	2 µg/L	----	5	86.4	67	113
	2 µg/L	<2	----	----	----	----
4-Bromophenyl phenyl ether	2 µg/L	----	5	86.5	63	117
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075G: Chlorinated Hydrocarbons						
EP075G: Chlorinated Hydrocarbons - (QC Lot: 48039)		µg/L	µg/L	%	%	%
1,4-Dichlorobenzene	2 µg/L	<2	----	----	----	----
1,3-Dichlorobenzene	2 µg/L	<2	----	----	----	----
1,4-Dichlorobenzene	2 µg/L	----	5	82.6	45	121
1,3-Dichlorobenzene	2 µg/L	----	5	82.5	45	122
1,2-Dichlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.7	48	117
Hexachloroethane	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.8	34	117
1,2,4-Trichlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.8	43	119
Hexachloropropylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	59.0	32	114
Hexachlorobutadiene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	78.6	39	117
Hexachlorocyclopentadiene	10 µg/L	<10	----	----	----	----
	10 µg/L	----	5	63.5	0	119
Pentachlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.9	64	118
Hexachlorobenzene (HCB)	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	82.6	66	119
EP075G: Chlorinated Hydrocarbons - (QC Lot: 48758)		µg/L	µg/L	%	%	%
1,4-Dichlorobenzene	2 µg/L	----	5	79.2	45	121
1,3-Dichlorobenzene	2 µg/L	----	5	78.4	45	122
1,4-Dichlorobenzene	2 µg/L	<2	----	----	----	----
1,3-Dichlorobenzene	2 µg/L	<2	----	----	----	----
1,2-Dichlorobenzene	2 µg/L	----	5	79.0	48	117
	2 µg/L	<2	----	----	----	----
Hexachloroethane	2 µg/L	----	5	76.1	34	117
	2 µg/L	<2	----	----	----	----
1,2,4-Trichlorobenzene	2 µg/L	----	5	80.3	43	119
	2 µg/L	<2	----	----	----	----
Hexachloropropylene	2 µg/L	----	5	72.1	32	114
	2 µg/L	<2	----	----	----	----
Hexachlorobutadiene	2 µg/L	----	5	87.8	39	117
	2 µg/L	<2	----	----	----	----
Hexachlorocyclopentadiene	10 µg/L	----	5	64.3	0	119
	10 µg/L	<10	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075G: Chlorinated Hydrocarbons						
EP075G: Chlorinated Hydrocarbons - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Pentachlorobenzene	2 µg/L	----	5	86.9	64	118
	2 µg/L	<2	----	----	----	----
Hexachlorobenzene (HCB)	4 µg/L	----	5	87.0	66	119
	4 µg/L	<4	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075H: Anilines and Benzidines						
EP075H: Anilines and Benzidines - (QC Lot: 48039)		µg/L	µg/L	%	%	%
Aniline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	65.8	6	121
4-Chloroaniline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.2	40	118
2-Nitroaniline	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	77.3	60	113
3-Nitroaniline	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	71.3	55	110
Dibenzofuran	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.6	70	116
4-Nitroaniline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.6	46	117
Carbazole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.1	69	109
3,3'-Dichlorobenzidine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.9	48	138
EP075H: Anilines and Benzidines - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Aniline	2 µg/L	----	5	35.3	6	121
	2 µg/L	<2	----	----	----	----
4-Chloroaniline	2 µg/L	----	5	93.2	40	118
	2 µg/L	<2	----	----	----	----
2-Nitroaniline	4 µg/L	----	5	89.2	60	113
	4 µg/L	<4	----	----	----	----
3-Nitroaniline	4 µg/L	----	5	69.3	55	110
	4 µg/L	<4	----	----	----	----
Dibenzofuran	2 µg/L	----	5	87.7	70	116
	2 µg/L	<2	----	----	----	----
4-Nitroaniline	2 µg/L	----	5	71.2	46	117
	2 µg/L	<2	----	----	----	----
Carbazole	2 µg/L	----	5	91.8	69	109
	2 µg/L	<2	----	----	----	----
3,3'-Dichlorobenzidine	2 µg/L	----	5	94.7	48	138
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075I: Organochlorine Pesticides						
EP075I: Organochlorine Pesticides - (QC Lot: 48039)		µg/L	µg/L	%	%	%
alpha-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.0	71	114
beta-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.2	67	118
gamma-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	94.6	67	118
delta-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.0	70	105
Heptachlor	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.6	71	101
Aldrin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.6	70	102
Heptachlor epoxide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	78.0	68	108
alpha-Endosulfan	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	98.0	68	108
4,4'-DDE	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.2	65	109
Dieldrin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.2	76	107
Endrin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.2	66	108
beta-Endosulfan	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	93.2	67	113
4,4'-DDD	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.2	61	117
Endosulfan sulfate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.1	61	117
4,4'-DDT	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	70.3	54	113
EP075I: Organochlorine Pesticides - (QC Lot: 48758)		µg/L	µg/L	%	%	%
alpha-BHC	2 µg/L	----	5	87.4	71	114
	2 µg/L	<2	----	----	----	----
beta-BHC	2 µg/L	----	5	82.7	67	118
	2 µg/L	<2	----	----	----	----
gamma-BHC	2 µg/L	----	5	87.7	67	118
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075I: Organochlorine Pesticides						
EP075I: Organochlorine Pesticides - (QC Lot: 48758)		µg/L	µg/L	%	%	%
delta-BHC	2 µg/L	----	5	93.0	70	105
	2 µg/L	<2	----	----	----	----
Heptachlor	2 µg/L	----	5	86.7	71	101
	2 µg/L	<2	----	----	----	----
Aldrin	2 µg/L	----	5	91.4	70	102
	2 µg/L	<2	----	----	----	----
Heptachlor epoxide	2 µg/L	----	5	86.8	68	108
	2 µg/L	<2	----	----	----	----
alpha-Endosulfan	2 µg/L	----	5	88.2	68	108
	2 µg/L	<2	----	----	----	----
4,4'-DDE	2 µg/L	----	5	88.8	65	109
	2 µg/L	<2	----	----	----	----
Dieldrin	2 µg/L	----	5	91.1	76	107
	2 µg/L	<2	----	----	----	----
Endrin	2 µg/L	----	5	88.7	66	108
	2 µg/L	<2	----	----	----	----
beta-Endosulfan	2 µg/L	----	5	92.1	67	113
	2 µg/L	<2	----	----	----	----
4,4'-DDD	2 µg/L	----	5	90.0	61	117
	2 µg/L	<2	----	----	----	----
Endosulfan sulfate	2 µg/L	----	5	89.1	61	117
	2 µg/L	<2	----	----	----	----
4,4'-DDT	4 µg/L	----	5	78.6	54	113
	4 µg/L	<4	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075J: Organophosphorus Pesticides						
EP075J: Organophosphorus Pesticides - (QC Lot: 48039)		µg/L	µg/L	%	%	%
Dichlorvos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	100	72	107
Dimethoate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.4	63	107
Diazinon	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.4	62	113
Chlorpyrifos-methyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.6	72	103
Malathion	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.7	77	110
Fenthion	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.4	63	111
Chlorpyrifos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.7	68	110
Pirimphos-ethyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.6	59	112
Chlorfenvinphos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	6	84.5	48	125
Prothiofos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	78.1	67	108
Ethion	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.2	59	113
EP075J: Organophosphorus Pesticides - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Dichlorvos	2 µg/L	----	5	92.6	72	107
	2 µg/L	<2	----	----	----	----
Dimethoate	2 µg/L	----	5	80.0	63	107
	2 µg/L	<2	----	----	----	----
Diazinon	2 µg/L	----	5	94.4	62	113
	2 µg/L	<2	----	----	----	----
Chlorpyrifos-methyl	2 µg/L	----	5	93.0	72	103
	2 µg/L	<2	----	----	----	----
Malathion	2 µg/L	----	5	100	77	110
	2 µg/L	<2	----	----	----	----
Fenthion	2 µg/L	----	5	90.5	63	111
	2 µg/L	<2	----	----	----	----
Chlorpyrifos	2 µg/L	----	5	90.0	68	110
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075J: Organophosphorus Pesticides						
EP075J: Organophosphorus Pesticides - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Pirimphos-ethyl	2 µg/L	----	5	88.0	59	112
	2 µg/L	<2	----	----	----	----
Chlorfenvinphos	2 µg/L	----	6	76.0	48	125
	2 µg/L	<2	----	----	----	----
Prothiofos	2 µg/L	----	5	90.3	67	108
	2 µg/L	<2	----	----	----	----
Ethion	2 µg/L	----	5	86.3	59	113
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075K: Miscellaneous Compounds						
EP075K: Miscellaneous Compounds - (QC Lot: 48039)		µg/L	µg/L	%	%	%
1,3,5-Trichlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.0	18	138
1,2,4,5-Tetrachlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.9	26	137
Methanesulfonate methyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.9	19	124
Methanesulfonate ethyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.3	70	109
cis-Isosafrole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.5	65	113
trans-Isosafrole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.5	65	115
Safrole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.4	68	105
Diallate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	78.1	77	113
2,3,4,6-Tetrachlorophenol	2 µg/L	<2	----	----	----	----
EP075K: Miscellaneous Compounds - (QC Lot: 48758)		µg/L	µg/L	%	%	%
1,3,5-Trichlorobenzene	2 µg/L	----	5	88.6	18	138
	2 µg/L	<2	----	----	----	----
1,2,4,5-Tetrachlorobenzene	2 µg/L	----	5	89.5	26	137
	2 µg/L	<2	----	----	----	----
Methanesulfonate methyl	2 µg/L	----	5	66.8	19	124
	2 µg/L	<2	----	----	----	----
Methanesulfonate ethyl	2 µg/L	----	5	76.1	70	109
	2 µg/L	<2	----	----	----	----
cis-Isosafrole	2 µg/L	----	5	90.0	65	113
	2 µg/L	<2	----	----	----	----
trans-Isosafrole	2 µg/L	----	5	91.6	65	115
	2 µg/L	<2	----	----	----	----
Safrole	2 µg/L	----	5	91.4	68	105
	2 µg/L	<2	----	----	----	----
Diallate	2 µg/L	----	5	88.9	77	113
	2 µg/L	<2	----	----	----	----
2,3,4,6-Tetrachlorophenol	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP080/071: Total Petroleum Hydrocarbons						
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 48040)		µg/L	µg/L	%	%	%
C10 - C14 Fraction	50 µg/L	<50	----	----	----	----
	50 µg/L	----	200	110	75	134
C15 - C28 Fraction	100 µg/L	<100	----	----	----	----
	100 µg/L	----	200	108	87	132
C29 - C36 Fraction	50 µg/L	<50	----	----	----	----
	50 µg/L	----	200	99.5	80	126
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 48424)		µg/L	µg/L	%	%	%
C6 - C9 Fraction	20 µg/L	----	260	95.1	80	120
	20 µg/L	<20	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 48759)		µg/L	µg/L	%	%	%
C10 - C14 Fraction	50 µg/L	<50	----	----	----	----
	50 µg/L	----	200	106	75	134
C15 - C28 Fraction	100 µg/L	<100	----	----	----	----
	100 µg/L	----	200	102	87	132
C29 - C36 Fraction	50 µg/L	<50	----	----	----	----
	50 µg/L	----	200	87.7	80	126

Quality Control Report - Matrix Spikes (MS)

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 type is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQO's). 'Ideal' recovery ranges stated may be waived in the event of sample matrix interferences. - Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations:* ***LOR*** *= Limit of Reporting,* ***RPD*** *= Relative Percent Difference.*

* Indicates failed QC

Matrix Type: WATER

					Actual Results		Recovery Limits	
					Sample Result	Spike Recovery	Static Limits	
Analyte name	Laboratory Sample ID	Client Sample ID	LOR	Spike Concentration		MS	Low	High
EG020F: Dissolved Metals by ICP-MS								
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 47782)				mg/L	mg/L	%	%	%
Arsenic	ES0501551-011	Anonymous	0.001 mg/L	0.2	0.017	121	70	130
Cadmium			0.0001 mg/L	0.05	0.0007	99.5	70	130
Chromium			0.001 mg/L	0.2	0.012	103	70	130
Copper			0.001 mg/L	0.2	0.021	97.7	70	130
Lead			0.001 mg/L	0.2	0.002	100	70	130
Nickel			0.001 mg/L	0.2	0.004	104	70	130
Zinc			0.005 mg/L	0.2	0.098	103	70	130
EG035F: Dissolved Mercury by FIMS								
EG035F: Dissolved Mercury by FIMS - (QC Lot: 49640)				mg/L	mg/L	%	%	%
Mercury	ES0501551-011	Anonymous	0.0001 mg/L	0.0100	<0.0001	96.2	70	130
EG035F: Dissolved Mercury by FIMS - (QC Lot: 49641)				mg/L	mg/L	%	%	%
Mercury	ES0501569-007	MW17D	0.0001 mg/L	0.0100	<0.0001	95.9	70	130
EG050F: Hexavalent Chromium - Filtered								
EG050F: Hexavalent Chromium - Filtered - (QC Lot: 47321)				mg/L	mg/L	%	%	%
Hexavalent Chromium	ES0501569-001	MW06S	0.01 mg/L	0.50	<0.010	103	70	130
EK055G: Ammonia as N by Discrete Analyser								
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 47439)				mg/L	mg/L	%	%	%
Ammonia as N	ES0501554-001	Anonymous	0.01 mg/L	1.00	1.81	72.5	70	130
EK059G: NOX as N by Discrete Analyser								
EK059G: NOX as N by Discrete Analyser - (QC Lot: 47331)				mg/L	mg/L	%	%	%
Nitrite + Nitrate as N	ES0501569-001	MW06S	0.01 mg/L	0.60	0.382	102	70	130
EK061: Total Kjeldahl Nitrogen (TKN)								
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 47830)				mg/L	mg/L	%	%	%
Total Kjeldahl Nitrogen as N	ES0501501-001	Anonymous	0.1 mg/L	5.0	0.8	117	70	130
EP005: Total Organic Carbon (TOC)								
EP005: Total Organic Carbon (TOC) - (QC Lot: 47633)				mg/L	mg/L	%	%	%
Total Organic Carbon	EB0501750-001	Anonymous	1 mg/L	100	47	114	70	130

Matrix Type: WATER

					Actual Results		Recovery Limits	
					Sample Result	Spike Recovery	Static Limits	
Analyte name	*Laboratory Sample ID*	*Client Sample ID*	*LOR*	*Spike Concentration*		*MS*	*Low*	*High*
EP026: Chemical Oxygen Demand (COD)								
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 47779)				mg/L	mg/L	%	%	%
Chemical Oxygen Demand	ES0501528-001	Anonymous	5 mg/L	143	64	105	70	130
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 48044)				mg/L	mg/L	%	%	%
Chemical Oxygen Demand	ES0501569-005	MW18D	5 mg/L	143	19	103	70	130
EP074A: Monocyclic Aromatic Hydrocarbons								
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 48425)				µg/L	µg/L	%	%	%
Benzene	ES0501569-001	MW06S	5 µg/L	25	<5	112	70	130
Toluene			5 µg/L	25	<5	108	70	130
EP074E: Halogenated Aliphatic Compounds								
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 48425)				µg/L	µg/L	%	%	%
1,1-Dichloroethene	ES0501569-001	MW06S	5 µg/L	25	<5	84.5	70	130
Trichloroethene			5 µg/L	25	<5	114	70	130
EP074F: Halogenated Aromatic Compounds								
EP074F: Halogenated Aromatic Compounds - (QC Lot: 48425)				µg/L	µg/L	%	%	%
Chlorobenzene	ES0501569-001	MW06S	5 µg/L	25	<5	110	70	130
EP080/071: Total Petroleum Hydrocarbons								
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 48424)				µg/L	µg/L	%	%	%
C6 - C9 Fraction	ES0501569-002	MW06D	20 µg/L	250	<20	96.5	80	120

ALS Environmental

INTERPRETIVE QUALITY CONTROL REPORT

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	:	ALS Environmental Sydney	**Page**	: 1 of 9
Contact	:	MS LOUSIE MACDONALD	**Contact**	:	Greg Vogel		
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	:	277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	: **ES0501569**
						Amendment No.	:
Project	:	ENO1669	**Quote number**	:	SY/221/04	**Date received**	: 2 Mar 2005
Order number	:	- Not provided -				**Date issued**	: 11 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	:	Greg.Vogel@alsenviro.com	**No. of samples**	
Telephone	:	(02) 9928-2100	**Telephone**	:	61-2-87848555	**Received**	: 7
Facsimile	:	(02) 9928-2272	**Facsimile**	:	61-2-87848500	**Analysed**	: 7

This Interpretive Quality Control Report was issued on 11 Mar 2005 for the ALS work order reference ES0501569 and supersedes any previous reports with this reference.
This report contains the following information:

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

ALS Environmental

Interpretive Quality Control Report - Analysis Holding Time

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 preclude subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the sample aliquot was taken. Elapsed time to analysis represents time from sampling where no extraction / digestion is involved or time from extraction / digestion where this is present. For composite samples, sampling date/time is taken as that of the oldest sample contributing to that composite. Sample date/time for laboratory produced leaches are taken from the completion date/time of the leaching process. Outliers for holding time are based on USEPA SW846, APHA, AS and NEPM (1999). Failed outliers, refer to the 'Summary of Outliers'.

Matrix Type: WATER

Analysis Holding Time and Preservation

Method / Container / Client Sample ID(s)		Date Sampled	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
ED093F: Major Cations - Filtered								
Clear Plastic Bottle - Natural								
MW06S,	MW06D,	**28 Feb 2005**	----	----	----	**8 Mar 2005**	28 Mar 2005	Pass
MW20S,	MW07D,							
MW18D,	MW13D							
Clear Plastic Bottle - Natural								
MW17D		**1 Mar 2005**	----	----	----	**8 Mar 2005**	29 Mar 2005	Pass
EG020A-F: Dissolved Metals by ICP-MS - Suite A								
Clear Plastic Bottle - Nitric Acid; Filtered								
MW06S,	MW06D,	**28 Feb 2005**	----	----	----	**4 Mar 2005**	27 Aug 2005	Pass
MW20S,	MW07D,							
MW18D,	MW13D							
Clear Plastic Bottle - Nitric Acid; Filtered								
MW17D		**1 Mar 2005**	----	----	----	**4 Mar 2005**	28 Aug 2005	Pass
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered								
MW06S,	MW06D,	**28 Feb 2005**	----	----	----	**9 Mar 2005**	28 Mar 2005	Pass
MW20S,	MW07D,							
MW18D,	MW13D							
Clear Plastic Bottle - Nitric Acid; Filtered								
MW17D		**1 Mar 2005**	----	----	----	**9 Mar 2005**	29 Mar 2005	Pass
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered								
Clear Plastic Bottle - Natural								
MW06S,	MW06D,	**28 Feb 2005**	----	----	----	**2 Mar 2005**	1 Mar 2005	**Fail by 1 day**
MW20S,	MW07D,							
MW18D,	MW13D							
Clear Plastic Bottle - Natural								
MW17D		**1 Mar 2005**	----	----	----	**2 Mar 2005**	2 Mar 2005	Pass
EK055G: Ammonia as N by Discreate analyser								
Clear Plastic Bottle - Sulphuric Acid								
MW06S,	MW06D,	**28 Feb 2005**	----	----	----	**3 Mar 2005**	28 Mar 2005	Pass
MW20S,	MW07D,							
MW18D,	MW13D							
Clear Plastic Bottle - Sulphuric Acid								
MW17D		**1 Mar 2005**	----	----	----	**3 Mar 2005**	29 Mar 2005	Pass
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser								

Matrix Type: WATER

Analysis Holding Time and Preservation

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser - **continued**							
Clear Plastic Bottle - Natural MW06S, MW06D, MW20S, MW07D, MW18D, MW13D	**28 Feb 2005**	----	----	----	**2 Mar 2005**	2 Mar 2005	Pass
Clear Plastic Bottle - Natural MW17D	**1 Mar 2005**	----	----	----	**2 Mar 2005**	3 Mar 2005	Pass
EK061: Total Kjeldahl Nitrogen as N							
Clear Plastic Bottle - Sulphuric Acid MW06S, MW06D, MW20S, MW07D, MW18D, MW13D	**28 Feb 2005**	**7 Mar 2005**	28 Mar 2005	Pass	**7 Mar 2005**	28 Mar 2005	Pass
Clear Plastic Bottle - Sulphuric Acid MW17D	**1 Mar 2005**	**7 Mar 2005**	29 Mar 2005	Pass	**7 Mar 2005**	29 Mar 2005	Pass
EP005: Total Organic Carbon							
Amber TOC Vial- Sulphuric Acid MW06S, MW06D, MW20S, MW07D, MW18D, MW13D	**28 Feb 2005**	----	----	----	**4 Mar 2005**	28 Mar 2005	Pass
Amber TOC Vial- Sulphuric Acid MW17D	**1 Mar 2005**	----	----	----	**4 Mar 2005**	29 Mar 2005	Pass
EP026: Chemical Oxygen Demand (COD)							
Clear Plastic Bottle - Sulphuric Acid MW06S, MW06D, MW20S, MW07D, MW18D, MW13D	**28 Feb 2005**	----	----	----	**9 Mar 2005**	28 Mar 2005	Pass
Clear Plastic Bottle - Sulphuric Acid MW17D	**1 Mar 2005**	----	----	----	**9 Mar 2005**	29 Mar 2005	Pass
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural MW06S, MW06D, MW20S, MW07D, MW18D, MW13D	**28 Feb 2005**	----	----	----	**3 Mar 2005**	2 Mar 2005	**Fail by 1 day**
Clear Plastic Bottle - Natural MW17D	**1 Mar 2005**	----	----	----	**3 Mar 2005**	3 Mar 2005	Pass
EP071: TPH - Semivolatile Fraction							
Amber Glass Bottle - Unpreserved MW06S, MW06D, MW20S, MW07D, MW18D, MW13D	**28 Feb 2005**	**4 Mar 2005**	7 Mar 2005	Pass	**7 Mar 2005**	13 Apr 2005	Pass
Amber Glass Bottle - Unpreserved MW17D	**1 Mar 2005**	**7 Mar 2005**	8 Mar 2005	Pass	**9 Mar 2005**	16 Apr 2005	Pass
EP074: Volatile Organic Compounds							

Matrix Type: WATER

Analysis Holding Time and Preservation

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EP074: Volatile Organic Compounds - **continued**							
Clear Plastic Bottle - Natural							
MW06S, MW06D, MW20S, MW07D, MW18D, MW13D	**28 Feb 2005**	----	----	----	**7 Mar 2005**	14 Mar 2005	Pass
Clear Plastic Bottle - Natural							
MW17D	**1 Mar 2005**	----	----	----	**7 Mar 2005**	15 Mar 2005	Pass
EP075: Semivolatile Organic Compounds							
Amber Glass Bottle - Unpreserved							
MW06S, MW06D, MW20S, MW07D, MW18D, MW13D	**28 Feb 2005**	**4 Mar 2005**	7 Mar 2005	Pass	**7 Mar 2005**	13 Apr 2005	Pass
Amber Glass Bottle - Unpreserved							
MW17D	**1 Mar 2005**	**7 Mar 2005**	8 Mar 2005	Pass	**10 Mar 2005**	16 Apr 2005	Pass
EP080: TPH Volatiles/BTEX							
Amber Glass Bottle - Unpreserved							
MW06S, MW06D, MW20S, MW07D, MW18D, MW13D	**28 Feb 2005**	----	----	----	**7 Mar 2005**	14 Mar 2005	Pass
Amber Glass Bottle - Unpreserved							
MW17D	**1 Mar 2005**	----	----	----	**7 Mar 2005**	15 Mar 2005	Pass

Interpretive Quality Control Report - Frequency of Quality Control Samples

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which this work order was processed. Actual rate should be greater than or equal to the expected rate.

Frequency of Quality Control Samples

Matrix Type: WATER

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
ED093F: Major Cations - Filtered	4	40	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-F: Dissolved Metals by ICP-MS - Suite A	2	16	12.5	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	4	40	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered	1	7	14.3	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	7	14.3	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	9	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	2	16	12.5	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	3	13	23.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	1	7	14.3	13.3	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	2	18	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	2	15	13.3	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Laboratory Control Samples (LCS)					
ED093F: Major Cations - Filtered	2	40	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-F: Dissolved Metals by ICP-MS - Suite A	1	16	6.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	2	40	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered	1	7	14.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	7	14.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	16	6.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	4	13	30.8	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	1	7	14.3	6.7	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP071: TPH - Semivolatile Fraction	2	40	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP075: Semivolatile Organic Compounds	2	23	8.7	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	1	15	6.7	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement

ALS Environmental

Matrix Type: WATER

Frequency of Quality Control Samples

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Method Blanks (MB)					
ED093F: Major Cations - Filtered	2	40	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-F: Dissolved Metals by ICP-MS - Suite A	1	16	6.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	2	40	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered	1	7	14.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	7	14.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	16	6.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	2	13	15.4	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	1	7	14.3	6.7	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP071: TPH - Semivolatile Fraction	2	40	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP075: Semivolatile Organic Compounds	2	23	8.7	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	1	15	6.7	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Matrix Spikes (MS)					
EG020A-F: Dissolved Metals by ICP-MS - Suite A	1	16	6.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	2	40	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered	1	7	14.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	7	14.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	16	6.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	2	13	15.4	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	1	15	6.7	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement

Interpretive Quality Control Report - Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged on the 'Quality Control Report'. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). - Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot.

Non-surrogates

- **For all matrices, no RPD recovery outliers occur for the duplicate analysis.**
- **For all matrices, no method blank result outliers occur.**
- **For all matrices, no laboratory spike recoveries breaches occur.**
- **For all matrices, no matrix spike recoveries breaches occur.**

Surrogates

- **For all matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time

The following report highlights outliers within this 'Interpretive Quality Control Report - Analysis Holding Time'.

Summary of Outliers - Analysis Holding times and Preservation

Matrix Type: WATER

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered							
Clear Plastic Bottle - Natural MW06S, MW06D, MW20S, MW07D, MW18D, MW13D	**28 Feb 2005**	----	----	----	**2 Mar 2005**	1 Mar 2005	**Fail by 1 day**
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural MW06S, MW06D, MW20S, MW07D, MW18D, MW13D	**28 Feb 2005**	----	----	----	**3 Mar 2005**	2 Mar 2005	**Fail by 1 day**

Outliers : Frequency of Quality Control Samples

The following report highlights outliers within this 'Interpretive Quality Control Report - Frequency of Quality Control Samples'.

- **No frequency outliers occur.**

Method Reference Summary

The analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house procedure 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 herein. Reference methods from which ALSE methods are based are provided in parenthesis.

Matrix Type: WATER

Method Reference Summary

Preparation Methods

EK061/EK067 : TKN/TP Digestion - APHA 20th ed., 4500 Norg - D; APHA 20th ed., 4500 P - H. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ORG14 : Separatory Funnel Extraction of Liquids - USEPA SW 846 - 3510B 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)

Analytical Methods

EA065 : Hardness as CaCO3 - APHA 20th ed., 2340. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ED093F : Major Cations - Filtered - APHA 20th ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EG020A-F : Dissolved Metals by ICP-MS - Suite A - (APHA 20th ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

EG035F : Dissolved Mercury by FIMS - AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the 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)

EG050G-F : Hexavalent Chromium by Discrete Analyser - Filtered - APHA 20th ed., 3500 Cr-A & B. Hexavalent chromium is determined directly on water sample by Seal Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK055G : Ammonia as N by Discreate analyser - APHA 20th ed., 4500 NH3+-H Ammonia is determined by direct colorimetry by Seal. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK059G : Nitrite and Nitrate as N (NOx) by Discrete Analyser - APHA 20th ed., 4500 NO3- I. SEAL Method 2-018-1-L February 2003. Combined oxidised Nitrogen (NO2+NO3) is determined by Cadmium Reduction and direct colourimetry by SEAL. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK061 : Total Kjeldahl Nitrogen as N - APHA 20th ed., 4500-Norg-D 100mL water samples are digested using a traditional Kjeldahl digestion followed by determination by FIA. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK062-SYD : Total Nitrogen as N (TKN + Nox) - APHA 20th ed., 4500 N org / NO3. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP005 : Total Organic Carbon - APHA 20th ed., 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP026 : Chemical Oxygen Demand (COD) - APHA 20th ed., 5220 B. Samples are digested with a known excess of acidic potassium dichromate solution using silver sulphate as a catalyst. The chromium is reduced from Cr (VI) to Cr (III) by oxygen. The unreacted Cr (VI) can then be titrated with ferrous ammonium sulfate to determine the amount of Cr (VI) consumed. The oxidisable organic matter can be calculated in terms of oxygen equivalents. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Matrix Type: WATER

Analytical Methods

EP030 : Biochemical Oxygen Demand (BOD) - APHA 20th ed., 5210 B The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP071 : TPH - Semivolatile Fraction - 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)

EP074 : Volatile Organic Compounds - USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP075 : Semivolatile Organic Compounds - 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)

EP080 : TPH Volatiles/BTEX - USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ALS Environmental

CERTIFICATE OF ANALYSIS

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	:	ALS Environmental Sydney	**Page**	: 1 of 18
Contact	:	MS LOUSIE MACDONALD	**Contact**	:	Greg Vogel		
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	:	277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	: **ES0501612**
Project	:	- Not provided -	**Quote number**	:	----	**Date received**	: 3 Mar 2005
Order number	:	- Not provided -				**Date Issued**	: 14 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	:	Greg.Vogel@alsenviro.com	**No. of samples**	
Telephone	:	(02) 9928-2100	**Telephone**	:	61-2-87848555	**Received**	: 9
Facsimile	:	(02) 9928-2272	**Facsimile**	:	61-2-87848500	**Analysed**	: 9

This final report for the ALSE work order reference ES0501612 supersedes any previous reports with this reference.
Results apply to the samples as submitted. All pages of this report have been checked and approved for release.
This report contains the following information:

- Analytical results for samples submitted
- Surrogate control limits

Work order specific comments

LOR raised for Cr6+ due to Matrix interference

ALSE - QUALITY, SERVICE and TECHNOLOGY provided GLOBALLY

NATA Accredited Laboratory - 825

The Laboratory is accredited by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with its scope of accreditation. This document shall not be reproduced except in full.

This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Department
Celine Conceicao	Inorganics - NATA 10911 (Sydney)
Greg Vogel	Inorganics - NATA 10911 (Sydney)
Rassem Ayoubi	Organics - NATA 10911 (Sydney)

When moisture determination has been performed, results are reported on a dry weight basis. When a reported 'less than' result is higher than the LOR, this may be due to primary sample extracts/digestion dilution and/or insuffient sample amount for analysis. Surrogate Recovery Limits are static and based on USEPA SW846 or ALS-QWI/EN38 (in the absence of specified USEPA limits).
Abbreviations: ***CAS number*** = *Chemical Abstract Services number,* ***LOR*** = *Limit of Reporting.* ***# Indicates a raised LOR, * Indicates failed Surrogate Recoveries.***
When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes.

Analytical Results

				Client Sample ID :	DUP 2	MW14 S	MW14 D	MW16 S	MW17 S
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER
				Sample Date / Time :	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)
				Laboratory Sample ID :	ES0501612-001	ES0501612-002	ES0501612-003	ES0501612-004	ES0501612-005
Analyte	*CAS number*	*LOR*	*Units*						
EA065: Total Hardness as CaCO3									
Total Hardness as CaCO3		1	mg/L		128	96	139	126	111
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		14	----	----	----	----
Magnesium	7439-95-4	1	mg/L		22	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		0.005	<0.001	0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	0.0001	<0.0001	<0.0001	<0.0001
Copper	7440-50-8	0.001	mg/L		0.001	0.002	<0.001	0.002	0.001
Lead	7439-92-1	0.001	mg/L		0.011	0.002	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		0.009	0.006	0.014	0.012	<0.001
Zinc	7440-66-6	0.005	mg/L		0.056	0.054	0.061	0.076	0.024
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG050F: Hexavalent Chromium - Filtered									
Hexavalent Chromium	18540-29-9	1.00	mg/L		<1.00	1.68	<1.00	<1.00	<1.00
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.010	mg/L		0.147	0.013	0.082	0.135	0.015
EK059G: NOX as N by Discrete Analyser									
Nitrite + Nitrate as N		0.010	mg/L		0.065	0.781	0.015	0.054	0.160
EK061: Total Kjeldahl Nitrogen (TKN)									
Total Kjeldahl Nitrogen as N		0.1	mg/L		1.6	<0.1	0.3	0.6	1.1
EK062: Total Nitrogen as N (TKN + NOx)									
Total Nitrogen as N		0.1	mg/L		1.6	0.8	0.3	0.7	1.2
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon		1	mg/L		19	7	13	10	7
EP026: Chemical Oxygen Demand (COD)									
Chemical Oxygen Demand		5	mg/L		60	22	45	38	122
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand		2	mg/L		<2	2	<2	<2	2
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	5	µg/L		----	<5	<5	<5	<5
Toluene	108-88-3	5	µg/L		----	<5	<5	<5	<5

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: DUP 2	MW14 S	MW14 D	MW16 S	MW17 S
Sample Matrix Type / Description:				WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER
Sample Date / Time:				(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)
Laboratory Sample ID:				ES0501612-001	ES0501612-002	ES0501612-003	ES0501612-004	ES0501612-005
EP074A: Monocyclic Aromatic Hydrocarbons								
Ethylbenzene	100-41-4	5	µg/L	----	<5	<5	<5	<5
meta- & para-Xylene	108-38-3 106-42-3	5	µg/L	----	<5	<5	<5	<5
Styrene	100-42-5	5	µg/L	----	<5	<5	<5	<5
ortho-Xylene	95-47-6	5	µg/L	----	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	----	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	----	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	----	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	----	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	----	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	----	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	----	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	----	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	----	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	----	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	----	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	----	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	----	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	----	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	----	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	----	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	----	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	----	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	----	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	----	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	----	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	----	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	----	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	----	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	----	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	----	<5	<5	<5	<5

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Analytical Results

				Client Sample ID :	DUP 2	MW14 S	MW14 D	MW16 S	MW17 S
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER
				Sample Date / Time :	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)
				Laboratory Sample ID :					
Analyte	*CAS number*	*LOR*	*Units*		ES0501612-001	ES0501612-002	ES0501612-003	ES0501612-004	ES0501612-005
EP074E: Halogenated Aliphatic Compounds									
cis-1,2-Dichloroethene	156-59-2	5	µg/L		----	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L		----	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L		----	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L		----	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L		----	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L		----	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L		----	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L		----	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L		----	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L		----	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L		----	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L		----	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L		----	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L		----	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L		----	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L		----	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L		----	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L		----	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		----	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L		----	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L		----	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L		----	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L		----	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L		----	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L		----	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L		----	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L		----	<5	<5	<5	<5
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		----	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L		----	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L		----	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L		----	<5	<5	<5	<5
EP074H: Naphthalene									
Naphthalene	91-20-3	7	µg/L		----	<7	<7	<7	<7

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: DUP 2 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-001	MW14 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-002	MW14 D WATER / WATER (2 Mar 2005) (0:00) ES0501612-003	MW16 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-004	MW17 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-005
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	----	<2	<2	<2	<2
2-Chlorophenol	95-57-8	2	µg/L	----	<2	<2	<2	<2
2-Methylphenol	95-48-7	2	µg/L	----	<2	<2	<2	<2
3- & 4-Methylphenol	1319-77-3	4	µg/L	----	<4	<4	<4	<4
2-Nitrophenol	88-75-5	2	µg/L	----	<2	<2	<2	<2
2,4-Dimethylphenol	105-67-9	2	µg/L	----	<2	<2	<2	<2
2,4-Dichlorophenol	120-83-2	2	µg/L	----	<2	<2	<2	<2
2,6-Dichlorophenol	87-65-0	2	µg/L	----	<2	<2	<2	<2
4-Chloro-3-Methylphenol	59-50-7	2	µg/L	----	<2	<2	<2	<2
2,4,6-Trichlorophenol	88-06-2	2	µg/L	----	<2	<2	<2	<2
2,4,5-Trichlorophenol	95-95-4	2	µg/L	----	<2	<2	<2	<2
Pentachlorophenol	87-86-5	4	µg/L	----	<4	<4	<4	<4
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	----	<2	<2	<2	<2
2-Methylnaphthalene	91-57-6	2	µg/L	----	<2	<2	<2	<2
2-Chloronaphthalene	91-58-7	2	µg/L	----	<2	<2	<2	<2
Acenaphthylene	208-96-8	2	µg/L	----	<2	<2	<2	<2
Acenaphthene	83-32-9	2	µg/L	----	<2	<2	<2	<2
Fluorene	86-73-7	2	µg/L	----	<2	<2	<2	<2
Phenanthrene	85-01-8	2	µg/L	----	<2	<2	<2	<2
Anthracene	120-12-7	2	µg/L	----	<2	<2	<2	<2
Fluoranthene	206-44-0	2	µg/L	----	<2	<2	<2	<2
Pyrene	129-00-0	2	µg/L	----	<2	<2	<2	<2
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	----	<2	<2	<2	<2
Benz(a)anthracene	56-55-3	2	µg/L	----	<2	<2	<2	<2
Chrysene	218-01-9	2	µg/L	----	<2	<2	<2	<2
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	----	<4	<4	<4	<4
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	----	<2	<2	<2	<2
Benzo(a)pyrene	50-32-8	2	µg/L	----	<2	<2	<2	<2
3-Methylcholanthrene	56-49-5	2	µg/L	----	<2	<2	<2	<2
Indeno(1,2,3,cd)pyrene	193-39-5	2	µg/L	----	<2	<2	<2	<2
Dibenz(a,h)anthracene	53-70-3	2	µg/L	----	<2	<2	<2	<2
Benzo(g,h,i)perylene	191-24-2	2	µg/L	----	<2	<2	<2	<2
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	----	<2	<2	<2	<2
Diethyl phthalate	84-66-2	2	µg/L	----	<2	<2	<2	<2

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: DUP 2	MW14 S	MW14 D	MW16 S	MW17 S
Sample Matrix Type / Description:				WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER
Sample Date / Time:				(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)
Laboratory Sample ID:				ES0501612-001	ES0501612-002	ES0501612-003	ES0501612-004	ES0501612-005
EP075C: Phthalate Esters								
Di-n-butyl phthalate	84-74-2	2	µg/L	----	<2	<2	<2	<2
Butyl benzyl phthalate	85-68-7	2	µg/L	----	<2	<2	<2	<2
bis(2-ethylhexyl) phthalate	117-81-7	20	µg/L	----	<20	<20	<20	<20
Di-n-octylphthalate	117-84-0	2	µg/L	----	<2	<2	<2	<2
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	----	<2	<2	<2	<2
N-Nitrosodiethylamine	55-18-5	2	µg/L	----	<2	<2	<2	<2
N-Nitrosopyrrolidine	930-55-2	4	µg/L	----	<4	<4	<4	<4
N-Nitrosomorpholine	59-89-2	2	µg/L	----	<2	<2	<2	<2
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	----	<2	<2	<2	<2
N-Nitrosopiperidine	100-75-4	2	µg/L	----	<2	<2	<2	<2
N-Nitrosodibutylamine	924-16-3	2	µg/L	----	<2	<2	<2	<2
N-Nitrosodiphenyl & Diphenylamine	86-30-6	4	µg/L	----	<4	<4	<4	<4
Methapyrilene	91-80-5	2	µg/L	----	<2	<2	<2	<2
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	----	<2	<2	<2	<2
Acetophenone	98-86-2	2	µg/L	----	<2	<2	<2	<2
Nitrobenzene	98-95-3	2	µg/L	----	<2	<2	<2	<2
Isophorone	78-59-1	2	µg/L	----	<2	<2	<2	<2
2,6-Dinitrotoluene	606-20-2	4	µg/L	----	<4	<4	<4	<4
2,4-Dinitrotoluene	121-14-2	4	µg/L	----	<4	<4	<4	<4
1-Naphthylamine	134-32-7	2	µg/L	----	<2	<2	<2	<2
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	----	<2	<2	<2	<2
5-Nitro-o-toluidine	99-55-8	2	µg/L	----	<2	<2	<2	<2
Azobenzene	103-33-3	2	µg/L	----	<2	<2	<2	<2
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	----	<2	<2	<2	<2
Phenacetin	62-44-2	2	µg/L	----	<2	<2	<2	<2
4-Aminobiphenyl	92-67-1	2	µg/L	----	<2	<2	<2	<2
Pentachloronitrobenzene	82-68-8	2	µg/L	----	<2	<2	<2	<2
Pronamide	23950-58-5	2	µg/L	----	<2	<2	<2	<2
Dimethylaminoazobenzene	60-11-7	2	µg/L	----	<2	<2	<2	<2
Chlorobenzilate	510-15-6	2	µg/L	----	<2	<2	<2	<2
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	----	<2	<2	<2	<2
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	----	<2	<2	<2	<2
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	----	<2	<2	<2	<2

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: DUP 2 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-001	MW14 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-002	MW14 D WATER / WATER (2 Mar 2005) (0:00) ES0501612-003	MW16 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-004	MW17 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-005
EP075F: Haloethers								
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	----	<2	<2	<2	<2
EP075G: Chlorinated Hydrocarbons								
1,4-Dichlorobenzene	106-46-7	2	µg/L	----	<2	<2	<2	<2
1,3-Dichlorobenzene	541-73-1	2	µg/L	----	<2	<2	<2	<2
1,2-Dichlorobenzene	95-50-1	2	µg/L	----	<2	<2	<2	<2
Hexachloroethane	67-72-1	2	µg/L	----	<2	<2	<2	<2
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	----	<2	<2	<2	<2
Hexachloropropylene	1888-71-7	2	µg/L	----	<2	<2	<2	<2
Hexachlorobutadiene	87-68-3	2	µg/L	----	<2	<2	<2	<2
Hexachlorocyclopentadiene	77-47-4	10	µg/L	----	<10	<10	<10	<10
Pentachlorobenzene	608-93-5	2	µg/L	----	<2	<2	<2	<2
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	----	<4	<4	<4	<4
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	----	<2	<2	<2	<2
4-Chloroaniline	106-47-8	2	µg/L	----	<2	<2	<2	<2
2-Nitroaniline	88-74-4	4	µg/L	----	<4	<4	<4	<4
3-Nitroaniline	99-09-2	4	µg/L	----	<4	<4	<4	<4
Dibenzofuran	132-64-9	2	µg/L	----	<2	<2	<2	<2
4-Nitroaniline	100-01-6	2	µg/L	----	<2	<2	<2	<2
Carbazole	86-74-8	2	µg/L	----	<2	<2	<2	<2
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	----	<2	<2	<2	<2
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	----	<2	<2	<2	<2
beta-BHC	319-85-7	2	µg/L	----	<2	<2	<2	<2
gamma-BHC	58-89-9	2	µg/L	----	<2	<2	<2	<2
delta-BHC	319-86-8	2	µg/L	----	<2	<2	<2	<2
Heptachlor	76-44-8	2	µg/L	----	<2	<2	<2	<2
Aldrin	309-00-2	2	µg/L	----	<2	<2	<2	<2
Heptachlor epoxide	1024-57-3	2	µg/L	----	<2	<2	<2	<2
alpha-Endosulfan	959-98-8	2	µg/L	----	<2	<2	<2	<2
4,4'-DDE	72-55-9	2	µg/L	----	<2	<2	<2	<2
Dieldrin	60-57-1	2	µg/L	----	<2	<2	<2	<2
Endrin	72-20-8	2	µg/L	----	<2	<2	<2	<2
beta-Endosulfan	33213-65-9	2	µg/L	----	<2	<2	<2	<2
4,4'-DDD	72-54-8	2	µg/L	----	<2	<2	<2	<2
Endosulfan sulfate	1031-07-8	2	µg/L	----	<2	<2	<2	<2

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Analytical Results

				Client Sample ID :	DUP 2	MW14 S	MW14 D	MW16 S	MW17 S
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER
				Sample Date / Time :	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)
				Laboratory Sample ID :					
Analyte	*CAS number*	*LOR*	*Units*		ES0501612-001	ES0501612-002	ES0501612-003	ES0501612-004	ES0501612-005
EP075I: Organochlorine Pesticides									
4,4'-DDT	50-29-3	4	µg/L		----	<4	<4	<4	<4
EP075J: Organophosphorus Pesticides									
Dichlorvos	62-73-7	2	µg/L		----	<2	<2	<2	<2
Dimethoate	60-51-5	2	µg/L		----	<2	<2	<2	<2
Diazinon	333-41-5	2	µg/L		----	<2	<2	<2	<2
Chlorpyrifos-methyl	5598-13-0	2	µg/L		----	<2	<2	<2	<2
Malathion	121-75-5	2	µg/L		----	<2	<2	<2	<2
Fenthion	55-38-9	2	µg/L		----	<2	<2	<2	<2
Chlorpyrifos	2921-88-2	2	µg/L		----	<2	<2	<2	<2
Pirimphos-ethyl	23505-41-1	2	µg/L		----	<2	<2	<2	<2
Chlorfenvinphos	470-90-6	2	µg/L		----	<2	<2	<2	<2
Prothiofos	34643-46-4	2	µg/L		----	<2	<2	<2	<2
Ethion	563-12-2	2	µg/L		----	<2	<2	<2	<2
EP075K: Miscellaneous Compounds									
1,3,5-Trichlorobenzene	108-70-3	2	µg/L		----	<2	<2	<2	<2
1,2,4,5-Tetrachlorobenzene	95-94-3	2	µg/L		----	<2	<2	<2	<2
Methanesulfonate methyl	66-27-3	2	µg/L		----	<2	<2	<2	<2
Methanesulfonate ethyl	62-50-0	2	µg/L		----	<2	<2	<2	<2
cis-Isosafrole	17627-76-8	2	µg/L		----	<2	<2	<2	<2
trans-Isosafrole	4043-71-4	2	µg/L		----	<2	<2	<2	<2
Safrole	94-59-7	2	µg/L		----	<2	<2	<2	<2
Diallate	2303-16-4	2	µg/L		----	<2	<2	<2	<2
2,3,4,6-Tetrachlorophenol	58-90-2	2	µg/L		----	<2	<2	<2	<2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction		20	µg/L		30	<20	<20	<20	<20
C10 - C14 Fraction		50	µg/L		70	<50	<50	<50	<50
C15 - C28 Fraction		100	µg/L		<100	<100	<100	<100	<100
C29 - C36 Fraction		50	µg/L		<50	<50	<50	<50	<50
EP080: BTEX									
Benzene	71-43-2	1	µg/L		2	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.1	%		----	108	107	103	104

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: DUP 2	MW14 S	MW14 D	MW16 S	MW17 S
Sample Matrix Type / Description:				WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER
Sample Date / Time:				(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)
Laboratory Sample ID:				ES0501612-001	ES0501612-002	ES0501612-003	ES0501612-004	ES0501612-005
EP074S: VOC Surrogates								
Toluene-D8	2037-26-5	0.1	%	----	98.6	101	97.4	98.1
4-Bromofluorobenzene	460-00-4	0.1	%	----	92.7	95.6	93.4	94.8
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1	%	----	53.2	41.0	41.8	59.5
Phenol-d6	13127-88-3	0.1	%	----	30.6	30.5	31.6	34.5
2-Chlorophenol-D4	93951-73-6	0.1	%	----	78.6	61.2	68.5	84.1
2,4,6-Tribromophenol	118-79-6	0.1	%	----	77.2	50.6	59.6	82.9
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	0.1	%	----	88.2	69.7	80.9	93.6
1,2-Dichlorobenzene-D4	2199-69-1	0.1	%	----	68.4	54.8	62.4	71.0
2-Fluorobiphenyl	321-60-8	0.1	%	----	74.1	59.6	66.8	76.6
Anthracene-d10	1719-06-8	0.1	%	----	77.9	61.3	69.4	82.0
4-Terphenyl-d14	1718-51-0	0.1	%	----	73.0	55.0	65.2	77.4
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	98.1	108	107	103	104
Toluene-D8	2037-26-5	0.1	%	103	98.6	101	97.4	98.1
4-Bromofluorobenzene	460-00-4	0.1	%	106	92.7	95.6	93.4	94.8

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Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW04 S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-006	MW04 D WATER / WATER (2 Mar 2005) (0:00) ES0501612-007	MW12 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-008	MW13 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-009	
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3		1	mg/L	130	126	176	430	
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	0.002	0.004	<0.001	<0.001	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0004	0.0026	
Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.002	0.023	
Lead	7439-92-1	0.001	mg/L	<0.001	0.011	0.004	0.005	
Nickel	7440-02-0	0.001	mg/L	0.004	0.009	0.012	0.080	
Zinc	7440-66-6	0.005	mg/L	0.094	0.052	0.362	1.57	
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	
EG050F: Hexavalent Chromium - Filtered								
Hexavalent Chromium	18540-29-9	1.00	mg/L	<1.00	<1.00	<1.00	<1.00	
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.010	mg/L	1.34	0.188	3.19	2.78	
EK059G: NOX as N by Discrete Analyser								
Nitrite + Nitrate as N		0.010	mg/L	0.095	0.045	0.038	0.043	
EK061: Total Kjeldahl Nitrogen (TKN)								
Total Kjeldahl Nitrogen as N		0.1	mg/L	1.7	1.7	7.3	5.1	
EK062: Total Nitrogen as N (TKN + NOx)								
Total Nitrogen as N		0.1	mg/L	1.8	1.8	7.3	5.1	
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon		1	mg/L	12	18	11	11	
EP026: Chemical Oxygen Demand (COD)								
Chemical Oxygen Demand		5	mg/L	26	48	36	76	
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand		2	mg/L	14	<2	<2	<2	
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	5	µg/L	<5	14	<5	<5	
Toluene	108-88-3	5	µg/L	<5	<5	<5	<5	
Ethylbenzene	100-41-4	5	µg/L	<5	<5	<5	<5	
meta- & para-Xylene	108-38-3 106-42-3	5	µg/L	<5	<5	<5	<5	
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	
ortho-Xylene	95-47-6	5	µg/L	<5	<5	<5	<5	
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW04 S	MW04 D	MW12 S	MW13 S	
Sample Matrix Type / Description:				WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	
Sample Date / Time:				(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	
Laboratory Sample ID:				ES0501612-006	ES0501612-007	ES0501612-008	ES0501612-009	
EP074A: Monocyclic Aromatic Hydrocarbons								
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	

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Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW04 S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-006	MW04 D WATER / WATER (2 Mar 2005) (0:00) ES0501612-007	MW12 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-008	MW13 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-009	
EP074E: Halogenated Aliphatic Compounds								
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	54	16	<7	
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	<2	<2	
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	<2	<2	
2-Methylphenol	95-48-7	2	µg/L	<2	<2	<2	<2	
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	<4	<4	<4	
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	<2	<2	
2,4-Dimethylphenol	105-67-9	2	µg/L	<2	4	<2	<2	
2,4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	<2	<2	

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW04 S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-006	Client Sample ID: MW04 D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-007	Client Sample ID: MW12 S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-008	Client Sample ID: MW13 S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-009	
EP075A: Phenolic Compounds								
2,6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	<2	<2	
4-Chloro-3-Methylphenol	59-50-7	2	µg/L	<2	<2	<2	<2	
2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	<2	<2	
2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	<2	<2	
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	<4	<4	
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	<2	<2	<2	
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	<2	<2	
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	<2	<2	
Acenaphthylene	208-96-8	2	µg/L	<2	<2	<2	<2	
Acenaphthene	83-32-9	2	µg/L	<2	<2	<2	<2	
Fluorene	86-73-7	2	µg/L	<2	<2	<2	<2	
Phenanthrene	85-01-8	2	µg/L	<2	<2	<2	<2	
Anthracene	120-12-7	2	µg/L	<2	<2	<2	<2	
Fluoranthene	206-44-0	2	µg/L	<2	<2	<2	<2	
Pyrene	129-00-0	2	µg/L	<2	<2	<2	<2	
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	<2	<2	
Benz(a)anthracene	56-55-3	2	µg/L	<2	<2	<2	<2	
Chrysene	218-01-9	2	µg/L	<2	<2	<2	<2	
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4	<4	<4	
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	<2	<2	
Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2	<2	<2	
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	<2	<2	
Indeno(1,2,3,cd)pyrene	193-39-5	2	µg/L	<2	<2	<2	<2	
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	<2	<2	<2	
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	<2	<2	<2	
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	<2	<2	
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	<2	<2	
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	<2	<2	
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	<2	<2	
bis(2-ethylhexyl) phthalate	117-81-7	20	µg/L	<20	<20	<20	<20	
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	<2	<2	
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	<2	<2	
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	<2	<2	

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW04 S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-006	Client Sample ID: MW04 D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-007	Client Sample ID: MW12 S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-008	Client Sample ID: MW13 S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-009	
EP075D: Nitrosamines								
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	<4	<4	
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	<2	<2	
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	<2	<2	
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	<2	<2	
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	<2	<2	
N-Nitrosodiphenyl & Diphenylamine	86-30-6	4	µg/L	<4	<4	<4	<4	
Methapyrilene	91-80-5	2	µg/L	<2	<2	<2	<2	
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	<2	<2	<2	
Acetophenone	98-86-2	2	µg/L	<2	<2	<2	<2	
Nitrobenzene	98-95-3	2	µg/L	<2	<2	<2	<2	
Isophorone	78-59-1	2	µg/L	<2	<2	<2	<2	
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	<4	<4	
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	<4	<4	
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	<2	<2	
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	<2	<2	
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	<2	<2	
Azobenzene	103-33-3	2	µg/L	<2	<2	<2	<2	
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	<2	<2	
Phenacetin	62-44-2	2	µg/L	<2	<2	<2	<2	
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	<2	<2	
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	<2	<2	
Pronamide	23950-58-5	2	µg/L	<2	<2	<2	<2	
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	<2	<2	
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	<2	<2	
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	<2	<2	
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	<2	<2	
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	<2	<2	
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	<2	<2	
EP075G: Chlorinated Hydrocarbons								
1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	<2	<2	
1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	<2	<2	
1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	<2	<2	
Hexachloroethane	67-72-1	2	µg/L	<2	<2	<2	<2	
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	<2	<2	

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW04 S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-006	MW04 D WATER / WATER (2 Mar 2005) (0:00) ES0501612-007	MW12 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-008	MW13 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-009	
EP075G: Chlorinated Hydrocarbons								
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	<2	<2	
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	<2	<2	
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	<10	<10	
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	<2	<2	
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	<4	<4	
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	<2	<2	
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	<2	<2	
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	<4	<4	
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	<4	<4	
Dibenzofuran	132-64-9	2	µg/L	<2	<2	<2	<2	
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	<2	<2	
Carbazole	86-74-8	2	µg/L	<2	<2	<2	<2	
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	<2	<2	
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	<2	<2	<2	
beta-BHC	319-85-7	2	µg/L	<2	<2	<2	<2	
gamma-BHC	58-89-9	2	µg/L	<2	<2	<2	<2	
delta-BHC	319-86-8	2	µg/L	<2	<2	<2	<2	
Heptachlor	76-44-8	2	µg/L	<2	<2	<2	<2	
Aldrin	309-00-2	2	µg/L	<2	<2	<2	<2	
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	<2	<2	
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	<2	<2	
4,4'-DDE	72-55-9	2	µg/L	<2	<2	<2	<2	
Dieldrin	60-57-1	2	µg/L	<2	<2	<2	<2	
Endrin	72-20-8	2	µg/L	<2	<2	<2	<2	
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	<2	<2	
4,4'-DDD	72-54-8	2	µg/L	<2	<2	<2	<2	
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	<2	<2	
4,4'-DDT	50-29-3	4	µg/L	<4	<4	<4	<4	
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	<2	<2	<2	
Dimethoate	60-51-5	2	µg/L	<2	<2	<2	<2	
Diazinon	333-41-5	2	µg/L	<2	<2	<2	<2	
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	<2	<2	
Malathion	121-75-5	2	µg/L	<2	<2	<2	<2	

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Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW04 S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: (2 Mar 2005) (0:00) Laboratory Sample ID: ES0501612-006	MW04 D WATER / WATER (2 Mar 2005) (0:00) ES0501612-007	MW12 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-008	MW13 S WATER / WATER (2 Mar 2005) (0:00) ES0501612-009	
EP075J: Organophosphorus Pesticides								
Fenthion	55-38-9	2	µg/L	<2	<2	<2	<2	
Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	<2	<2	
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2	<2	<2	
Chlorfenvinphos	470-90-6	2	µg/L	<2	<2	<2	<2	
Prothiofos	34643-46-4	2	µg/L	<2	<2	<2	<2	
Ethion	563-12-2	2	µg/L	<2	<2	<2	<2	
EP075K: Miscellaneous Compounds								
1,3,5-Trichlorobenzene	108-70-3	2	µg/L	<2	<2	<2	<2	
1,2,4,5-Tetrachlorobenzene	95-94-3	2	µg/L	<2	<2	<2	<2	
Methanesulfonate methyl	66-27-3	2	µg/L	<2	<2	<2	<2	
Methanesulfonate ethyl	62-50-0	2	µg/L	<2	<2	<2	<2	
cis-Isosafrole	17627-76-8	2	µg/L	<2	<2	<2	<2	
trans-Isosafrole	4043-71-4	2	µg/L	<2	<2	<2	<2	
Safrole	94-59-7	2	µg/L	<2	<2	<2	<2	
Diallate	2303-16-4	2	µg/L	<2	<2	<2	<2	
2,3,4,6-Tetrachlorophenol	58-90-2	2	µg/L	<2	<2	<2	<2	
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		20	µg/L	<20	30	<20	<20	
C10 - C14 Fraction		50	µg/L	<50	80	160	<50	
C15 - C28 Fraction		100	µg/L	400	100	200	100	
C29 - C36 Fraction		50	µg/L	300	<50	<50	<50	
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	105	102	103	102	
Toluene-D8	2037-26-5	0.1	%	96.7	96.9	97.0	97.6	
4-Bromofluorobenzene	460-00-4	0.1	%	90.6	92.6	92.8	91.6	
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1	%	55.8	61.7	64.8	61.5	
Phenol-d6	13127-88-3	0.1	%	34.4	39.0	39.0	35.6	
2-Chlorophenol-D4	93951-73-6	0.1	%	83.1	91.4	89.5	82.3	
2,4,6-Tribromophenol	118-79-6	0.1	%	94.6	99.6	101	92.4	
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	0.1	%	94.1	103	97.4	96.7	
1,2-Dichlorobenzene-D4	2199-69-1	0.1	%	69.9	76.0	75.1	69.6	
2-Fluorobiphenyl	321-60-8	0.1	%	77.1	83.6	82.2	74.5	
Anthracene-d10	1719-06-8	0.1	%	83.6	85.5	87.1	77.1	
4-Terphenyl-d14	1718-51-0	0.1	%	82.4	84.7	82.2	74.9	

Analytical Results

	Client Sample ID :	MW04 S	MW04 D	MW12 S	MW13 S	
	Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	
	Sample Date / Time :	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	(2 Mar 2005) (0:00)	
	Laboratory Sample ID :	ES0501612-006	ES0501612-007	ES0501612-008	ES0501612-009	
Analyte	*CAS number*	*LOR*	*Units*			
EP080S: TPH(V)/BTEX Surrogates						
1,2-Dichloroethane-D4	17060-07-0	0.1	%	105	102	103	102	
Toluene-D8	2037-26-5	0.1	%	96.7	96.9	97.0	97.6	
4-Bromofluorobenzene	460-00-4	0.1	%	90.6	92.6	92.8	91.6	

Surrogate Control Limits

The analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house procedure 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 herein. Reference methods from which ALSE methods are based are provided in parenthesis.

Matrix Type: WATER

		Surrogate Control Limits	
Method name	***Analyte name***	***Lower Limit***	***Upper Limit***
EP074: Volatile Organic Compounds			
EP074S: VOC Surrogates	1,2-Dichloroethane-D4	80	120
	Toluene-D8	88	110
	4-Bromofluorobenzene	86	115
EP075: Semivolatile Organic Compounds			
EP075S: Acid Extractable Surrogates	2-Fluorophenol	21	100
	Phenol-d6	10	94
	2-Chlorophenol-D4	23	134
	2,4,6-Tribromophenol	10	123
EP075T: Base/Neutral Extractable Surrogates	Nitrobenzene-D5	35	114
	1,2-Dichlorobenzene-D4	32	129
	2-Fluorobiphenyl	43	116
	Anthracene-d10	27	133
	4-Terphenyl-d14	33	141
EP080: TPH Volatiles/BTEX			
EP080S: TPH(V)/BTEX Surrogates	1,2-Dichloroethane-D4	80	120
	Toluene-D8	88	110
	4-Bromofluorobenzene	86	115

ALS Environmental

QUALITY CONTROL REPORT

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	: ALS Environmental Sydney	**Page**	:	1 of 30
Contact	:	MS LOUSIE MACDONALD	**Contact**	: Greg Vogel			
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	: 277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	:	**ES0501612**
					Amendment No.	:	
Project	:	- Not provided -	**Quote number**	: ----	**Date received**	:	3 Mar 2005
Order number	:	- Not provided -			**Date issued**	:	14 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	: Greg.Vogel@alsenviro.com	**No. of samples**		
Telephone	:	(02) 9928-2100	**Telephone**	: 61-2-87848555	**Received**	:	9
Facsimile	:	(02) 9928-2272	**Facsimile**	: 61-2-87848500	**Analysed**	:	9

This final report for the ALSE work order reference ES0501612 supersedes any previous reports with this reference.

Results apply to the samples as submitted. All pages of this report have been checked and approved for release.

This report contains the following information:

- Laboratory Duplicates (DUP); Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Samples (LCS); Recovery and Acceptance Limits
- Matrix Spikes (MS); Recovery and Acceptance Limits

Work order specific comments

LOR raised for Cr6+ due to Matrix interference

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NATA Accredited Laboratory - 825

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This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Department
Celine Conceicao	Inorganics - NATA 10911 (Sydney)
Greg Vogel	Inorganics - NATA 10911 (Sydney)
Rassem Ayoubi	Organics - NATA 10911 (Sydney)

Quality Control Report - Laboratory Duplicates (DUP)

The quality control term **Laboratory Duplicate** refers to an intralaboratory split sample randomly selected from the sample batch. Laboratory duplicates provide information on method precision and sample heterogeneity.
- Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations:* ***LOR*** *= Limit of Reporting,* ***RPD*** *= Relative Percent Difference.*
* Indicates failed QC. The permitted ranges for the RPD of Laboratory Duplicates (relative percent deviation) 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%

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
ED093F: Dissolved Major Cations						
ED093F: Dissolved Major Cations - (QC Lot: 48928)				mg/L	mg/L	%
ES0501612-001	DUP 2	Calcium	1 mg/L	14	14	0.0
		Magnesium	1 mg/L	22	22	0.0
ES0501619-001	Anonymous	Calcium	1 mg/L	26	26	0.0
		Magnesium	1 mg/L	21	21	0.0
EG020F: Dissolved Metals by ICP-MS						
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 48383)				mg/L	mg/L	%
ES0500645-001	Anonymous	Arsenic	0.001 mg/L	0.004	0.003	0.0
		Cadmium	0.0001 mg/L	0.0001	<0.0001	0.0
		Copper	0.001 mg/L	0.001	0.001	0.0
		Lead	0.001 mg/L	<0.001	<0.001	0.0
		Nickel	0.001 mg/L	<0.001	<0.001	0.0
		Zinc	0.005 mg/L	0.016	0.017	0.0
ES0501610-001	Anonymous	Arsenic	0.001 mg/L	<0.001	0.001	0.0
		Cadmium	0.0001 mg/L	<0.0001	<0.0001	0.0
		Copper	0.001 mg/L	<0.001	<0.001	0.0
		Lead	0.001 mg/L	<0.001	<0.001	0.0
		Nickel	0.001 mg/L	0.008	0.009	0.0
		Zinc	0.005 mg/L	0.104	0.109	4.6
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 48385)				mg/L	mg/L	%
ES0501612-004	MW16 S	Arsenic	0.001 mg/L	<0.001	<0.001	0.0
		Cadmium	0.0001 mg/L	<0.0001	<0.0001	0.0
		Copper	0.001 mg/L	0.002	0.002	0.0
		Lead	0.001 mg/L	<0.001	<0.001	0.0
		Nickel	0.001 mg/L	0.012	0.012	0.0
		Zinc	0.005 mg/L	0.076	0.071	7.1
EG035F: Dissolved Mercury by FIMS						
EG035F: Dissolved Mercury by FIMS - (QC Lot: 49642)				mg/L	mg/L	%
ES0501610-007	Anonymous	Mercury	0.0001 mg/L	<0.0001	<0.0001	0.0
ES0501625-001	Anonymous	Mercury	0.0001 mg/L	<0.0001	<0.0001	0.0

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EG050F: Hexavalent Chromium - Filtered						
EG050F: Hexavalent Chromium - Filtered - (QC Lot: 48183)				mg/L	mg/L	%
ES0501612-001	DUP 2	Hexavalent Chromium	1.00 mg/L	<1.00	<1.00	0.0
EK055G: Ammonia as N by Discrete Analyser						
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 49081)				mg/L	mg/L	%
ES0501599-004	Anonymous	Ammonia as N	0.010 mg/L	0.702	0.660	6.2
ES0501612-004	MW16 S	Ammonia as N	0.010 mg/L	0.135	0.130	3.8
EK059G: NOX as N by Discrete Analyser						
EK059G: NOX as N by Discrete Analyser - (QC Lot: 48198)				mg/L	mg/L	%
ES0501599-001	Anonymous	Nitrite + Nitrate as N	0.010 mg/L	0.010	<0.010	0.0
ES0501612-001	DUP 2	Nitrite + Nitrate as N	0.010 mg/L	0.065	0.059	9.7
EK061: Total Kjeldahl Nitrogen (TKN)						
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 48379)				mg/L	mg/L	%
ES0501596-001	Anonymous	Total Kjeldahl Nitrogen as N	0.1 mg/L	0.3	0.3	0.0
ES0501596-010	Anonymous	Total Kjeldahl Nitrogen as N	0.1 mg/L	0.1	0.1	0.0
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 48381)				mg/L	mg/L	%
ES0501616-001	Anonymous	Total Kjeldahl Nitrogen as N	0.1 mg/L	1.1	1.3	16.5
EP005: Total Organic Carbon (TOC)						
EP005: Total Organic Carbon (TOC) - (QC Lot: 48111)				mg/L	mg/L	%
ES0501595-001	Anonymous	Total Organic Carbon	1 mg/L	179	178	0.6
ES0501612-008	MW12 S	Total Organic Carbon	1 mg/L	11	11	0.0
EP026: Chemical Oxygen Demand (COD)						
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 49592)				mg/L	mg/L	%
ES0501612-001	DUP 2	Chemical Oxygen Demand	5 mg/L	60	60	0.0
EP030: Biochemical Oxygen Demand (BOD)						
EP030: Biochemical Oxygen Demand (BOD) - (QC Lot: 48143)				mg/L	mg/L	%
ES0501595-001	Anonymous	Biochemical Oxygen Demand	2 mg/L	53	50	5.8
ES0501612-008	MW12 S	Biochemical Oxygen Demand	2 mg/L	<2	<2	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074A: Monocyclic Aromatic Hydrocarbons						
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 49205)				µg/L	µg/L	%
ES0501580-006	Anonymous	Benzene	5 µg/L	<5	<5	0.0
		Toluene	5 µg/L	12	12	0.0
		Ethylbenzene	5 µg/L	<5	<5	0.0
		meta- & para-Xylene	5 µg/L	<5	<5	0.0
		Styrene	5 µg/L	<5	<5	0.0
		ortho-Xylene	5 µg/L	<5	<5	0.0
		Isopropylbenzene	5 µg/L	<5	<5	0.0
		n-Propylbenzene	5 µg/L	<5	<5	0.0
		1,3,5-Trimethylbenzene	5 µg/L	<5	<5	0.0
		sec-Butylbenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trimethylbenzene	5 µg/L	<5	<5	0.0
		tert-Butylbenzene	5 µg/L	<5	<5	0.0
		p-Isopropyltoluene	5 µg/L	<5	<5	0.0
		n-Butylbenzene	5 µg/L	<5	<5	0.0
ES0501610-006	Anonymous	Benzene	5 µg/L	<5	<5	0.0
		Toluene	5 µg/L	<5	<5	0.0
		Ethylbenzene	5 µg/L	<5	<5	0.0
		meta- & para-Xylene	5 µg/L	<5	<5	0.0
		Styrene	5 µg/L	<5	<5	0.0
		ortho-Xylene	5 µg/L	<5	<5	0.0
		Isopropylbenzene	5 µg/L	<5	<5	0.0
		n-Propylbenzene	5 µg/L	<5	<5	0.0
		1,3,5-Trimethylbenzene	5 µg/L	<5	<5	0.0
		sec-Butylbenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trimethylbenzene	5 µg/L	<5	<5	0.0
		tert-Butylbenzene	5 µg/L	<5	<5	0.0
		p-Isopropyltoluene	5 µg/L	<5	<5	0.0
		n-Butylbenzene	5 µg/L	<5	<5	0.0
EP074B: Oxygenated Compounds						
EP074B: Oxygenated Compounds - (QC Lot: 49205)				µg/L	µg/L	%
ES0501580-006	Anonymous	Vinyl Acetate	50 µg/L	<50	<50	0.0
		2-Butanone (MEK)	50 µg/L	<50	<50	0.0
		4-Methyl-2-pentanone (MIBK)	50 µg/L	<50	<50	0.0
		2-Hexanone (MBK)	50 µg/L	<50	<50	0.0
ES0501610-006	Anonymous	Vinyl Acetate	50 µg/L	<50	<50	0.0
		2-Butanone (MEK)	50 µg/L	340	<50	148
		4-Methyl-2-pentanone (MIBK)	50 µg/L	<50	<50	0.0
		2-Hexanone (MBK)	50 µg/L	<50	<50	0.0

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074C: Sulfonated Compounds						
EP074C: Sulfonated Compounds - (QC Lot: 49205)				µg/L	µg/L	%
ES0501580-006	Anonymous	Carbon disulfide	5 µg/L	<5	<5	0.0
ES0501610-006	Anonymous	Carbon disulfide	5 µg/L	<5	<5	0.0
EP074D: Fumigants						
EP074D: Fumigants - (QC Lot: 49205)				µg/L	µg/L	%
ES0501580-006	Anonymous	2,2-Dichloropropane	5 µg/L	<5	<5	0.0
		1,2-Dichloropropane	5 µg/L	<5	<5	0.0
		cis-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		trans-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		1,2-Dibromoethane (EDB)	5 µg/L	<5	<5	0.0
ES0501610-006	Anonymous	2,2-Dichloropropane	5 µg/L	<5	<5	0.0
		1,2-Dichloropropane	5 µg/L	12	12	0.0
		cis-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		trans-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		1,2-Dibromoethane (EDB)	5 µg/L	<5	<5	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074E: Halogenated Aliphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 49205)				µg/L	µg/L	%
ES0501580-006	Anonymous	Dichlorodifluoromethane	50 µg/L	<50	<50	0.0
		Chloromethane	50 µg/L	<50	<50	0.0
		Vinyl chloride	50 µg/L	<50	<50	0.0
		Bromomethane	50 µg/L	<50	<50	0.0
		Chloroethane	50 µg/L	<50	<50	0.0
		Trichlorofluoromethane	50 µg/L	<50	<50	0.0
		1,1-Dichloroethene	5 µg/L	<5	<5	0.0
		Iodomethane	5 µg/L	<5	<5	0.0
		trans-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1-Dichloroethane	5 µg/L	<5	<5	0.0
		cis-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1,1-Trichloroethane	5 µg/L	<5	<5	0.0
		1,1-Dichloropropylene	5 µg/L	<5	<5	0.0
		Carbon Tetrachloride	5 µg/L	<5	<5	0.0
		1,2-Dichloroethane	5 µg/L	<5	<5	0.0
		Trichloroethene	5 µg/L	<5	<5	0.0
		Dibromomethane	5 µg/L	<5	<5	0.0
		1,1,2-Trichloroethane	5 µg/L	<5	<5	0.0
		1,3-Dichloropropane	5 µg/L	<5	<5	0.0
		Tetrachloroethene	5 µg/L	<5	<5	0.0
		1,1,1,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		trans-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		cis-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		1,1,2,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		1,2,3-Trichloropropane	5 µg/L	<5	<5	0.0
		Pentachloroethane	5 µg/L	<5	<5	0.0
		1,2-Dibromo-3-chloropropane	5 µg/L	<5	<5	0.0
		Hexachlorobutadiene	5 µg/L	<5	<5	0.0
ES0501610-006	Anonymous	Dichlorodifluoromethane	50 µg/L	<50	<50	0.0
		Chloromethane	50 µg/L	<50	<50	0.0
		Vinyl chloride	50 µg/L	<50	<50	0.0
		Bromomethane	50 µg/L	<50	<50	0.0
		Chloroethane	50 µg/L	<50	<50	0.0
		Trichlorofluoromethane	50 µg/L	<50	<50	0.0
		1,1-Dichloroethene	5 µg/L	10	10	0.0
		Iodomethane	5 µg/L	<5	<5	0.0
		trans-1,2-Dichloroethene	5 µg/L	13	13	0.0
		1,1-Dichloroethane	5 µg/L	<5	<5	0.0

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
ES0501610-006	Anonymous	cis-1,2-Dichloroethene	5 µg/L	1240	1250	0.5
		1,1,1-Trichloroethane	5 µg/L	<5	<5	0.0
		1,1-Dichloropropylene	5 µg/L	<5	<5	0.0
		Carbon Tetrachloride	5 µg/L	<5	<5	0.0
		1,2-Dichloroethane	5 µg/L	<5	<5	0.0
		Trichloroethene	5 µg/L	1500	1500	0.4
		Dibromomethane	5 µg/L	<5	<5	0.0
		1,1,2-Trichloroethane	5 µg/L	<5	<5	0.0
		1,3-Dichloropropane	5 µg/L	<5	<5	0.0
		Tetrachloroethene	5 µg/L	<5	<5	0.0
		1,1,1,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		trans-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		cis-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		1,1,2,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		1,2,3-Trichloropropane	5 µg/L	<5	<5	0.0
		Pentachloroethane	5 µg/L	<5	<5	0.0
		1,2-Dibromo-3-chloropropane	5 µg/L	<5	<5	0.0
		Hexachlorobutadiene	5 µg/L	<5	<5	0.0
EP074F: Halogenated Aromatic Compounds						
EP074F: Halogenated Aromatic Compounds - (QC Lot: 49205)				µg/L	µg/L	%
ES0501580-006	Anonymous	Chlorobenzene	5 µg/L	<5	<5	0.0
		Bromobenzene	5 µg/L	<5	<5	0.0
		2-Chlorotoluene	5 µg/L	<5	<5	0.0
		4-Chlorotoluene	5 µg/L	<5	<5	0.0
		1,3-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,4-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,3-Trichlorobenzene	5 µg/L	<5	<5	0.0
ES0501610-006	Anonymous	Chlorobenzene	5 µg/L	<5	<5	0.0
		Bromobenzene	5 µg/L	<5	<5	0.0
		2-Chlorotoluene	5 µg/L	<5	<5	0.0
		4-Chlorotoluene	5 µg/L	<5	<5	0.0
		1,3-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,4-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,3-Trichlorobenzene	5 µg/L	<5	<5	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074G: Trihalomethanes						
EP074G: Trihalomethanes - (QC Lot: 49205)				µg/L	µg/L	%
ES0501580-006	Anonymous	Chloroform	5 µg/L	20	20	0.0
		Bromodichloromethane	5 µg/L	<5	<5	0.0
		Dibromochloromethane	5 µg/L	<5	<5	0.0
		Bromoform	5 µg/L	<5	<5	0.0
ES0501610-006	Anonymous	Chloroform	5 µg/L	<5	<5	0.0
		Bromodichloromethane	5 µg/L	32	31	0.0
		Dibromochloromethane	5 µg/L	<5	<5	0.0
		Bromoform	5 µg/L	<5	<5	0.0
EP074H: Naphthalene						
EP074H: Naphthalene - (QC Lot: 49205)				µg/L	µg/L	%
ES0501580-006	Anonymous	Naphthalene	5 µg/L	<7	<5	33.3
ES0501610-006	Anonymous	Naphthalene	5 µg/L	<5	<5	0.0
EP080/071: Total Petroleum Hydrocarbons						
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 48263)				µg/L	µg/L	%
ES0501599-003	Anonymous	C6 - C9 Fraction	20 µg/L	<20	<20	0.0
ES0501599-014	Anonymous	C6 - C9 Fraction	20 µg/L	<20	<20	0.0
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 49206)				µg/L	µg/L	%
ES0501580-006	Anonymous	C6 - C9 Fraction	20 µg/L	30	30	0.0
ES0501610-006	Anonymous	C6 - C9 Fraction	20 µg/L	1440	1400	2.6

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP080: BTEX						
EP080: BTEX - (QC Lot: 48263)				µg/L	µg/L	%
ES0501599-003	Anonymous	Benzene	1 µg/L	<1	<1	0.0
		Toluene	2 µg/L	<2	<2	0.0
		Ethylbenzene	2 µg/L	<2	<2	0.0
		meta- & para-Xylene	2 µg/L	<2	<2	0.0
		ortho-Xylene	2 µg/L	<2	<2	0.0
ES0501599-014	Anonymous	Benzene	1 µg/L	<1	<1	0.0
		Toluene	2 µg/L	<2	<2	0.0
		Ethylbenzene	2 µg/L	<2	<2	0.0
		meta- & para-Xylene	2 µg/L	<2	<2	0.0
		ortho-Xylene	2 µg/L	<2	<2	0.0
EP080: BTEX - (QC Lot: 49206)				µg/L	µg/L	%
ES0501580-006	Anonymous	Benzene	1 µg/L	<1	<1	0.0
		Toluene	2 µg/L	12	12	0.0
		Ethylbenzene	2 µg/L	<2	<2	0.0
		meta- & para-Xylene	2 µg/L	2	2	0.0
		ortho-Xylene	2 µg/L	<2	<2	0.0
ES0501610-006	Anonymous	Benzene	1 µg/L	<1	<1	0.0
		Toluene	2 µg/L	<2	<2	0.0
		Ethylbenzene	2 µg/L	<2	<2	0.0
		meta- & para-Xylene	2 µg/L	<2	<2	0.0
		ortho-Xylene	2 µg/L	<2	<2	0.0

Quality Control Report - Method Blank (MB) and Laboratory Control Samples (LCS)

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 type is to monitor potential laboratory contamination. The quality control term **Laboratory Control Sample (LCS)** refers to a known, interference free matrix spiked with target analytes or certified reference material. The purpose of this QC type is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of actual laboratory data. Abbreviations: LOR = Limit of

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
ED093F: Dissolved Major Cations						
ED093F: Dissolved Major Cations - (QC Lot: 48928)		mg/L	mg/L	%	%	%
Calcium	1 mg/L	----	50	102	70	130
	1 mg/L	<1	----	----	----	----
Magnesium	1 mg/L	----	50	102	70	130
	1 mg/L	<1	----	----	----	----
EG020F: Dissolved Metals by ICP-MS						
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 48383)		mg/L	mg/L	%	%	%
Arsenic	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	92.5	70	130
Cadmium	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.1	101	70	130
Copper	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	93.0	70	130
Lead	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	103	70	130
Nickel	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	94.3	70	130
Zinc	0.005 mg/L	<0.005	----	----	----	----
	0.005 mg/L	----	0.1	87.3	70	130
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 48385)		mg/L	mg/L	%	%	%
Arsenic	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	103	70	130
Cadmium	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.1	100	70	130
Copper	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	103	70	130
Lead	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	104	70	130
Nickel	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	107	70	130
Zinc	0.005 mg/L	<0.005	----	----	----	----
	0.005 mg/L	----	0.1	104	70	130

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EG035F: Dissolved Mercury by FIMS						
EG035F: Dissolved Mercury by FIMS - (QC Lot: 49642)		mg/L	mg/L	%	%	%
Mercury	0.0001 mg/L	----	0.010	97.5	70	130
	0.0001 mg/L	<0.0001	----	----	----	----
EG035F: Dissolved Mercury by FIMS - (QC Lot: 51448)		mg/L	mg/L	%	%	%
Mercury	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.010	83.2	70	130
EG050F: Hexavalent Chromium - Filtered						
EG050F: Hexavalent Chromium - Filtered - (QC Lot: 48183)		mg/L	mg/L	%	%	%
Hexavalent Chromium	1.00 mg/L	<1.00	----	----	----	----
	1 mg/L	----	50	107	70	130
EK055G: Ammonia as N by Discrete Analyser						
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 49081)		mg/L	mg/L	%	%	%
Ammonia as N	0.010 mg/L	<0.010	----	----	----	----
	0.01 mg/L	----	1.00	115	70	130
EK059G: NOX as N by Discrete Analyser						
EK059G: NOX as N by Discrete Analyser - (QC Lot: 48198)		mg/L	mg/L	%	%	%
Nitrite + Nitrate as N	0.010 mg/L	<0.010	----	----	----	----
	0.01 mg/L	----	0.96	109	70	130
EK061: Total Kjeldahl Nitrogen (TKN)						
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 48379)		mg/L	mg/L	%	%	%
Total Kjeldahl Nitrogen as N	0.1 mg/L	----	10.0	105	70	130
	0.1 mg/L	<0.1	----	----	----	----
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 48381)		mg/L	mg/L	%	%	%
Total Kjeldahl Nitrogen as N	0.1 mg/L	<0.1	----	----	----	----
	0.1 mg/L	----	10.0	104	70	130
EP005: Total Organic Carbon (TOC)						
EP005: Total Organic Carbon (TOC) - (QC Lot: 48111)		mg/L	mg/L	%	%	%
Total Organic Carbon	1 mg/L	----	100	109	70	130
	1 mg/L	<1	----	----	----	----
EP026: Chemical Oxygen Demand (COD)						
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 49592)		mg/L	mg/L	%	%	%
Chemical Oxygen Demand	5 mg/L	<5	----	----	----	----
	5 mg/L	----	100	100	70	130
	5 mg/L	----	500	100	70	130

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP030: Biochemical Oxygen Demand (BOD)						
EP030: Biochemical Oxygen Demand (BOD) - (QC Lot: 48143)		mg/L	mg/L	%	%	%
Biochemical Oxygen Demand	2 mg/L	----	200	93.5	70	130
	2 mg/L	<2	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons						
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 49205)		µg/L	µg/L	%	%	%
Benzene	5 µg/L	----	10	101	71	126
	5 µg/L	<5	----	----	----	----
Toluene	5 µg/L	----	10	107	73	123
	5 µg/L	<5	----	----	----	----
Ethylbenzene	5 µg/L	----	10	103	74	126
	5 µg/L	<5	----	----	----	----
meta- & para-Xylene	5 µg/L	----	20	103	45	125
	5 µg/L	<5	----	----	----	----
Styrene	5 µg/L	----	10	106	76	125
	5 µg/L	<5	----	----	----	----
ortho-Xylene	5 µg/L	----	10	104	72	125
	5 µg/L	<5	----	----	----	----
Isopropylbenzene	5 µg/L	----	10	104	75	125
	5 µg/L	<5	----	----	----	----
n-Propylbenzene	5 µg/L	----	10	101	73	123
	5 µg/L	<5	----	----	----	----
1,3,5-Trimethylbenzene	5 µg/L	----	10	103	76	126
	5 µg/L	<5	----	----	----	----
sec-Butylbenzene	5 µg/L	----	10	107	78	124
	5 µg/L	<5	----	----	----	----
1,2,4-Trimethylbenzene	5 µg/L	----	10	105	74	123
	5 µg/L	<5	----	----	----	----
tert-Butylbenzene	5 µg/L	----	10	99.7	72	123
	5 µg/L	<5	----	----	----	----
p-Isopropyltoluene	5 µg/L	----	10	97.8	76	126
	5 µg/L	<5	----	----	----	----
n-Butylbenzene	5 µg/L	----	10	99.7	75	128
	5 µg/L	<5	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074B: Oxygenated Compounds						
EP074B: Oxygenated Compounds - (QC Lot: 49205)		µg/L	µg/L	%	%	%
Vinyl Acetate	50 µg/L	----	100	102	70	125
	50 µg/L	<50	----	----	----	----
2-Butanone (MEK)	50 µg/L	----	100	99.0	70	130
	50 µg/L	<50	----	----	----	----
4-Methyl-2-pentanone (MIBK)	50 µg/L	----	100	106	70	130
	50 µg/L	<50	----	----	----	----
2-Hexanone (MBK)	50 µg/L	----	100	102	72	125
	50 µg/L	<50	----	----	----	----
EP074C: Sulfonated Compounds						
EP074C: Sulfonated Compounds - (QC Lot: 49205)		µg/L	µg/L	%	%	%
Carbon disulfide	5 µg/L	----	10	106	76	126
	5 µg/L	<5	----	----	----	----
EP074D: Fumigants						
EP074D: Fumigants - (QC Lot: 49205)		µg/L	µg/L	%	%	%
2,2-Dichloropropane	5 µg/L	----	10	113	76	126
	5 µg/L	<5	----	----	----	----
1,2-Dichloropropane	5 µg/L	----	10	104	76	126
	5 µg/L	<5	----	----	----	----
cis-1,3-Dichloropropylene	5 µg/L	----	20	105	72	125
	5 µg/L	<5	----	----	----	----
trans-1,3-Dichloropropylene	5 µg/L	----	20	106	73	128
	5 µg/L	<5	----	----	----	----
1,2-Dibromoethane (EDB)	5 µg/L	----	10	109	72	126
	5 µg/L	<5	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074E: Halogenated Allphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 49205)		µg/L	µg/L	%	%	%
Dichlorodifluoromethane	50 µg/L	----	100	106	70	129
	50 µg/L	<50	----	----	----	----
Chloromethane	50 µg/L	----	100	108	76	118
	50 µg/L	<50	----	----	----	----
Vinyl chloride	50 µg/L	----	100	116	70	126
	50 µg/L	<50	----	----	----	----
Bromomethane	50 µg/L	----	100	107	71	123
	50 µg/L	<50	----	----	----	----
Chloroethane	50 µg/L	----	100	109	76	120
	50 µg/L	<50	----	----	----	----
Trichlorofluoromethane	50 µg/L	----	100	89.1	76	126
	50 µg/L	<50	----	----	----	----
1,1-Dichloroethene	5 µg/L	----	10	106	76	125
	5 µg/L	<5	----	----	----	----
Iodomethane	5 µg/L	----	10	107	70	129
	5 µg/L	<5	----	----	----	----
trans-1,2-Dichloroethene	5 µg/L	----	10	107	76	126
	5 µg/L	<5	----	----	----	----
1,1-Dichloroethane	5 µg/L	----	10	103	80	126
	5 µg/L	<5	----	----	----	----
cis-1,2-Dichloroethene	5 µg/L	----	10	101	72	126
	5 µg/L	<5	----	----	----	----
1,1,1-Trichloroethane	5 µg/L	----	10	105	73	126
	5 µg/L	<5	----	----	----	----
1,1-Dichloropropylene	5 µg/L	----	10	104	74	126
	5 µg/L	<5	----	----	----	----
Carbon Tetrachloride	5 µg/L	----	10	105	76	126
	5 µg/L	<5	----	----	----	----
1,2-Dichloroethane	5 µg/L	----	10	115	75	123
	5 µg/L	<5	----	----	----	----
Trichloroethene	5 µg/L	----	10	105	74	124
	5 µg/L	<5	----	----	----	----
Dibromomethane	5 µg/L	----	10	102	73	125
	5 µg/L	<5	----	----	----	----
1,1,2-Trichloroethane	5 µg/L	----	10	105	75	120
	5 µg/L	<5	----	----	----	----
1,3-Dichloropropane	5 µg/L	----	10	103	76	120

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074E: Halogenated Aliphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 49205)		µg/L	µg/L	%	%	%
1,3-Dichloropropane	5 µg/L	<5	----	----	----	----
Tetrachloroethene	5 µg/L	----	10	103	78	125
	5 µg/L	<5	----	----	----	----
1,1,1,2-Tetrachloroethane	5 µg/L	----	10	102	76	124
	5 µg/L	<5	----	----	----	----
trans-1,4-Dichloro-2-butene	5 µg/L	----	10	93.4	76	126
	5 µg/L	<5	----	----	----	----
cis-1,4-Dichloro-2-butene	5 µg/L	----	10	116	75	125
	5 µg/L	<5	----	----	----	----
1,1,2,2-Tetrachloroethane	5 µg/L	----	10	102	73	124
	5 µg/L	<5	----	----	----	----
1,2,3-Trichloropropane	5 µg/L	----	10	96.1	76	123
	5 µg/L	<5	----	----	----	----
Pentachloroethane	5 µg/L	----	10	108	75	126
	5 µg/L	<5	----	----	----	----
1,2-Dibromo-3-chloropropane	5 µg/L	----	10	101	72	122
	5 µg/L	<5	----	----	----	----
Hexachlorobutadiene	5 µg/L	----	10	107	76	124
	5 µg/L	<5	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP074F: Halogenated Aromatic Compounds						
EP074F: Halogenated Aromatic Compounds - (QC Lot: 49205)		µg/L	µg/L	%	%	%
Chlorobenzene	5 µg/L	----	10	104	72	125
	5 µg/L	<5	----	----	----	----
Bromobenzene	5 µg/L	----	10	104	71	126
	5 µg/L	<5	----	----	----	----
2-Chlorotoluene	5 µg/L	----	10	101	70	128
	5 µg/L	<5	----	----	----	----
4-Chlorotoluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	105	75	123
1,3-Dichlorobenzene	5 µg/L	----	10	97.4	74	126
	5 µg/L	<5	----	----	----	----
1,4-Dichlorobenzene	5 µg/L	----	10	105	75	128
	5 µg/L	<5	----	----	----	----
1,2-Dichlorobenzene	5 µg/L	----	10	103	75	126
	5 µg/L	<5	----	----	----	----
1,2,4-Trichlorobenzene	5 µg/L	----	10	111	74	124
	5 µg/L	<5	----	----	----	----
1,2,3-Trichlorobenzene	5 µg/L	----	10	101	74	123
	5 µg/L	<5	----	----	----	----
EP074G: Trihalomethanes						
EP074G: Trihalomethanes - (QC Lot: 49205)		µg/L	µg/L	%	%	%
Chloroform	5 µg/L	----	10	103	72	127
	5 µg/L	<5	----	----	----	----
Bromodichloromethane	5 µg/L	----	10	102	74	125
	5 µg/L	<5	----	----	----	----
Dibromochloromethane	5 µg/L	----	10	100	75	126
	5 µg/L	<5	----	----	----	----
Bromoform	5 µg/L	----	10	94.4	72	126
	5 µg/L	<5	----	----	----	----
EP074H: Naphthalene						
EP074H: Naphthalene - (QC Lot: 49205)		µg/L	µg/L	%	%	%
Naphthalene	5 µg/L	----	10	106	73	125
	5 µg/L	<5	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075A: Phenolic Compounds						
EP075A: Phenolic Compounds - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Phenol	2 µg/L	----	5	47.5	21	69
	2 µg/L	<2	----	----	----	----
2-Chlorophenol	2 µg/L	----	5	81.0	63	115
	2 µg/L	<2	----	----	----	----
2-Methylphenol	2 µg/L	----	5	77.8	48	109
	2 µg/L	<2	----	----	----	----
3- & 4-Methylphenol	4 µg/L	----	10	69.3	35	103
	4 µg/L	<4	----	----	----	----
2-Nitrophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.2	62	113
2,4-Dimethylphenol	2 µg/L	----	5	77.0	46	123
	2 µg/L	<2	----	----	----	----
2,4-Dichlorophenol	2 µg/L	----	5	79.3	60	113
	2 µg/L	<2	----	----	----	----
2,6-Dichlorophenol	2 µg/L	----	5	90.5	57	121
	2 µg/L	<2	----	----	----	----
4-Chloro-3-Methylphenol	2 µg/L	----	5	91.6	52	122
	2 µg/L	<2	----	----	----	----
2,4,6-Trichlorophenol	2 µg/L	----	5	88.0	53	121
	2 µg/L	<2	----	----	----	----
2,4,5-Trichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.9	46	126
Pentachlorophenol	4 µg/L	----	10	34.8	4	101
	4 µg/L	<4	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075B: Polynuclear Aromatic Hydrocarbons						
EP075B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Naphthalene	2 µg/L	----	5	93.2	63	111
	2 µg/L	<2	----	----	----	----
2-Methylnaphthalene	2 µg/L	----	5	92.3	58	119
	2 µg/L	<2	----	----	----	----
2-Chloronaphthalene	2 µg/L	----	5	90.2	58	120
	2 µg/L	<2	----	----	----	----
Acenaphthylene	2 µg/L	----	5	91.3	59	120
	2 µg/L	<2	----	----	----	----
Acenaphthene	2 µg/L	----	5	89.8	67	116
	2 µg/L	<2	----	----	----	----
Fluorene	2 µg/L	----	5	85.8	67	112
	2 µg/L	<2	----	----	----	----
Phenanthrene	2 µg/L	----	5	92.6	68	107
	2 µg/L	<2	----	----	----	----
Anthracene	2 µg/L	----	5	92.8	68	110
	2 µg/L	<2	----	----	----	----
Fluoranthene	2 µg/L	----	5	89.2	67	107
	2 µg/L	<2	----	----	----	----
Pyrene	2 µg/L	----	5	89.3	64	109
	2 µg/L	<2	----	----	----	----
N-2-Fluorenyl Acetamide	2 µg/L	----	5	85.4	60	109
	2 µg/L	<2	----	----	----	----
Benz(a)anthracene	2 µg/L	----	5	89.3	63	112
	2 µg/L	<2	----	----	----	----
Chrysene	2 µg/L	----	5	87.1	65	115
	2 µg/L	<2	----	----	----	----
Benzo(b) & Benzo(k)fluoranthene	4 µg/L	----	10	84.2	60	118
	4 µg/L	<4	----	----	----	----
7,12-Dimethylbenz(a)anthracene	2 µg/L	----	5	82.6	39	107
	2 µg/L	<2	----	----	----	----
Benzo(a)pyrene	2 µg/L	----	5	83.6	64	115
	2 µg/L	<2	----	----	----	----
3-Methylcholanthrene	2 µg/L	----	5	87.8	50	105
	2 µg/L	<2	----	----	----	----
Indeno(1,2,3,cd)pyrene	2 µg/L	----	5	80.7	55	103
	2 µg/L	<2	----	----	----	----
Dibenz(a,h)anthracene	2 µg/L	----	5	79.2	54	105

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075B: Polynuclear Aromatic Hydrocarbons						
EP075B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Dibenz(a,h)anthracene	2 µg/L	<2	----	----	----	----
Benzo(g,h,i)perylene	2 µg/L	----	5	82.8	55	105
	2 µg/L	<2	----	----	----	----
EP075C: Phthalate Esters						
EP075C: Phthalate Esters - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Dimethyl phthalate	2 µg/L	----	5	90.7	61	122
	2 µg/L	<2	----	----	----	----
Diethyl phthalate	2 µg/L	----	5	89.4	71	117
	2 µg/L	<2	----	----	----	----
Di-n-butyl phthalate	2 µg/L	----	5	99.1	70	115
	2 µg/L	<2	----	----	----	----
Butyl benzyl phthalate	2 µg/L	----	5	92.1	64	112
	2 µg/L	<2	----	----	----	----
bis(2-ethylhexyl) phthalate	20 µg/L	----	5	98.8	71	119
	20 µg/L	<20	----	----	----	----
Di-n-octylphthalate	2 µg/L	----	5	88.4	74	110
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075D: Nitrosamines						
EP075D: Nitrosamines - (QC Lot: 48758)		µg/L	µg/L	%	%	%
N-Nitrosomethylethylamine	2 µg/L	----	5	76.1	50	125
	2 µg/L	<2	----	----	----	----
N-Nitrosodiethylamine	2 µg/L	----	5	80.5	65	118
	2 µg/L	<2	----	----	----	----
N-Nitrosopyrrolidine	4 µg/L	----	5	67.7	23	99
	4 µg/L	<4	----	----	----	----
N-Nitrosomorpholine	2 µg/L	----	5	62.2	31	109
	2 µg/L	<2	----	----	----	----
N-Nitrosodi-n-propylamine	2 µg/L	----	5	84.4	69	112
	2 µg/L	<2	----	----	----	----
N-Nitrosopiperidine	2 µg/L	----	5	79.1	72	105
	2 µg/L	<2	----	----	----	----
N-Nitrosodibutylamine	2 µg/L	----	5	91.6	67	111
	2 µg/L	<2	----	----	----	----
N-Nitrosodiphenyl & Diphenylamine	4 µg/L	----	10	90.0	64	124
	4 µg/L	<4	----	----	----	----
Methapyrilene	2 µg/L	----	5	31.2	11	148
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075E: Nitroaromatics and Ketones						
EP075E: Nitroaromatics and Ketones - (QC Lot: 48758)		µg/L	µg/L	%	%	%
2-Picoline	2 µg/L	----	5	52.9	16	128
	2 µg/L	<2	----	----	----	----
Acetophenone	2 µg/L	----	5	85.0	74	112
	2 µg/L	<2	----	----	----	----
Nitrobenzene	2 µg/L	----	5	85.9	79	110
	2 µg/L	<2	----	----	----	----
Isophorone	2 µg/L	----	5	83.7	78	108
	2 µg/L	<2	----	----	----	----
2,6-Dinitrotoluene	4 µg/L	----	5	85.8	58	121
	4 µg/L	<4	----	----	----	----
2,4-Dinitrotoluene	4 µg/L	----	5	78.5	59	125
	4 µg/L	<4	----	----	----	----
1-Naphthylamine	2 µg/L	----	5	78.5	49	109
	2 µg/L	<2	----	----	----	----
4-Nitroquinoline-N-oxide	2 µg/L	----	5	41.1	9	124
	2 µg/L	<2	----	----	----	----
5-Nitro-o-toluidine	2 µg/L	----	5	75.1	56	122
	2 µg/L	<2	----	----	----	----
Azobenzene	2 µg/L	----	5	90.1	73	110
	2 µg/L	<2	----	----	----	----
1,3,5-Trinitrobenzene	2 µg/L	----	5	77.4	46	125
	2 µg/L	<2	----	----	----	----
Phenacetin	2 µg/L	----	5	78.4	62	104
	2 µg/L	<2	----	----	----	----
4-Aminobiphenyl	2 µg/L	----	5	62.5	23	123
	2 µg/L	<2	----	----	----	----
Pentachloronitrobenzene	2 µg/L	----	5	77.3	63	112
	2 µg/L	<2	----	----	----	----
Pronamide	2 µg/L	----	5	91.2	57	114
	2 µg/L	<2	----	----	----	----
Dimethylaminoazobenzene	2 µg/L	----	5	86.4	62	109
	2 µg/L	<2	----	----	----	----
Chlorobenzilate	2 µg/L	----	5	90.1	62	114
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075F: Haloethers						
EP075F: Haloethers - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Bis(2-chloroethyl) ether	2 µg/L	----	5	83.5	81	111
	2 µg/L	<2	----	----	----	----
Bis(2-chloroethoxy) methane	2 µg/L	----	5	83.1	74	111
	2 µg/L	<2	----	----	----	----
4-Chlorophenyl phenyl ether	2 µg/L	----	5	86.4	67	113
	2 µg/L	<2	----	----	----	----
4-Bromophenyl phenyl ether	2 µg/L	----	5	86.5	63	117
	2 µg/L	<2	----	----	----	----
EP075G: Chlorinated Hydrocarbons						
EP075G: Chlorinated Hydrocarbons - (QC Lot: 48758)		µg/L	µg/L	%	%	%
1,4-Dichlorobenzene	2 µg/L	----	5	79.2	45	121
1,3-Dichlorobenzene	2 µg/L	----	5	78.4	45	122
1,4-Dichlorobenzene	2 µg/L	<2	----	----	----	----
1,3-Dichlorobenzene	2 µg/L	<2	----	----	----	----
1,2-Dichlorobenzene	2 µg/L	----	5	79.0	48	117
	2 µg/L	<2	----	----	----	----
Hexachloroethane	2 µg/L	----	5	76.1	34	117
	2 µg/L	<2	----	----	----	----
1,2,4-Trichlorobenzene	2 µg/L	----	5	80.3	43	119
	2 µg/L	<2	----	----	----	----
Hexachloropropylene	2 µg/L	----	5	72.1	32	114
	2 µg/L	<2	----	----	----	----
Hexachlorobutadiene	2 µg/L	----	5	87.8	39	117
	2 µg/L	<2	----	----	----	----
Hexachlorocyclopentadiene	10 µg/L	----	5	64.3	0	119
	10 µg/L	<10	----	----	----	----
Pentachlorobenzene	2 µg/L	----	5	86.9	64	118
	2 µg/L	<2	----	----	----	----
Hexachlorobenzene (HCB)	4 µg/L	----	5	87.0	66	119
	4 µg/L	<4	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075H: Anilines and Benzidines						
EP075H: Anilines and Benzidines - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Aniline	2 µg/L	----	5	35.3	6	121
	2 µg/L	<2	----	----	----	----
4-Chloroaniline	2 µg/L	----	5	93.2	40	118
	2 µg/L	<2	----	----	----	----
2-Nitroaniline	4 µg/L	----	5	89.2	60	113
	4 µg/L	<4	----	----	----	----
3-Nitroaniline	4 µg/L	----	5	69.3	55	110
	4 µg/L	<4	----	----	----	----
Dibenzofuran	2 µg/L	----	5	87.7	70	116
	2 µg/L	<2	----	----	----	----
4-Nitroaniline	2 µg/L	----	5	71.2	46	117
	2 µg/L	<2	----	----	----	----
Carbazole	2 µg/L	----	5	91.8	69	109
	2 µg/L	<2	----	----	----	----
3,3'-Dichlorobenzidine	2 µg/L	----	5	94.7	48	138
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075I: Organochlorine Pesticides						
EP075I: Organochlorine Pesticides - (QC Lot: 48758)		µg/L	µg/L	%	%	%
alpha-BHC	2 µg/L	----	5	87.4	71	114
	2 µg/L	<2	----	----	----	----
beta-BHC	2 µg/L	----	5	82.7	67	118
	2 µg/L	<2	----	----	----	----
gamma-BHC	2 µg/L	----	5	87.7	67	118
	2 µg/L	<2	----	----	----	----
delta-BHC	2 µg/L	----	5	93.0	70	105
	2 µg/L	<2	----	----	----	----
Heptachlor	2 µg/L	----	5	86.7	71	101
	2 µg/L	<2	----	----	----	----
Aldrin	2 µg/L	----	5	91.4	70	102
	2 µg/L	<2	----	----	----	----
Heptachlor epoxide	2 µg/L	----	5	86.8	68	108
	2 µg/L	<2	----	----	----	----
alpha-Endosulfan	2 µg/L	----	5	88.2	68	108
	2 µg/L	<2	----	----	----	----
4,4'-DDE	2 µg/L	----	5	88.8	65	109
	2 µg/L	<2	----	----	----	----
Dieldrin	2 µg/L	----	5	91.1	76	107
	2 µg/L	<2	----	----	----	----
Endrin	2 µg/L	----	5	88.7	66	108
	2 µg/L	<2	----	----	----	----
beta-Endosulfan	2 µg/L	----	5	92.1	67	113
	2 µg/L	<2	----	----	----	----
4,4'-DDD	2 µg/L	----	5	90.0	61	117
	2 µg/L	<2	----	----	----	----
Endosulfan sulfate	2 µg/L	----	5	89.1	61	117
	2 µg/L	<2	----	----	----	----
4,4'-DDT	4 µg/L	----	5	78.6	54	113
	4 µg/L	<4	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075J: Organophosphorus Pesticides						
EP075J: Organophosphorus Pesticides - (QC Lot: 48758)		µg/L	µg/L	%	%	%
Dichlorvos	2 µg/L	----	5	92.6	72	107
	2 µg/L	<2	----	----	----	----
Dimethoate	2 µg/L	----	5	80.0	63	107
	2 µg/L	<2	----	----	----	----
Diazinon	2 µg/L	----	5	94.4	62	113
	2 µg/L	<2	----	----	----	----
Chlorpyrifos-methyl	2 µg/L	----	5	93.0	72	103
	2 µg/L	<2	----	----	----	----
Malathion	2 µg/L	----	5	100	77	110
	2 µg/L	<2	----	----	----	----
Fenthion	2 µg/L	----	5	90.5	63	111
	2 µg/L	<2	----	----	----	----
Chlorpyrifos	2 µg/L	----	5	90.0	68	110
	2 µg/L	<2	----	----	----	----
Pirimphos-ethyl	2 µg/L	----	5	88.0	59	112
	2 µg/L	<2	----	----	----	----
Chlorfenvinphos	2 µg/L	----	6	76.0	48	125
	2 µg/L	<2	----	----	----	----
Prothiofos	2 µg/L	----	5	90.3	67	108
	2 µg/L	<2	----	----	----	----
Ethion	2 µg/L	----	5	86.3	59	113
	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075K: Miscellaneous Compounds						
EP075K: Miscellaneous Compounds - (QC Lot: 48758)		µg/L	µg/L	%	%	%
1,3,5-Trichlorobenzene	2 µg/L	----	5	88.6	18	138
	2 µg/L	<2	----	----	----	----
1,2,4,5-Tetrachlorobenzene	2 µg/L	----	5	89.5	26	137
	2 µg/L	<2	----	----	----	----
Methanesulfonate methyl	2 µg/L	----	5	66.8	19	124
	2 µg/L	<2	----	----	----	----
Methanesulfonate ethyl	2 µg/L	----	5	76.1	70	109
	2 µg/L	<2	----	----	----	----
cis-Isosafrole	2 µg/L	----	5	90.0	65	113
	2 µg/L	<2	----	----	----	----
trans-Isosafrole	2 µg/L	----	5	91.6	65	115
	2 µg/L	<2	----	----	----	----
Safrole	2 µg/L	----	5	91.4	68	105
	2 µg/L	<2	----	----	----	----
Diallate	2 µg/L	----	5	88.9	77	113
	2 µg/L	<2	----	----	----	----
2,3,4,6-Tetrachlorophenol	2 µg/L	<2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 48263)		µg/L	µg/L	%	%	%
C6 - C9 Fraction	20 µg/L	----	260	93.8	80	120
	20 µg/L	<20	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 48759)		µg/L	µg/L	%	%	%
C10 - C14 Fraction	50 µg/L	<50	----	----	----	----
	50 µg/L	----	200	106	75	134
C15 - C28 Fraction	100 µg/L	<100	----	----	----	----
	100 µg/L	----	200	102	87	132
C29 - C36 Fraction	50 µg/L	<50	----	----	----	----
	50 µg/L	----	200	87.7	80	126
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 49206)		µg/L	µg/L	%	%	%
C6 - C9 Fraction	20 µg/L	<20	----	----	----	----
	20 µg/L	----	260	95.1	80	120

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP080: BTEX						
EP080: BTEX - (QC Lot: 48263)		µg/L	µg/L	%	%	%
Benzene	1 µg/L	----	10	116	78	125
	1 µg/L	<1	----	----	----	----
Toluene	2 µg/L	----	10	120	74	126
	2 µg/L	<2	----	----	----	----
Ethylbenzene	2 µg/L	----	10	107	73	118
	2 µg/L	<2	----	----	----	----
meta- & para-Xylene	2 µg/L	----	10	99.9	78	117
	2 µg/L	<2	----	----	----	----
ortho-Xylene	2 µg/L	----	10	114	75	119
	2 µg/L	<2	----	----	----	----
EP080: BTEX - (QC Lot: 49206)		µg/L	µg/L	%	%	%
Benzene	1 µg/L	<1	----	----	----	----
	1 µg/L	----	10	96.6	78	125
Toluene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	10	100	74	126
Ethylbenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	10	96.4	73	118
meta- & para-Xylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	10	98.5	78	117
ortho-Xylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	10	100	75	119

Quality Control Report - Matrix Spikes (MS)

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 type is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQO's). 'Ideal' recovery ranges stated may be waived in the event of sample matrix interferences. - Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations:* ***LOR*** *= Limit of Reporting,* ***RPD*** *= Relative Percent Difference.*

* Indicates failed QC

Matrix Type: WATER

					Actual Results		Recovery Limits Static Limits	
					Sample Result	Spike Recovery		
Analyte name	*Laboratory Sample ID*	*Client Sample ID*	*LOR*	*Spike Concentration*		*MS*	*Low*	*High*
EG020F: Dissolved Metals by ICP-MS								
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 48383)				mg/L	mg/L	%	%	%
Arsenic	ES0500645-001	Anonymous	0.001 mg/L	0.2	0.004	106	70	130
Cadmium			0.0001 mg/L	0.05	0.0001	94.4	70	130
Copper			0.001 mg/L	0.2	0.001	94.4	70	130
Lead			0.001 mg/L	0.2	<0.001	97.3	70	130
Nickel			0.001 mg/L	0.2	<0.001	99.4	70	130
Zinc			0.005 mg/L	0.2	0.016	94.9	70	130
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 48385)				mg/L	mg/L	%	%	%
Arsenic	ES0501612-004	MW16 S	0.001 mg/L	0.2	<0.001	116	70	130
Cadmium			0.0001 mg/L	0.05	<0.0001	93.6	70	130
Copper			0.001 mg/L	0.2	0.002	104	70	130
Lead			0.001 mg/L	0.2	<0.001	96.5	70	130
Nickel			0.001 mg/L	0.2	0.012	106	70	130
Zinc			0.005 mg/L	0.2	0.076	108	70	130
EG035F: Dissolved Mercury by FIMS								
EG035F: Dissolved Mercury by FIMS - (QC Lot: 49642)				mg/L	mg/L	%	%	%
Mercury	ES0501610-007	Anonymous	0.0001 mg/L	0.0100	<0.0001	79.0	70	130
EG050F: Hexavalent Chromium - Filtered								
EG050F: Hexavalent Chromium - Filtered - (QC Lot: 48183)				mg/L	mg/L	%	%	%
Hexavalent Chromium	ES0501612-001	DUP 2	1 mg/L	50	<1.00	116	70	130
EK055G: Ammonia as N by Discrete Analyser								
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 49081)				mg/L	mg/L	%	%	%
Ammonia as N	ES0501599-004	Anonymous	0.01 mg/L	1.00	0.702	113	70	130
EK059G: NOX as N by Discrete Analyser								
EK059G: NOX as N by Discrete Analyser - (QC Lot: 48198)				mg/L	mg/L	%	%	%
Nitrite + Nitrate as N	ES0501599-001	Anonymous	0.01 mg/L	0.60	0.010	91.2	70	130
EK061: Total Kjeldahl Nitrogen (TKN)								
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 48379)				mg/L	mg/L	%	%	%

Matrix Type: WATER

Analyte name	Laboratory Sample ID	Client Sample ID	LOR	Spike Concentration	Actual Results: Sample Result	Actual Results: Spike Recovery MS	Recovery Limits: Static Limits Low	Recovery Limits: Static Limits High
Total Kjeldahl Nitrogen as N	ES0501596-001	Anonymous	0.1 mg/L	5.0	0.3	109	70	130
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 48381)				mg/L	mg/L	%	%	%
Total Kjeldahl Nitrogen as N	ES0501616-001	Anonymous	0.1 mg/L	5.0	1.1	124	70	130
EP005: Total Organic Carbon (TOC)								
EP005: Total Organic Carbon (TOC) - (QC Lot: 48111)				mg/L	mg/L	%	%	%
Total Organic Carbon	ES0501612-008	MW12 S	1 mg/L	100	11	104	70	130
EP026: Chemical Oxygen Demand (COD)								
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 49592)				mg/L	mg/L	%	%	%
Chemical Oxygen Demand	ES0501612-001	DUP 2	5 mg/L	143	60	96.5	70	130
EP074A: Monocyclic Aromatic Hydrocarbons								
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 49205)				µg/L	µg/L	%	%	%
Benzene	ES0501580-006	Anonymous	5 µg/L	25	<5	97.8	70	130
Toluene			5 µg/L	25	12	105	70	130
EP074E: Halogenated Aliphatic Compounds								
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 49205)				µg/L	µg/L	%	%	%
1,1-Dichloroethene	ES0501580-006	Anonymous	5 µg/L	25	<5	98.9	70	130
Trichloroethene			5 µg/L	25	<5	97.3	70	130
EP074F: Halogenated Aromatic Compounds								
EP074F: Halogenated Aromatic Compounds - (QC Lot: 49205)				µg/L	µg/L	%	%	%
Chlorobenzene	ES0501580-006	Anonymous	5 µg/L	25	<5	100	70	130
EP080/071: Total Petroleum Hydrocarbons								
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 48263)				µg/L	µg/L	%	%	%
C6 - C9 Fraction	ES0501599-003	Anonymous	20 µg/L	250	<20	99.8	80	120
EP080/071: Total Petroleum Hydrocarbons - (QC Lot 49206)				µg/L	µg/L	%	%	%
C6 - C9 Fraction	ES0501580-006	Anonymous	20 µg/L	250	30	88.4	80	120
EP080: BTEX								
EP080: BTEX - (QC Lot: 48263)				µg/L	µg/L	%	%	%
Benzene	ES0501599-003	Anonymous	1 µg/L	25	<1	92.8	80	120
Toluene			2 µg/L	25	<2	96.8	80	120
Ethylbenzene			2 µg/L	25	<2	99.9	80	120
meta- & para-Xylene			2 µg/L	25	<2	97.5	80	120
ortho-Xylene			2 µg/L	25	<2	100	80	120
EP080: BTEX - (QC Lot: 49206)				µg/L	µg/L	%	%	%
Benzene	ES0501580-006	Anonymous	1 µg/L	25	<1	104	80	120

Matrix Type: WATER

					Actual Results		Recovery Limits	
					Sample Result	Spike Recovery	Static Limits	
Analyte name	*Laboratory Sample ID*	*Client Sample ID*	*LOR*	*Spike Concentration*		*MS*	*Low*	*High*
Toluene	ES0501580-006	Anonymous	2 µg/L	25	12	95.3	80	120
Ethylbenzene			2 µg/L	25	<2	103	80	120
meta- & para-Xylene			2 µg/L	25	2	92.3	80	120
ortho-Xylene			2 µg/L	25	<2	104	80	120

ALS Environmental

INTERPRETIVE QUALITY CONTROL REPORT

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	:	ALS Environmental Sydney	**Page**	: 1 of 8
Contact	:	MS LOUSIE MACDONALD	**Contact**	:	Greg Vogel		
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	:	277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	: **ES0501612**
						Amendment No.	:
Project	:	- Not provided -	**Quote number**	:	----	**Date received**	: 3 Mar 2005
Order number	:	- Not provided -				**Date issued**	: 14 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	:	Greg.Vogel@alsenviro.com	**No. of samples**	
Telephone	:	(02) 9928-2100	**Telephone**	:	61-2-87848555	**Received**	: 9
Facsimile	:	(02) 9928-2272	**Facsimile**	:	61-2-87848500	**Analysed**	: 9

This Interpretive Quality Control Report was issued on 14 Mar 2005 for the ALS work order reference ES0501612 and supersedes any previous reports with this reference.
This report contains the following information:

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

Interpretive Quality Control Report - Analysis Holding Time

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 preclude subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the sample aliquot was taken. Elapsed time to analysis represents time from sampling where no extraction / digestion is involved or time from extraction / digestion where this is present. For composite samples, sampling date/time is taken as that of the oldest sample contributing to that composite. Sample date/time for laboratory produced leaches are taken from the completion date/time of the leaching process. Outliers for holding time are based on USEPA SW846, APHA, AS and NEPM (1999). Failed outliers, refer to the 'Summary of Outliers'.

Matrix Type: WATER

Analysis Holding Time and Preservation

Method / Container / Client Sample ID(s)		Date Sampled	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
ED093F: Major Cations - Filtered								
Clear Plastic Bottle - Natural								
DUP 2		**1 Mar 2005**	----	----	----	**8 Mar 2005**	29 Mar 2005	Pass
EG020A-F: Dissolved Metals by ICP-MS - Suite A								
Amber Glass Bottle - Unpreserved								
MW12 S		**1 Mar 2005**	----	----	----	**7 Mar 2005**	28 Aug 2005	Pass
Clear Plastic Bottle - Nitric Acid; Filtered								
DUP 2,	MW14 S,	**1 Mar 2005**	----	----	----	**7 Mar 2005**	28 Aug 2005	Pass
MW14 D,	MW16 S,							
MW17 S,	MW04 S,							
MW04 D,	MW13 S							
EK061: Total Kjeldahl Nitrogen as N								
Clear Plastic Bottle - Sulphuric Acid								
DUP 2,	MW14 S,	**1 Mar 2005**	**8 Mar 2005**	29 Mar 2005	Pass	**8 Mar 2005**	29 Mar 2005	Pass
MW14 D,	MW16 S,							
MW17 S,	MW04 S,							
MW04 D,	MW12 S,							
MW13 S								
EP071: TPH - Semivolatile Fraction								
Amber Glass Bottle - Unpreserved								
DUP 2,	MW14 S,	**1 Mar 2005**	**7 Mar 2005**	8 Mar 2005	Pass	**9 Mar 2005**	16 Apr 2005	Pass
MW14 D,	MW16 S,							
MW17 S,	MW04 S,							
MW04 D,	MW12 S,							
MW13 S								
EP074: Volatile Organic Compounds								
Amber VOC Vial - HCl								
MW14 S,	MW14 D,	**1 Mar 2005**	----	----	----	**8 Mar 2005**	15 Mar 2005	Pass
MW16 S,	MW17 S,							
MW04 S,	MW04 D,							
MW12 S,	MW13 S							
EP075: Semivolatile Organic Compounds								
Amber Glass Bottle - Unpreserved								
MW14 S,	MW14 D,	**1 Mar 2005**	**7 Mar 2005**	8 Mar 2005	Pass	**10 Mar 2005**	16 Apr 2005	Pass
MW16 S,	MW17 S,							
MW04 S,	MW04 D,							
MW12 S,	MW13 S							
EP080: TPH Volatiles/BTEX								

Analysis Holding Time and Preservation

Matrix Type: WATER

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EP080: TPH Volatiles/BTEX - **continued**							
Amber VOC Vial - HCl DUP 2	**1 Mar 2005**	----	----	----	**5 Mar 2005**	15 Mar 2005	Pass
Amber VOC Vial - HCl MW14 S, MW14 D, MW16 S, MW17 S, MW04 S, MW04 D, MW12 S, MW13 S	**1 Mar 2005**	----	----	----	**8 Mar 2005**	15 Mar 2005	Pass

Interpretive Quality Control Report - Frequency of Quality Control Samples

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which this work order was processed. Actual rate should be greater than or equal to the expected rate.

Matrix Type: WATER

Frequency of Quality Control Samples

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
ED093F: Major Cations - Filtered	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-F: Dissolved Metals by ICP-MS - Suite A	3	30	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	3	20	15.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered	1	9	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	2	18	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	3	22	13.6	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	1	9	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	2	15	13.3	13.3	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	2	19	10.5	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	4	36	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Laboratory Control Samples (LCS)					
ED093F: Major Cations - Filtered	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-F: Dissolved Metals by ICP-MS - Suite A	2	30	6.7	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	2	20	10.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	2	22	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	2	9	22.2	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	1	15	6.7	6.7	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP071: TPH - Semivolatile Fraction	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP075: Semivolatile Organic Compounds	1	16	6.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	2	36	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement

Frequency of Quality Control Samples

Matrix Type: WATER

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Method Blanks (MB)					
ED093F: Major Cations - Filtered	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-F: Dissolved Metals by ICP-MS - Suite A	2	30	6.7	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	2	20	10.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	2	22	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	1	15	6.7	6.7	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP071: TPH - Semivolatile Fraction	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP075: Semivolatile Organic Compounds	1	16	6.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	2	36	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Matrix Spikes (MS)					
EG020A-F: Dissolved Metals by ICP-MS - Suite A	2	30	6.7	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	2	20	10.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	2	22	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	2	36	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement

Interpretive Quality Control Report - Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged on the 'Quality Control Report'. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). - Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot.

Non-surrogates

- **For all matrices, no RPD recovery outliers occur for the duplicate analysis.**
- **For all matrices, no method blank result outliers occur.**
- **For all matrices, no laboratory spike recoveries breaches occur.**
- **For all matrices, no matrix spike recoveries breaches occur.**

Surrogates

- **For all matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time

The following report highlights outliers within this 'Interpretive Quality Control Report - Analysis Holding Time'.

- **No holding time outliers occur.**

Outliers : Frequency of Quality Control Samples

The following report highlights outliers within this 'Interpretive Quality Control Report - Frequency of Quality Control Samples'.

- **No frequency outliers occur.**

Method Reference Summary

The analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house procedure 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 herein. Reference methods from which ALSE methods are based are provided in parenthesis.

Matrix Type: WATER

Preparation Methods

EK061/EK067 : TKN/TP Digestion - APHA 20th ed., 4500 Norg - D; APHA 20th ed., 4500 P - H. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ORG14 : Separatory Funnel Extraction of Liquids - 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.

Analytical Methods

EA065 : Hardness as CaCO3 - APHA 20th ed., 2340. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ED093F : Major Cations - Filtered - APHA 20th ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EG020A-F : Dissolved Metals by ICP-MS - Suite A - (APHA 20th ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

EG035F : Dissolved Mercury by FIMS - AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the 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)

EG050G-F : Hexavalent Chromium by Discrete Analyser - Filtered - APHA 20th ed., 3500 Cr-A & B. Hexavalent chromium is determined directly on water sample by Seal Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK055G : Ammonia as N by Discreate analyser - APHA 20th ed., 4500 NH3+-H Ammonia is determined by direct colorimetry by Seal. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK059G : Nitrite and Nitrate as N (NOx) by Discrete Analyser - APHA 20th ed., 4500 NO3- I. SEAL Method 2-018-1-L February 2003. Combined oxidised Nitrogen (NO2+NO3) is determined by Cadmium Reduction and direct colourimetry by SEAL. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK061 : Total Kjeldahl Nitrogen as N - APHA 20th ed., 4500-Norg-D 100mL water samples are digested using a traditional Kjeldahl digestion followed by determination by FIA. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK062-SYD : Total Nitrogen as N (TKN + Nox) - APHA 20th ed., 4500 N org / NO3. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP005 : Total Organic Carbon - APHA 20th ed., 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP026 : Chemical Oxygen Demand (COD) - APHA 20th ed., 5220 B. Samples are digested with a known excess of acidic potassium dichromate solution using silver sulphate as a catalyst. The chromium is reduced from Cr (VI) to Cr (III) by oxygen. The unreacted Cr (VI) can then be titrated with ferrous ammonium sulfate to determine the amount of Cr (VI) consumed. The oxidisable organic matter can be calculated in terms of oxygen equivalents. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Matrix Type: WATER

Method Reference Summary

Analytical Methods

EP030 : Biochemical Oxygen Demand (BOD) - APHA 20th ed., 5210 B The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP071 : TPH - Semivolatile Fraction - 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)

EP074 : Volatile Organic Compounds - USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP075 : Semivolatile Organic Compounds - 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)

EP080 : TPH Volatiles/BTEX - USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ALS Environmental

CERTIFICATE OF ANALYSIS

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	:	ALS Environmental Sydney	**Page**	: 1 of 21
Contact	:	MS LOUSIE MACDONALD	**Contact**	:	Greg Vogel		
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	:	277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	: **ES0501668**
						Amendment No.	: 1
Project	:	EN01669	**Quote number**	:	----	**Date received**	: 4 Mar 2005
Order number	:	- Not provided -				**Date issued**	: 17 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	:	Greg.Vogel@alsenviro.com	**No. of samples**	
Telephone	:	(02) 9928-2100	**Telephone**	:	61-2-87848555	**Received**	: 11
Facsimile	:	(02) 9928-2272	**Facsimile**	:	61-2-87848500	**Analysed**	: 11

This final report for the ALSE work order reference ES0501668 supersedes any previous reports with this reference.
Results apply to the samples as submitted. All pages of this report have been checked and approved for release.
This report contains the following information:

- Analytical results for samples submitted
- Surrogate control limits

Work order specific comments

Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.
LOR raised of Cr6+ due to matrix interference
LOR raised for sample#1 (NH3)due to matrix interference

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When moisture determination has been performed, results are reported on a dry weight basis. When a reported 'less than' result is higher than the LOR, this may be due to primary sample extracts/digestion dilution and/or insuffient sample amount for analysis. Surrogate Recovery Limits are static and based on USEPA SW846 or ALS-QWI/EN38 (in the absence of specified USEPA limits).
Abbreviations: ***CAS number*** = *Chemical Abstract Services number,* ***LOR*** = *Limit of Reporting.* ***# Indicates a raised LOR, * Indicates failed Surrogate Recoveries.***
When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes.

Analytical Results

				Client Sample ID :	MW42D	MW42S	MW37D	MW37S	MW03D
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER
				Sample Date / Time :	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00
				Laboratory Sample ID :					
Analyte	*CAS number*	*LOR*	*Units*		ES0501668-001	ES0501668-002	ES0501668-003	ES0501668-004	ES0501668-005
EA065: Total Hardness as CaCO3									
Total Hardness as CaCO3		1	mg/L		20	133	116	196	142
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		2	40	6	46	12
Magnesium	7439-95-4	1	mg/L		4	8	24	19	27
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		0.020	0.012	0.017	0.005	0.008
Cadmium	7440-43-9	0.0001	mg/L		0.0003	0.0008	0.0006	<0.0001	0.0005
Copper	7440-50-8	0.001	mg/L		0.208	0.220	0.191	0.010	0.085
Lead	7439-92-1	0.001	mg/L		0.119	0.174	0.109	0.052	0.140
Nickel	7440-02-0	0.001	mg/L		0.069	0.030	0.089	0.004	0.026
Zinc	7440-66-6	0.005	mg/L		0.325	0.869	0.422	0.013	0.556
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG050T: Hexavalent Chromium - Total									
Hexavalent Chromium	18540-29-9	0.010	mg/L		# <0.100	# <0.100	# <0.100	# <0.100	# <0.100
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.010	mg/L		0.114	1.08	0.108	9.68	0.208
EK059G: NOX as N by Discrete Analyser									
Nitrite + Nitrate as N		0.010	mg/L		0.018	0.237	0.061	0.011	0.062
EK061: Total Kjeldahl Nitrogen (TKN)									
Total Kjeldahl Nitrogen as N		0.1	mg/L		1.8	8.9	8.7	15.3	8.6
EK062: Total Nitrogen as N (TKN + NOx)									
Total Nitrogen as N		0.1	mg/L		1.8	9.2	8.7	15.3	8.7
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon		1	mg/L		9	16	12	18	16
EP026: Chemical Oxygen Demand (COD)									
Chemical Oxygen Demand		5	mg/L		96	125	115	173	69
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand		2	mg/L		2	<2	<2	<2	17
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	5	µg/L		<5	<5	<5	<5	1380
Toluene	108-88-3	5	µg/L		<5	<5	<5	<5	9

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW42D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-001	Client Sample ID: MW42S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-002	Client Sample ID: MW37D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-003	Client Sample ID: MW37S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-004	Client Sample ID: MW03D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-005
EP074A: Monocyclic Aromatic Hydrocarbons								
Ethylbenzene	100-41-4	5	µg/L	<5	<5	<5	<5	317
meta- & para-Xylene	108-38-3 106-42-3	5	µg/L	<5	<5	<5	<5	146
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
ortho-Xylene	95-47-6	5	µg/L	<5	<5	<5	<5	119
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	8
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	26
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	87
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5

ALS Environmental

Analytical Results

				Client Sample ID :	MW42D	MW42S	MW37D	MW37S	MW03D
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER
				Sample Date / Time :	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00
				Laboratory Sample ID :	ES0501668-001	ES0501668-002	ES0501668-003	ES0501668-004	ES0501668-005
Analyte	*CAS number*	*LOR*	*Units*						
EP074E: Halogenated Aliphatic Compounds									
cis-1,2-Dichloroethene	156-59-2	5	µg/L		<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L		<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L		<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L		<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L		<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L		<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L		<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L		<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L		<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L		<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L		<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L		<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L		<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L		<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L		<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L		<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L		<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L		<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L		<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L		<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L		<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L		<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L		<5	<5	<5	<5	<5
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L		<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L		<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L		<5	<5	<5	<5	<5
EP074H: Naphthalene									
Naphthalene	91-20-3	7	µg/L		<7	<7	18	<7	629

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW42D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-001	Client Sample ID: MW42S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-002	Client Sample ID: MW37D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-003	Client Sample ID: MW37S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-004	Client Sample ID: MW03D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-005
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	<2	<2	12
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	<2	<2	<2
2-Methylphenol	95-48-7	2	µg/L	<2	<2	<2	<2	9
3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	<2	<2	<2	6
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	<2	<2	<2
2,4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	<2	<2	53
2,4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	<2	<2	<2
2,6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	<2	<2	<2
4-Chloro-3-Methylphenol	59-50-7	2	µg/L	<2	<2	<2	<2	<2
2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	<2	<2	<2
2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	<2	<2	<2
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	<4	<4	<4
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	<2	5	<2	4
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	<2	<2	<2
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	<2	<2	<2
Acenaphthylene	208-96-8	2	µg/L	<2	<2	<2	<2	2
Acenaphthene	83-32-9	2	µg/L	<2	<2	<2	14	<2
Fluorene	86-73-7	2	µg/L	<2	<2	<2	15	<2
Phenanthrene	85-01-8	2	µg/L	<2	<2	<2	<2	<2
Anthracene	120-12-7	2	µg/L	<2	<2	<2	<2	<2
Fluoranthene	206-44-0	2	µg/L	<2	<2	<2	<2	<2
Pyrene	129-00-0	2	µg/L	<2	<2	<2	<2	<2
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	<2	<2	<2
Benz(a)anthracene	56-55-3	2	µg/L	<2	<2	<2	<2	<2
Chrysene	218-01-9	2	µg/L	<2	<2	<2	<2	<2
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4	<4	<4	<4
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2	<2	<2	<2
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	<2	<2	<2
Indeno(1,2,3,cd)pyrene	193-39-5	2	µg/L	<2	<2	<2	<2	<2
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	<2	<2	<2	<2
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	<2	<2	<2	<2
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	<2	<2	<2
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	<2	<2	<2

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW42D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-001	Client Sample ID: MW42S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-002	Client Sample ID: MW37D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-003	Client Sample ID: MW37S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-004	Client Sample ID: MW03D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-005
EP075C: Phthalate Esters								
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	<2	<2	<2
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	6	<2	27
bis(2-ethylhexyl) phthalate	117-81-7	20	µg/L	<20	<20	60	<20	950
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	<2	<2	<2
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	<4	<4	<4
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosodiphenyl & Diphenylamine	86-30-6	4	µg/L	<4	<4	<4	<4	<4
Methapyrilene	91-80-5	2	µg/L	<2	<2	<2	<2	<2
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	<2	<2	<2	<2
Acetophenone	98-86-2	2	µg/L	<2	<2	<2	<2	4
Nitrobenzene	98-95-3	2	µg/L	<2	<2	<2	<2	<2
Isophorone	78-59-1	2	µg/L	<2	<2	<2	<2	<2
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	<4	<4	<4
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	<4	<4	<4
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	<2	<2	<2
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	<2	<2	<2
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	<2	<2	<2
Azobenzene	103-33-3	2	µg/L	<2	<2	<2	<2	<2
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	<2	<2	<2
Phenacetin	62-44-2	2	µg/L	<2	<2	<2	<2	<2
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	<2	<2	<2
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	<2	<2	<2
Pronamide	23950-58-5	2	µg/L	<2	<2	<2	<2	<2
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	<2	<2	<2
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	<2	<2	<2
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	<2	<2	<2
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	<2	<2	<2
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	<2	<2	<2

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW42D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-001	Client Sample ID: MW42S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-002	Client Sample ID: MW37D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-003	Client Sample ID: MW37S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-004	Client Sample ID: MW03D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-005
EP075F: Haloethers								
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	<2	<2	<2
EP075G: Chlorinated Hydrocarbons								
1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	<2	<2	<2
1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	<2	<2	<2
1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	<2	<2	<2
Hexachloroethane	67-72-1	2	µg/L	<2	<2	<2	<2	<2
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	<2	<2	<2
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	<2	<2	<2
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	<2	<2	<2
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	<10	<10	<10
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	<2	<2	<2
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	<4	<4	<4
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	<2	<2	<2
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	<2	<2	<2
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	<4	<4	<4
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	<4	<4	<4
Dibenzofuran	132-64-9	2	µg/L	<2	<2	<2	7	<2
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	<2	<2	<2
Carbazole	86-74-8	2	µg/L	<2	<2	<2	<2	<2
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	<2	<2	<2
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	<2	<2	<2	<2
beta-BHC	319-85-7	2	µg/L	<2	<2	<2	<2	<2
gamma-BHC	58-89-9	2	µg/L	<2	<2	<2	<2	<2
delta-BHC	319-86-8	2	µg/L	<2	<2	<2	<2	<2
Heptachlor	76-44-8	2	µg/L	<2	<2	<2	<2	<2
Aldrin	309-00-2	2	µg/L	<2	<2	<2	<2	<2
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	<2	<2	<2
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	<2	<2	<2
4,4'-DDE	72-55-9	2	µg/L	<2	<2	<2	<2	<2
Dieldrin	60-57-1	2	µg/L	<2	<2	<2	<2	<2
Endrin	72-20-8	2	µg/L	<2	<2	<2	<2	<2
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	<2	<2	<2
4,4'-DDD	72-54-8	2	µg/L	<2	<2	<2	<2	<2
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	<2	<2	<2

Analytical Results

Analyte	CAS number	LOR	Units	MW42D	MW42S	MW37D	MW37S	MW03D
Client Sample ID :				MW42D	MW42S	MW37D	MW37S	MW03D
Sample Matrix Type / Description :				WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER
Sample Date / Time :				4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00
Laboratory Sample ID :				ES0501668-001	ES0501668-002	ES0501668-003	ES0501668-004	ES0501668-005
EP075I: Organochlorine Pesticides								
4,4'-DDT	50-29-3	4	µg/L	<4	<4	<4	<4	<4
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	<2	<2	<2	<2
Dimethoate	60-51-5	2	µg/L	<2	<2	<2	<2	<2
Diazinon	333-41-5	2	µg/L	<2	<2	<2	<2	<2
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	<2	<2	<2
Malathion	121-75-5	2	µg/L	<2	<2	<2	<2	<2
Fenthion	55-38-9	2	µg/L	<2	<2	<2	<2	<2
Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	<2	<2	<2
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2	<2	<2	<2
Chlorfenvinphos	470-90-6	2	µg/L	<2	<2	<2	<2	<2
Prothiofos	34643-46-4	2	µg/L	<2	<2	<2	<2	<2
Ethion	563-12-2	2	µg/L	<2	<2	<2	<2	<2
EP075K: Miscellaneous Compounds								
1,3,5-Trichlorobenzene	108-70-3	2	µg/L	<2	<2	<2	<2	<2
1,2,4,5-Tetrachlorobenzene	95-94-3	2	µg/L	<2	<2	<2	<2	<2
Methanesulfonate methyl	66-27-3	2	µg/L	<2	<2	<2	<2	<2
Methanesulfonate ethyl	62-50-0	2	µg/L	<2	<2	<2	<2	<2
cis-Isosafrole	17627-76-8	2	µg/L	<2	<2	<2	<2	<2
trans-Isosafrole	4043-71-4	2	µg/L	<2	<2	<2	<2	<2
Safrole	94-59-7	2	µg/L	<2	<2	<2	<2	<2
Diallate	2303-16-4	2	µg/L	<2	<2	<2	<2	<2
2,3,4,6-Tetrachlorophenol	58-90-2	2	µg/L	<2	<2	<2	<2	<2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		20	µg/L	<20	<20	<20	<20	1680
C10 - C14 Fraction		50	µg/L	60	<50	220	280	1330
C15 - C28 Fraction		100	µg/L	200	<100	700	1200	1600
C29 - C36 Fraction		50	µg/L	<50	<50	<50	<50	160
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	98.6	99.4	99.8	103	101
Toluene-D8	2037-26-5	0.1	%	94.9	90.0	92.2	93.0	92.2
4-Bromofluorobenzene	460-00-4	0.1	%	91.0	93.6	97.7	99.1	102
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1	%	64.8	68.8	65.9	62.7	58.0
Phenol-d6	13127-88-3	0.1	%	38.4	41.4	37.7	41.0	44.8
2-Chlorophenol-D4	93951-73-6	0.1	%	80.3	89.3	77.1	82.9	87.3

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW42D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-001	Client Sample ID: MW42S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-002	Client Sample ID: MW37D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-003	Client Sample ID: MW37S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-004	Client Sample ID: MW03D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-005
EP075S: Acid Extractable Surrogates								
2,4,6-Tribromophenol	118-79-6	0.1	%	85.6	91.5	95.2	105	99.1
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	0.1	%	86.9	96.4	101	105	99.0
1,2-Dichlorobenzene-D4	2199-69-1	0.1	%	58.9	64.4	60.4	63.6	65.5
2-Fluorobiphenyl	321-60-8	0.1	%	63.7	70.6	60.9	66.0	66.3
Anthracene-d10	1719-06-8	0.1	%	77.1	83.0	71.6	74.2	74.1
4-Terphenyl-d14	1718-51-0	0.1	%	70.3	80.2	70.8	75.3	76.9
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	102	99.4	99.8	103	101
Toluene-D8	2037-26-5	0.1	%	94.1	90.0	92.2	93.0	92.2
4-Bromofluorobenzene	460-00-4	0.1	%	97.2	93.6	97.7	99.1	102

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Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW36D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-006	Client Sample ID: MW38D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-007	Client Sample ID: DUP4 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-008	Client Sample ID: TRIP SPIKE Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-009	Client Sample ID: RINSATE 1 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-010
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3		1	mg/L	67	114	19	----	<1
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	5	7	2	----	<1
Magnesium	7439-95-4	1	mg/L	14	23	4	----	<1
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	0.036	0.017	0.019	----	<0.001
Cadmium	7440-43-9	0.0001	mg/L	0.0005	0.0008	0.0004	----	<0.0001
Copper	7440-50-8	0.001	mg/L	0.473	0.245	0.210	----	0.001
Lead	7439-92-1	0.001	mg/L	0.104	0.126	0.122	----	<0.001
Nickel	7440-02-0	0.001	mg/L	0.092	0.087	0.072	----	<0.001
Zinc	7440-66-6	0.005	mg/L	0.416	0.369	0.289	----	<0.005
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	<0.0001
EG050T: Hexavalent Chromium - Total								
Hexavalent Chromium	18540-29-9	0.010	mg/L	# <0.100	# <0.100	# <0.100	----	# <0.100
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.010	mg/L	0.130	0.074	0.101	----	0.012
EK059G: NOX as N by Discrete Analyser								
Nitrite + Nitrate as N		0.010	mg/L	0.070	0.081	0.020	----	0.016
EK061: Total Kjeldahl Nitrogen (TKN)								
Total Kjeldahl Nitrogen as N		0.1	mg/L	8.0	1.0	1.7	----	0.2
EK062: Total Nitrogen as N (TKN + NOx)								
Total Nitrogen as N		0.1	mg/L	8.0	1.0	1.8	----	0.2
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon		1	mg/L	10	10	11	----	<1
EP026: Chemical Oxygen Demand (COD)								
Chemical Oxygen Demand		5	mg/L	461	173	107	----	7
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand		2	mg/L	<2	<2	<2	----	<2
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	5	µg/L	<5	<5	----	----	----
Toluene	108-88-3	5	µg/L	<5	<5	----	----	----
Ethylbenzene	100-41-4	5	µg/L	<5	<5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	5	µg/L	<5	<5	----	----	----
Styrene	100-42-5	5	µg/L	<5	<5	----	----	----
ortho-Xylene	95-47-6	5	µg/L	<5	<5	----	----	----

Analytical Results

				Client Sample ID :	MW36D	MW38D	DUP4	TRIP SPIKE	RINSATE 1
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER
				Sample Date / Time :	3 Mar 2005 0:00	3 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00
				Laboratory Sample ID :	ES0501668-006	ES0501668-007	ES0501668-008	ES0501668-009	ES0501668-010
Analyte	*CAS number*	*LOR*	*Units*						
EP074A: Monocyclic Aromatic Hydrocarbons									
Isopropylbenzene	98-82-8	5	µg/L		<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L		<5	<5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L		<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L		<5	<5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L		<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L		<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L		<5	<5	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	<50	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		<5	<5	----	----	----
EP074D: Fumigants									
2,2-Dichloropropane	594-20-7	5	µg/L		<5	<5	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L		<5	<5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L		<5	<5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L		<5	<5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L		<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L		<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L		<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	<50	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L		<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L		<5	<5	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L		<5	<5	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L		<5	<5	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L		<5	<5	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L		<5	<5	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L		<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	<5	----	----	----

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Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW36D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-006	Client Sample ID: MW38D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-007	Client Sample ID: DUP4 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-008	Client Sample ID: TRIP SPIKE Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-009	Client Sample ID: RINSATE 1 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-010
EP074E: Halogenated Aliphatic Compounds								
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	----	----	----
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	----	----	----
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	82	24	----	----	----
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

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW36D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-006	Client Sample ID: MW38D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-007	Client Sample ID: DUP4 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-008	Client Sample ID: TRIP SPIKE Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-009	Client Sample ID: RINSATE 1 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-010
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Phenanthrene	85-01-8	1.0	µg/L	----	----	<1.0	----	<1.0
Anthracene	120-12-7	1.0	µg/L	----	----	<1.0	----	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	----	<1.0	----	<1.0
Pyrene	129-00-0	1.0	µg/L	----	----	<1.0	----	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	<1.0	----	<1.0
Chrysene	218-01-9	1.0	µg/L	----	----	<1.0	----	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	----	----	<1.0	----	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	<1.0	----	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	<0.5	----	<0.5
Indeno(1,2,3,cd)pyrene	193-39-5	1.0	µg/L	----	----	<1.0	----	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	----	<1.0	----	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	----	<1.0	----	<1.0
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	----	----	----
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	----	----	----
2-Methylphenol	95-48-7	2	µg/L	<2	<2	----	----	----
3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	<2	----	----	----
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	----	----	----
2,4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	----	----	----
2,4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	----	----	----
2,6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	----	----	----
4-Chloro-3-Methylphenol	59-50-7	2	µg/L	<2	<2	----	----	----
2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	----	----	----
2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	----	----	----
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	12	----	----	----
2-Methylnaphthalene	91-57-6	2	µg/L	<2	2	----	----	----
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	----	----	----
Acenaphthylene	208-96-8	2	µg/L	<2	<2	----	----	----
Acenaphthene	83-32-9	2	µg/L	<2	<2	----	----	----
Fluorene	86-73-7	2	µg/L	<2	<2	----	----	----
Phenanthrene	85-01-8	2	µg/L	<2	2	----	----	----
Anthracene	120-12-7	2	µg/L	<2	<2	----	----	----
Fluoranthene	206-44-0	2	µg/L	<2	<2	----	----	----
Pyrene	129-00-0	2	µg/L	<2	<2	----	----	----

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW36D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-006	Client Sample ID: MW38D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-007	Client Sample ID: DUP4 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-008	Client Sample ID: TRIP SPIKE Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-009	Client Sample ID: RINSATE 1 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-010
EP075B: Polynuclear Aromatic Hydrocarbons								
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	----	----	----
Benz(a)anthracene	56-55-3	2	µg/L	<2	<2	----	----	----
Chrysene	218-01-9	2	µg/L	<2	<2	----	----	----
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4	----	----	----
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	----	----	----
Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2	----	----	----
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	----	----	----
Indeno(1,2,3,cd)pyrene	193-39-5	2	µg/L	<2	<2	----	----	----
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	<2	----	----	----
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	<2	----	----	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	----	----	----
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	----	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	----	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L	2	2	----	----	----
bis(2-ethylhexyl) phthalate	117-81-7	20	µg/L	40	<20	----	----	----
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	----	----	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	----	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	----	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	----	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	----	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	----	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	----	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	----	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6	4	µg/L	<4	<4	----	----	----
Methapyrilene	91-80-5	2	µg/L	<2	<2	----	----	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	<2	----	----	----
Acetophenone	98-86-2	2	µg/L	<2	<2	----	----	----
Nitrobenzene	98-95-3	2	µg/L	<2	<2	----	----	----
Isophorone	78-59-1	2	µg/L	<2	<2	----	----	----
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	----	----	----
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	----	----	----
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	----	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	----	----	----

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW36D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-006	Client Sample ID: MW38D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-007	Client Sample ID: DUP4 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-008	Client Sample ID: TRIP SPIKE Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-009	Client Sample ID: RINSATE 1 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-010
EP075E: Nitroaromatics and Ketones								
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	----	----	----
Azobenzene	103-33-3	2	µg/L	<2	<2	----	----	----
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	----	----	----
Phenacetin	62-44-2	2	µg/L	<2	<2	----	----	----
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	----	----	----
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	----	----	----
Pronamide	23950-58-5	2	µg/L	<2	<2	----	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	----	----	----
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	----	----	----
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	----	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	----	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	----	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	----	----	----
EP075G: Chlorinated Hydrocarbons								
1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	----	----	----
1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	----	----	----
1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	----	----	----
Hexachloroethane	67-72-1	2	µg/L	<2	<2	----	----	----
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	----	----	----
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	----	----	----
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	----	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	----	----	----
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	----	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	----	----	----
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	----	----	----
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	----	----	----
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	----	----	----
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	----	----	----
Dibenzofuran	132-64-9	2	µg/L	<2	<2	----	----	----
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	----	----	----
Carbazole	86-74-8	2	µg/L	<2	<2	----	----	----
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	----	----	----
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	<2	----	----	----

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW36D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-006	Client Sample ID: MW38D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-007	Client Sample ID: DUP4 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-008	Client Sample ID: TRIP SPIKE Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-009	Client Sample ID: RINSATE 1 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-010
EP075I: Organochlorine Pesticides								
beta-BHC	319-85-7	2	µg/L	<2	<2	----	----	----
gamma-BHC	58-89-9	2	µg/L	<2	<2	----	----	----
delta-BHC	319-86-8	2	µg/L	<2	<2	----	----	----
Heptachlor	76-44-8	2	µg/L	<2	<2	----	----	----
Aldrin	309-00-2	2	µg/L	<2	<2	----	----	----
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	----	----	----
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	----	----	----
4,4'-DDE	72-55-9	2	µg/L	<2	<2	----	----	----
Dieldrin	60-57-1	2	µg/L	<2	<2	----	----	----
Endrin	72-20-8	2	µg/L	<2	<2	----	----	----
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	----	----	----
4,4'-DDD	72-54-8	2	µg/L	<2	<2	----	----	----
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	----	----	----
4,4'-DDT	50-29-3	4	µg/L	<4	<4	----	----	----
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	<2	----	----	----
Dimethoate	60-51-5	2	µg/L	<2	<2	----	----	----
Diazinon	333-41-5	2	µg/L	<2	<2	----	----	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	----	----	----
Malathion	121-75-5	2	µg/L	<2	<2	----	----	----
Fenthion	55-38-9	2	µg/L	<2	<2	----	----	----
Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	----	----	----
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2	----	----	----
Chlorfenvinphos	470-90-6	2	µg/L	<2	<2	----	----	----
Prothiofos	34643-46-4	2	µg/L	<2	<2	----	----	----
Ethion	563-12-2	2	µg/L	<2	<2	----	----	----
EP075K: Miscellaneous Compounds								
1,3,5-Trichlorobenzene	108-70-3	2	µg/L	<2	<2	----	----	----
1,2,4,5-Tetrachlorobenzene	95-94-3	2	µg/L	<2	<2	----	----	----
Methanesulfonate methyl	66-27-3	2	µg/L	<2	<2	----	----	----
Methanesulfonate ethyl	62-50-0	2	µg/L	<2	<2	----	----	----
cis-Isosafrole	17627-76-8	2	µg/L	<2	<2	----	----	----
trans-Isosafrole	4043-71-4	2	µg/L	<2	<2	----	----	----
Safrole	94-59-7	2	µg/L	<2	<2	----	----	----
Diallate	2303-16-4	2	µg/L	<2	<2	----	----	----
2,3,4,6-Tetrachlorophenol	58-90-2	2	µg/L	<2	<2	----	----	----

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW36D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-006	Client Sample ID: MW38D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 3 Mar 2005 0:00 Laboratory Sample ID: ES0501668-007	Client Sample ID: DUP4 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-008	Client Sample ID: TRIP SPIKE Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-009	Client Sample ID: RINSATE 1 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-010
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		20	µg/L	<20	<20	<20	----	<20
C10 - C14 Fraction		50	µg/L	<50	200	170	----	<50
C15 - C28 Fraction		100	µg/L	400	300	600	----	<100
C29 - C36 Fraction		50	µg/L	<50	<50	<50	----	<50
EP080: BTEX								
Benzene	71-43-2	1	µg/L	----	----	<1	20	<1
Toluene	108-88-3	2	µg/L	----	----	<2	18	<2
Ethylbenzene	100-41-4	2	µg/L	----	----	<2	19	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	----	<2	19	<2
ortho-Xylene	95-47-6	2	µg/L	----	----	<2	20	<2
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	101	101	----	----	----
Toluene-D8	2037-26-5	0.1	%	93.7	93.6	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	98.2	99.2	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
2-Fluorophenol	367-12-4	0.1	%	----	----	49.2	----	46.4
Phenol-d6	13127-88-3	0.1	%	----	----	39.9	----	39.2
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	85.6	----	70.1
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	93.8	----	65.4
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	68.8	----	65.2
Anthracene-d10	1719-06-8	0.1	%	----	----	66.6	----	62.5
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	70.5	----	60.4
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1	%	68.9	59.4	----	----	----
Phenol-d6	13127-88-3	0.1	%	43.5	42.0	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	87.3	84.5	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	94.9	90.9	----	----	----
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	0.1	%	94.2	98.2	----	----	----
1,2-Dichlorobenzene-D4	2199-69-1	0.1	%	65.6	63.2	----	----	----
2-Fluorobiphenyl	321-60-8	0.1	%	65.7	64.3	----	----	----
Anthracene-d10	1719-06-8	0.1	%	76.4	74.2	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	76.3	72.4	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	101	101	104	96.3	103

Analytical Results

				Client Sample ID :	MW36D	MW38D	DUP4	TRIP SPIKE	RINSATE 1
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER
				Sample Date / Time :	3 Mar 2005 0:00	3 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00
				Laboratory Sample ID :	ES0501668-006	ES0501668-007	ES0501668-008	ES0501668-009	ES0501668-010
Analyte	*CAS number*	*LOR*	*Units*						
EP080S: TPH(V)/BTEX Surrogates									
Toluene-D8	2037-26-5	0.1	%		93.7	93.6	101	103	97.1
4-Bromofluorobenzene	460-00-4	0.1	%		98.2	99.2	95.8	101	95.0

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: RINSATE 2 Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501668-011
EA065: Total Hardness as CaCO3				
Total Hardness as CaCO3		1	mg/L	<1
ED093F: Dissolved Major Cations				
Calcium	7440-70-2	1	mg/L	<1
Magnesium	7439-95-4	1	mg/L	<1
EG020T: Total Metals by ICP-MS				
Arsenic	7440-38-2	0.001	mg/L	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001
Copper	7440-50-8	0.001	mg/L	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001
Nickel	7440-02-0	0.001	mg/L	0.001
Zinc	7440-66-6	0.005	mg/L	<0.005
EG035T: Total Mercury by FIMS				
Mercury	7439-97-6	0.0001	mg/L	<0.0001
EG050T: Hexavalent Chromium - Total				
Hexavalent Chromium	18540-29-9	0.010	mg/L	# <0.100
EK055G: Ammonia as N by Discrete Analyser				
Ammonia as N	7664-41-7	0.010	mg/L	0.010
EK059G: NOX as N by Discrete Analyser				
Nitrite + Nitrate as N		0.010	mg/L	<0.010
EK061: Total Kjeldahl Nitrogen (TKN)				
Total Kjeldahl Nitrogen as N		0.1	mg/L	<0.1
EK062: Total Nitrogen as N (TKN + NOx)				
Total Nitrogen as N		0.1	mg/L	<0.1
EP005: Total Organic Carbon (TOC)				
Total Organic Carbon		1	mg/L	<1
EP026: Chemical Oxygen Demand (COD)				
Chemical Oxygen Demand		5	mg/L	<5
EP030: Biochemical Oxygen Demand (BOD)				
Biochemical Oxygen Demand		2	mg/L	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons				
Naphthalene	91-20-3	1.0	µg/L	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0

Analytical Results

	Client Sample ID :	RINSATE 2				
	Sample Matrix Type / Description :	WATER / WATER				
	Sample Date / Time :	4 Mar 2005 0:00				
	Laboratory Sample ID :	ES0501668-011				
Analyte	CAS number	LOR	Units			
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Fluoranthene	206-44-0	1.0	µg/L	<1.0		
Pyrene	129-00-0	1.0	µg/L	<1.0		
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0		
Chrysene	218-01-9	1.0	µg/L	<1.0		
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0		
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0		
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5		
Indeno(1,2,3,cd)pyrene	193-39-5	1.0	µg/L	<1.0		
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0		
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0		
EP080/071: Total Petroleum Hydrocarbons						
C6 - C9 Fraction		20	µg/L	<20		
C10 - C14 Fraction		50	µg/L	<50		
C15 - C28 Fraction		100	µg/L	<100		
C29 - C36 Fraction		50	µg/L	<50		
EP080: BTEX						
Benzene	71-43-2	1	µg/L	<1		
Toluene	108-88-3	2	µg/L	<2		
Ethylbenzene	100-41-4	2	µg/L	<2		
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2		
ortho-Xylene	95-47-6	2	µg/L	<2		
EP075(SIM)S: Phenolic Compound Surrogates						
2-Fluorophenol	367-12-4	0.1	%	54.1		
Phenol-d6	13127-88-3	0.1	%	32.2		
2-Chlorophenol-D4	93951-73-6	0.1	%	68.2		
2,4,6-Tribromophenol	118-79-6	0.1	%	60.4		
EP075(SIM)T: PAH Surrogates						
2-Fluorobiphenyl	321-60-8	0.1	%	61.9		
Anthracene-d10	1719-06-8	0.1	%	61.0		
4-Terphenyl-d14	1718-51-0	0.1	%	61.9		
EP080S: TPH(V)/BTEX Surrogates						
1,2-Dichloroethane-D4	17060-07-0	0.1	%	101		
Toluene-D8	2037-26-5	0.1	%	97.5		
4-Bromofluorobenzene	460-00-4	0.1	%	96.4		

Surrogate Control Limits

The analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house procedure 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 herein. Reference methods from which ALSE methods are based are provided in parenthesis.

Matrix Type: WATER

		Surrogate Control Limits	
Method name	***Analyte name***	***Lower Limit***	***Upper Limit***
EP074: Volatile Organic Compounds			
EP074S: VOC Surrogates	1,2-Dichloroethane-D4	80	120
	Toluene-D8	88	110
	4-Bromofluorobenzene	86	115
EP075: Semivolatile Organic Compounds			
EP075S: Acid Extractable Surrogates	2-Fluorophenol	21	100
	Phenol-d6	10	94
	2-Chlorophenol-D4	23	134
	2,4,6-Tribromophenol	10	123
EP075T: Base/Neutral Extractable Surrogates	Nitrobenzene-D5	35	114
	1,2-Dichlorobenzene-D4	32	129
	2-Fluorobiphenyl	43	116
	Anthracene-d10	27	133
	4-Terphenyl-d14	33	141
EP075(SIM): PAH/Phenols (GC/MS - SIM)			
EP075(SIM)S: Phenolic Compound Surrogates	2-Fluorophenol	21	100
	Phenol-d6	10	94
	2-Chlorophenol-D4	23	134
	2,4,6-Tribromophenol	10	123
EP075(SIM)T: PAH Surrogates	2-Fluorobiphenyl	43	116
	Anthracene-d10	27	133
	4-Terphenyl-d14	33	141
EP080: TPH Volatiles/BTEX			
EP080S: TPH(V)/BTEX Surrogates	1,2-Dichloroethane-D4	80	120
	Toluene-D8	88	110
	4-Bromofluorobenzene	86	115

ALS Environmental

QUALITY CONTROL REPORT

Client	: SINCLAIR KNIGHT MERZ	**Laboratory**	: ALS Environmental Sydney	**Page**	:	1 of 33
Contact	: MS LOUSIE MACDONALD	**Contact**	: Greg Vogel			
Address	: P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	: 277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	:	ES0501668
				Amendment No.	:	1
Project	: EN01669	**Quote number**	: ----	**Date received**	:	4 Mar 2005
Order number	: - Not provided -			**Date issued**	:	17 Mar 2005
C-O-C number	: - Not provided -					
Site	: - Not provided -					
E-mail	: lmacdonald@skm.com.au	**E-mail**	: Greg.Vogel@alsenviro.com	**No. of samples**		
Telephone	: (02) 9928-2100	**Telephone**	: 61-2-87848555	**Received**	:	11
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This final report for the ALSE work order reference ES0501668 supersedes any previous reports with this reference.

Results apply to the samples as submitted. All pages of this report have been checked and approved for release.

This report contains the following information:

- Laboratory Duplicates (DUP); Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Samples (LCS); Recovery and Acceptance Limits
- Matrix Spikes (MS); Recovery and Acceptance Limits

Work order specific comments

Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.
LOR raised of Cr6+ due to matrix interference
LOR raised for sample#1 (NH3)due to matrix interference

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This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Department
Celine Conceicao	Inorganics - NATA 10911 (Sydney)
Greg Vogel	Inorganics - NATA 10911 (Sydney)
Peter Dickenson	Inorganics - NATA 10911 (Sydney)
Rassem Ayoubi	Organics - NATA 10911 (Sydney)
Sarah Millington	Inorganics - NATA 10911 (Sydney)

Quality Control Report - Laboratory Duplicates (DUP)

The quality control term **Laboratory Duplicate** refers to an intralaboratory split sample randomly selected from the sample batch. Laboratory duplicates provide information on method precision and sample heterogeneity.
- Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations:* ***LOR*** = *Limit of Reporting,* ***RPD*** = *Relative Percent Difference.*
* Indicates failed QC. The permitted ranges for the RPD of Laboratory Duplicates (relative percent deviation) 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%

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	*Client Sample ID*	*Analyte name*	*LOR*	*Original Result*	*Duplicate Result*	*RPD*
ED093F: Dissolved Major Cations						
ED093F: Dissolved Major Cations - (QC Lot: 48930)				mg/L	mg/L	%
ES0501636-002	Anonymous	Calcium	1 mg/L	40	41	0.0
		Magnesium	1 mg/L	95	97	1.8
ES0501642-004	Anonymous	Calcium	1 mg/L	297	299	0.5
		Magnesium	1 mg/L	428	429	0.0
ED093F: Dissolved Major Cations - (QC Lot: 48932)				mg/L	mg/L	%
ES0501668-002	MW42S	Calcium	1 mg/L	40	39	0.0
		Magnesium	1 mg/L	8	8	0.0
ED093F: Dissolved Major Cations - (QC Lot: 49509)				mg/L	mg/L	%
ES0501668-005	MW03D	Calcium	1 mg/L	12	12	0.0
		Magnesium	1 mg/L	27	28	0.0
ES0501680-003	Anonymous	Calcium	1 mg/L	30	30	0.0
		Magnesium	1 mg/L	18	18	0.0

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EG020T: Total Metals by ICP-MS						
EG020T: Total Metals by ICP-MS - (QC Lot: 48904)				mg/L	mg/L	%
ES0501651-014	Anonymous	Arsenic	0.001 mg/L	0.002	0.002	0.0
		Cadmium	0.0001 mg/L	<0.0001	<0.0001	0.0
		Copper	0.001 mg/L	<0.001	<0.001	0.0
		Lead	0.001 mg/L	<0.001	<0.001	0.0
		Nickel	0.001 mg/L	0.002	0.002	0.0
		Zinc	0.005 mg/L	<0.005	<0.005	0.0
ES0501651-024	Anonymous	Arsenic	0.001 mg/L	<0.001	<0.001	0.0
		Cadmium	0.0001 mg/L	<0.0001	<0.0001	0.0
		Copper	0.001 mg/L	0.008	0.007	0.0
		Lead	0.001 mg/L	0.002	<0.001	0.0
		Nickel	0.001 mg/L	0.039	0.037	4.6
		Zinc	0.005 mg/L	0.045	0.042	5.3
EG020T: Total Metals by ICP-MS - (QC Lot: 48906)				mg/L	mg/L	%
ES0501668-007	MW38D	Arsenic	0.001 mg/L	0.017	0.015	11.4
		Cadmium	0.0001 mg/L	0.0008	0.0008	0.0
		Copper	0.001 mg/L	0.245	0.231	6.0
		Lead	0.001 mg/L	0.126	0.118	6.2
		Nickel	0.001 mg/L	0.087	0.080	8.2
		Zinc	0.005 mg/L	0.369	0.419	12.6
EG035T: Total Mercury by FIMS						
EG035T: Total Mercury by FIMS - (QC Lot: 50078)				mg/L	mg/L	%
ES0501640-004	Anonymous	Mercury	0.0001 mg/L	0.0004	0.0004	0.0
ES0501651-014	Anonymous	Mercury	0.0001 mg/L	<0.0001	<0.0001	0.0
EG035T: Total Mercury by FIMS - (QC Lot: 50079)				mg/L	mg/L	%
ES0501668-011	RINSATE 2	Mercury	0.0001 mg/L	<0.0001	<0.0001	0.0
ES0501705-008	Anonymous	Mercury	0.0001 mg/L	<0.0001	<0.0001	0.0
EG050T: Hexavalent Chromium - Total						
EG050T: Hexavalent Chromium - Total - (QC Lot: 48684)				mg/L	mg/L	%
ES0501668-001	MW42D	Hexavalent Chromium	0.010 mg/L	<0.100	<0.100	0.0
EK055G: Ammonia as N by Discrete Analyser						
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 50140)				mg/L	mg/L	%
ES0501668-001	MW42D	Ammonia as N	0.010 mg/L	0.114	0.110	3.6
ES0501668-011	RINSATE 2	Ammonia as N	0.010 mg/L	0.010	<0.010	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EK059G: NOX as N by Discrete Analyser						
EK059G: NOX as N by Discrete Analyser - (QC Lot: 48818)				mg/L	mg/L	%
ES0501581-001	Anonymous	Nitrite + Nitrate as N	0.010 mg/L	5.95	5.55	7.0
ES0501668-004	MW37S	Nitrite + Nitrate as N	0.010 mg/L	0.011	0.024	74.3
EK061: Total Kjeldahl Nitrogen (TKN)						
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 48939)				mg/L	mg/L	%
ES0501581-001	Anonymous	Total Kjeldahl Nitrogen as N	0.1 mg/L	0.5	0.5	0.0
ES0501665-001	Anonymous	Total Kjeldahl Nitrogen as N	0.1 mg/L	0.8	0.7	0.0
EP005: Total Organic Carbon (TOC)						
EP005: Total Organic Carbon (TOC) - (QC Lot: 49042)				mg/L	mg/L	%
ES0501651-015	Anonymous	Total Organic Carbon	1 mg/L	<1	<1	0.0
ES0501651-026	Anonymous	Total Organic Carbon	1 mg/L	39	41	5.0
EP005: Total Organic Carbon (TOC) - (QC Lot: 49043)				mg/L	mg/L	%
ES0501668-010	RINSATE 1	Total Organic Carbon	1 mg/L	<1	<1	0.0
EP026: Chemical Oxygen Demand (COD)						
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 50060)				mg/L	mg/L	%
ES0501646-001	Anonymous	Chemical Oxygen Demand	5 mg/L	8	7	13.3
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 50066)				mg/L	mg/L	%
ES0501668-010	RINSATE 1	Chemical Oxygen Demand	5 mg/L	7	16	78.3
EP030: Biochemical Oxygen Demand (BOD)						
EP030: Biochemical Oxygen Demand (BOD) - (QC Lot: 48685)				mg/L	mg/L	%
ES0501581-001	Anonymous	Biochemical Oxygen Demand	2 mg/L	<2	<2	0.0
ES0501668-004	MW37S	Biochemical Oxygen Demand	2 mg/L	<2	<2	0.0
EP030: Biochemical Oxygen Demand (BOD) - (QC Lot: 48686)				mg/L	mg/L	%
ES0501668-010	RINSATE 1	Biochemical Oxygen Demand	2 mg/L	<2	<2	0.0

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074A: Monocyclic Aromatic Hydrocarbons						
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 50458)				µg/L	µg/L	%
ES0501662-006	Anonymous	Benzene	5 µg/L	<5	<5	0.0
		Toluene	5 µg/L	38	39	0.0
		Ethylbenzene	5 µg/L	60	61	2.0
		meta- & para-Xylene	5 µg/L	556	559	0.6
		Styrene	5 µg/L	<5	<5	0.0
		ortho-Xylene	5 µg/L	348	350	0.5
		Isopropylbenzene	5 µg/L	26	26	0.0
		n-Propylbenzene	5 µg/L	55	58	4.9
		1,3,5-Trimethylbenzene	5 µg/L	200	209	4.3
		sec-Butylbenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trimethylbenzene	5 µg/L	603	606	0.4
		tert-Butylbenzene	5 µg/L	<5	<5	0.0
		p-Isopropyltoluene	5 µg/L	<5	<5	0.0
		n-Butylbenzene	5 µg/L	<5	<5	0.0
ES0501818-004	Anonymous	Benzene	5 µg/L	<5	<5	0.0
		Toluene	5 µg/L	<5	<5	0.0
		Ethylbenzene	5 µg/L	<5	<5	0.0
		meta- & para-Xylene	5 µg/L	<5	<5	0.0
		Styrene	5 µg/L	<5	<5	0.0
		ortho-Xylene	5 µg/L	<5	<5	0.0
		Isopropylbenzene	5 µg/L	<5	<5	0.0
		n-Propylbenzene	5 µg/L	<5	<5	0.0
		1,3,5-Trimethylbenzene	5 µg/L	<5	<5	0.0
		sec-Butylbenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trimethylbenzene	5 µg/L	<5	<5	0.0
		tert-Butylbenzene	5 µg/L	<5	<5	0.0
		p-Isopropyltoluene	5 µg/L	<5	<5	0.0
		n-Butylbenzene	5 µg/L	<5	<5	0.0
EP074B: Oxygenated Compounds						
EP074B: Oxygenated Compounds - (QC Lot: 50458)				µg/L	µg/L	%
ES0501662-006	Anonymous	Vinyl Acetate	50 µg/L	<50	<50	0.0
		2-Butanone (MEK)	50 µg/L	<50	<50	0.0
		4-Methyl-2-pentanone (MIBK)	50 µg/L	<50	<50	0.0
		2-Hexanone (MBK)	50 µg/L	<50	<50	0.0
ES0501818-004	Anonymous	Vinyl Acetate	50 µg/L	<50	<50	0.0
		2-Butanone (MEK)	50 µg/L	<50	<50	0.0
		4-Methyl-2-pentanone (MIBK)	50 µg/L	<50	<50	0.0
		2-Hexanone (MBK)	50 µg/L	<50	<50	0.0

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074C: Sulfonated Compounds						
EP074C: Sulfonated Compounds - (QC Lot: 50458)				µg/L	µg/L	%
ES0501662-006	Anonymous	Carbon disulfide	5 µg/L	<5	<5	0.0
ES0501818-004	Anonymous	Carbon disulfide	5 µg/L	<5	<5	0.0
EP074D: Fumigants						
EP074D: Fumigants - (QC Lot: 50458)				µg/L	µg/L	%
ES0501662-006	Anonymous	2,2-Dichloropropane	5 µg/L	<5	<5	0.0
		1,2-Dichloropropane	5 µg/L	<5	<5	0.0
		cis-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		trans-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		1,2-Dibromoethane (EDB)	5 µg/L	<5	<5	0.0
ES0501818-004	Anonymous	2,2-Dichloropropane	5 µg/L	<5	<5	0.0
		1,2-Dichloropropane	5 µg/L	<5	<5	0.0
		cis-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		trans-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		1,2-Dibromoethane (EDB)	5 µg/L	<5	<5	0.0

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074E: Halogenated Aliphatic Compounds						
				µg/L	µg/L	%
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 50458)						
ES0501662-006	Anonymous	Dichlorodifluoromethane	50 µg/L	<50	<50	0.0
		Chloromethane	50 µg/L	<50	<50	0.0
		Vinyl chloride	50 µg/L	<50	<50	0.0
		Bromomethane	50 µg/L	<50	<50	0.0
		Chloroethane	50 µg/L	<50	<50	0.0
		Trichlorofluoromethane	50 µg/L	<50	<50	0.0
		1,1-Dichloroethene	5 µg/L	<5	<5	0.0
		Iodomethane	5 µg/L	<5	<5	0.0
		trans-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1-Dichloroethane	5 µg/L	<5	<5	0.0
		cis-1,2-Dichloroethene	5 µg/L	13	13	0.0
		1,1,1-Trichloroethane	5 µg/L	<5	<5	0.0
		1,1-Dichloropropylene	5 µg/L	<5	<5	0.0
		Carbon Tetrachloride	5 µg/L	<5	<5	0.0
		1,2-Dichloroethane	5 µg/L	<5	<5	0.0
		Trichloroethene	5 µg/L	129	126	2.2
		Dibromomethane	5 µg/L	<5	<5	0.0
		1,1,2-Trichloroethane	5 µg/L	<5	<5	0.0
		1,3-Dichloropropane	5 µg/L	<5	<5	0.0
		Tetrachloroethene	5 µg/L	<5	<5	0.0
		1,1,1,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		trans-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		cis-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		1,1,2,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		1,2,3-Trichloropropane	5 µg/L	<5	<5	0.0
		Pentachloroethane	5 µg/L	<5	<5	0.0
		1,2-Dibromo-3-chloropropane	5 µg/L	<5	<5	0.0
		Hexachlorobutadiene	5 µg/L	<5	<5	0.0
ES0501818-004	Anonymous	Dichlorodifluoromethane	50 µg/L	<50	<50	0.0
		Chloromethane	50 µg/L	<50	<50	0.0
		Vinyl chloride	50 µg/L	<50	<50	0.0
		Bromomethane	50 µg/L	<50	<50	0.0
		Chloroethane	50 µg/L	<50	<50	0.0
		Trichlorofluoromethane	50 µg/L	<50	<50	0.0
		1,1-Dichloroethene	5 µg/L	<5	<5	0.0
		Iodomethane	5 µg/L	<5	<5	0.0
		trans-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1-Dichloroethane	5 µg/L	<5	<5	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
ES0501818-004	Anonymous	cis-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1,1-Trichloroethane	5 µg/L	<5	<5	0.0
		1,1-Dichloropropylene	5 µg/L	<5	<5	0.0
		Carbon Tetrachloride	5 µg/L	<5	<5	0.0
		1,2-Dichloroethane	5 µg/L	<5	<5	0.0
		Trichloroethene	5 µg/L	<5	<5	0.0
		Dibromomethane	5 µg/L	<5	<5	0.0
		1,1,2-Trichloroethane	5 µg/L	<5	<5	0.0
		1,3-Dichloropropane	5 µg/L	<5	<5	0.0
		Tetrachloroethene	5 µg/L	<5	<5	0.0
		1,1,1,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		trans-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		cis-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		1,1,2,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		1,2,3-Trichloropropane	5 µg/L	<5	<5	0.0
		Pentachloroethane	5 µg/L	<5	<5	0.0
		1,2-Dibromo-3-chloropropane	5 µg/L	<5	<5	0.0
		Hexachlorobutadiene	5 µg/L	<5	<5	0.0
EP074F: Halogenated Aromatic Compounds						
EP074F: Halogenated Aromatic Compounds - (QC Lot: 50458)				µg/L	µg/L	%
ES0501662-006	Anonymous	Chlorobenzene	5 µg/L	<5	<5	0.0
		Bromobenzene	5 µg/L	<5	<5	0.0
		2-Chlorotoluene	5 µg/L	<5	<5	0.0
		4-Chlorotoluene	5 µg/L	<5	<5	0.0
		1,3-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,4-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,3-Trichlorobenzene	5 µg/L	<5	<5	0.0
ES0501818-004	Anonymous	Chlorobenzene	5 µg/L	<5	<5	0.0
		Bromobenzene	5 µg/L	<5	<5	0.0
		2-Chlorotoluene	5 µg/L	<5	<5	0.0
		4-Chlorotoluene	5 µg/L	<5	<5	0.0
		1,3-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,4-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,3-Trichlorobenzene	5 µg/L	<5	<5	0.0

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074G: Trihalomethanes						
EP074G: Trihalomethanes - (QC Lot: 50458)				µg/L	µg/L	%
ES0501662-006	Anonymous	Chloroform	5 µg/L	<5	<5	0.0
		Bromodichloromethane	5 µg/L	<5	<5	0.0
		Dibromochloromethane	5 µg/L	<5	<5	0.0
		Bromoform	5 µg/L	<5	<5	0.0
ES0501818-004	Anonymous	Chloroform	5 µg/L	17	17	0.0
		Bromodichloromethane	5 µg/L	12	12	0.0
		Dibromochloromethane	5 µg/L	7	7	0.0
		Bromoform	5 µg/L	<5	<5	0.0
EP074H: Naphthalene						
EP074H: Naphthalene - (QC Lot: 50458)				µg/L	µg/L	%
ES0501662-006	Anonymous	Naphthalene	5 µg/L	35	39	9.6
ES0501818-004	Anonymous	Naphthalene	5 µg/L	<5	<5	0.0
EP080/071: Total Petroleum Hydrocarbons						
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 48804)				µg/L	µg/L	%
ES0501638-001	Anonymous	C6 - C9 Fraction	20 µg/L	<20	<20	0.0
ES0501656-005	Anonymous	C6 - C9 Fraction	20 µg/L	<20	<20	0.0
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 50189)				µg/L	µg/L	%
ES0501668-008	DUP4	C6 - C9 Fraction	20 µg/L	<20	<20	0.0
ES0501711-002	Anonymous	C6 - C9 Fraction	20 µg/L	<20	<20	0.0
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 50459)				µg/L	µg/L	%
ES0501662-006	Anonymous	C6 - C9 Fraction	20 µg/L	1980	2000	0.9
ES0501818-004	Anonymous	C6 - C9 Fraction	20 µg/L	<20	<20	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP080: BTEX						
EP080: BTEX - (QC Lot: 48804)				µg/L	µg/L	%
ES0501638-001	Anonymous	Benzene	1 µg/L	<1	<1	0.0
		Toluene	2 µg/L	<2	<2	0.0
		Ethylbenzene	2 µg/L	<2	<2	0.0
		meta- & para-Xylene	2 µg/L	<2	<2	0.0
		ortho-Xylene	2 µg/L	<2	<2	0.0
ES0501656-005	Anonymous	Benzene	1 µg/L	<1	<1	0.0
		Toluene	2 µg/L	<2	<2	0.0
		Ethylbenzene	2 µg/L	<2	<2	0.0
		meta- & para-Xylene	2 µg/L	<2	<2	0.0
		ortho-Xylene	2 µg/L	<2	<2	0.0
EP080: BTEX - (QC Lot: 50189)				µg/L	µg/L	%
ES0501668-008	DUP4	Benzene	1 µg/L	<1	<1	0.0
		Toluene	2 µg/L	<2	<2	0.0
		Ethylbenzene	2 µg/L	<2	<2	0.0
		meta- & para-Xylene	2 µg/L	<2	<2	0.0
		ortho-Xylene	2 µg/L	<2	<2	0.0
ES0501711-002	Anonymous	Benzene	1 µg/L	<1	<1	0.0
		Toluene	2 µg/L	<2	<2	0.0
		Ethylbenzene	2 µg/L	<2	<2	0.0
		meta- & para-Xylene	2 µg/L	<2	<2	0.0
		ortho-Xylene	2 µg/L	<2	<2	0.0
EP080: BTEX - (QC Lot: 50459)				µg/L	µg/L	%
ES0501662-006	Anonymous	Benzene	1 µg/L	2	2	0.0
		Toluene	2 µg/L	38	39	0.0
		Ethylbenzene	2 µg/L	60	61	2.0
		meta- & para-Xylene	2 µg/L	643	641	0.2
		ortho-Xylene	2 µg/L	402	403	0.5
ES0501818-004	Anonymous	Benzene	1 µg/L	<1	<1	0.0
		Toluene	2 µg/L	<2	<2	0.0
		Ethylbenzene	2 µg/L	<2	<2	0.0
		meta- & para-Xylene	2 µg/L	<2	<2	0.0
		ortho-Xylene	2 µg/L	<2	<2	0.0

Quality Control Report - Method Blank (MB) and Laboratory Control Samples (LCS)

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 type is to monitor potential laboratory contamination. The quality control term **Laboratory Control Sample (LCS)** refers to a known, interference free matrix spiked with target analytes or certified reference material. The purpose of this QC type is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of actual laboratory data. Abbreviations: LOR = Limit of

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
ED093F: Dissolved Major Cations						
ED093F: Dissolved Major Cations - (QC Lot: 48930)		mg/L	mg/L	%	%	%
Calcium	1 mg/L	<1	----	----	----	----
	1 mg/L	----	50	99.6	70	130
Magnesium	1 mg/L	<1	----	----	----	----
	1 mg/L	----	50	98.4	70	130
ED093F: Dissolved Major Cations - (QC Lot: 48932)		mg/L	mg/L	%	%	%
Calcium	1 mg/L	<1	----	----	----	----
	1 mg/L	----	50	99.6	70	130
Magnesium	1 mg/L	<1	----	----	----	----
	1 mg/L	----	50	96.7	70	130
ED093F: Dissolved Major Cations - (QC Lot: 49509)		mg/L	mg/L	%	%	%
Calcium	1 mg/L	<1	----	----	----	----
	1 mg/L	----	50	97.5	70	130
Magnesium	1 mg/L	<1	----	----	----	----
	1 mg/L	----	50	98.1	70	130

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EG020T: Total Metals by ICP-MS						
EG020T: Total Metals by ICP-MS - (QC Lot: 48904)		mg/L	mg/L	%	%	%
Arsenic	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	90.5	70	130
Cadmium	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.1	97.8	70	130
Copper	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	94.4	70	130
Lead	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	101	70	130
Nickel	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	96.4	70	130
Zinc	0.005 mg/L	<0.005	----	----	----	----
	0.005 mg/L	----	0.1	102	70	130
EG020T: Total Metals by ICP-MS - (QC Lot: 48906)		mg/L	mg/L	%	%	%
Arsenic	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	92.8	70	130
Cadmium	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.1	97.8	70	130
Copper	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	96.0	70	130
Lead	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	100	70	130
Nickel	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	97.0	70	130
Zinc	0.005 mg/L	<0.005	----	----	----	----
	0.005 mg/L	----	0.1	100	70	130
EG035T: Total Mercury by FIMS						
EG035T: Total Mercury by FIMS - (QC Lot: 50078)		mg/L	mg/L	%	%	%
Mercury	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.010	103	70	130
EG035T: Total Mercury by FIMS - (QC Lot: 50079)		mg/L	mg/L	%	%	%
Mercury	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.010	102	70	130

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EG050T: Hexavalent Chromium - Total						
EG050T: Hexavalent Chromium - Total - (QC Lot: 48684)		mg/L	mg/L	%	%	%
Hexavalent Chromium	0.010 mg/L	<0.100	----	----	----	----
	0.01 mg/L	----	5.0	105	70	130
EK055G: Ammonia as N by Discrete Analyser						
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 50140)		mg/L	mg/L	%	%	%
Ammonia as N	0.010 mg/L	<0.010	----	----	----	----
	0.01 mg/L	----	1.00	113	70	130
EK059G: NOX as N by Discrete Analyser						
EK059G: NOX as N by Discrete Analyser - (QC Lot: 48818)		mg/L	mg/L	%	%	%
Nitrite + Nitrate as N	0.01 mg/L	----	0.96	95.7	70	130
	0.010 mg/L	<0.010	----	----	----	----
EK061: Total Kjeldahl Nitrogen (TKN)						
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 48939)		mg/L	mg/L	%	%	%
Total Kjeldahl Nitrogen as N	0.1 mg/L	<0.1	----	----	----	----
	0.1 mg/L	----	10.0	105	70	130
EP005: Total Organic Carbon (TOC)						
EP005: Total Organic Carbon (TOC) - (QC Lot: 49042)		mg/L	mg/L	%	%	%
Total Organic Carbon	1 mg/L	<1	----	----	----	----
	1 mg/L	----	10	89.0	70	130
EP005: Total Organic Carbon (TOC) - (QC Lot: 49043)		mg/L	mg/L	%	%	%
Total Organic Carbon	1 mg/L	<1	----	----	----	----
	1 mg/L	----	5	115	70	130
EP026: Chemical Oxygen Demand (COD)						
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 50060)		mg/L	mg/L	%	%	%
Chemical Oxygen Demand	5 mg/L	<5	----	----	----	----
	5 mg/L	----	100	100	70	130
	5 mg/L	----	500	94.0	70	130
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 50066)		mg/L	mg/L	%	%	%
Chemical Oxygen Demand	5 mg/L	<5	----	----	----	----
	5 mg/L	----	100	104	70	130
	5 mg/L	----	500	92.2	70	130

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP030: Biochemical Oxygen Demand (BOD)						
EP030: Biochemical Oxygen Demand (BOD) - (QC Lot: 48685)		mg/L	mg/L	%	%	%
Biochemical Oxygen Demand	2 mg/L	<2	----	----	----	----
	2 mg/L	----	200	98.5	70	130
EP030: Biochemical Oxygen Demand (BOD) - (QC Lot: 48686)		mg/L	mg/L	%	%	%
Biochemical Oxygen Demand	2 mg/L	<2	----	----	----	----
	2 mg/L	----	200	93.0	70	130
EP074A: Monocyclic Aromatic Hydrocarbons						
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 50458)		µg/L	µg/L	%	%	%
Benzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	113	71	126
Toluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	118	73	123
Ethylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	94.0	74	126
meta- & para-Xylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	20	94.8	45	125
Styrene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	94.6	76	125
ortho-Xylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	98.5	72	125
Isopropylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	92.1	75	125
n-Propylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	84.0	73	123
1,3,5-Trimethylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	84.4	76	126
sec-Butylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	84.4	78	124
1,2,4-Trimethylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	84.2	74	123
tert-Butylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	87.2	72	123
p-Isopropyltoluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	82.5	76	126
n-Butylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	83.3	75	128

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074B: Oxygenated Compounds						
EP074B: Oxygenated Compounds - (QC Lot: 50458)		µg/L	µg/L	%	%	%
Vinyl Acetate	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	95.6	70	125
2-Butanone (MEK)	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	111	70	130
4-Methyl-2-pentanone (MIBK)	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	108	70	130
2-Hexanone (MBK)	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	115	72	125
EP074C: Sulfonated Compounds						
EP074C: Sulfonated Compounds - (QC Lot: 50458)		µg/L	µg/L	%	%	%
Carbon disulfide	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	111	76	126
EP074D: Fumigants						
EP074D: Fumigants - (QC Lot: 50458)		µg/L	µg/L	%	%	%
2,2-Dichloropropane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	107	76	126
1,2-Dichloropropane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	100	76	126
cis-1,3-Dichloropropylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	20	93.9	72	125
trans-1,3-Dichloropropylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	20	101	73	128
1,2-Dibromoethane (EDB)	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	110	72	126

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074E: Halogenated Aliphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 50458)		µg/L	µg/L	%	%	%
Dichlorodifluoromethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	116	70	129
Chloromethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	100	76	118
Vinyl chloride	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	104	70	126
Bromomethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	91.6	71	123
Chloroethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	109	76	120
Trichlorofluoromethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	102	76	126
1,1-Dichloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	107	76	125
Iodomethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	98.0	70	129
trans-1,2-Dichloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	81.4	76	126
1,1-Dichloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	99.5	80	126
cis-1,2-Dichloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	97.6	72	126
1,1,1-Trichloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	86.2	73	126
1,1-Dichloropropylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	90.6	74	126
Carbon Tetrachloride	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	100	76	126
1,2-Dichloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	108	75	123
Trichloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	105	74	124
Dibromomethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	98.4	73	125
1,1,2-Trichloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	107	75	120
1,3-Dichloropropane	5 µg/L	<5	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074E: Halogenated Aliphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 50458)		µg/L	µg/L	%	%	%
1,3-Dichloropropane	5 µg/L	----	10	111	76	120
Tetrachloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	94.1	78	125
1,1,1,2-Tetrachloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	103	76	124
trans-1,4-Dichloro-2-butene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	109	76	126
cis-1,4-Dichloro-2-butene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	79.1	75	125
1,1,2,2-Tetrachloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	113	73	124
1,2,3-Trichloropropane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	114	76	123
Pentachloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	95.8	75	126
1,2-Dibromo-3-chloropropane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	98.3	72	122
Hexachlorobutadiene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	88.5	76	124

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074F: Halogenated Aromatic Compounds						
EP074F: Halogenated Aromatic Compounds - (QC Lot: 50458)		µg/L	µg/L	%	%	%
Chlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	102	72	125
Bromobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	88.4	71	126
2-Chlorotoluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	85.6	70	128
4-Chlorotoluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	87.2	75	123
1,3-Dichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	89.8	74	126
1,4-Dichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	89.0	75	128
1,2-Dichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	94.0	75	126
1,2,4-Trichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	82.5	74	124
1,2,3-Trichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	94.1	74	123
EP074G: Trihalomethanes						
EP074G: Trihalomethanes - (QC Lot: 50458)		µg/L	µg/L	%	%	%
Chloroform	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	98.0	72	127
Bromodichloromethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	88.7	74	125
Dibromochloromethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	102	75	126
Bromoform	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	112	72	126
EP074H: Naphthalene						
EP074H: Naphthalene - (QC Lot: 50458)		µg/L	µg/L	%	%	%
Naphthalene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	100	73	125

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 49393)		µg/L	µg/L	%	%	%
Naphthalene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	93.8	72	111
Acenaphthylene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	92.9	77	110
Acenaphthene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	98.4	74	111
Fluorene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	94.8	73	110
Phenanthrene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	93.4	75	112
Anthracene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	94.5	77	107
Fluoranthene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	92.2	70	113
Pyrene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	98.9	65	109
Benz(a)anthracene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	94.8	78	107
Chrysene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	99.8	76	109
Benzo(b)fluoranthene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	96.6	55	118
Benzo(k)fluoranthene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	94.9	67	114
Benzo(a)pyrene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	92.0	73	112
Indeno(1,2,3,cd)pyrene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	91.6	68	109
Dibenz(a,h)anthracene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	91.1	66	109
Benzo(g,h,i)perylene	1.0 µg/L	<1.0	----	----	----	----
	0.2 µg/L	----	2	91.6	66	107

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075A: Phenolic Compounds						
EP075A: Phenolic Compounds - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Phenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	50.0	21	69
2-Chlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.2	63	115
2-Methylphenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.1	48	109
3- & 4-Methylphenol	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	76.0	35	103
2-Nitrophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.9	62	113
2,4-Dimethylphenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.6	46	123
2,4-Dichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	73.2	60	113
2,6-Dichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	73.6	57	121
4-Chloro-3-Methylphenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.5	52	122
2,4,6-Trichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.6	53	121
2,4,5-Trichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.2	46	126
Pentachlorophenol	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	77.0	4	101

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075B: Polynuclear Aromatic Hydrocarbons						
EP075B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Naphthalene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	74.8	63	111
2-Methylnaphthalene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	78.7	58	119
2-Chloronaphthalene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.2	58	120
Acenaphthylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.1	59	120
Acenaphthene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.1	67	116
Fluorene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.7	67	112
Phenanthrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.1	68	107
Anthracene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.1	68	110
Fluoranthene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.7	67	107
Pyrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.9	64	109
N-2-Fluorenyl Acetamide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.2	60	109
Benz(a)anthracene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.4	63	112
Chrysene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.6	65	115
Benzo(b) & Benzo(k)fluoranthene	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	78.1	60	118
7,12-Dimethylbenz(a)anthracene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	73.9	39	107
Benzo(a)pyrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.8	64	115
3-Methylcholanthrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.8	50	105
Indeno(1,2,3,cd)pyrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.6	55	103
Dibenz(a,h)anthracene	2 µg/L	<2	----	----	----	----

ALS Environmental

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075B: Polynuclear Aromatic Hydrocarbons						
EP075B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Dibenz(a,h)anthracene	2 µg/L	----	5	81.6	54	105
Benzo(g,h,i)perylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.0	55	105
EP075C: Phthalate Esters						
EP075C: Phthalate Esters - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Dimethyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.6	61	122
Diethyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.8	71	117
Di-n-butyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.9	70	115
Butyl benzyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.8	64	112
bis(2-ethylhexyl) phthalate	20 µg/L	<20	----	----	----	----
	20 µg/L	----	5	102	71	119
Di-n-octylphthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.4	74	110

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075D: Nitrosamines						
EP075D: Nitrosamines - (QC Lot: 49392)		µg/L	µg/L	%	%	%
N-Nitrosomethylethylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	99.3	50	125
N-Nitrosodiethylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	94.4	65	118
N-Nitrosopyrrolidine	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	75.2	23	99
N-Nitrosomorpholine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.3	31	109
N-Nitrosodi-n-propylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	95.8	69	112
N-Nitrosopiperidine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.6	72	105
N-Nitrosodibutylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	94.8	67	111
N-Nitrosodiphenyl & Diphenylamine	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	83.6	64	124
Methapyrilene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	31.5	11	148

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075E: Nitroaromatics and Ketones						
EP075E: Nitroaromatics and Ketones - (QC Lot: 49392)		µg/L	µg/L	%	%	%
2-Picoline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	50.9	16	128
Acetophenone	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	94.9	74	112
Nitrobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	96.1	79	110
Isophorone	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.0	78	108
2,6-Dinitrotoluene	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	87.5	58	121
2,4-Dinitrotoluene	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	101	59	125
1-Naphthylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.5	49	109
4-Nitroquinoline-N-oxide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	64.0	9	124
5-Nitro-o-toluidine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.6	56	122
Azobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	93.7	73	110
1,3,5-Trinitrobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	95.3	46	125
Phenacetin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	93.0	62	104
4-Aminobiphenyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	78.5	23	123
Pentachloronitrobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	99.2	63	112
Pronamide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.6	57	114
Dimethylaminoazobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.5	62	109
Chlorobenzilate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.6	62	114

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075F: Haloethers						
EP075F: Haloethers - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Bis(2-chloroethyl) ether	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	100	81	111
Bis(2-chloroethoxy) methane	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	100	74	111
4-Chlorophenyl phenyl ether	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.5	67	113
4-Bromophenyl phenyl ether	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	74.8	63	117
EP075G: Chlorinated Hydrocarbons						
EP075G: Chlorinated Hydrocarbons - (QC Lot: 49392)		µg/L	µg/L	%	%	%
1,4-Dichlorobenzene	2 µg/L	<2	----	----	----	----
1,3-Dichlorobenzene	2 µg/L	<2	----	----	----	----
1,4-Dichlorobenzene	2 µg/L	----	5	79.8	45	121
1,3-Dichlorobenzene	2 µg/L	----	5	78.0	45	122
1,2-Dichlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.4	48	117
Hexachloroethane	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.6	34	117
1,2,4-Trichlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.2	43	119
Hexachloropropylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	73.3	32	114
Hexachlorobutadiene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.2	39	117
Hexachlorocyclopentadiene	10 µg/L	<10	----	----	----	----
	10 µg/L	----	5	41.0	0	119
Pentachlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.2	64	118
Hexachlorobenzene (HCB)	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	80.7	66	119

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075H: Anilines and Benzidines						
EP075H: Anilines and Benzidines - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Aniline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	49.4	6	121
4-Chloroaniline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.3	40	118
2-Nitroaniline	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	83.0	60	113
3-Nitroaniline	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	78.3	55	110
Dibenzofuran	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.3	70	116
4-Nitroaniline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.8	46	117
Carbazole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.5	69	109
3,3'-Dichlorobenzidine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.1	48	138

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075I: Organochlorine Pesticides						
EP075I: Organochlorine Pesticides - (QC Lot: 49392)		µg/L	µg/L	%	%	%
alpha-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.7	71	114
beta-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	94.6	67	118
gamma-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.3	67	118
delta-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.7	70	105
Heptachlor	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.3	71	101
Aldrin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.6	70	102
Heptachlor epoxide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.0	68	108
alpha-Endosulfan	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.5	68	108
4,4'-DDE	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.2	65	109
Dieldrin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.6	76	107
Endrin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.8	66	108
beta-Endosulfan	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.0	67	113
4,4'-DDD	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.3	61	117
Endosulfan sulfate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.7	61	117
4,4'-DDT	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	74.3	54	113

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075J: Organophosphorus Pesticides						
EP075J: Organophosphorus Pesticides - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Dichlorvos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	100	72	107
Dimethoate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	101	63	107
Diazinon	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.4	62	113
Chlorpyrifos-methyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.6	72	103
Malathion	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.4	77	110
Fenthion	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.5	63	111
Chlorpyrifos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.0	68	110
Pirimphos-ethyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.8	59	112
Chlorfenvinphos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	6	90.2	48	125
Prothiofos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.3	67	108
Ethion	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.0	59	113

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075K: Miscellaneous Compounds						
EP075K: Miscellaneous Compounds - (QC Lot: 49392)		µg/L	µg/L	%	%	%
1,3,5-Trichlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.3	18	138
1,2,4,5-Tetrachlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.9	26	137
Methanesulfonate methyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	63.7	19	124
Methanesulfonate ethyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.4	70	109
cis-Isosafrole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	74.8	65	113
trans-Isosafrole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.7	65	115
Safrole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.5	68	105
Diallate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	102	77	113
2,3,4,6-Tetrachlorophenol	2 µg/L	<2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 48804)		µg/L	µg/L	%	%	%
C6 - C9 Fraction	20 µg/L	<20	----	----	----	----
	20 µg/L	----	260	98.7	80	120
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 49391)		µg/L	µg/L	%	%	%
C10 - C14 Fraction	50 µg/L	<50	----	----	----	----
	50 µg/L	----	200	110	75	134
C15 - C28 Fraction	100 µg/L	<100	----	----	----	----
	100 µg/L	----	200	121	87	132
C29 - C36 Fraction	50 µg/L	<50	----	----	----	----
	50 µg/L	----	200	101	80	126
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 50189)		µg/L	µg/L	%	%	%
C6 - C9 Fraction	20 µg/L	----	260	96.3	80	120
	20 µg/L	<20	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 50459)		µg/L	µg/L	%	%	%
C6 - C9 Fraction	20 µg/L	<20	----	----	----	----
	20 µg/L	----	260	98.5	80	120

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP080: BTEX						
EP080: BTEX - (QC Lot: 48804)		µg/L	µg/L	%	%	%
Benzene	1 µg/L	----	10	99.4	78	125
	1 µg/L	<1	----	----	----	----
Toluene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	10	102	74	126
Ethylbenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	10	105	73	118
meta- & para-Xylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	10	104	78	117
ortho-Xylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	10	98.9	75	119
EP080: BTEX - (QC Lot: 50189)		µg/L	µg/L	%	%	%
Benzene	1 µg/L	----	10	96.1	78	125
	1 µg/L	<1	----	----	----	----
Toluene	2 µg/L	----	10	92.3	74	126
	2 µg/L	<2	----	----	----	----
Ethylbenzene	2 µg/L	----	10	94.2	73	118
	2 µg/L	<2	----	----	----	----
meta- & para-Xylene	2 µg/L	----	10	91.6	78	117
	2 µg/L	<2	----	----	----	----
ortho-Xylene	2 µg/L	----	10	96.0	75	119
	2 µg/L	<2	----	----	----	----
EP080: BTEX - (QC Lot: 50459)		µg/L	µg/L	%	%	%
Benzene	1 µg/L	<1	----	----	----	----
	1 µg/L	----	10	99.7	78	125
Toluene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	10	106	74	126
Ethylbenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	10	90.7	73	118
meta- & para-Xylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	10	106	78	117
ortho-Xylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	10	97.3	75	119

Quality Control Report - Matrix Spikes (MS)

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 type is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQO's). 'Ideal' recovery ranges stated may be waived in the event of sample matrix interferences. - Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations:* ***LOR*** *= Limit of Reporting,* ***RPD*** *= Relative Percent Difference.*

* Indicates failed QC

Matrix Type: WATER

					Actual Results		Recovery Limits	
					Sample Result	Spike Recovery	Static Limits	
Analyte name	Laboratory Sample ID	Client Sample ID	LOR	Spike Concentration		MS	Low	High
EG020T: Total Metals by ICP-MS								
				mg/L	mg/L	%	%	%
EG020T: Total Metals by ICP-MS - (QC Lot: 48904)								
Arsenic	ES0501651-015	Anonymous	0.001 mg/L	1	<0.001	102	70	130
Cadmium			0.0001 mg/L	0.25	<0.0001	103	70	130
Copper			0.001 mg/L	1	<0.001	99.2	70	130
Lead			0.001 mg/L	1	<0.001	97.3	70	130
Nickel			0.001 mg/L	1	0.001	102	70	130
Zinc			0.005 mg/L	1	<0.005	106	70	130
				mg/L	mg/L	%	%	%
EG020T: Total Metals by ICP-MS - (QC Lot: 48906)								
Arsenic	ES0501668-008	DUP4	0.001 mg/L	1	0.019	112	70	130
Cadmium			0.0001 mg/L	0.25	0.0004	112	70	130
Copper			0.001 mg/L	1	0.210	112	70	130
Lead			0.001 mg/L	1	0.122	105	70	130
Nickel			0.001 mg/L	1	0.072	115	70	130
Zinc			0.005 mg/L	1	0.289	122	70	130
EG035T: Total Mercury by FIMS								
				mg/L	mg/L	%	%	%
EG035T: Total Mercury by FIMS - (QC Lot: 50078)								
Mercury	ES0501640-004	Anonymous	0.0001 mg/L	0.010	0.0004	76.8	70	130
				mg/L	mg/L	%	%	%
EG035T: Total Mercury by FIMS - (QC Lot: 50079)								
Mercury	ES0501668-011	RINSATE 2	0.0001 mg/L	0.010	<0.0001	83.1	70	130
EG050T: Hexavalent Chromium - Total								
				mg/L	mg/L	%	%	%
EG050T: Hexavalent Chromium - Total - (QC Lot: 48684)								
Hexavalent Chromium	ES0501668-001	MW42D	0.01 mg/L	5.0	<0.100	115	70	130
EK055G: Ammonia as N by Discrete Analyser								
				mg/L	mg/L	%	%	%
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 50140)								
Ammonia as N	ES0501668-001	MW42D	0.01 mg/L	10.00	0.114	115	70	130
EK059G: NOX as N by Discrete Analyser								
				mg/L	mg/L	%	%	%
EK059G: NOX as N by Discrete Analyser - (QC Lot: 48818)								
Nitrite + Nitrate as N	ES0501581-001	Anonymous	0.01 mg/L	0.60	5.95	* Not Determined	70	130

ALS Environmental

Matrix Type: WATER

					Actual Results		Recovery Limits Static Limits	
					Sample Result	Spike Recovery		
Analyte name	*Laboratory Sample ID*	*Client Sample ID*	*LOR*	*Spike Concentration*		*MS*	*Low*	*High*
EK061: Total Kjeldahl Nitrogen (TKN)								
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 48939)				mg/L	mg/L	%	%	%
Total Kjeldahl Nitrogen as N	ES0501581-001	Anonymous	0.1 mg/L	5.0	0.5	119	70	130
EP005: Total Organic Carbon (TOC)								
EP005: Total Organic Carbon (TOC) - (QC Lot: 49042)				mg/L	mg/L	%	%	%
Total Organic Carbon	ES0501651-015	Anonymous	1 mg/L	100	<1	88.0	70	130
EP005: Total Organic Carbon (TOC) - (QC Lot: 49043)				mg/L	mg/L	%	%	%
Total Organic Carbon	ES0501668-010	RINSATE 1	1 mg/L	100	<1	78.0	70	130
EP026: Chemical Oxygen Demand (COD)								
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 50060)				mg/L	mg/L	%	%	%
Chemical Oxygen Demand	ES0501646-001	Anonymous	5 mg/L	143	8	108	70	130
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 50066)				mg/L	mg/L	%	%	%
Chemical Oxygen Demand	ES0501668-010	RINSATE 1	5 mg/L	143	7	106	70	130
EP074A: Monocyclic Aromatic Hydrocarbons								
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 50458)				µg/L	µg/L	%	%	%
Benzene	ES0501662-006	Anonymous	5 µg/L	25	<5	106	70	130
Toluene			5 µg/L	25	38	100	70	130
EP074E: Halogenated Aliphatic Compounds								
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 50458)				µg/L	µg/L	%	%	%
1,1-Dichloroethene	ES0501662-006	Anonymous	5 µg/L	25	<5	91.1	70	130
Trichloroethene			5 µg/L	25	129	* Not Determined	70	130
EP074F: Halogenated Aromatic Compounds								
EP074F: Halogenated Aromatic Compounds - (QC Lot: 50458)				µg/L	µg/L	%	%	%
Chlorobenzene	ES0501662-006	Anonymous	5 µg/L	25	<5	97.8	70	130
EP080/071: Total Petroleum Hydrocarbons								
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 48804)				µg/L	µg/L	%	%	%
C6 - C9 Fraction	ES0501638-002	Anonymous	20 µg/L	250	<20	98.5	80	120
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 50189)				µg/L	µg/L	%	%	%
C6 - C9 Fraction	ES0501668-010	RINSATE 1	20 µg/L	250	<20	97.8	80	120
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 50459)				µg/L	µg/L	%	%	%
C6 - C9 Fraction	ES0501662-007	Anonymous	20 µg/L	250	<20	106	80	120
EP080: BTEX								
EP080: BTEX - (QC Lot: 48804)				µg/L	µg/L	%	%	%
Benzene	ES0501638-002	Anonymous	1 µg/L	25	<1	102	80	120

Matrix Type: WATER

					Actual Results		Recovery Limits	
					Sample Result	Spike Recovery	Static Limits	
Analyte name	*Laboratory Sample ID*	*Client Sample ID*	*LOR*	*Spike Concentration*		*MS*	*Low*	*High*
Toluene	ES0501638-002	Anonymous	2 µg/L	25	<2	104	80	120
Ethylbenzene			2 µg/L	25	<2	103	80	120
meta- & para-Xylene			2 µg/L	25	<2	99.4	80	120
ortho-Xylene			2 µg/L	25	<2	101	80	120
EP080: BTEX - (QC Lot: 50189)				µg/L	µg/L	%	%	%
Benzene	ES0501668-010	RINSATE 1	1 µg/L	25	<1	102	80	120
Toluene			2 µg/L	25	<2	96.4	80	120
Ethylbenzene			2 µg/L	25	<2	102	80	120
meta- & para-Xylene			2 µg/L	25	<2	100	80	120
ortho-Xylene			2 µg/L	25	<2	95.0	80	120
EP080: BTEX - (QC Lot: 50459)				µg/L	µg/L	%	%	%
Benzene	ES0501662-007	Anonymous	1 µg/L	25	<1	95.2	80	120
Toluene			2 µg/L	25	<2	94.2	80	120
Ethylbenzene			2 µg/L	25	<2	95.3	80	120
meta- & para-Xylene			2 µg/L	25	<2	93.8	80	120
ortho-Xylene			2 µg/L	25	<2	94.0	80	120

ALS Environmental

INTERPRETIVE QUALITY CONTROL REPORT

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	:	ALS Environmental Sydney	**Page**	: 1 of 10
Contact	:	MS LOUSIE MACDONALD	**Contact**	:	Greg Vogel		
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	:	277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	: **ES0501668**
						Amendment No.	: 1
Project	:	EN01669	**Quote number**	:	----	**Date received**	: 4 Mar 2005
Order number	:	- Not provided -				**Date issued**	: 17 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	:	Greg.Vogel@alsenviro.com	**No. of samples**	
Telephone	:	(02) 9928-2100	**Telephone**	:	61-2-87848555	**Received**	: 11
Facsimile	:	(02) 9928-2272	**Facsimile**	:	61-2-87848500	**Analysed**	: 11

This Interpretive Quality Control Report was issued on 17 Mar 2005 for the ALS work order reference ES0501668 and supersedes any previous reports with this reference.
This report contains the following information:

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

ALS Environmental

Interpretive Quality Control Report - Analysis Holding Time

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 preclude subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the sample aliquot was taken. Elapsed time to analysis represents time from sampling where no extraction / digestion is involved or time from extraction / digestion where this is present. For composite samples, sampling date/time is taken as that of the oldest sample contributing to that composite. Sample date/time for laboratory produced leaches are taken from the completion date/time of the leaching process. Outliers for holding time are based on USEPA SW846, APHA, AS and NEPM (1999). Failed outliers, refer to the 'Summary of Outliers'.

Matrix Type: WATER

Analysis Holding Time and Preservation

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
ED093F: Major Cations - Filtered							
Clear Plastic Bottle - Natural							
MW42D, MW42S, MW37D, MW37S	**3 Mar 2005**	----	----	----	**8 Mar 2005**	31 Mar 2005	Pass
Clear Plastic Bottle - Natural							
MW03D, MW36D, MW38D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	----	----	----	**9 Mar 2005**	31 Mar 2005	Pass
EG020A-T: Total Metals by ICP-MS - Suite A							
Clear Plastic Bottle - Nitric Acid; Unfiltered							
MW42D, MW42S, MW37D, MW37S, MW03D, MW36D, MW38D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	**8 Mar 2005**	30 Aug 2005	Pass	**10 Mar 2005**	30 Aug 2005	Pass
EG035T: Total Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered							
MW42D, MW42S, MW37D, MW37S, MW03D, MW36D, MW38D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	----	----	----	**10 Mar 2005**	31 Mar 2005	Pass
EG050G-T: Hexavalent Chromium by Discrete Analyser - Total							
Clear Plastic Bottle - Natural							
MW42D, MW42S, MW37D, MW37S, MW03D, MW36D, MW38D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	----	----	----	**7 Mar 2005**	4 Mar 2005	**Fail by 2 days**
EK055G: Ammonia as N by Discreate analyser							
Clear Plastic Bottle - Sulphuric Acid							
MW42D, MW42S, MW37D, MW37S, MW03D, MW36D, MW38D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	----	----	----	**14 Mar 2005**	31 Mar 2005	Pass
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser							

Matrix Type: WATER

Analysis Holding Time and Preservation

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser - continued							
Clear Plastic Bottle - Natural MW42D, MW42S, MW37D, MW37S, MW03D, MW36D, MW38D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	----	----	----	**8 Mar 2005**	5 Mar 2005	**Fail by 2 days**
EK061: Total Kjeldahl Nitrogen as N							
Clear Plastic Bottle - Sulphuric Acid MW42D, MW42S, MW37D, MW37S, MW03D, MW36D, MW38D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	**8 Mar 2005**	31 Mar 2005	Pass	**8 Mar 2005**	31 Mar 2005	Pass
EP005: Total Organic Carbon							
Amber TOC Vial- Sulphuric Acid MW36D, MW38D	**2 Mar 2005**	----	----	----	**8 Mar 2005**	30 Mar 2005	Pass
Amber TOC Vial- Sulphuric Acid MW42D, MW42S, MW37D, MW37S, MW03D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	----	----	----	**8 Mar 2005**	31 Mar 2005	Pass
EP026: Chemical Oxygen Demand (COD)							
Clear Plastic Bottle - Sulphuric Acid MW42D, MW42S, MW37D, MW37S, MW03D, MW36D, MW38D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	----	----	----	**11 Mar 2005**	31 Mar 2005	Pass
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural MW42D, MW42S, MW37D, MW37S, MW03D, MW36D, MW38D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	----	----	----	**5 Mar 2005**	5 Mar 2005	Pass
EP071: TPH - Semivolatile Fraction							
Amber Glass Bottle - Unpreserved MW42D, MW42S, MW37D, MW37S, MW03D, MW36D, MW38D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	**9 Mar 2005**	10 Mar 2005	Pass	**10 Mar 2005**	18 Apr 2005	Pass
EP074: Volatile Organic Compounds							

ALS Environmental

Matrix Type: WATER

Analysis Holding Time and Preservation

Method / Container / Client Sample ID(s)		Date Sampled	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EP074: Volatile Organic Compounds - **continued**								
Amber VOC Vial - HCl								
MW42D,	MW42S,	**3 Mar 2005**	**----**	**----**	**----**	**10 Mar 2005**	17 Mar 2005	Pass
MW37D,	MW37S,							
MW03D,	MW36D,							
MW38D								
EP075(SIM): PAH/Phenols (GC/MS - SIM)								
Amber Glass Bottle - Unpreserved								
DUP4,	RINSATE 1,	**3 Mar 2005**	**9 Mar 2005**	10 Mar 2005	Pass	**11 Mar 2005**	18 Apr 2005	Pass
RINSATE 2								
EP075: Semivolatile Organic Compounds								
Amber Glass Bottle - Unpreserved								
MW42D,	MW42S,	**3 Mar 2005**	**9 Mar 2005**	10 Mar 2005	Pass	**10 Mar 2005**	18 Apr 2005	Pass
MW37D,	MW37S,							
MW03D,	MW36D,							
MW38D								
EP080: TPH Volatiles/BTEX								
Amber VOC Vial - HCl								
TRIP SPIKE		**3 Mar 2005**	**----**	**----**	**----**	**7 Mar 2005**	17 Mar 2005	Pass
Amber VOC Vial - HCl								
MW42D,	MW42S,	**3 Mar 2005**	**----**	**----**	**----**	**10 Mar 2005**	17 Mar 2005	Pass
MW37D,	MW37S,							
MW03D,	MW36D,							
MW38D,	DUP4,							
RINSATE 1,	RINSATE 2							

Interpretive Quality Control Report - Frequency of Quality Control Samples

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which this work order was processed. Actual rate should be greater than or equal to the expected rate.

Frequency of Quality Control Samples

Matrix Type: WATER

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
ED093F: Major Cations - Filtered	5	39	12.8	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-T: Total Metals by ICP-MS - Suite A	3	24	12.5	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035T: Total Mercury by FIMS	4	40	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-T: Hexavalent Chromium by Discrete Analyser - Total	1	10	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	2	18	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	2	19	10.5	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	3	29	10.3	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	2	18	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	3	17	17.6	13.3	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	2	11	18.2	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	6	47	12.8	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Laboratory Control Samples (LCS)					
ED093F: Major Cations - Filtered	3	39	7.7	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-T: Total Metals by ICP-MS - Suite A	2	24	8.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035T: Total Mercury by FIMS	2	40	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-T: Hexavalent Chromium by Discrete Analyser - Total	1	10	10.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	2	29	6.9	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	4	18	22.2	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	2	17	11.8	6.7	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP071: TPH - Semivolatile Fraction	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	11	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP075(SIM): PAH/Phenols (GC/MS - SIM)	1	3	33.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP075: Semivolatile Organic Compounds	1	11	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	3	47	6.4	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement

Matrix Type: WATER

Frequency of Quality Control Samples

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Method Blanks (MB)					
ED093F: Major Cations - Filtered	3	39	7.7	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-T: Total Metals by ICP-MS - Suite A	2	24	8.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035T: Total Mercury by FIMS	2	40	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-T: Hexavalent Chromium by Discrete Analyser - Total	1	10	10.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	2	29	6.9	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	2	18	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	2	17	11.8	6.7	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP071: TPH - Semivolatile Fraction	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	11	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP075(SIM): PAH/Phenols (GC/MS - SIM)	1	3	33.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP075: Semivolatile Organic Compounds	1	11	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	3	47	6.4	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Matrix Spikes (MS)					
EG020A-T: Total Metals by ICP-MS - Suite A	2	24	8.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035T: Total Mercury by FIMS	2	40	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-T: Hexavalent Chromium by Discrete Analyser - Total	1	10	10.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	2	29	6.9	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	2	18	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	11	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	3	47	6.4	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement

Interpretive Quality Control Report - Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged on the 'Quality Control Report'. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). - Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot.

Non-surrogates

Summary of Outliers - Quality Control Samples

Matrix Type: WATER

ALS QC Lot	Matrix Type	Laboratory Sample ID	Client Sample ID	Analyte	Data	Limits	Comment
				Nitrite + Nitrate as N	ND	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP074E: Halogenated Aliphatic Compounds	WATER	ES0501662-006	Anonymous	Trichloroethene	ND	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- **For all matrices, no RPD recovery outliers occur for the duplicate analysis.**
- **For all matrices, no method blank result outliers occur.**
- **For all matrices, no laboratory spike recoveries breaches occur.**

Surrogates

- **For all matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time

The following report highlights outliers within this 'Interpretive Quality Control Report - Analysis Holding Time'.

Summary of Outliers - Analysis Holding times and Preservation

Matrix Type: WATER

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EG050G-T: Hexavalent Chromium by Discrete Analyser - Total							
Clear Plastic Bottle - Natural MW42D, MW42S, MW37D, MW37S, MW03D, MW36D, MW38D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	----	----	----	**7 Mar 2005**	4 Mar 2005	**Fail by 2 days**
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Natural MW42D, MW42S, MW37D, MW37S, MW03D, MW36D, MW38D, DUP4, RINSATE 1, RINSATE 2	**3 Mar 2005**	----	----	----	**8 Mar 2005**	5 Mar 2005	**Fail by 2 days**

Outliers : Frequency of Quality Control Samples

The following report highlights outliers within this 'Interpretive Quality Control Report - Frequency of Quality Control Samples'.

- **No frequency outliers occur.**

Method Reference Summary

The analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house procedure 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 herein. Reference methods from which ALSE methods are based are provided in parenthesis.

Method Reference Summary

Matrix Type: WATER

Preparation Methods

EK061/EK067 : TKN/TP Digestion - APHA 20th ed., 4500 Norg - D; APHA 20th ed., 4500 P - H. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EN25 : Digestion for Total Recoverable Metals - USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ORG14 : Separatory Funnel Extraction of Liquids - 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.

Analytical Methods

EA065 : Hardness as CaCO3 - APHA 20th ed., 2340. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ED093F : Major Cations - Filtered - APHA 20th ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EG020A-T : Total Metals by ICP-MS - Suite A - (APHA 20th ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

EG035T : Total Mercury by FIMS - AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by 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)

EG050G-T : Hexavalent Chromium by Discrete Analyser - Total - APHA 20th ed., 3500 Cr-A & B. Hexavalent chromium is determined directly on water sample by Seal Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK055G : Ammonia as N by Discreate analyser - APHA 20th ed., 4500 NH3+-H Ammonia is determined by direct colorimetry by Seal. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK059G : Nitrite and Nitrate as N (NOx) by Discrete Analyser - APHA 20th ed., 4500 NO3- I. SEAL Method 2-018-1-L February 2003. Combined oxidised Nitrogen (NO2+NO3) is determined by Cadmium Reduction and direct colourimetry by SEAL. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK061 : Total Kjeldahl Nitrogen as N - APHA 20th ed., 4500-Norg-D 100mL water samples are digested using a traditional Kjeldahl digestion followed by determination by FIA. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK062-SYD : Total Nitrogen as N (TKN + Nox) - APHA 20th ed., 4500 N org / NO3. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP005 : Total Organic Carbon - APHA 20th ed., 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Matrix Type: WATER

Method Reference Summary

Analytical Methods

EP026 : Chemical Oxygen Demand (COD) - APHA 20th ed., 5220 B. Samples are digested with a known excess of acidic potassium dichromate solution using silver sulphate as a catalyst. The chromium is reduced from Cr (VI) to Cr (III) by oxygen. The unreacted Cr (VI) can then be titrated with ferrous ammonium sulfate to determine the amount of Cr (VI) consumed. The oxidisable organic matter can be calculated in terms of oxygen equivalents. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP030 : Biochemical Oxygen Demand (BOD) - APHA 20th ed., 5210 B The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP071 : TPH - Semivolatile Fraction - 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)

EP074 : Volatile Organic Compounds - USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP075 : Semivolatile Organic Compounds - 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)

EP075(SIM) : PAH/Phenols (GC/MS - SIM) - 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)

EP080 : TPH Volatiles/BTEX - USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

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CERTIFICATE OF ANALYSIS

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	:	ALS Environmental Sydney	**Page**	: 1 of 10
Contact	:	MS LOUSIE MACDONALD	**Contact**	:	Greg Vogel		
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	:	277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	: **ES0501691**
Project	:	EN01669	**Quote number**	:	----	**Date received**	: 7 Mar 2005
Order number	:	- Not provided -				**Date issued**	: 17 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	:	Greg.Vogel@alsenviro.com	**No. of samples**	
Telephone	:	(02) 9928-2100	**Telephone**	:	61-2-87848555	**Received**	: 3
Facsimile	:	(02) 9928-2272	**Facsimile**	:	61-2-87848500	**Analysed**	: 3

This final report for the ALSE work order reference ES0501691 supersedes any previous reports with this reference.
Results apply to the samples as submitted. All pages of this report have been checked and approved for release.
This report contains the following information:

- Analytical results for samples submitted
- Surrogate control limits

ALSE - QUALITY, SERVICE and TECHNOLOGY provided GLOBALLY

NATA Accredited Laboratory - 825

The Laboratory is accredited by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with its scope of accreditation. This document shall not be reproduced except in full.

This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Department
Greg Vogel	Inorganics - NATA 10911 (Sydney)
Peter Dickenson	Inorganics - NATA 10911 (Sydney)
Rassem Ayoubi	Organics - NATA 10911 (Sydney)
Sarah Millington	Inorganics - NATA 10911 (Sydney)

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When moisture determination has been performed, results are reported on a dry weight basis. When a reported 'less than' result is higher than the LOR, this may be due to primary sample extracts/digestion dilution and/or insuffient sample amount for analysis. Surrogate Recovery Limits are static and based on USEPA SW846 or ALS-QWI/EN38 (in the absence of specified USEPA limits).
Abbreviations: ***CAS number*** = *Chemical Abstract Services number,* ***LOR*** = *Limit of Reporting.* ***# Indicates a raised LOR, * Indicates failed Surrogate Recoveries.***
When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes.

Analytical Results

				Client Sample ID :	MW36S	MW35S	MW41D		
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER		
				Sample Date / Time :	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00		
				Laboratory Sample ID :	ES0501691-001	ES0501691-002	ES0501691-003		
Analyte	*CAS number*	*LOR*	*Units*						
EA065: Total Hardness as CaCO3									
Total Hardness as CaCO3		1	mg/L		----	----	28		
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		----	----	2		
Magnesium	7439-95-4	1	mg/L		----	----	6		
Sodium	7440-23-5	1	mg/L		----	----	146		
Potassium	7440-09-7	1	mg/L		----	----	2		
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		0.002	<0.001	<0.001		
Cadmium	7440-43-9	0.0001	mg/L		0.0001	0.0002	0.0001		
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001		
Copper	7440-50-8	0.001	mg/L		<0.001	0.005	0.002		
Lead	7439-92-1	0.001	mg/L		0.009	0.003	0.003		
Nickel	7440-02-0	0.001	mg/L		0.012	0.009	0.003		
Zinc	7440-66-6	0.005	mg/L		0.270	0.325	0.265		
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001		
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.010	mg/L		----	0.283	0.046		
EK059G: NOX as N by Discrete Analyser									
Nitrite + Nitrate as N		0.010	mg/L		----	0.361	<0.010		
EK061: Total Kjeldahl Nitrogen (TKN)									
Total Kjeldahl Nitrogen as N		0.1	mg/L		----	0.1	0.1		
EK062: Total Nitrogen as N (TKN + NOx)									
Total Nitrogen as N		0.1	mg/L		----	0.5	0.1		
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon		1	mg/L		11	10	2		
EP026: Chemical Oxygen Demand (COD)									
Chemical Oxygen Demand		5	mg/L		----	121	14		
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand		2	mg/L		----	----	<2		
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	5	µg/L		<5	<5	<5		

Analytical Results

				Client Sample ID :	MW36S	MW35S	MW41D		
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER		
				Sample Date / Time :	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00		
				Laboratory Sample ID :	ES0501691-001	ES0501691-002	ES0501691-003		
Analyte	*CAS number*	*LOR*	*Units*						
EP074A: Monocyclic Aromatic Hydrocarbons									
Toluene	108-88-3	5	µg/L		<5	<5	<5		
Ethylbenzene	100-41-4	5	µg/L		<5	<5	<5		
meta- & para-Xylene	108-38-3 106-42-3	5	µg/L		<5	<5	<5		
Styrene	100-42-5	5	µg/L		<5	<5	<5		
ortho-Xylene	95-47-6	5	µg/L		<5	<5	<5		
Isopropylbenzene	98-82-8	5	µg/L		<5	<5	<5		
n-Propylbenzene	103-65-1	5	µg/L		<5	<5	<5		
1,3,5-Trimethylbenzene	108-67-8	5	µg/L		<5	<5	<5		
sec-Butylbenzene	135-98-8	5	µg/L		<5	<5	<5		
1,2,4-Trimethylbenzene	95-63-6	5	µg/L		<5	<5	<5		
tert-Butylbenzene	98-06-6	5	µg/L		<5	<5	<5		
p-Isopropyltoluene	99-87-6	5	µg/L		<5	<5	<5		
n-Butylbenzene	104-51-8	5	µg/L		<5	<5	<5		
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		<50	<50	<50		
2-Butanone (MEK)	78-93-3	50	µg/L		<50	<50	<50		
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	<50	<50		
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	<50	<50		
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		<5	<5	<5		
EP074D: Fumigants									
2,2-Dichloropropane	594-20-7	5	µg/L		<5	<5	<5		
1,2-Dichloropropane	78-87-5	5	µg/L		<5	<5	<5		
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L		<5	<5	<5		
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L		<5	<5	<5		
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	<5	<5		
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	<50	<50		
Chloromethane	74-87-3	50	µg/L		<50	<50	<50		
Vinyl chloride	75-01-4	50	µg/L		<50	<50	<50		
Bromomethane	74-83-9	50	µg/L		<50	<50	<50		
Chloroethane	75-00-3	50	µg/L		<50	<50	<50		
Trichlorofluoromethane	75-69-4	50	µg/L		<50	<50	<50		
1,1-Dichloroethene	75-35-4	5	µg/L		<5	<5	<5		
Iodomethane	74-88-4	5	µg/L		<5	<5	<5		
trans-1,2-Dichloroethene	156-60-5	5	µg/L		<5	<5	<5		

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Analytical Results

				Client Sample ID :	MW36S	MW35S	MW41D		
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER		
				Sample Date / Time :	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00		
				Laboratory Sample ID :					
Analyte	*CAS number*	*LOR*	*Units*		ES0501691-001	ES0501691-002	ES0501691-003		
EP074E: Halogenated Aliphatic Compounds									
1,1-Dichloroethane	75-34-3	5	µg/L		<5	<5	<5		
cis-1,2-Dichloroethene	156-59-2	5	µg/L		<5	<5	<5		
1,1,1-Trichloroethane	71-55-6	5	µg/L		<5	<5	<5		
1,1-Dichloropropylene	563-58-6	5	µg/L		<5	<5	<5		
Carbon Tetrachloride	56-23-5	5	µg/L		<5	<5	<5		
1,2-Dichloroethane	107-06-2	5	µg/L		<5	<5	<5		
Trichloroethene	79-01-6	5	µg/L		<5	<5	<5		
Dibromomethane	74-95-3	5	µg/L		<5	<5	<5		
1,1,2-Trichloroethane	79-00-5	5	µg/L		<5	<5	<5		
1,3-Dichloropropane	142-28-9	5	µg/L		<5	<5	<5		
Tetrachloroethene	127-18-4	5	µg/L		<5	<5	<5		
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L		<5	<5	<5		
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L		<5	<5	<5		
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	<5	<5		
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L		<5	<5	<5		
1,2,3-Trichloropropane	96-18-4	5	µg/L		<5	<5	<5		
Pentachloroethane	76-01-7	5	µg/L		<5	<5	<5		
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	<5	<5		
Hexachlorobutadiene	87-68-3	5	µg/L		<5	<5	<5		
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	<5	<5		
Bromobenzene	108-86-1	5	µg/L		<5	<5	<5		
2-Chlorotoluene	95-49-8	5	µg/L		<5	<5	<5		
4-Chlorotoluene	106-43-4	5	µg/L		<5	<5	<5		
1,3-Dichlorobenzene	541-73-1	5	µg/L		<5	<5	<5		
1,4-Dichlorobenzene	106-46-7	5	µg/L		<5	<5	<5		
1,2-Dichlorobenzene	95-50-1	5	µg/L		<5	<5	<5		
1,2,4-Trichlorobenzene	120-82-1	5	µg/L		<5	<5	<5		
1,2,3-Trichlorobenzene	87-61-6	5	µg/L		<5	<5	<5		
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	<5	<5		
Bromodichloromethane	75-27-4	5	µg/L		<5	<5	<5		
Dibromochloromethane	124-48-1	5	µg/L		<5	<5	<5		
Bromoform	75-25-2	5	µg/L		<5	<5	<5		
EP074H: Naphthalene									
Naphthalene	91-20-3	7	µg/L		<7	<7	<7		

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Analytical Results

	Client Sample ID :	MW36S	MW35S	MW41D		
	Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER		
	Sample Date / Time :	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00		
	Laboratory Sample ID :	ES0501691-001	ES0501691-002	ES0501691-003		
Analyte	*CAS number*	*LOR*	*Units*			
EP075A: Phenolic Compounds						
Phenol	108-95-2	2	µg/L	# <2	<2	<2
2-Chlorophenol	95-57-8	2	µg/L	# <2	<2	<2
2-Methylphenol	95-48-7	2	µg/L	# <2	<2	<2
3- & 4-Methylphenol	1319-77-3	2	µg/L	# <4	# <3	<2
2-Nitrophenol	88-75-5	2	µg/L	# <2	<2	<2
2,4-Dimethylphenol	105-67-9	2	µg/L	# <2	<2	<2
2,4-Dichlorophenol	120-83-2	2	µg/L	# <2	<2	<2
2,6-Dichlorophenol	87-65-0	2	µg/L	# <2	<2	<2
4-Chloro-3-Methylphenol	59-50-7	2	µg/L	# <2	<2	<2
2,4,6-Trichlorophenol	88-06-2	2	µg/L	# <2	<2	<2
2,4,5-Trichlorophenol	95-95-4	2	µg/L	# <2	<2	<2
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	<4
EP075B: Polynuclear Aromatic Hydrocarbons						
Naphthalene	91-20-3	2	µg/L	# <2	<2	<2
2-Methylnaphthalene	91-57-6	2	µg/L	# <2	<2	<2
2-Chloronaphthalene	91-58-7	2	µg/L	# <2	<2	<2
Acenaphthylene	208-96-8	2	µg/L	# <2	<2	<2
Acenaphthene	83-32-9	2	µg/L	# <2	<2	<2
Fluorene	86-73-7	2	µg/L	# <2	<2	<2
Phenanthrene	85-01-8	2	µg/L	3	<2	<2
Anthracene	120-12-7	2	µg/L	# <2	<2	<2
Fluoranthene	206-44-0	2	µg/L	# <2	<2	<2
Pyrene	129-00-0	2	µg/L	2	<2	<2
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	# <2	<2	<2
Benz(a)anthracene	56-55-3	2	µg/L	# <2	<2	<2
Chrysene	218-01-9	2	µg/L	# <2	<2	<2
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	# <4	<4	<4
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	# <2	<2	<2
Benzo(a)pyrene	50-32-8	2	µg/L	# <2	<2	<2
3-Methylcholanthrene	56-49-5	2	µg/L	# <2	<2	<2
Indeno(1,2,3,cd)pyrene	193-39-5	2	µg/L	# <2	<2	<2
Dibenz(a,h)anthracene	53-70-3	2	µg/L	# <2	<2	<2
Benzo(g,h,i)perylene	191-24-2	2	µg/L	# <2	<2	<2
EP075C: Phthalate Esters						
Dimethyl phthalate	131-11-3	2	µg/L	# <2	<2	<2
Diethyl phthalate	84-66-2	2	µg/L	# <2	<2	<2

Analytical Results

	Client Sample ID :	MW36S	MW35S	MW41D		
	Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER		
	Sample Date / Time :	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00		
	Laboratory Sample ID :	ES0501691-001	ES0501691-002	ES0501691-003		
Analyte	*CAS number*	*LOR*	*Units*			
EP075C: Phthalate Esters						
Di-n-butyl phthalate	84-74-2	2	µg/L	# <2	<2	<2		
Butyl benzyl phthalate	85-68-7	2	µg/L	# <2	<2	<2		
bis(2-ethylhexyl) phthalate	117-81-7	20	µg/L	<20	<20	60		
Di-n-octylphthalate	117-84-0	2	µg/L	# <2	<2	<2		
EP075D: Nitrosamines						
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	# <2	<2	<2		
N-Nitrosodiethylamine	55-18-5	2	µg/L	# <2	<2	<2		
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	<4		
N-Nitrosomorpholine	59-89-2	2	µg/L	# <2	<2	<2		
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	# <2	<2	<2		
N-Nitrosopiperidine	100-75-4	2	µg/L	# <2	<2	<2		
N-Nitrosodibutylamine	924-16-3	2	µg/L	# <2	<2	<2		
N-Nitrosodiphenyl & Diphenylamine	86-30-6	4	µg/L	# <4	<4	<4		
Methapyrilene	91-80-5	2	µg/L	# <2	<2	<2		
EP075E: Nitroaromatics and Ketones						
2-Picoline	109-06-8	2	µg/L	# <2	<2	<2		
Acetophenone	98-86-2	2	µg/L	# <2	<2	<2		
Nitrobenzene	98-95-3	2	µg/L	# <2	<2	<2		
Isophorone	78-59-1	2	µg/L	# <2	<2	<2		
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	<4		
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	<4		
1-Naphthylamine	134-32-7	2	µg/L	# <2	<2	<2		
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	# <2	<2	<2		
5-Nitro-o-toluidine	99-55-8	2	µg/L	# <2	<2	<2		
Azobenzene	103-33-3	2	µg/L	# <4	# <3	<2		
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	# <2	<2	<2		
Phenacetin	62-44-2	2	µg/L	# <2	<2	<2		
4-Aminobiphenyl	92-67-1	2	µg/L	# <2	<2	<2		
Pentachloronitrobenzene	82-68-8	2	µg/L	# <2	<2	<2		
Pronamide	23950-58-5	2	µg/L	# <2	<2	<2		
Dimethylaminoazobenzene	60-11-7	2	µg/L	# <2	<2	<2		
Chlorobenzilate	510-15-6	2	µg/L	# <2	<2	<2		
EP075F: Haloethers						
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	# <2	<2	<2		
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	# <2	<2	<2		
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	# <2	<2	<2		

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW36S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501691-001	Client Sample ID: MW35S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501691-002	Client Sample ID: MW41D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501691-003		
EP075F: Haloethers								
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	# <2	<2	<2		
EP075G: Chlorinated Hydrocarbons								
1,4-Dichlorobenzene	106-46-7	2	µg/L	# <2	<2	<2		
1,3-Dichlorobenzene	541-73-1	2	µg/L	# <2	<2	<2		
1,2-Dichlorobenzene	95-50-1	2	µg/L	# <2	<2	<2		
Hexachloroethane	67-72-1	2	µg/L	# <2	<2	<2		
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	# <2	<2	<2		
Hexachloropropylene	1888-71-7	2	µg/L	# <2	<2	<2		
Hexachlorobutadiene	87-68-3	2	µg/L	# <2	<2	<2		
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	<10		
Pentachlorobenzene	608-93-5	2	µg/L	# <2	<2	<2		
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	<4		
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	# <2	<2	<2		
4-Chloroaniline	106-47-8	2	µg/L	# <2	<2	<2		
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	<4		
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	<4		
Dibenzofuran	132-64-9	2	µg/L	# <2	<2	<2		
4-Nitroaniline	100-01-6	2	µg/L	# <2	<2	<2		
Carbazole	86-74-8	2	µg/L	# <2	<2	<2		
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	# <2	<2	<2		
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	# <2	<2	<2		
beta-BHC	319-85-7	2	µg/L	# <2	<2	<2		
gamma-BHC	58-89-9	2	µg/L	# <2	<2	<2		
delta-BHC	319-86-8	2	µg/L	# <2	<2	<2		
Heptachlor	76-44-8	2	µg/L	# <2	<2	<2		
Aldrin	309-00-2	2	µg/L	# <2	<2	<2		
Heptachlor epoxide	1024-57-3	2	µg/L	# <2	<2	<2		
alpha-Endosulfan	959-98-8	2	µg/L	# <2	<2	<2		
4,4'-DDE	72-55-9	2	µg/L	# <2	<2	<2		
Dieldrin	60-57-1	2	µg/L	# <2	<2	<2		
Endrin	72-20-8	2	µg/L	# <2	<2	<2		
beta-Endosulfan	33213-65-9	2	µg/L	# <2	<2	<2		
4,4'-DDD	72-54-8	2	µg/L	# <2	<2	<2		
Endosulfan sulfate	1031-07-8	2	µg/L	# <2	<2	<2		

ALS Environmental

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW36S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501691-001	Client Sample ID: MW35S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501691-002	Client Sample ID: MW41D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 4 Mar 2005 0:00 Laboratory Sample ID: ES0501691-003		
EP075I: Organochlorine Pesticides								
4,4'-DDT	50-29-3	4	µg/L	<4	<4	<4		
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	# <2	<2	<2		
Dimethoate	60-51-5	2	µg/L	# <2	<2	<2		
Diazinon	333-41-5	2	µg/L	# <2	<2	<2		
Chlorpyrifos-methyl	5598-13-0	2	µg/L	# <2	<2	<2		
Malathion	121-75-5	2	µg/L	# <2	<2	<2		
Fenthion	55-38-9	2	µg/L	# <2	<2	<2		
Chlorpyrifos	2921-88-2	2	µg/L	# <2	<2	<2		
Pirimphos-ethyl	23505-41-1	2	µg/L	# <2	<2	<2		
Chlorfenvinphos	470-90-6	2	µg/L	# <2	<2	<2		
Prothiofos	34643-46-4	2	µg/L	# <2	<2	<2		
Ethion	563-12-2	2	µg/L	# <2	<2	<2		
EP075K: Miscellaneous Compounds								
1,3,5-Trichlorobenzene	108-70-3	2	µg/L	# <2	<2	<2		
1,2,4,5-Tetrachlorobenzene	95-94-3	2	µg/L	# <2	<2	<2		
Methanesulfonate methyl	66-27-3	2	µg/L	# <2	<2	<2		
Methanesulfonate ethyl	62-50-0	2	µg/L	# <2	<2	<2		
cis-Isosafrole	17627-76-8	2	µg/L	# <2	<2	<2		
trans-Isosafrole	4043-71-4	2	µg/L	# <2	<2	<2		
Safrole	94-59-7	2	µg/L	# <2	<2	<2		
Diallate	2303-16-4	2	µg/L	# <2	<2	<2		
2,3,4,6-Tetrachlorophenol	58-90-2	2	µg/L	# <2	<2	<2		
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		20	µg/L	<20	<20	<20		
C10 - C14 Fraction		50	µg/L	# <50	<50	<50		
C15 - C28 Fraction		100	µg/L	800	400	200		
C29 - C36 Fraction		50	µg/L	# <100	# <80	<50		
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	105	105		
Toluene-D8	2037-26-5	0.1	%	98.0	95.1	97.0		
4-Bromofluorobenzene	460-00-4	0.1	%	90.7	90.0	92.7		
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1	%	51.4	53.6	58.9		
Phenol-d6	13127-88-3	0.1	%	39.2	42.5	38.3		
2-Chlorophenol-D4	93951-73-6	0.1	%	80.3	88.6	74.7		

Analytical Results

				Client Sample ID :	MW36S	MW35S	MW41D		
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER		
				Sample Date / Time :	4 Mar 2005 0:00	4 Mar 2005 0:00	4 Mar 2005 0:00		
				Laboratory Sample ID :	ES0501691-001	ES0501691-002	ES0501691-003		
Analyte	*CAS number*	*LOR*	*Units*						
EP075S: Acid Extractable Surrogates									
2,4,6-Tribromophenol	118-79-6	0.1	%		95.8	100	87.9		
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.1	%		101	90.0	92.9		
1,2-Dichlorobenzene-D4	2199-69-1	0.1	%		60.1	67.4	56.5		
2-Fluorobiphenyl	321-60-8	0.1	%		63.4	69.6	57.7		
Anthracene-d10	1719-06-8	0.1	%		75.1	80.6	67.1		
4-Terphenyl-d14	1718-51-0	0.1	%		71.8	80.7	65.5		
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.1	%		108	105	105		
Toluene-D8	2037-26-5	0.1	%		98.0	95.1	97.0		
4-Bromofluorobenzene	460-00-4	0.1	%		90.7	90.0	92.7		

Surrogate Control Limits

The analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house procedure 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 herein. Reference methods from which ALSE methods are based are provided in parenthesis.

Matrix Type: WATER

Surrogate Control Limits

Method name	*Analyte name*	*Lower Limit*	*Upper Limit*
EP074: Volatile Organic Compounds			
EP074S: VOC Surrogates	1,2-Dichloroethane-D4	80	120
	Toluene-D8	88	110
	4-Bromofluorobenzene	86	115
EP075: Semivolatile Organic Compounds			
EP075S: Acid Extractable Surrogates	2-Fluorophenol	21	100
	Phenol-d6	10	94
	2-Chlorophenol-D4	23	134
	2,4,6-Tribromophenol	10	123
EP075T: Base/Neutral Extractable Surrogates	Nitrobenzene-D5	35	114
	1,2-Dichlorobenzene-D4	32	129
	2-Fluorobiphenyl	43	116
	Anthracene-d10	27	133
	4-Terphenyl-d14	33	141
EP080: TPH Volatiles/BTEX			
EP080S: TPH(V)/BTEX Surrogates	1,2-Dichloroethane-D4	80	120
	Toluene-D8	88	110
	4-Bromofluorobenzene	86	115

ALS Environmental

QUALITY CONTROL REPORT

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	: ALS Environmental Sydney	**Page**	:	1 of 25
Contact	:	MS LOUSIE MACDONALD	**Contact**	: Greg Vogel			
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	: 277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	:	**ES0501691**
					Amendment No.	:	
Project	:	EN01669	**Quote number**	: ---	**Date received**	:	7 Mar 2005
Order number	:	- Not provided -			**Date issued**	:	17 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	: Greg.Vogel@alsenviro.com	**No. of samples**		
Telephone	:	(02) 9928-2100	**Telephone**	: 61-2-87848555	**Received**	:	3
Facsimile	:	(02) 9928-2272	**Facsimile**	: 61-2-87848500	**Analysed**	:	3

This final report for the ALSE work order reference ES0501691 supersedes any previous reports with this reference.

Results apply to the samples as submitted. All pages of this report have been checked and approved for release.

This report contains the following information:

- Laboratory Duplicates (DUP); Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Samples (LCS); Recovery and Acceptance Limits
- Matrix Spikes (MS); Recovery and Acceptance Limits

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NATA Accredited Laboratory - 825

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This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Department
Greg Vogel	Inorganics - NATA 10911 (Sydney)
Peter Dickenson	Inorganics - NATA 10911 (Sydney)
Rassem Ayoubi	Organics - NATA 10911 (Sydney)
Sarah Millington	Inorganics - NATA 10911 (Sydney)

Quality Control Report - Laboratory Duplicates (DUP)

The quality control term **Laboratory Duplicate** refers to an intralaboratory split sample randomly selected from the sample batch. Laboratory duplicates provide information on method precision and sample heterogeneity.
- Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations: **LOR** = Limit of Reporting, **RPD** = Relative Percent Difference.*
* Indicates failed QC. The permitted ranges for the RPD of Laboratory Duplicates (relative percent deviation) 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%

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	*Client Sample ID*	*Analyte name*	*LOR*	*Original Result*	*Duplicate Result*	*RPD*
ED093F: Dissolved Major Cations						
ED093F: Dissolved Major Cations - (QC Lot: 49963)				mg/L	mg/L	%
ES0501681-006	Anonymous	Calcium	1 mg/L	25	25	0.0
		Magnesium	1 mg/L	22	22	0.0
		Sodium	1 mg/L	155	156	0.0
		Potassium	1 mg/L	8	8	0.0
ES0501690-009	Anonymous	Calcium	1 mg/L	7	7	0.0
		Magnesium	1 mg/L	6	6	0.0
		Sodium	1 mg/L	44	44	0.0
		Potassium	1 mg/L	4	5	0.0
EG020F: Dissolved Metals by ICP-MS						
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 51549)				mg/L	mg/L	%
ES0501691-001	MW36S	Arsenic	0.001 mg/L	0.002	0.001	0.0
		Cadmium	0.0001 mg/L	0.0001	<0.0001	0.0
		Chromium	0.001 mg/L	<0.001	<0.001	0.0
		Copper	0.001 mg/L	<0.001	<0.001	0.0
		Lead	0.001 mg/L	0.009	0.009	0.0
		Nickel	0.001 mg/L	0.012	0.012	0.0
		Zinc	0.005 mg/L	0.270	0.248	8.3
ES0501722-001	Anonymous	Arsenic	0.001 mg/L	0.001	0.002	0.0
		Cadmium	0.0001 mg/L	<0.0001	<0.0001	0.0
		Chromium	0.001 mg/L	<0.001	<0.001	0.0
		Copper	0.001 mg/L	0.002	0.002	0.0
		Lead	0.001 mg/L	0.001	0.001	0.0
		Nickel	0.001 mg/L	0.002	0.002	0.0
		Zinc	0.005 mg/L	<0.005	<0.005	0.0
EG035F: Dissolved Mercury by FIMS						
EG035F: Dissolved Mercury by FIMS - (QC Lot: 50660)				mg/L	mg/L	%
ES0501691-001	MW36S	Mercury	0.0001 mg/L	<0.0001	<0.0001	0.0
ES0501737-002	Anonymous	Mercury	0.0001 mg/L	1.02	1.14	10.8

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EK055G: Ammonia as N by Discrete Analyser						
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 49536)				mg/L	mg/L	%
ES0501642-004	Anonymous	Ammonia as N	0.010 mg/L	0.315	0.278	12.5
ES0501656-001	Anonymous	Ammonia as N	0.010 mg/L	0.047	0.028	50.7
EK059G: NOX as N by Discrete Analyser						
EK059G: NOX as N by Discrete Analyser - (QC Lot: 49176)				mg/L	mg/L	%
ES0501665-001	Anonymous	Nitrite + Nitrate as N	0.010 mg/L	0.429	0.444	3.4
ES0501684-004	Anonymous	Nitrite + Nitrate as N	0.001 mg/L	0.003	0.003	0.0
EK061: Total Kjeldahl Nitrogen (TKN)						
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 48939)				mg/L	mg/L	%
ES0501581-001	Anonymous	Total Kjeldahl Nitrogen as N	0.1 mg/L	0.5	0.5	0.0
ES0501665-001	Anonymous	Total Kjeldahl Nitrogen as N	0.1 mg/L	0.8	0.7	0.0
EP005: Total Organic Carbon (TOC)						
EP005: Total Organic Carbon (TOC) - (QC Lot: 49043)				mg/L	mg/L	%
ES0501668-010	Anonymous	Total Organic Carbon	1 mg/L	<1	<1	0.0
EP026: Chemical Oxygen Demand (COD)						
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 50066)				mg/L	mg/L	%
ES0501668-010	Anonymous	Chemical Oxygen Demand	5 mg/L	7	16	78.3
EP030: Biochemical Oxygen Demand (BOD)						
EP030: Biochemical Oxygen Demand (BOD) - (QC Lot: 49051)				mg/L	mg/L	%
ES0501691-003	MW41D	Biochemical Oxygen Demand	2 mg/L	<2	<2	0.0
EP074A: Monocyclic Aromatic Hydrocarbons						
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	MW36S	Benzene	5 µg/L	<5	<5	0.0
		Toluene	5 µg/L	<5	<5	0.0
		Ethylbenzene	5 µg/L	<5	<5	0.0
		meta- & para-Xylene	5 µg/L	<5	<5	0.0
		Styrene	5 µg/L	<5	<5	0.0
		ortho-Xylene	5 µg/L	<5	<5	0.0
		Isopropylbenzene	5 µg/L	<5	<5	0.0
		n-Propylbenzene	5 µg/L	<5	<5	0.0
		1,3,5-Trimethylbenzene	5 µg/L	<5	<5	0.0
		sec-Butylbenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trimethylbenzene	5 µg/L	<5	<5	0.0
		tert-Butylbenzene	5 µg/L	<5	<5	0.0
		p-Isopropyltoluene	5 µg/L	<5	<5	0.0
		n-Butylbenzene	5 µg/L	<5	<5	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074B: Oxygenated Compounds						
EP074B: Oxygenated Compounds - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	MW36S	Vinyl Acetate	50 µg/L	<50	<50	0.0
		2-Butanone (MEK)	50 µg/L	<50	<50	0.0
		4-Methyl-2-pentanone (MIBK)	50 µg/L	<50	<50	0.0
		2-Hexanone (MBK)	50 µg/L	<50	<50	0.0
EP074C: Sulfonated Compounds						
EP074C: Sulfonated Compounds - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	MW36S	Carbon disulfide	5 µg/L	<5	<5	0.0
EP074D: Fumigants						
EP074D: Fumigants - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	MW36S	2,2-Dichloropropane	5 µg/L	<5	<5	0.0
		1,2-Dichloropropane	5 µg/L	<5	<5	0.0
		cis-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		trans-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		1,2-Dibromoethane (EDB)	5 µg/L	<5	<5	0.0

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074E: Halogenated Aliphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	MW36S	Dichlorodifluoromethane	50 µg/L	<50	<50	0.0
		Chloromethane	50 µg/L	<50	<50	0.0
		Vinyl chloride	50 µg/L	<50	<50	0.0
		Bromomethane	50 µg/L	<50	<50	0.0
		Chloroethane	50 µg/L	<50	<50	0.0
		Trichlorofluoromethane	50 µg/L	<50	<50	0.0
		1,1-Dichloroethene	5 µg/L	<5	<5	0.0
		Iodomethane	5 µg/L	<5	<5	0.0
		trans-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1-Dichloroethane	5 µg/L	<5	<5	0.0
		cis-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1,1-Trichloroethane	5 µg/L	<5	<5	0.0
		1,1-Dichloropropylene	5 µg/L	<5	<5	0.0
		Carbon Tetrachloride	5 µg/L	<5	<5	0.0
		1,2-Dichloroethane	5 µg/L	<5	<5	0.0
		Trichloroethene	5 µg/L	<5	<5	0.0
		Dibromomethane	5 µg/L	<5	<5	0.0
		1,1,2-Trichloroethane	5 µg/L	<5	<5	0.0
		1,3-Dichloropropane	5 µg/L	<5	<5	0.0
		Tetrachloroethene	5 µg/L	<5	<5	0.0
		1,1,1,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		trans-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		cis-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		1,1,2,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		1,2,3-Trichloropropane	5 µg/L	<5	<5	0.0
		Pentachloroethane	5 µg/L	<5	<5	0.0
		1,2-Dibromo-3-chloropropane	5 µg/L	<5	<5	0.0
		Hexachlorobutadiene	5 µg/L	<5	<5	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074F: Halogenated Aromatic Compounds						
EP074F: Halogenated Aromatic Compounds - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	MW36S	Chlorobenzene	5 µg/L	<5	<5	0.0
		Bromobenzene	5 µg/L	<5	<5	0.0
		2-Chlorotoluene	5 µg/L	<5	<5	0.0
		4-Chlorotoluene	5 µg/L	<5	<5	0.0
		1,3-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,4-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,3-Trichlorobenzene	5 µg/L	<5	<5	0.0
EP074G: Trihalomethanes						
EP074G: Trihalomethanes - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	MW36S	Chloroform	5 µg/L	<5	<5	0.0
		Bromodichloromethane	5 µg/L	<5	<5	0.0
		Dibromochloromethane	5 µg/L	<5	<5	0.0
		Bromoform	5 µg/L	<5	<5	0.0
EP074H: Naphthalene						
EP074H: Naphthalene - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	MW36S	Naphthalene	5 µg/L	<7	<5	33.3
EP080/071: Total Petroleum Hydrocarbons						
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 50189)				µg/L	µg/L	%
ES0501668-008	Anonymous	C6 - C9 Fraction	20 µg/L	<20	<20	0.0
ES0501711-002	Anonymous	C6 - C9 Fraction	20 µg/L	<20	<20	0.0

Quality Control Report - Method Blank (MB) and Laboratory Control Samples (LCS)

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 type is to monitor potential laboratory contamination. The quality control term **Laboratory Control Sample (LCS)** refers to a known, interference free matrix spiked with target analytes or certified reference material. The purpose of this QC type is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of actual laboratory data. Abbreviations: LOR = Limit of

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

		Method blank result	Actual Results		Recovery Limits	
			Spike concentration	Spike Recovery	Dynamic Recovery Limits	
Analyte name	LOR			LCS	Low	High
ED093F: Dissolved Major Cations						
ED093F: Dissolved Major Cations - (QC Lot: 49963)		mg/L	mg/L	%	%	%
Calcium	1 mg/L	----	50	98.3	70	130
	1 mg/L	<1	----	----	----	----
Magnesium	1 mg/L	----	50	98.6	70	130
	1 mg/L	<1	----	----	----	----
Sodium	1 mg/L	----	50	101	70	130
	1 mg/L	<1	----	----	----	----
Potassium	1 mg/L	----	50	98.3	70	130
	1 mg/L	<1	----	----	----	----
EG020F: Dissolved Metals by ICP-MS						
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 51549)		mg/L	mg/L	%	%	%
Arsenic	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	94.2	70	130
Cadmium	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.1	107	70	130
Chromium	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	98.1	70	130
Copper	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	98.9	70	130
Lead	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	97.2	70	130
Nickel	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	98.5	70	130
Zinc	0.005 mg/L	<0.005	----	----	----	----
	0.005 mg/L	----	0.1	95.6	70	130
EG035F: Dissolved Mercury by FIMS						
EG035F: Dissolved Mercury by FIMS - (QC Lot: 50660)		mg/L	mg/L	%	%	%
Mercury	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.010	86.4	70	130

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EK055G: Ammonia as N by Discrete Analyser						
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 49536)		mg/L	mg/L	%	%	%
Ammonia as N	0.010 mg/L	<0.010	----	----	----	----
	0.01 mg/L	----	1.00	110	70	130
EK059G: NOX as N by Discrete Analyser						
EK059G: NOX as N by Discrete Analyser - (QC Lot: 49176)		mg/L	mg/L	%	%	%
Nitrite + Nitrate as N	0.010 mg/L	<0.010	----	----	----	----
	0.01 mg/L	----	0.96	92.5	70	130
EK061: Total Kjeldahl Nitrogen (TKN)						
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 48939)		mg/L	mg/L	%	%	%
Total Kjeldahl Nitrogen as N	0.1 mg/L	<0.1	----	----	----	----
	0.1 mg/L	----	10.0	105	70	130
EP005: Total Organic Carbon (TOC)						
EP005: Total Organic Carbon (TOC) - (QC Lot: 49043)		mg/L	mg/L	%	%	%
Total Organic Carbon	1 mg/L	<1	----	----	----	----
	1 mg/L	----	5	115	70	130
EP026: Chemical Oxygen Demand (COD)						
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 50066)		mg/L	mg/L	%	%	%
Chemical Oxygen Demand	5 mg/L	<5	----	----	----	----
	5 mg/L	----	100	104	70	130
	5 mg/L	----	500	92.2	70	130
EP030: Biochemical Oxygen Demand (BOD)						
EP030: Biochemical Oxygen Demand (BOD) - (QC Lot: 49051)		mg/L	mg/L	%	%	%
Biochemical Oxygen Demand	2 mg/L	<2	----	----	----	----
	2 mg/L	----	200	100	70	130

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074A: Monocyclic Aromatic Hydrocarbons						
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Benzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	99.8	71	126
Toluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	91.5	73	123
Ethylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	97.0	74	126
meta- & para-Xylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	20	93.0	45	125
Styrene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	95.4	76	125
ortho-Xylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	95.1	72	125
Isopropylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	92.4	75	125
n-Propylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	92.1	73	123
1,3,5-Trimethylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	92.9	76	126
sec-Butylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.5	78	124
1,2,4-Trimethylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.3	74	123
tert-Butylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	94.0	72	123
p-Isopropyltoluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.1	76	126
n-Butylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	86.9	75	128

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074B: Oxygenated Compounds						
EP074B: Oxygenated Compounds - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Vinyl Acetate	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	97.0	70	125
2-Butanone (MEK)	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	106	70	130
4-Methyl-2-pentanone (MIBK)	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	106	70	130
2-Hexanone (MBK)	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	98.0	72	125
EP074C: Sulfonated Compounds						
EP074C: Sulfonated Compounds - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Carbon disulfide	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	99.2	76	126
EP074D: Fumigants						
EP074D: Fumigants - (QC Lot: 50190)		µg/L	µg/L	%	%	%
2,2-Dichloropropane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.8	76	126
1,2-Dichloropropane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	107	76	126
cis-1,3-Dichloropropylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	20	98.6	72	125
trans-1,3-Dichloropropylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	20	102	73	128
1,2-Dibromoethane (EDB)	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	97.3	72	126

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074E: Halogenated Aliphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Dichlorodifluoromethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	106	70	129
Chloromethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	109	76	118
Vinyl chloride	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	111	70	126
Bromomethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	116	71	123
Chloroethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	103	76	120
Trichlorofluoromethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	90.2	76	126
1,1-Dichloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	98.4	76	125
Iodomethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	100	70	129
trans-1,2-Dichloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	98.0	76	126
1,1-Dichloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	102	80	126
cis-1,2-Dichloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	100	72	126
1,1,1-Trichloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	101	73	126
1,1-Dichloropropylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	95.4	74	126
Carbon Tetrachloride	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	99.3	76	126
1,2-Dichloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	110	75	123
Trichloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	104	74	124
Dibromomethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	102	73	125
1,1,2-Trichloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	101	75	120
1,3-Dichloropropane	5 µg/L	<5	----	----	----	----

ALS Environmental

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074E: Halogenated Aliphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 50190)		µg/L	µg/L	%	%	%
1,3-Dichloropropane	5 µg/L	----	10	98.3	76	120
Tetrachloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	91.9	78	125
1,1,1,2-Tetrachloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	97.9	76	124
trans-1,4-Dichloro-2-butene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.2	76	126
cis-1,4-Dichloro-2-butene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	95.2	75	125
1,1,2,2-Tetrachloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	102	73	124
1,2,3-Trichloropropane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	98.2	76	123
Pentachloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	94.0	75	126
1,2-Dibromo-3-chloropropane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	104	72	122
Hexachlorobutadiene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	96.2	76	124

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074F: Halogenated Aromatic Compounds						
EP074F: Halogenated Aromatic Compounds - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Chlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	97.0	72	125
Bromobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.0	71	126
2-Chlorotoluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	95.4	70	128
4-Chlorotoluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	92.8	75	123
1,3-Dichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	96.5	74	126
1,4-Dichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	88.9	75	128
1,2-Dichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.8	75	126
1,2,4-Trichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	90.0	74	124
1,2,3-Trichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	92.9	74	123
EP074G: Trihalomethanes						
EP074G: Trihalomethanes - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Chloroform	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	102	72	127
Bromodichloromethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	100	74	125
Dibromochloromethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	96.8	75	126
Bromoform	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	103	72	126
EP074H: Naphthalene						
EP074H: Naphthalene - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Naphthalene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	97.2	73	125

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Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075A: Phenolic Compounds						
EP075A: Phenolic Compounds - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Phenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	50.0	21	69
2-Chlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.2	63	115
2-Methylphenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.1	48	109
3- & 4-Methylphenol	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	76.0	35	103
2-Nitrophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.9	62	113
2,4-Dimethylphenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.6	46	123
2,4-Dichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	73.2	60	113
2,6-Dichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	73.6	57	121
4-Chloro-3-Methylphenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.5	52	122
2,4,6-Trichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.6	53	121
2,4,5-Trichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.2	46	126
Pentachlorophenol	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	77.0	4	101

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075B: Polynuclear Aromatic Hydrocarbons						
EP075B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Naphthalene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	74.8	63	111
2-Methylnaphthalene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	78.7	58	119
2-Chloronaphthalene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.2	58	120
Acenaphthylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.1	59	120
Acenaphthene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.1	67	116
Fluorene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.7	67	112
Phenanthrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.1	68	107
Anthracene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.1	68	110
Fluoranthene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.7	67	107
Pyrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.9	64	109
N-2-Fluorenyl Acetamide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.2	60	109
Benz(a)anthracene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.4	63	112
Chrysene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.6	65	115
Benzo(b) & Benzo(k)fluoranthene	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	78.1	60	118
7,12-Dimethylbenz(a)anthracene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	73.9	39	107
Benzo(a)pyrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.8	64	115
3-Methylcholanthrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.8	50	105
Indeno(1,2,3,cd)pyrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.6	55	103
Dibenz(a,h)anthracene	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075B: Polynuclear Aromatic Hydrocarbons						
EP075B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Dibenz(a,h)anthracene	2 µg/L	----	5	81.6	54	105
Benzo(g,h,i)perylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.0	55	105
EP075C: Phthalate Esters						
EP075C: Phthalate Esters - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Dimethyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.6	61	122
Diethyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.8	71	117
Di-n-butyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.9	70	115
Butyl benzyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.8	64	112
bis(2-ethylhexyl) phthalate	20 µg/L	<20	----	----	----	----
	20 µg/L	----	5	102	71	119
Di-n-octylphthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.4	74	110

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075D: Nitrosamines						
EP075D: Nitrosamines - (QC Lot: 49392)		µg/L	µg/L	%	%	%
N-Nitrosomethylethylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	99.3	50	125
N-Nitrosodiethylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	94.4	65	118
N-Nitrosopyrrolidine	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	75.2	23	99
N-Nitrosomorpholine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.3	31	109
N-Nitrosodi-n-propylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	95.8	69	112
N-Nitrosopiperidine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.6	72	105
N-Nitrosodibutylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	94.8	67	111
N-Nitrosodiphenyl & Diphenylamine	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	83.6	64	124
Methapyrilene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	31.5	11	148

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075E: Nitroaromatics and Ketones						
EP075E: Nitroaromatics and Ketones - (QC Lot: 49392)		µg/L	µg/L	%	%	%
2-Picoline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	50.9	16	128
Acetophenone	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	94.9	74	112
Nitrobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	96.1	79	110
Isophorone	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.0	78	108
2,6-Dinitrotoluene	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	87.5	58	121
2,4-Dinitrotoluene	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	101	59	125
1-Naphthylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.5	49	109
4-Nitroquinoline-N-oxide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	64.0	9	124
5-Nitro-o-toluidine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.6	56	122
Azobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	93.7	73	110
1,3,5-Trinitrobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	95.3	46	125
Phenacetin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	93.0	62	104
4-Aminobiphenyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	78.5	23	123
Pentachloronitrobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	99.2	63	112
Pronamide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.6	57	114
Dimethylaminoazobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.5	62	109
Chlorobenzilate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.6	62	114

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075F: Haloethers						
EP075F: Haloethers - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Bis(2-chloroethyl) ether	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	100	81	111
Bis(2-chloroethoxy) methane	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	100	74	111
4-Chlorophenyl phenyl ether	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.5	67	113
4-Bromophenyl phenyl ether	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	74.8	63	117
EP075G: Chlorinated Hydrocarbons						
EP075G: Chlorinated Hydrocarbons - (QC Lot: 49392)		µg/L	µg/L	%	%	%
1,4-Dichlorobenzene	2 µg/L	<2	----	----	----	----
1,3-Dichlorobenzene	2 µg/L	<2	----	----	----	----
1,4-Dichlorobenzene	2 µg/L	----	5	79.8	45	121
1,3-Dichlorobenzene	2 µg/L	----	5	78.0	45	122
1,2-Dichlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.4	48	117
Hexachloroethane	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.6	34	117
1,2,4-Trichlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.2	43	119
Hexachloropropylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	73.3	32	114
Hexachlorobutadiene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	75.2	39	117
Hexachlorocyclopentadiene	10 µg/L	<10	----	----	----	----
	10 µg/L	----	5	41.0	0	119
Pentachlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.2	64	118
Hexachlorobenzene (HCB)	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	80.7	66	119

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Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075H: Anilines and Benzidines						
EP075H: Anilines and Benzidines - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Aniline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	49.4	6	121
4-Chloroaniline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.3	40	118
2-Nitroaniline	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	83.0	60	113
3-Nitroaniline	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	78.3	55	110
Dibenzofuran	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.3	70	116
4-Nitroaniline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	77.8	46	117
Carbazole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.5	69	109
3,3'-Dichlorobenzidine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.1	48	138

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075l: Organochlorine Pesticides						
EP075l: Organochlorine Pesticides - (QC Lot: 49392)		µg/L	µg/L	%	%	%
alpha-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.7	71	114
beta-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	94.6	67	118
gamma-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.3	67	118
delta-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.7	70	105
Heptachlor	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.3	71	101
Aldrin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.6	70	102
Heptachlor epoxide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.0	68	108
alpha-Endosulfan	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.5	68	108
4,4'-DDE	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.2	65	109
Dieldrin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.6	76	107
Endrin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.8	66	108
beta-Endosulfan	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.0	67	113
4,4'-DDD	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.3	61	117
Endosulfan sulfate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.7	61	117
4,4'-DDT	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	74.3	54	113

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075J: Organophosphorus Pesticides						
EP075J: Organophosphorus Pesticides - (QC Lot: 49392)		µg/L	µg/L	%	%	%
Dichlorvos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	100	72	107
Dimethoate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	101	63	107
Diazinon	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.4	62	113
Chlorpyrifos-methyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.6	72	103
Malathion	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.4	77	110
Fenthion	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.5	63	111
Chlorpyrifos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.0	68	110
Pirimphos-ethyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.8	59	112
Chlorfenvinphos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	6	90.2	48	125
Prothiofos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.3	67	108
Ethion	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.0	59	113

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075K: Miscellaneous Compounds						
EP075K: Miscellaneous Compounds - (QC Lot: 49392)		µg/L	µg/L	%	%	%
1,3,5-Trichlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.3	18	138
1,2,4,5-Tetrachlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.9	26	137
Methanesulfonate methyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	63.7	19	124
Methanesulfonate ethyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.4	70	109
cis-Isosafrole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	74.8	65	113
trans-Isosafrole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.7	65	115
Safrole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.5	68	105
Diallate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	102	77	113
2,3,4,6-Tetrachlorophenol	2 µg/L	<2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 49391)		µg/L	µg/L	%	%	%
C10 - C14 Fraction	50 µg/L	<50	----	----	----	----
	50 µg/L	----	200	110	75	134
C15 - C28 Fraction	100 µg/L	<100	----	----	----	----
	100 µg/L	----	200	121	87	132
C29 - C36 Fraction	50 µg/L	<50	----	----	----	----
	50 µg/L	----	200	101	80	126
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 50189)		µg/L	µg/L	%	%	%
C6 - C9 Fraction	20 µg/L	----	260	96.3	80	120
	20 µg/L	<20	----	----	----	----

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Quality Control Report - Matrix Spikes (MS)

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 type is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQO's). 'Ideal' recovery ranges stated may be waived in the event of sample matrix interferences. - Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations: **LOR** = Limit of Reporting, **RPD** = Relative Percent Difference.*

* Indicates failed QC

Matrix Type: WATER

					Actual Results		Recovery Limits Static Limits	
					Sample Result	Spike Recovery		
Analyte name	*Laboratory Sample ID*	*Client Sample ID*	*LOR*	*Spike Concentration*		*MS*	*Low*	*High*
EG020F: Dissolved Metals by ICP-MS								
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 51549)				mg/L	mg/L	%	%	%
Arsenic	ES0501691-001	MW36S	0.001 mg/L	0.2	0.002	100	70	130
Cadmium			0.0001 mg/L	0.05	0.0001	99.7	70	130
Chromium			0.001 mg/L	0.2	<0.001	88.8	70	130
Copper			0.001 mg/L	0.2	<0.001	102	70	130
Lead			0.001 mg/L	0.2	0.009	98.2	70	130
Nickel			0.001 mg/L	0.2	0.012	105	70	130
Zinc			0.005 mg/L	0.2	0.270	70.2	70	130
EG035F: Dissolved Mercury by FIMS								
EG035F: Dissolved Mercury by FIMS - (QC Lot: 50660)				mg/L	mg/L	%	%	%
Mercury	ES0501691-001	MW36S	0.0001 mg/L	0.0100	<0.0001	94.9	70	130
EK055G: Ammonia as N by Discrete Analyser								
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 49536)				mg/L	mg/L	%	%	%
Ammonia as N	ES0501642-004	Anonymous	0.01 mg/L	1.00	0.315	127	70	130
EK059G: NOX as N by Discrete Analyser								
EK059G: NOX as N by Discrete Analyser - (QC Lot: 49176)				mg/L	mg/L	%	%	%
Nitrite + Nitrate as N	ES0501665-001	Anonymous	0.01 mg/L	0.60	0.429	106	70	130
EK061: Total Kjeldahl Nitrogen (TKN)								
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 48939)				mg/L	mg/L	%	%	%
Total Kjeldahl Nitrogen as N	ES0501581-001	Anonymous	0.1 mg/L	5.0	0.5	119	70	130
EP005: Total Organic Carbon (TOC)								
EP005: Total Organic Carbon (TOC) - (QC Lot: 49043)				mg/L	mg/L	%	%	%
Total Organic Carbon	ES0501668-010	Anonymous	1 mg/L	100	<1	78.0	70	130
EP026: Chemical Oxygen Demand (COD)								
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 50066)				mg/L	mg/L	%	%	%
Chemical Oxygen Demand	ES0501668-010	Anonymous	5 mg/L	143	7	106	70	130
EP074A: Monocyclic Aromatic Hydrocarbons								
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 50190)				µg/L	µg/L	%	%	%

Matrix Type: WATER

Analyte name	Laboratory Sample ID	Client Sample ID	LOR	Spike Concentration	Actual Results: Sample Result	Actual Results: Spike Recovery MS	Recovery Limits: Static Limits Low	Recovery Limits: Static Limits High
Benzene	ES0501691-001	MW36S	5 µg/L	25	<5	92.6	70	130
Toluene			5 µg/L	25	<5	98.0	70	130
EP074E: Halogenated Aliphatic Compounds								
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 50190)				µg/L	µg/L	%	%	%
1,1-Dichloroethene	ES0501691-001	MW36S	5 µg/L	25	<5	93.6	70	130
Trichloroethene			5 µg/L	25	<5	95.5	70	130
EP074F: Halogenated Aromatic Compounds								
EP074F: Halogenated Aromatic Compounds - (QC Lot: 50190)				µg/L	µg/L	%	%	%
Chlorobenzene	ES0501691-001	MW36S	5 µg/L	25	<5	108	70	130
EP080/071: Total Petroleum Hydrocarbons								
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 50189)				µg/L	µg/L	%	%	%
C6 - C9 Fraction	ES0501668-010	Anonymous	20 µg/L	250	<20	97.8	80	120

ALS Environmental

INTERPRETIVE QUALITY CONTROL REPORT

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	:	ALS Environmental Sydney	**Page**	: 1 of 8
Contact	:	MS LOUSIE MACDONALD	**Contact**	:	Greg Vogel		
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	:	277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	: **ES0501691**
						Amendment No.	:
Project	:	EN01669	**Quote number**	:	----	**Date received**	: 7 Mar 2005
Order number	:	- Not provided -				**Date issued**	: 17 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	:	Greg.Vogel@alsenviro.com	**No. of samples**	
Telephone	:	(02) 9928-2100	**Telephone**	:	61-2-87848555	**Received**	: 3
Facsimile	:	(02) 9928-2272	**Facsimile**	:	61-2-87848500	**Analysed**	: 3

This Interpretive Quality Control Report was issued on 17 Mar 2005 for the ALS work order reference ES0501691 and supersedes any previous reports with this reference.
This report contains the following information:

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

Interpretive Quality Control Report - Analysis Holding Time

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 preclude subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the sample aliquot was taken. Elapsed time to analysis represents time from sampling where no extraction / digestion is involved or time from extraction / digestion where this is present. For composite samples, sampling date/time is taken as that of the oldest sample contributing to that composite. Sample date/time for laboratory produced leaches are taken from the completion date/time of the leaching process. Outliers for holding time are based on USEPA SW846, APHA, AS and NEPM (1999). Failed outliers, refer to the 'Summary of Outliers'.

Matrix Type: WATER

Analysis Holding Time and Preservation

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
ED093F: Major Cations - Filtered							
Clear Plastic Bottle - Natural MW41D	**3 Mar 2005**	----	----	----	**10 Mar 2005**	31 Mar 2005	Pass
EG020A-F: Dissolved Metals by ICP-MS - Suite A							
Clear Plastic Bottle - Nitric Acid; Filtered MW36S, MW35S, MW41D	**3 Mar 2005**	----	----	----	**15 Mar 2005**	30 Aug 2005	Pass
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered MW36S, MW35S, MW41D	**3 Mar 2005**	----	----	----	**14 Mar 2005**	31 Mar 2005	Pass
EK055G: Ammonia as N by Discreate analyser							
Clear Plastic Bottle - Sulphuric Acid MW35S, MW41D	**3 Mar 2005**	----	----	----	**9 Mar 2005**	31 Mar 2005	Pass
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulphuric Acid MW35S, MW41D	**3 Mar 2005**	----	----	----	**8 Mar 2005**	31 Mar 2005	Pass
EK061: Total Kjeldahl Nitrogen as N							
Clear Plastic Bottle - Sulphuric Acid MW35S, MW41D	**3 Mar 2005**	**8 Mar 2005**	31 Mar 2005	Pass	**8 Mar 2005**	31 Mar 2005	Pass
EP005: Total Organic Carbon							
Amber TOC Vial- Sulphuric Acid MW36S, MW35S, MW41D	**3 Mar 2005**	----	----	----	**8 Mar 2005**	31 Mar 2005	Pass
EP026: Chemical Oxygen Demand (COD)							
Clear Plastic Bottle - Sulphuric Acid MW35S, MW41D	**3 Mar 2005**	----	----	----	**11 Mar 2005**	31 Mar 2005	Pass
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural MW41D	**3 Mar 2005**	----	----	----	**8 Mar 2005**	5 Mar 2005	**Fail by 2 days**
EP071: TPH - Semivolatile Fraction							
Amber Glass Bottle - Unpreserved MW36S, MW35S, MW41D	**3 Mar 2005**	**9 Mar 2005**	10 Mar 2005	Pass	**10 Mar 2005**	18 Apr 2005	Pass
EP074: Volatile Organic Compounds							

Matrix Type: WATER

Analysis Holding Time and Preservation

Method / Container / Client Sample ID(s)		Date Sampled	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EP074: Volatile Organic Compounds - **continued**								
Amber VOC Vial - HCl MW36S, MW41D	MW35S,	**3 Mar 2005**	----	----	----	**10 Mar 2005**	17 Mar 2005	Pass
EP075: Semivolatile Organic Compounds								
Amber Glass Bottle - Unpreserved MW36S, MW41D	MW35S,	**3 Mar 2005**	**9 Mar 2005**	10 Mar 2005	Pass	**10 Mar 2005**	18 Apr 2005	Pass
EP080: TPH Volatiles/BTEX								
Amber VOC Vial - HCl MW36S, MW41D	MW35S,	**3 Mar 2005**	----	----	----	**10 Mar 2005**	17 Mar 2005	Pass

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Interpretive Quality Control Report - Frequency of Quality Control Samples

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which this work order was processed. Actual rate should be greater than or equal to the expected rate.

Matrix Type: WATER

Frequency of Quality Control Samples

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
ED093F: Major Cations - Filtered	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-F: Dissolved Metals by ICP-MS - Suite A	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	2	18	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	2	19	10.5	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	9	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	1	9	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	1	7	14.3	13.3	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	8	12.5	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	2	19	10.5	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Laboratory Control Samples (LCS)					
ED093F: Major Cations - Filtered	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-F: Dissolved Metals by ICP-MS - Suite A	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	2	9	22.2	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	1	7	14.3	6.7	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP071: TPH - Semivolatile Fraction	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	8	12.5	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP075: Semivolatile Organic Compounds	1	11	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Method Blanks (MB)					
ED093F: Major Cations - Filtered	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-F: Dissolved Metals by ICP-MS - Suite A	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	1	7	14.3	6.7	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP071: TPH - Semivolatile Fraction	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	8	12.5	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP075: Semivolatile Organic Compounds	1	11	9.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement

Frequency of Quality Control Samples

Matrix Type: WATER

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Matrix Spikes (MS)					
EG020A-F: Dissolved Metals by ICP-MS - Suite A	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	8	12.5	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement

Interpretive Quality Control Report - Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged on the 'Quality Control Report'. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). - Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot.

Non-surrogates

- **For all matrices, no RPD recovery outliers occur for the duplicate analysis.**
- **For all matrices, no method blank result outliers occur.**
- **For all matrices, no laboratory spike recoveries breaches occur.**
- **For all matrices, no matrix spike recoveries breaches occur.**

Surrogates

- **For all matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time

The following report highlights outliers within this 'Interpretive Quality Control Report - Analysis Holding Time'.

Matrix Type: WATER

Summary of Outliers - Analysis Holding times and Preservation

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural							
MW41D	**3 Mar 2005**	----	----	----	**8 Mar 2005**	5 Mar 2005	**Fail by 2 days**

Outliers : Frequency of Quality Control Samples

The following report highlights outliers within this 'Interpretive Quality Control Report - Frequency of Quality Control Samples'.

- **No frequency outliers occur.**

Method Reference Summary

The analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house procedure 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 herein. Reference methods from which ALSE methods are based are provided in parenthesis.

Matrix Type: WATER

Preparation Methods

EK061/EK067 : TKN/TP Digestion - APHA 20th ed., 4500 Norg - D; APHA 20th ed., 4500 P - H. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ORG14 : Separatory Funnel Extraction of Liquids - 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.

Analytical Methods

EA065 : Hardness as CaCO3 - APHA 20th ed., 2340. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ED093F : Major Cations - Filtered - APHA 20th ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EG020A-F : Dissolved Metals by ICP-MS - Suite A - (APHA 20th ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

EG035F : Dissolved Mercury by FIMS - AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the 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)

EK055G : Ammonia as N by Discreate analyser - APHA 20th ed., 4500 NH3+-H Ammonia is determined by direct colorimetry by Seal. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK059G : Nitrite and Nitrate as N (NOx) by Discrete Analyser - APHA 20th ed., 4500 NO3- I. SEAL Method 2-018-1-L February 2003. Combined oxidised Nitrogen (NO2+NO3) is determined by Cadmium Reduction and direct colourimetry by SEAL. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK061 : Total Kjeldahl Nitrogen as N - APHA 20th ed., 4500-Norg-D 100mL water samples are digested using a traditional Kjeldahl digestion followed by determination by FIA. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK062-SYD : Total Nitrogen as N (TKN + Nox) - APHA 20th ed., 4500 N org / NO3. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP005 : Total Organic Carbon - APHA 20th ed., 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP026 : Chemical Oxygen Demand (COD) - APHA 20th ed., 5220 B. Samples are digested with a known excess of acidic potassium dichromate solution using silver sulphate as a catalyst. The chromium is reduced from Cr (VI) to Cr (III) by oxygen. The unreacted Cr (VI) can then be titrated with ferrous ammonium sulfate to determine the amount of Cr (VI) consumed. The oxidisable organic matter can be calculated in terms of oxygen equivalents. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP030 : Biochemical Oxygen Demand (BOD) - APHA 20th ed., 5210 B The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Method Reference Summary

Matrix Type: WATER

Analytical Methods

EP071 : TPH - Semivolatile Fraction - 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)

EP074 : Volatile Organic Compounds - USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP075 : Semivolatile Organic Compounds - 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)

EP080 : TPH Volatiles/BTEX - USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ALS Environmental

CERTIFICATE OF ANALYSIS

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	:	ALS Environmental Sydney	**Page**	: 1 of 10
Contact	:	MS LOUSIE MACDONALD	**Contact**	:	Greg Vogel		
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	:	277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	: **ES0501695**
Project	:	EN01669	**Quote number**	:	----	**Date received**	: 7 Mar 2005
Order number	:	- Not provided -				**Date issued**	: 17 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	:	Greg.Vogel@alsenviro.com	**No. of samples**	
Telephone	:	(02) 9928-2100	**Telephone**	:	61-2-87848555	**Received**	: 4
Facsimile	:	(02) 9928-2272	**Facsimile**	:	61-2-87848500	**Analysed**	: 4

This final report for the ALSE work order reference ES0501695 supersedes any previous reports with this reference.
Results apply to the samples as submitted. All pages of this report have been checked and approved for release.
This report contains the following information:

- Analytical results for samples submitted
- Surrogate control limits

ALSE - QUALITY, SERVICE and TECHNOLOGY provided GLOBALLY

NATA Accredited Laboratory - 825

The Laboratory is accredited by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with its scope of accreditation. This document shall not be reproduced except in full.

This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Department
Greg Vogel	Inorganics - NATA 10911 (Sydney)
Peter Dickenson	Inorganics - NATA 10911 (Sydney)
Rassem Ayoubi	Organics - NATA 10911 (Sydney)
Sarah Millington	Inorganics - NATA 10911 (Sydney)

When moisture determination has been performed, results are reported on a dry weight basis. When a reported 'less than' result is higher than the LOR, this may be due to primary sample extracts/digestion dilution and/or insuffient sample amount for analysis. Surrogate Recovery Limits are static and based on USEPA SW846 or ALS-QWI/EN38 (in the absence of specified USEPA limits).
Abbreviations: ***CAS number*** = *Chemical Abstract Services number,* ***LOR*** = *Limit of Reporting.* ***# Indicates a raised LOR, * Indicates failed Surrogate Recoveries.***
When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes.

Analytical Results

				Client Sample ID :	MW39S	MW39D	MW40S	MW40D	
				Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	
				Sample Date / Time :	2 Mar 2005 15:00	2 Mar 2005 15:00	2 Mar 2005 15:00	2 Mar 2005 15:00	
				Laboratory Sample ID :	ES0501695-001	ES0501695-002	ES0501695-003	ES0501695-004	
Analyte	*CAS number*	*LOR*	*Units*						
EA065: Total Hardness as CaCO3									
Total Hardness as CaCO3		1	mg/L		202	53	237	80	
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		62	4	81	16	
Magnesium	7439-95-4	1	mg/L		12	11	9	9	
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	0.001	<0.001	<0.001	
Cadmium	7440-43-9	0.0001	mg/L		0.0010	<0.0001	<0.0001	0.0002	
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L		0.006	<0.001	<0.001	0.007	
Lead	7439-92-1	0.001	mg/L		0.003	0.002	0.004	0.004	
Nickel	7440-02-0	0.001	mg/L		0.002	0.002	<0.001	0.007	
Zinc	7440-66-6	0.005	mg/L		2.23	0.111	0.016	0.054	
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	
EG050F: Hexavalent Chromium - Filtered									
Hexavalent Chromium	18540-29-9	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.010	mg/L		1.11	0.257	0.058	0.052	
EK059G: NOX as N by Discrete Analyser									
Nitrite + Nitrate as N		0.010	mg/L		2.57	0.194	3.25	0.074	
EK061: Total Kjeldahl Nitrogen (TKN)									
Total Kjeldahl Nitrogen as N		0.1	mg/L		1.2	4.0	0.7	0.7	
EK062: Total Nitrogen as N (TKN + NOx)									
Total Nitrogen as N		0.1	mg/L		3.8	4.2	3.9	0.7	
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon		1	mg/L		3	2	3	3	
EP026: Chemical Oxygen Demand (COD)									
Chemical Oxygen Demand		5	mg/L		9	24	33	19	
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand		2	mg/L		<2	<2	<2	<2	
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	5	µg/L		<5	22	<5	<5	

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW39S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-001	Client Sample ID: MW39D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-002	Client Sample ID: MW40S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-003	Client Sample ID: MW40D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-004	
EP074A: Monocyclic Aromatic Hydrocarbons								
Toluene	108-88-3	5	µg/L	<5	<5	<5	<5	
Ethylbenzene	100-41-4	5	µg/L	<5	9	<5	<5	
meta- & para-Xylene	108-38-3 106-42-3	5	µg/L	<5	13	<5	<5	
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	
ortho-Xylene	95-47-6	5	µg/L	<5	8	<5	<5	
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	5	<5	<5	
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	11	<5	<5	
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW39S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-001	Client Sample ID: MW39D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-002	Client Sample ID: MW40S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-003	Client Sample ID: MW40D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-004	
EP074E: Halogenated Aliphatic Compounds								
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	167	<7	<7	

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW39S	MW39D	MW40S	MW40D	
Sample Matrix Type / Description:				WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	
Sample Date / Time:				2 Mar 2005 15:00	2 Mar 2005 15:00	2 Mar 2005 15:00	2 Mar 2005 15:00	
Laboratory Sample ID:				ES0501695-001	ES0501695-002	ES0501695-003	ES0501695-004	
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	<2	<2	
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	<2	<2	
2-Methylphenol	95-48-7	2	µg/L	<2	<2	<2	<2	
3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	<2	<2	<2	
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	<2	<2	
2,4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	<2	<2	
2,4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	<2	<2	
2,6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	<2	<2	
4-Chloro-3-Methylphenol	59-50-7	2	µg/L	<2	<2	<2	<2	
2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	<2	<2	
2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	<2	<2	
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	<4	<4	
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	<2	<2	<2	
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	<2	<2	
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	<2	<2	
Acenaphthylene	208-96-8	2	µg/L	<2	<2	<2	<2	
Acenaphthene	83-32-9	2	µg/L	<2	2	<2	<2	
Fluorene	86-73-7	2	µg/L	<2	8	<2	<2	
Phenanthrene	85-01-8	2	µg/L	<2	15	<2	<2	
Anthracene	120-12-7	2	µg/L	<2	3	<2	<2	
Fluoranthene	206-44-0	2	µg/L	<2	2	<2	<2	
Pyrene	129-00-0	2	µg/L	<2	4	<2	<2	
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	<2	<2	
Benz(a)anthracene	56-55-3	2	µg/L	<2	<2	<2	<2	
Chrysene	218-01-9	2	µg/L	<2	<2	<2	<2	
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4	<4	<4	
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	<2	<2	
Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2	<2	<2	
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	<2	<2	
Indeno(1,2,3,cd)pyrene	193-39-5	2	µg/L	<2	<2	<2	<2	
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	<2	<2	<2	
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	<2	<2	<2	
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	<2	<2	
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	<2	<2	

Analytical Results

	Client Sample ID :	MW39S	MW39D	MW40S	MW40D	
	Sample Matrix Type / Description :	WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	
	Sample Date / Time :	2 Mar 2005 15:00	2 Mar 2005 15:00	2 Mar 2005 15:00	2 Mar 2005 15:00	
	Laboratory Sample ID :	ES0501695-001	ES0501695-002	ES0501695-003	ES0501695-004	
Analyte	*CAS number*	*LOR*	*Units*			
EP075C: Phthalate Esters						
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	<2	<2	
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	<2	<2	
bis(2-ethylhexyl) phthalate	117-81-7	20	µg/L	<20	<20	<20	<20	
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	<2	<2	
EP075D: Nitrosamines						
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	<2	<2	
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	<2	<2	
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	<4	<4	
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	<2	<2	
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	<2	<2	
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	<2	<2	
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	<2	<2	
N-Nitrosodiphenyl & Diphenylamine	86-30-6	4	µg/L	<4	<4	<4	<4	
Methapyrilene	91-80-5	2	µg/L	<2	<2	<2	<2	
EP075E: Nitroaromatics and Ketones						
2-Picoline	109-06-8	2	µg/L	<2	<2	<2	<2	
Acetophenone	98-86-2	2	µg/L	<2	<2	<2	<2	
Nitrobenzene	98-95-3	2	µg/L	<2	<2	<2	<2	
Isophorone	78-59-1	2	µg/L	<2	<2	<2	<2	
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	<4	<4	
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	<4	<4	
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	<2	<2	
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	<2	<2	
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	<2	<2	
Azobenzene	103-33-3	2	µg/L	<2	<2	<2	<2	
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	<2	<2	
Phenacetin	62-44-2	2	µg/L	<2	<2	<2	<2	
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	<2	<2	
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	<2	<2	
Pronamide	23950-58-5	2	µg/L	<2	<2	<2	<2	
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	<2	<2	
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	<2	<2	
EP075F: Haloethers						
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	<2	<2	
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	<2	<2	
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	<2	<2	

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW39S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-001	Client Sample ID: MW39D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-002	Client Sample ID: MW40S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-003	Client Sample ID: MW40D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-004	
EP075F: Haloethers								
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	<2	<2	
EP075G: Chlorinated Hydrocarbons								
1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	<2	<2	
1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	<2	<2	
1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	<2	<2	
Hexachloroethane	67-72-1	2	µg/L	<2	<2	<2	<2	
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	<2	<2	
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	<2	<2	
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	<2	<2	
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	<10	<10	
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	<2	<2	
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	<4	<4	
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	<2	<2	
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	<2	<2	
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	<4	<4	
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	<4	<4	
Dibenzofuran	132-64-9	2	µg/L	<2	2	<2	<2	
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	<2	<2	
Carbazole	86-74-8	2	µg/L	<2	<2	<2	<2	
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	<2	<2	
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	<2	<2	<2	
beta-BHC	319-85-7	2	µg/L	<2	<2	<2	<2	
gamma-BHC	58-89-9	2	µg/L	<2	<2	<2	<2	
delta-BHC	319-86-8	2	µg/L	<2	<2	<2	<2	
Heptachlor	76-44-8	2	µg/L	<2	<2	<2	<2	
Aldrin	309-00-2	2	µg/L	<2	<2	<2	<2	
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	<2	<2	
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	<2	<2	
4,4'-DDE	72-55-9	2	µg/L	<2	<2	<2	<2	
Dieldrin	60-57-1	2	µg/L	<2	<2	<2	<2	
Endrin	72-20-8	2	µg/L	<2	<2	<2	<2	
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	<2	<2	
4,4'-DDD	72-54-8	2	µg/L	<2	<2	<2	<2	
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	<2	<2	

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: MW39S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-001	Client Sample ID: MW39D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-002	Client Sample ID: MW40S Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-003	Client Sample ID: MW40D Sample Matrix Type / Description: WATER / WATER Sample Date / Time: 2 Mar 2005 15:00 Laboratory Sample ID: ES0501695-004	
EP075I: Organochlorine Pesticides								
4,4'-DDT	50-29-3	4	µg/L	<4	<4	<4	<4	
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	<2	<2	<2	
Dimethoate	60-51-5	2	µg/L	<2	<2	<2	<2	
Diazinon	333-41-5	2	µg/L	<2	<2	<2	<2	
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	<2	<2	
Malathion	121-75-5	2	µg/L	<2	<2	<2	<2	
Fenthion	55-38-9	2	µg/L	<2	<2	<2	<2	
Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	<2	<2	
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2	<2	<2	
Chlorfenvinphos	470-90-6	2	µg/L	<2	<2	<2	<2	
Prothiofos	34643-46-4	2	µg/L	<2	<2	<2	<2	
Ethion	563-12-2	2	µg/L	<2	<2	<2	<2	
EP075K: Miscellaneous Compounds								
1,3,5-Trichlorobenzene	108-70-3	2	µg/L	<2	<2	<2	<2	
1,2,4,5-Tetrachlorobenzene	95-94-3	2	µg/L	<2	<2	<2	<2	
Methanesulfonate methyl	66-27-3	2	µg/L	<2	<2	<2	<2	
Methanesulfonate ethyl	62-50-0	2	µg/L	<2	<2	<2	<2	
cis-Isosafrole	17627-76-8	2	µg/L	<2	<2	<2	<2	
trans-Isosafrole	4043-71-4	2	µg/L	<2	<2	<2	<2	
Safrole	94-59-7	2	µg/L	<2	<2	<2	<2	
Diallate	2303-16-4	2	µg/L	<2	<2	<2	<2	
2,3,4,6-Tetrachlorophenol	58-90-2	2	µg/L	<2	<2	<2	<2	
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		20	µg/L	<20	60	<20	<20	
C10 - C14 Fraction		50	µg/L	<50	150	<50	810	
C15 - C28 Fraction		100	µg/L	<100	500	<100	<100	
C29 - C36 Fraction		50	µg/L	<50	<50	<50	<50	
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	105	104	106	
Toluene-D8	2037-26-5	0.1	%	95.9	98.2	99.1	98.2	
4-Bromofluorobenzene	460-00-4	0.1	%	90.5	96.8	95.0	92.7	
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1	%	67.6	59.1	53.2	56.5	
Phenol-d6	13127-88-3	0.1	%	33.1	35.5	30.0	33.0	
2-Chlorophenol-D4	93951-73-6	0.1	%	66.2	78.0	73.0	81.9	

Analytical Results

Analyte	CAS number	LOR	Units	MW39S	MW39D	MW40S	MW40D	
Client Sample ID :				MW39S	MW39D	MW40S	MW40D	
Sample Matrix Type / Description :				WATER / WATER	WATER / WATER	WATER / WATER	WATER / WATER	
Sample Date / Time :				2 Mar 2005 15:00	2 Mar 2005 15:00	2 Mar 2005 15:00	2 Mar 2005 15:00	
Laboratory Sample ID :				ES0501695-001	ES0501695-002	ES0501695-003	ES0501695-004	
EP075S: Acid Extractable Surrogates								
2,4,6-Tribromophenol	118-79-6	0.1	%	88.1	107	97.4	104	
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	0.1	%	87.4	70.1	65.0	78.5	
1,2-Dichlorobenzene-D4	2199-69-1	0.1	%	51.5	60.4	61.3	67.4	
2-Fluorobiphenyl	321-60-8	0.1	%	53.8	64.2	70.3	77.4	
Anthracene-d10	1719-06-8	0.1	%	69.0	74.6	75.2	78.5	
4-Terphenyl-d14	1718-51-0	0.1	%	62.6	78.0	75.7	82.7	
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	106	105	104	106	
Toluene-D8	2037-26-5	0.1	%	95.9	98.2	99.1	98.2	
4-Bromofluorobenzene	460-00-4	0.1	%	90.5	96.8	95.0	92.7	

Surrogate Control Limits

The analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house procedure 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 herein. Reference methods from which ALSE methods are based are provided in parenthesis.

Matrix Type: WATER

Surrogate Control Limits

Method name	*Analyte name*	*Lower Limit*	*Upper Limit*
EP074: Volatile Organic Compounds			
EP074S: VOC Surrogates	1,2-Dichloroethane-D4	80	120
	Toluene-D8	88	110
	4-Bromofluorobenzene	86	115
EP075: Semivolatile Organic Compounds			
EP075S: Acid Extractable Surrogates	2-Fluorophenol	21	100
	Phenol-d6	10	94
	2-Chlorophenol-D4	23	134
	2,4,6-Tribromophenol	10	123
EP075T: Base/Neutral Extractable Surrogates	Nitrobenzene-D5	35	114
	1,2-Dichlorobenzene-D4	32	129
	2-Fluorobiphenyl	43	116
	Anthracene-d10	27	133
	4-Terphenyl-d14	33	141
EP080: TPH Volatiles/BTEX			
EP080S: TPH(V)/BTEX Surrogates	1,2-Dichloroethane-D4	80	120
	Toluene-D8	88	110
	4-Bromofluorobenzene	86	115

ALS Environmental

QUALITY CONTROL REPORT

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	: ALS Environmental Sydney	**Page**	:	1 of 25
Contact	:	MS LOUSIE MACDONALD	**Contact**	: Greg Vogel			
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	: 277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	:	**ES0501695**
					Amendment No.	:	
Project	:	EN01669	**Quote number**	: ----	**Date received**	:	7 Mar 2005
Order number	:	- Not provided -			**Date issued**	:	17 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	: Greg.Vogel@alsenviro.com	**No. of samples**		
Telephone	:	(02) 9928-2100	**Telephone**	: 61-2-87848555	**Received**	:	4
Facsimile	:	(02) 9928-2272	**Facsimile**	: 61-2-87848500	**Analysed**	:	4

This final report for the ALSE work order reference ES0501695 supersedes any previous reports with this reference.

Results apply to the samples as submitted. All pages of this report have been checked and approved for release.

This report contains the following information:

- Laboratory Duplicates (DUP); Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Samples (LCS); Recovery and Acceptance Limits
- Matrix Spikes (MS); Recovery and Acceptance Limits

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This document has been digitally signed by those names that appear on this report and are the authorised signatories. Digital signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	Department
Greg Vogel	Inorganics - NATA 10911 (Sydney)
Peter Dickenson	Inorganics - NATA 10911 (Sydney)
Rassem Ayoubi	Organics - NATA 10911 (Sydney)
Sarah Millington	Inorganics - NATA 10911 (Sydney)

Quality Control Report - Laboratory Duplicates (DUP)

The quality control term **Laboratory Duplicate** refers to an intralaboratory split sample randomly selected from the sample batch. Laboratory duplicates provide information on method precision and sample heterogeneity.
- Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations:* ***LOR*** *= Limit of Reporting,* ***RPD*** *= Relative Percent Difference.*
* Indicates failed QC. The permitted ranges for the RPD of Laboratory Duplicates (relative percent deviation) 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%

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
ED093F: Dissolved Major Cations						
ED093F: Dissolved Major Cations - (QC Lot: 49963)				mg/L	mg/L	%
ES0501681-006	Anonymous	Calcium	1 mg/L	25	25	0.0
		Magnesium	1 mg/L	22	22	0.0
ES0501690-009	Anonymous	Calcium	1 mg/L	7	7	0.0
		Magnesium	1 mg/L	6	6	0.0
ED093F: Dissolved Major Cations - (QC Lot: 49965)				mg/L	mg/L	%
ES0501695-003	MW40S	Calcium	1 mg/L	81	81	0.0
		Magnesium	1 mg/L	9	9	0.0
ES0501701-009	Anonymous	Calcium	1 mg/L	17	17	0.0
		Magnesium	1 mg/L	188	191	1.2
EG020F: Dissolved Metals by ICP-MS						
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 51549)				mg/L	mg/L	%
ES0501691-001	Anonymous	Arsenic	0.001 mg/L	0.002	0.001	0.0
		Cadmium	0.0001 mg/L	0.0001	<0.0001	0.0
		Chromium	0.001 mg/L	<0.001	<0.001	0.0
		Copper	0.001 mg/L	<0.001	<0.001	0.0
		Lead	0.001 mg/L	0.009	0.009	0.0
		Nickel	0.001 mg/L	0.012	0.012	0.0
		Zinc	0.005 mg/L	0.270	0.248	8.3
ES0501722-001	Anonymous	Arsenic	0.001 mg/L	0.001	0.002	0.0
		Cadmium	0.0001 mg/L	<0.0001	<0.0001	0.0
		Chromium	0.001 mg/L	<0.001	<0.001	0.0
		Copper	0.001 mg/L	0.002	0.002	0.0
		Lead	0.001 mg/L	0.001	0.001	0.0
		Nickel	0.001 mg/L	0.002	0.002	0.0
		Zinc	0.005 mg/L	<0.005	<0.005	0.0
EG035F: Dissolved Mercury by FIMS						
EG035F: Dissolved Mercury by FIMS - (QC Lot: 50660)				mg/L	mg/L	%
ES0501691-001	Anonymous	Mercury	0.0001 mg/L	<0.0001	<0.0001	0.0
ES0501737-002	Anonymous	Mercury	0.0001 mg/L	1.02	1.14	10.8

Laboratory Duplicates (DUP) Report

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EG050F: Hexavalent Chromium - Filtered						
EG050F: Hexavalent Chromium - Filtered - (QC Lot: 49246)				mg/L	mg/L	%
ES0501695-001	MW39S	Hexavalent Chromium	0.010 mg/L	<0.010	<0.010	0.0
EK055G: Ammonia as N by Discrete Analyser						
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 49536)				mg/L	mg/L	%
ES0501642-004	Anonymous	Ammonia as N	0.010 mg/L	0.315	0.278	12.5
ES0501656-001	Anonymous	Ammonia as N	0.010 mg/L	0.047	0.028	50.7
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 49537)				mg/L	mg/L	%
ES0501695-004	MW40D	Ammonia as N	0.010 mg/L	0.052	0.048	8.0
EK059G: NOX as N by Discrete Analyser						
EK059G: NOX as N by Discrete Analyser - (QC Lot: 49176)				mg/L	mg/L	%
ES0501665-001	Anonymous	Nitrite + Nitrate as N	0.010 mg/L	0.429	0.444	3.4
ES0501684-004	Anonymous	Nitrite + Nitrate as N	0.001 mg/L	0.003	0.003	0.0
EK061: Total Kjeldahl Nitrogen (TKN)						
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 49546)				mg/L	mg/L	%
ES0501690-004	Anonymous	Total Kjeldahl Nitrogen as N	0.1 mg/L	0.4	0.4	0.0
ES0501690-013	Anonymous	Total Kjeldahl Nitrogen as N	0.1 mg/L	0.6	0.7	0.0
EP005: Total Organic Carbon (TOC)						
EP005: Total Organic Carbon (TOC) - (QC Lot: 49043)				mg/L	mg/L	%
ES0501668-010	Anonymous	Total Organic Carbon	1 mg/L	<1	<1	0.0
EP026: Chemical Oxygen Demand (COD)						
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 50066)				mg/L	mg/L	%
ES0501668-010	Anonymous	Chemical Oxygen Demand	5 mg/L	7	16	78.3
EP030: Biochemical Oxygen Demand (BOD)						
EP030: Biochemical Oxygen Demand (BOD) - (QC Lot: 49051)				mg/L	mg/L	%
ES0501691-003	Anonymous	Biochemical Oxygen Demand	2 mg/L	<2	<2	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074A: Monocyclic Aromatic Hydrocarbons						
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	Anonymous	Benzene	5 µg/L	<5	<5	0.0
		Toluene	5 µg/L	<5	<5	0.0
		Ethylbenzene	5 µg/L	<5	<5	0.0
		meta- & para-Xylene	5 µg/L	<5	<5	0.0
		Styrene	5 µg/L	<5	<5	0.0
		ortho-Xylene	5 µg/L	<5	<5	0.0
		Isopropylbenzene	5 µg/L	<5	<5	0.0
		n-Propylbenzene	5 µg/L	<5	<5	0.0
		1,3,5-Trimethylbenzene	5 µg/L	<5	<5	0.0
		sec-Butylbenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trimethylbenzene	5 µg/L	<5	<5	0.0
		tert-Butylbenzene	5 µg/L	<5	<5	0.0
		p-Isopropyltoluene	5 µg/L	<5	<5	0.0
		n-Butylbenzene	5 µg/L	<5	<5	0.0
EP074B: Oxygenated Compounds						
EP074B: Oxygenated Compounds - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	Anonymous	Vinyl Acetate	50 µg/L	<50	<50	0.0
		2-Butanone (MEK)	50 µg/L	<50	<50	0.0
		4-Methyl-2-pentanone (MIBK)	50 µg/L	<50	<50	0.0
		2-Hexanone (MBK)	50 µg/L	<50	<50	0.0
EP074C: Sulfonated Compounds						
EP074C: Sulfonated Compounds - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	Anonymous	Carbon disulfide	5 µg/L	<5	<5	0.0
EP074D: Fumigants						
EP074D: Fumigants - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	Anonymous	2,2-Dichloropropane	5 µg/L	<5	<5	0.0
		1,2-Dichloropropane	5 µg/L	<5	<5	0.0
		cis-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		trans-1,3-Dichloropropylene	5 µg/L	<5	<5	0.0
		1,2-Dibromoethane (EDB)	5 µg/L	<5	<5	0.0

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074E: Halogenated Aliphatic Compounds						
				µg/L	µg/L	%
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 50190)						
ES0501691-001	Anonymous	Dichlorodifluoromethane	50 µg/L	<50	<50	0.0
		Chloromethane	50 µg/L	<50	<50	0.0
		Vinyl chloride	50 µg/L	<50	<50	0.0
		Bromomethane	50 µg/L	<50	<50	0.0
		Chloroethane	50 µg/L	<50	<50	0.0
		Trichlorofluoromethane	50 µg/L	<50	<50	0.0
		1,1-Dichloroethene	5 µg/L	<5	<5	0.0
		Iodomethane	5 µg/L	<5	<5	0.0
		trans-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1-Dichloroethane	5 µg/L	<5	<5	0.0
		cis-1,2-Dichloroethene	5 µg/L	<5	<5	0.0
		1,1,1-Trichloroethane	5 µg/L	<5	<5	0.0
		1,1-Dichloropropylene	5 µg/L	<5	<5	0.0
		Carbon Tetrachloride	5 µg/L	<5	<5	0.0
		1,2-Dichloroethane	5 µg/L	<5	<5	0.0
		Trichloroethene	5 µg/L	<5	<5	0.0
		Dibromomethane	5 µg/L	<5	<5	0.0
		1,1,2-Trichloroethane	5 µg/L	<5	<5	0.0
		1,3-Dichloropropane	5 µg/L	<5	<5	0.0
		Tetrachloroethene	5 µg/L	<5	<5	0.0
		1,1,1,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		trans-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		cis-1,4-Dichloro-2-butene	5 µg/L	<5	<5	0.0
		1,1,2,2-Tetrachloroethane	5 µg/L	<5	<5	0.0
		1,2,3-Trichloropropane	5 µg/L	<5	<5	0.0
		Pentachloroethane	5 µg/L	<5	<5	0.0
		1,2-Dibromo-3-chloropropane	5 µg/L	<5	<5	0.0
		Hexachlorobutadiene	5 µg/L	<5	<5	0.0

Matrix Type: WATER

Laboratory Duplicates (DUP) Report

Laboratory Sample ID	Client Sample ID	Analyte name	LOR	Original Result	Duplicate Result	RPD
EP074F: Halogenated Aromatic Compounds						
EP074F: Halogenated Aromatic Compounds - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	Anonymous	Chlorobenzene	5 µg/L	<5	<5	0.0
		Bromobenzene	5 µg/L	<5	<5	0.0
		2-Chlorotoluene	5 µg/L	<5	<5	0.0
		4-Chlorotoluene	5 µg/L	<5	<5	0.0
		1,3-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,4-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2-Dichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,4-Trichlorobenzene	5 µg/L	<5	<5	0.0
		1,2,3-Trichlorobenzene	5 µg/L	<5	<5	0.0
EP074G: Trihalomethanes						
EP074G: Trihalomethanes - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	Anonymous	Chloroform	5 µg/L	<5	<5	0.0
		Bromodichloromethane	5 µg/L	<5	<5	0.0
		Dibromochloromethane	5 µg/L	<5	<5	0.0
		Bromoform	5 µg/L	<5	<5	0.0
EP074H: Naphthalene						
EP074H: Naphthalene - (QC Lot: 50190)				µg/L	µg/L	%
ES0501691-001	Anonymous	Naphthalene	5 µg/L	<7	<5	33.3
EP080/071: Total Petroleum Hydrocarbons						
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 50189)				µg/L	µg/L	%
ES0501668-008	Anonymous	C6 - C9 Fraction	20 µg/L	<20	<20	0.0
ES0501711-002	Anonymous	C6 - C9 Fraction	20 µg/L	<20	<20	0.0

Quality Control Report - Method Blank (MB) and Laboratory Control Samples (LCS)

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 type is to monitor potential laboratory contamination. The quality control term **Laboratory Control Sample (LCS)** refers to a known, interference free matrix spiked with target analytes or certified reference material. The purpose of this QC type is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of actual laboratory data. Abbreviations: LOR = Limit of

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
ED093F: Dissolved Major Cations						
ED093F: Dissolved Major Cations - (QC Lot: 49963)		mg/L	mg/L	%	%	%
Calcium	1 mg/L	----	50	98.3	70	130
	1 mg/L	<1	----	----	----	----
Magnesium	1 mg/L	----	50	98.6	70	130
	1 mg/L	<1	----	----	----	----
ED093F: Dissolved Major Cations - (QC Lot: 49965)		mg/L	mg/L	%	%	%
Calcium	1 mg/L	<1	----	----	----	----
	1 mg/L	----	50	97.8	70	130
Magnesium	1 mg/L	<1	----	----	----	----
	1 mg/L	----	50	98.5	70	130
EG020F: Dissolved Metals by ICP-MS						
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 51549)		mg/L	mg/L	%	%	%
Arsenic	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	94.2	70	130
Cadmium	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.1	107	70	130
Chromium	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	98.1	70	130
Copper	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	98.9	70	130
Lead	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	97.2	70	130
Nickel	0.001 mg/L	<0.001	----	----	----	----
	0.001 mg/L	----	0.1	98.5	70	130
Zinc	0.005 mg/L	<0.005	----	----	----	----
	0.005 mg/L	----	0.1	95.6	70	130
EG035F: Dissolved Mercury by FIMS						
EG035F: Dissolved Mercury by FIMS - (QC Lot: 50660)		mg/L	mg/L	%	%	%
Mercury	0.0001 mg/L	<0.0001	----	----	----	----
	0.0001 mg/L	----	0.010	86.4	70	130

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EG050F: Hexavalent Chromium - Filtered						
EG050F: Hexavalent Chromium - Filtered - (QC Lot: 49246)		mg/L	mg/L	%	%	%
Hexavalent Chromium	0.010 mg/L	<0.010	----	----	----	----
	0.01 mg/L	----	0.50	103	70	130
EK055G: Ammonia as N by Discrete Analyser						
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 49536)		mg/L	mg/L	%	%	%
Ammonia as N	0.010 mg/L	<0.010	----	----	----	----
	0.01 mg/L	----	1.00	110	70	130
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 49537)		mg/L	mg/L	%	%	%
Ammonia as N	0.010 mg/L	<0.010	----	----	----	----
	0.01 mg/L	----	1.00	124	70	130
EK059G: NOX as N by Discrete Analyser						
EK059G: NOX as N by Discrete Analyser - (QC Lot: 49176)		mg/L	mg/L	%	%	%
Nitrite + Nitrate as N	0.010 mg/L	<0.010	----	----	----	----
	0.01 mg/L	----	0.96	92.5	70	130
EK061: Total Kjeldahl Nitrogen (TKN)						
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 49546)		mg/L	mg/L	%	%	%
Total Kjeldahl Nitrogen as N	0.1 mg/L	<0.1	----	----	----	----
	0.1 mg/L	----	10.0	119	70	130
EP005: Total Organic Carbon (TOC)						
EP005: Total Organic Carbon (TOC) - (QC Lot: 49043)		mg/L	mg/L	%	%	%
Total Organic Carbon	1 mg/L	<1	----	----	----	----
	1 mg/L	----	5	115	70	130
EP026: Chemical Oxygen Demand (COD)						
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 50066)		mg/L	mg/L	%	%	%
Chemical Oxygen Demand	5 mg/L	<5	----	----	----	----
	5 mg/L	----	100	104	70	130
	5 mg/L	----	500	92.2	70	130
EP030: Biochemical Oxygen Demand (BOD)						
EP030: Biochemical Oxygen Demand (BOD) - (QC Lot: 49051)		mg/L	mg/L	%	%	%
Biochemical Oxygen Demand	2 mg/L	<2	----	----	----	----
	2 mg/L	----	200	100	70	130

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074A: Monocyclic Aromatic Hydrocarbons						
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Benzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	99.8	71	126
Toluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	91.5	73	123
Ethylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	97.0	74	126
meta- & para-Xylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	20	93.0	45	125
Styrene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	95.4	76	125
ortho-Xylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	95.1	72	125
Isopropylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	92.4	75	125
n-Propylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	92.1	73	123
1,3,5-Trimethylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	92.9	76	126
sec-Butylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.5	78	124
1,2,4-Trimethylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.3	74	123
tert-Butylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	94.0	72	123
p-Isopropyltoluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.1	76	126
n-Butylbenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	86.9	75	128

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074B: Oxygenated Compounds						
EP074B: Oxygenated Compounds - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Vinyl Acetate	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	97.0	70	125
2-Butanone (MEK)	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	106	70	130
4-Methyl-2-pentanone (MIBK)	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	106	70	130
2-Hexanone (MBK)	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	98.0	72	125
EP074C: Sulfonated Compounds						
EP074C: Sulfonated Compounds - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Carbon disulfide	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	99.2	76	126
EP074D: Fumigants						
EP074D: Fumigants - (QC Lot: 50190)		µg/L	µg/L	%	%	%
2,2-Dichloropropane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.8	76	126
1,2-Dichloropropane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	107	76	126
cis-1,3-Dichloropropylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	20	98.6	72	125
trans-1,3-Dichloropropylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	20	102	73	128
1,2-Dibromoethane (EDB)	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	97.3	72	126

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Repo

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074E: Halogenated Aliphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Dichlorodifluoromethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	106	70	129
Chloromethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	109	76	118
Vinyl chloride	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	111	70	126
Bromomethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	116	71	123
Chloroethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	103	76	120
Trichlorofluoromethane	50 µg/L	<50	----	----	----	----
	50 µg/L	----	100	90.2	76	126
1,1-Dichloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	98.4	76	125
Iodomethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	100	70	129
trans-1,2-Dichloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	98.0	76	126
1,1-Dichloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	102	80	126
cis-1,2-Dichloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	100	72	126
1,1,1-Trichloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	101	73	126
1,1-Dichloropropylene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	95.4	74	126
Carbon Tetrachloride	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	99.3	76	126
1,2-Dichloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	110	75	123
Trichloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	104	74	124
Dibromomethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	102	73	125
1,1,2-Trichloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	101	75	120
1,3-Dichloropropane	5 µg/L	<5	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074E: Halogenated Aliphatic Compounds						
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 50190)		µg/L	µg/L	%	%	%
1,3-Dichloropropane	5 µg/L	----	10	98.3	76	120
Tetrachloroethene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	91.9	78	125
1,1,1,2-Tetrachloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	97.9	76	124
trans-1,4-Dichloro-2-butene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.2	76	126
cis-1,4-Dichloro-2-butene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	95.2	75	125
1,1,2,2-Tetrachloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	102	73	124
1,2,3-Trichloropropane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	98.2	76	123
Pentachloroethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	94.0	75	126
1,2-Dibromo-3-chloropropane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	104	72	122
Hexachlorobutadiene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	96.2	76	124

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Repo

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP074F: Halogenated Aromatic Compounds						
EP074F: Halogenated Aromatic Compounds - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Chlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	97.0	72	125
Bromobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.0	71	126
2-Chlorotoluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	95.4	70	128
4-Chlorotoluene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	92.8	75	123
1,3-Dichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	96.5	74	126
1,4-Dichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	88.9	75	128
1,2-Dichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	93.8	75	126
1,2,4-Trichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	90.0	74	124
1,2,3-Trichlorobenzene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	92.9	74	123
EP074G: Trihalomethanes						
EP074G: Trihalomethanes - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Chloroform	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	102	72	127
Bromodichloromethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	100	74	125
Dibromochloromethane	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	96.8	75	126
Bromoform	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	103	72	126
EP074H: Naphthalene						
EP074H: Naphthalene - (QC Lot: 50190)		µg/L	µg/L	%	%	%
Naphthalene	5 µg/L	<5	----	----	----	----
	5 µg/L	----	10	97.2	73	125

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075A: Phenolic Compounds						
EP075A: Phenolic Compounds - (QC Lot: 49353)		µg/L	µg/L	%	%	%
Phenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	61.4	21	69
2-Chlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.9	63	115
2-Methylphenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.2	48	109
3- & 4-Methylphenol	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	78.6	35	103
2-Nitrophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	89.2	62	113
2,4-Dimethylphenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.6	46	123
2,4-Dichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	74.9	60	113
2,6-Dichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.9	57	121
4-Chloro-3-Methylphenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	93.8	52	122
2,4,6-Trichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	89.0	53	121
2,4,5-Trichlorophenol	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.7	46	126
Pentachlorophenol	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	107	4	101

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Repor

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075B: Polynuclear Aromatic Hydrocarbons						
EP075B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 49353)		µg/L	µg/L	%	%	%
Naphthalene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	95.2	63	111
2-Methylnaphthalene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.7	58	119
2-Chloronaphthalene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.7	58	120
Acenaphthylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.3	59	120
Acenaphthene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.5	67	116
Fluorene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.4	67	112
Phenanthrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.4	68	107
Anthracene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.2	68	110
Fluoranthene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.6	67	107
Pyrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.5	64	109
N-2-Fluorenyl Acetamide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.4	60	109
Benz(a)anthracene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.3	63	112
Chrysene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.6	65	115
Benzo(b) & Benzo(k)fluoranthene	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	74.4	60	118
7,12-Dimethylbenz(a)anthracene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	70.6	39	107
Benzo(a)pyrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.6	64	115
3-Methylcholanthrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.4	50	105
Indeno(1,2,3,cd)pyrene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.9	55	103
Dibenz(a,h)anthracene	2 µg/L	<2	----	----	----	----

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075B: Polynuclear Aromatic Hydrocarbons						
EP075B: Polynuclear Aromatic Hydrocarbons - (QC Lot: 49353)		µg/L	µg/L	%	%	%
Dibenz(a,h)anthracene	2 µg/L	----	5	91.8	54	105
Benzo(g,h,i)perylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.2	55	105
EP075C: Phthalate Esters						
EP075C: Phthalate Esters - (QC Lot: 49353)		µg/L	µg/L	%	%	%
Dimethyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.3	61	122
Diethyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	93.2	71	117
Di-n-butyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	99.3	70	115
Butyl benzyl phthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	100	64	112
bis(2-ethylhexyl) phthalate	20 µg/L	<20	----	----	----	----
	20 µg/L	----	5	94.0	71	119
Di-n-octylphthalate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	80.7	74	110

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Repo

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075D: Nitrosamines						
EP075D: Nitrosamines - (QC Lot: 49353)		µg/L	µg/L	%	%	%
N-Nitrosomethylethylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.2	50	125
N-Nitrosodiethylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	98.9	65	118
N-Nitrosopyrrolidine	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	50.8	23	99
N-Nitrosomorpholine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.4	31	109
N-Nitrosodi-n-propylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.5	69	112
N-Nitrosopiperidine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.2	72	105
N-Nitrosodibutylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	89.8	67	111
N-Nitrosodiphenyl & Diphenylamine	4 µg/L	<4	----	----	----	----
	4 µg/L	----	10	89.5	64	124
Methapyrilene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	40.2	11	148

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Repo

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075E: Nitroaromatics and Ketones						
EP075E: Nitroaromatics and Ketones - (QC Lot: 49353)		µg/L	µg/L	%	%	%
2-Picoline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	52.5	16	128
Acetophenone	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	99.9	74	112
Nitrobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	96.2	79	110
Isophorone	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	93.2	78	108
2,6-Dinitrotoluene	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	103	58	121
2,4-Dinitrotoluene	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	85.0	59	125
1-Naphthylamine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	73.6	49	109
4-Nitroquinoline-N-oxide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	63.3	9	124
5-Nitro-o-toluidine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	89.2	56	122
Azobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	99.3	73	110
1,3,5-Trinitrobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	94.7	46	125
Phenacetin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	97.8	62	104
4-Aminobiphenyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	73.5	23	123
Pentachloronitrobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.4	63	112
Pronamide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	93.3	57	114
Dimethylaminoazobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.7	62	109
Chlorobenzilate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	89.4	62	114

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Repo

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075F: Haloethers						
EP075F: Haloethers - (QC Lot: 49353)		µg/L	µg/L	%	%	%
Bis(2-chloroethyl) ether	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.0	81	111
Bis(2-chloroethoxy) methane	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.5	74	111
4-Chlorophenyl phenyl ether	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	83.6	67	113
4-Bromophenyl phenyl ether	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.3	63	117
EP075G: Chlorinated Hydrocarbons						
EP075G: Chlorinated Hydrocarbons - (QC Lot: 49353)		µg/L	µg/L	%	%	%
1,4-Dichlorobenzene	2 µg/L	<2	----	----	----	----
1,3-Dichlorobenzene	2 µg/L	<2	----	----	----	----
1,4-Dichlorobenzene	2 µg/L	----	5	81.6	45	121
1,3-Dichlorobenzene	2 µg/L	----	5	80.8	45	122
1,2-Dichlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	81.2	48	117
Hexachloroethane	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	78.4	34	117
1,2,4-Trichlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	79.4	43	119
Hexachloropropylene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.2	32	114
Hexachlorobutadiene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.3	39	117
Hexachlorocyclopentadiene	10 µg/L	<10	----	----	----	----
	10 µg/L	----	5	50.6	0	119
Pentachlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.4	64	118
Hexachlorobenzene (HCB)	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	86.7	66	119

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Repor

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075H: Anilines and Benzidines						
EP075H: Anilines and Benzidines - (QC Lot: 49353)		µg/L	µg/L	%	%	%
Aniline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	47.9	6	121
4-Chloroaniline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	76.7	40	118
2-Nitroaniline	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	94.8	60	113
3-Nitroaniline	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	82.4	55	110
Dibenzofuran	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	87.4	70	116
4-Nitroaniline	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	78.8	46	117
Carbazole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.2	69	109
3,3'-Dichlorobenzidine	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.7	48	138

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Repor

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075l: Organochlorine Pesticides						
EP075l: Organochlorine Pesticides - (QC Lot: 49353)		µg/L	µg/L	%	%	%
alpha-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	96.4	71	114
beta-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	97.7	67	118
gamma-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	97.3	67	118
delta-BHC	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	100	70	105
Heptachlor	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	94.3	71	101
Aldrin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	96.5	70	102
Heptachlor epoxide	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	98.2	68	108
alpha-Endosulfan	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	101	68	108
4,4'-DDE	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.7	65	109
Dieldrin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	84.6	76	107
Endrin	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.4	66	108
beta-Endosulfan	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	99.5	67	113
4,4'-DDD	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	89.1	61	117
Endosulfan sulfate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.7	61	117
4,4'-DDT	4 µg/L	<4	----	----	----	----
	4 µg/L	----	5	85.4	54	113

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Report

Analyte name	*LOR*	*Method blank result*	*Actual Results*		*Recovery Limits*	
			Spike concentration	*Spike Recovery*	*Dynamic Recovery Limits*	
				LCS	*Low*	*High*
EP075J: Organophosphorus Pesticides						
EP075J: Organophosphorus Pesticides - (QC Lot: 49353)		µg/L	µg/L	%	%	%
Dichlorvos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	96.5	72	107
Dimethoate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	95.3	63	107
Diazinon	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	97.8	62	113
Chlorpyrifos-methyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	92.1	72	103
Malathion	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	102	77	110
Fenthion	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	89.9	63	111
Chlorpyrifos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.9	68	110
Pirimphos-ethyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	95.7	59	112
Chlorfenvinphos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	6	84.3	48	125
Prothiofos	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	93.2	67	108
Ethion	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	88.5	59	113

Matrix Type: WATER

Method Blank (MB) and Laboratory Control Samples (LCS) Repo

Analyte name	LOR	Method blank result	Actual Results: Spike concentration	Actual Results: Spike Recovery LCS	Recovery Limits: Dynamic Recovery Limits Low	Recovery Limits: Dynamic Recovery Limits High
EP075K: Miscellaneous Compounds						
EP075K: Miscellaneous Compounds - (QC Lot: 49353)		µg/L	µg/L	%	%	%
1,3,5-Trichlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.6	18	138
1,2,4,5-Tetrachlorobenzene	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	82.8	26	137
Methanesulfonate methyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	101	19	124
Methanesulfonate ethyl	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	91.6	70	109
cis-Isosafrole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	86.4	65	113
trans-Isosafrole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	85.2	65	115
Safrole	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	90.7	68	105
Diallate	2 µg/L	<2	----	----	----	----
	2 µg/L	----	5	97.8	77	113
2,3,4,6-Tetrachlorophenol	2 µg/L	<2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 49350)		µg/L	µg/L	%	%	%
C10 - C14 Fraction	50 µg/L	----	200	97.4	75	134
	50 µg/L	<50	----	----	----	----
C15 - C28 Fraction	100 µg/L	----	200	115	87	132
	100 µg/L	<100	----	----	----	----
C29 - C36 Fraction	50 µg/L	----	200	111	80	126
	50 µg/L	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 50189)		µg/L	µg/L	%	%	%
C6 - C9 Fraction	20 µg/L	----	260	96.3	80	120
	20 µg/L	<20	----	----	----	----

Quality Control Report - Matrix Spikes (MS)

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 type is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQO's). 'Ideal' recovery ranges stated may be waived in the event of sample matrix interferences. - Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot. *Abbreviations:* ***LOR*** *= Limit of Reporting,* ***RPD*** *= Relative Percent Difference.*

* Indicates failed QC

Matrix Type: WATER

					Actual Results		Recovery Limits	
					Sample Result	Spike Recovery	Static Limits	
Analyte name	Laboratory Sample ID	Client Sample ID	LOR	Spike Concentration		MS	Low	High
EG020F: Dissolved Metals by ICP-MS								
EG020F: Dissolved Metals by ICP-MS - (QC Lot: 51549)				mg/L	mg/L	%	%	%
Arsenic	ES0501691-001	Anonymous	0.001 mg/L	0.2	0.002	100	70	130
Cadmium			0.0001 mg/L	0.05	0.0001	99.7	70	130
Chromium			0.001 mg/L	0.2	<0.001	88.8	70	130
Copper			0.001 mg/L	0.2	<0.001	102	70	130
Lead			0.001 mg/L	0.2	0.009	98.2	70	130
Nickel			0.001 mg/L	0.2	0.012	105	70	130
Zinc			0.005 mg/L	0.2	0.270	70.2	70	130
EG035F: Dissolved Mercury by FIMS								
EG035F: Dissolved Mercury by FIMS - (QC Lot: 50660)				mg/L	mg/L	%	%	%
Mercury	ES0501691-001	Anonymous	0.0001 mg/L	0.0100	<0.0001	94.9	70	130
EG050F: Hexavalent Chromium - Filtered								
EG050F: Hexavalent Chromium - Filtered - (QC Lot: 49246)				mg/L	mg/L	%	%	%
Hexavalent Chromium	ES0501695-001	MW39S	0.01 mg/L	0.50	<0.010	114	70	130
EK055G: Ammonia as N by Discrete Analyser								
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 49536)				mg/L	mg/L	%	%	%
Ammonia as N	ES0501642-004	Anonymous	0.01 mg/L	1.00	0.315	127	70	130
EK055G: Ammonia as N by Discrete Analyser - (QC Lot: 49537)				mg/L	mg/L	%	%	%
Ammonia as N	ES0501695-004	MW40D	0.01 mg/L	1.00	0.052	100	70	130
EK059G: NOX as N by Discrete Analyser								
EK059G: NOX as N by Discrete Analyser - (QC Lot: 49176)				mg/L	mg/L	%	%	%
Nitrite + Nitrate as N	ES0501665-001	Anonymous	0.01 mg/L	0.60	0.429	106	70	130
EK061: Total Kjeldahl Nitrogen (TKN)								
EK061: Total Kjeldahl Nitrogen (TKN) - (QC Lot: 49546)				mg/L	mg/L	%	%	%
Total Kjeldahl Nitrogen as N	ES0501690-004	Anonymous	0.1 mg/L	5.0	0.4	129	70	130
EP005: Total Organic Carbon (TOC)								
EP005: Total Organic Carbon (TOC) - (QC Lot: 49043)				mg/L	mg/L	%	%	%
Total Organic Carbon	ES0501668-010	Anonymous	1 mg/L	100	<1	78.0	70	130

Matrix Type: WATER

Analyte name	Laboratory Sample ID	Client Sample ID	LOR	Spike Concentration	Actual Results: Sample Result	Actual Results: Spike Recovery MS	Recovery Limits: Static Limits Low	Recovery Limits: Static Limits High
EP026: Chemical Oxygen Demand (COD)								
EP026: Chemical Oxygen Demand (COD) - (QC Lot: 50066)				mg/L	mg/L	%	%	%
Chemical Oxygen Demand	ES0501668-010	Anonymous	5 mg/L	143	7	106	70	130
EP074A: Monocyclic Aromatic Hydrocarbons								
EP074A: Monocyclic Aromatic Hydrocarbons - (QC Lot: 50190)				µg/L	µg/L	%	%	%
Benzene	ES0501691-001	Anonymous	5 µg/L	25	<5	92.6	70	130
Toluene			5 µg/L	25	<5	98.0	70	130
EP074E: Halogenated Aliphatic Compounds								
EP074E: Halogenated Aliphatic Compounds - (QC Lot: 50190)				µg/L	µg/L	%	%	%
1,1-Dichloroethene	ES0501691-001	Anonymous	5 µg/L	25	<5	93.6	70	130
Trichloroethene			5 µg/L	25	<5	95.5	70	130
EP074F: Halogenated Aromatic Compounds								
EP074F: Halogenated Aromatic Compounds - (QC Lot: 50190)				µg/L	µg/L	%	%	%
Chlorobenzene	ES0501691-001	Anonymous	5 µg/L	25	<5	108	70	130
EP080/071: Total Petroleum Hydrocarbons								
EP080/071: Total Petroleum Hydrocarbons - (QC Lot: 50189)				µg/L	µg/L	%	%	%
C6 - C9 Fraction	ES0501668-010	Anonymous	20 µg/L	250	<20	97.8	80	120

ALS Environmental

INTERPRETIVE QUALITY CONTROL REPORT

Client	:	**SINCLAIR KNIGHT MERZ**	**Laboratory**	:	ALS Environmental Sydney	**Page**	: 1 of 9
Contact	:	MS LOUSIE MACDONALD	**Contact**	:	Greg Vogel		
Address	:	P O BOX 164 ST LEONARDS NSW AUSTRALIA 2065	**Address**	:	277-289 Woodpark Road Smithfield NSW Australia 2164	**Work order**	: **ES0501695**
						Amendment No.	:
Project	:	EN01669	**Quote number**	:	----	**Date received**	: 7 Mar 2005
Order number	:	- Not provided -				**Date issued**	: 17 Mar 2005
C-O-C number	:	- Not provided -					
Site	:	- Not provided -					
E-mail	:	lmacdonald@skm.com.au	**E-mail**	:	Greg.Vogel@alsenviro.com	**No. of samples**	
Telephone	:	(02) 9928-2100	**Telephone**	:	61-2-87848555	**Received**	: 4
Facsimile	:	(02) 9928-2272	**Facsimile**	:	61-2-87848500	**Analysed**	: 4

This Interpretive Quality Control Report was issued on 17 Mar 2005 for the ALS work order reference ES0501695 and supersedes any previous reports with this reference.
This report contains the following information:

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

Interpretive Quality Control Report - Analysis Holding Time

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 preclude subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the sample aliquot was taken. Elapsed time to analysis represents time from sampling where no extraction / digestion is involved or time from extraction / digestion where this is present. For composite samples, sampling date/time is taken as that of the oldest sample contributing to that composite. Sample date/time for laboratory produced leaches are taken from the completion date/time of the leaching process. Outliers for holding time are based on USEPA SW846, APHA, AS and NEPM (1999). Failed outliers, refer to the 'Summary of Outliers'.

Matrix Type: WATER ***Analysis Holding Time and Preserva***

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
ED093F: Major Cations - Filtered							
Clear Plastic Bottle - Natural MW39D, MW40S, MW40D	**2 Mar 2005**	----	----	----	**10 Mar 2005**	30 Mar 2005	Pass
Clear Plastic Bottle - Nitric Acid; Filtered MW39S	**2 Mar 2005**	----	----	----	**10 Mar 2005**	30 Mar 2005	Pass
EG020A-F: Dissolved Metals by ICP-MS - Suite A							
Clear Plastic Bottle - Nitric Acid; Filtered MW39S, MW39D, MW40S, MW40D	**2 Mar 2005**	----	----	----	**15 Mar 2005**	29 Aug 2005	Pass
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered MW39S, MW39D, MW40S, MW40D	**2 Mar 2005**	----	----	----	**14 Mar 2005**	30 Mar 2005	Pass
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered							
Amber Glass Bottle - Unpreserved MW39S	**2 Mar 2005**	----	----	----	**8 Mar 2005**	3 Mar 2005	**Fail by 4 da**
Clear Plastic Bottle - Natural MW39D, MW40S, MW40D	**2 Mar 2005**	----	----	----	**8 Mar 2005**	3 Mar 2005	**Fail by 4 da**
EK055G: Ammonia as N by Discreate analyser							
Amber Glass Bottle - Unpreserved MW39S	**2 Mar 2005**	----	----	----	**9 Mar 2005**	30 Mar 2005	Pass
Clear Plastic Bottle - Sulphuric Acid MW39D, MW40S, MW40D	**2 Mar 2005**	----	----	----	**9 Mar 2005**	30 Mar 2005	Pass
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser							
Amber Glass Bottle - Unpreserved MW39S	**2 Mar 2005**	----	----	----	**8 Mar 2005**	4 Mar 2005	**Fail by 3 da**
Clear Plastic Bottle - Natural MW39D, MW40S, MW40D	**2 Mar 2005**	----	----	----	**8 Mar 2005**	4 Mar 2005	**Fail by 3 da**
EK061: Total Kjeldahl Nitrogen as N							
Amber Glass Bottle - Unpreserved MW39S	**2 Mar 2005**	**9 Mar 2005**	30 Mar 2005	Pass	**9 Mar 2005**	30 Mar 2005	Pass

Matrix Type: WATER

Analysis Holding Time and Preserv

Method / Container / Client Sample ID(s)		Date Sampled	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EK061: Total Kjeldahl Nitrogen as N - **continued**								
Clear Plastic Bottle - Sulphuric Acid MW39D, MW40D	MW40S,	**2 Mar 2005**	**9 Mar 2005**	30 Mar 2005	Pass	**9 Mar 2005**	30 Mar 2005	Pass
EP005: Total Organic Carbon								
Amber VOC Vial - HCl MW39S		**2 Mar 2005**	----	----	----	**8 Mar 2005**	30 Mar 2005	Pass
Clear Plastic Bottle - Sulphuric Acid MW39D, MW40D	MW40S,	**2 Mar 2005**	----	----	----	**8 Mar 2005**	30 Mar 2005	Pass
EP026: Chemical Oxygen Demand (COD)								
Amber Glass Bottle - Unpreserved MW39S		**2 Mar 2005**	----	----	----	**11 Mar 2005**	30 Mar 2005	Pass
Clear Plastic Bottle - Sulphuric Acid MW39D, MW40D	MW40S,	**2 Mar 2005**	----	----	----	**11 Mar 2005**	30 Mar 2005	Pass
EP030: Biochemical Oxygen Demand (BOD)								
Amber Glass Bottle - Unpreserved MW39S		**2 Mar 2005**	----	----	----	**8 Mar 2005**	4 Mar 2005	**Fail by 4 d**
Clear Plastic Bottle - Natural MW39D, MW40D	MW40S,	**2 Mar 2005**	----	----	----	**8 Mar 2005**	4 Mar 2005	**Fail by 4 d**
EP071: TPH - Semivolatile Fraction								
Amber Glass Bottle - Unpreserved MW39S, MW40S,	MW39D, MW40D	**2 Mar 2005**	**9 Mar 2005**	9 Mar 2005	Pass	**10 Mar 2005**	18 Apr 2005	Pass
EP074: Volatile Organic Compounds								
Amber VOC Vial - HCl MW39S, MW40S,	MW39D, MW40D	**2 Mar 2005**	----	----	----	**10 Mar 2005**	16 Mar 2005	Pass
EP075: Semivolatile Organic Compounds								
Amber Glass Bottle - Unpreserved MW39S, MW40S,	MW39D, MW40D	**2 Mar 2005**	**9 Mar 2005**	9 Mar 2005	Pass	**10 Mar 2005**	18 Apr 2005	Pass
EP080: TPH Volatiles/BTEX								
Amber VOC Vial - HCl MW39S, MW40S,	MW39D, MW40D	**2 Mar 2005**	----	----	----	**10 Mar 2005**	16 Mar 2005	Pass

Interpretive Quality Control Report - Frequency of Quality Control Samples

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which this work order was processed. Actual rate should be greater than or equal to the expected rate.

Matrix Type: WATER

Frequency of Quality Control San

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
ED093F: Major Cations - Filtered	4	37	10.8	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-F: Dissolved Metals by ICP-MS - Suite A	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	2	20	10.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered	1	4	25.0	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	3	21	14.3	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	2	18	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	2	16	12.5	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	9	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	1	9	11.1	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	1	7	14.3	13.3	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	8	12.5	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	2	19	10.5	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Laboratory Control Samples (LCS)					
ED093F: Major Cations - Filtered	2	37	5.4	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-F: Dissolved Metals by ICP-MS - Suite A	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered	1	4	25.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	2	21	9.5	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	16	6.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	2	9	22.2	10.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	1	7	14.3	6.7	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP071: TPH - Semivolatile Fraction	1	17	5.9	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	8	12.5	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP075: Semivolatile Organic Compounds	1	12	8.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement

ALS Environmental

Frequency of Quality Control Sa

Matrix Type: WATER

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Method Blanks (MB)					
ED093F: Major Cations - Filtered	2	37	5.4	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG020A-F: Dissolved Metals by ICP-MS - Suite A	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered	1	4	25.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	2	21	9.5	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	16	6.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP030: Biochemical Oxygen Demand (BOD)	1	7	14.3	6.7	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP071: TPH - Semivolatile Fraction	1	17	5.9	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	8	12.5	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP075: Semivolatile Organic Compounds	1	12	8.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
Matrix Spikes (MS)					
EG020A-F: Dissolved Metals by ICP-MS - Suite A	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG035F: Dissolved Mercury by FIMS	1	20	5.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered	1	4	25.0	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK055G: Ammonia as N by Discreate analyser	2	21	9.5	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser	1	18	5.6	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EK061: Total Kjeldahl Nitrogen as N	1	16	6.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP005: Total Organic Carbon	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP026: Chemical Oxygen Demand (COD)	1	9	11.1	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP074: Volatile Organic Compounds	1	8	12.5	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement
EP080: TPH Volatiles/BTEX	1	19	5.3	5.0	NEPM 1999 Schedule B(3) and ALSE QCS3 requirement

Interpretive Quality Control Report - Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged on the 'Quality Control Report'. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). - Anonymous - Client Sample IDs refer to samples which are not specifically part of this work order but formed part of the QC process lot.

Non-surrogates

Matrix Type: WATER

Summary of Outliers - Quality Control San

ALS QC Lot	Matrix Type	Laboratory Sample ID	Client Sample ID	Analyte	Data	Limits	Comment
Laboratory Control Samples (LCS)							
EP075A: Phenolic Compounds	WATER	52486-015	----	Pentachlorophenol	107 %	4-101 %	Recovery greater than upper control limit

- **For all matrices, no RPD recovery outliers occur for the duplicate analysis.**
- **For all matrices, no method blank result outliers occur.**
- **For all matrices, no matrix spike recoveries breaches occur.**

Surrogates

- **For all matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time

The following report highlights outliers within this 'Interpretive Quality Control Report - Analysis Holding Time'.

Summary of Outliers - Analysis Holding times and Preser

Matrix Type: WATER

Method / Container / Client Sample ID(s)	Date Sampled	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Pass?	Date analysed	Due for analysis	Pass?
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered							
Amber Glass Bottle - Unpreserved MW39S	**2 Mar 2005**	----	----	----	**8 Mar 2005**	3 Mar 2005	**Fail by 4**
EG050G-F: Hexavalent Chromium by Discrete Analyser - Filtered							
Clear Plastic Bottle - Natural MW39D, MW40S, MW40D	**2 Mar 2005**	----	----	----	**8 Mar 2005**	3 Mar 2005	**Fail by 4**
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser							
Amber Glass Bottle - Unpreserved MW39S	**2 Mar 2005**	----	----	----	**8 Mar 2005**	4 Mar 2005	**Fail by 3**
EK059G: Nitrite and Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Natural MW39D, MW40S, MW40D	**2 Mar 2005**	----	----	----	**8 Mar 2005**	4 Mar 2005	**Fail by 3**
EP030: Biochemical Oxygen Demand (BOD)							
Amber Glass Bottle - Unpreserved MW39S	**2 Mar 2005**	----	----	----	**8 Mar 2005**	4 Mar 2005	**Fail by 4**
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural MW39D, MW40S, MW40D	**2 Mar 2005**	----	----	----	**8 Mar 2005**	4 Mar 2005	**Fail by 4**

Outliers : Frequency of Quality Control Samples

The following report highlights outliers within this 'Interpretive Quality Control Report - Frequency of Quality Control Samples'.

- **No frequency outliers occur.**

Method Reference Summary

The analytical procedures used by ALS Environmental are based on established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house procedure 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 herein. Reference methods from which ALSE methods are based are provided in parenthesis.

Matrix Type: WATER

Preparation Methods

EK061/EK067 : TKN/TP Digestion - APHA 20th ed., 4500 Norg - D; APHA 20th ed., 4500 P - H. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ORG14 : Separatory Funnel Extraction of Liquids - 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.

Analytical Methods

EA065 : Hardness as CaCO3 - APHA 20th ed., 2340. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

ED093F : Major Cations - Filtered - APHA 20th ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EG020A-F : Dissolved Metals by ICP-MS - Suite A - (APHA 20th ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

EG035F : Dissolved Mercury by FIMS - AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the 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)

EG050G-F : Hexavalent Chromium by Discrete Analyser - Filtered - APHA 20th ed., 3500 Cr-A & B. Hexavalent chromium is determined directly on water sample by Seal Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK055G : Ammonia as N by Discreate analyser - APHA 20th ed., 4500 NH3+-H Ammonia is determined by direct colorimetry by Seal. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK059G : Nitrite and Nitrate as N (NOx) by Discrete Analyser - APHA 20th ed., 4500 NO3- I. SEAL Method 2-018-1-L February 2003. Combined oxidised Nitrogen (NO2+NO3) is determined by Cadmium Reduction and direct colourimetry by SEAL. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK061 : Total Kjeldahl Nitrogen as N - APHA 20th ed., 4500-Norg-D 100mL water samples are digested using a traditional Kjeldahl digestion followed by determination by FIA. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EK062-SYD : Total Nitrogen as N (TKN + Nox) - APHA 20th ed., 4500 N org / NO3. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP005 : Total Organic Carbon - APHA 20th ed., 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP026 : Chemical Oxygen Demand (COD) - APHA 20th ed., 5220 B. Samples are digested with a known excess of acidic potassium dichromate solution using silver sulphate as a catalyst. The chromium is reduced from Cr (VI) to Cr (III) by oxygen. The unreacted Cr (VI) can then be titrated with ferrous ammonium sulfate to determine the amount of Cr (VI) consumed. The oxidisable organic matter can be calculated in terms of oxygen equivalents. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Matrix Type: WATER

Analytical Methods

EP030 : Biochemical Oxygen Demand (BOD) - APHA 20th ed., 5210 B The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP071 : TPH - Semivolatile Fraction - 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)

EP074 : Volatile Organic Compounds - USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

EP075 : Semivolatile Organic Compounds - 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)

EP080 : TPH Volatiles/BTEX - USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

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NATA Accredited Laboratory Number: 1464

The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to Australian national standards of measurement. This document shall not be reproduced except in full.

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CERTIFICATE OF ANALYSIS

Contents :
1. Cover Pages (2)
2. Analysis Report Pages
3. QA/QC Appendix
4. Additional Reports - External (if applicable)
5. Chain of Custody (if applicable)

Report No.	:	5E0674
Attention	:	Ms Louise Macdonald
Client	:	Sinclair Knight Merz
	:	PO Box 164
	:	ST LEONARDS NSW 1590
Samples	:	3
Reference/Order	:	EN01669
Project	:	MACDONALDTOWN
Received Samples	:	21/02/05
Instructions	:	21/02/05
Date Reported	:	03/03/05

PLEASE SEE FOLLOWING PAGES FOR METHOD LISTING AND RESULTS

RESULTS

All samples were analysed as received. This report relates specifically to the samples as received. Results relate to the source material only to the extent that the samples as supplied are truly representative of the sample source. This report replaces any preliminary results issued. Note that for methods indicated with "#", NATA accreditation does not cover the performance of this service. Three significant figures (or 2 for <10PQL) are reported for statistical purposes only. Where "Total" concentrations are reported for organic suites of compounds this is the summation of the individual compounds and the PQL is noted for reporting purposes only. This report has been authorized by the NATA signatories listed in the method descriptions section on the following page.

James McMahon B.Sc.,Ph.D. (Chem.)
Manager - Environmental

amdel

Report No. : 5E0674

Please note: Where samples are collected/submitted over several days, the date on which the last samples were analysed or extracted is reported.
Unless Ferrous Iron is determined on site, the possibility of a ferrous-ferric ratio change may occur.

Method	Description	Extracted	Analysed	Authorised	
E7500	Moisture (%w/w)	22/02/05	22/02/05	ZSI	096
E1230	TPH C6-C9 by Purge & Trap	22/02/05	22/02/05	GTO	094
E1221	TPH (C10-C36)	22/02/05	23/02/05	GTO	094
E1010	Benzene,Toluene,Ethylbenzene & Xylene	22/02/05	22/02/05	GTO	094
E5910	Metals by ICP-AES	28/02/05	28/02/05	DLU	093
E5950	Mercury in Soil	22/02/05	23/02/05	DLU	093
E1180	Semivolatile Organic Compounds	22/02/05	28/02/05	LHA	095
E1290	Volatile Organic Compounds	22/02/05	23/02/05	GTO	094

amdel

NATA Signatory

Initials	Name	Sections/Methods
MCM	James McMahon	093, 094, 095, 101
MNG	Minh Nguyen	094, 095
MFA	Mark Fahmy	094, 095
LHA	Ly Kim Ha	094, 095, 096
DJA	Dilanthi Jayamanne	094
GTO	Greg Towers	094
GPE	Geoff Peterson	095
DLU	Darrel Luck	093
MAV	Merrin Avery	101
DBL	Dianne Blane	101
NCO	Nathan Cooper	101
AGR	Alison Graham	101
PKE	Peter Keyte	101

amdel

Job Number : 5E0674
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179645 MW41D	E179647 MW38D			
	Sample Id	7.0m	2-2.45m			
	PQL					
E7500 Moisture (%w/w) in Soil						
Moistures test performed at 105oC						
Moisture Content	1	19%	17%			
E1230 TPH in Soil by Purge & Trap/GC-MS						
C6-C9 Fraction	5	nd	nd			
E1221 TPH in Soil						
C10-C14 Fraction	10	nd	nd			
C15-C28 Fraction	50	nd	nd			
C29-C36 Fraction	50	nd	nd			
E1010 BTEX (P&T) in Soil						
Benzene	0.2	nd	nd			
Toluene	1	nd	nd			
Ethylbenzene	1	nd	nd			
m&p-Xylene	2	nd	nd			
o-Xylene	1	nd	nd			
4-Bromofluorobenzene-SURROGATE	1	85%	86%			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = < PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674

Client : Sinclair Knight Merz

Reference : EN01669

Project : MACDONALDTOWN

Analyte	Lab No	E179645 MW41D	E179647 MW38D			
	Sample Id	7.0m	2-2.45m			
	PQL					
E5910 Metals in Soil						
Arsenic	5	nd	nd			
Cadmium	0.5	nd	nd			
Chromium	5	12	9			
Copper	5	17	nd			
Nickel	2	nd	3			
Lead	5	7	9			
Zinc	5	6	nd			
E5950 Mercury in Soil						
Mercury	0.05	0.05	0.05			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

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Job Number : 5E0674
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179645	E179647			
		MW41D	MW38D			
	Sample Id	7.0m	2-2.45m			
	PQL					
E1290 Volatile Organic Compounds in Soil						
Benzene	0.5	nd	nd			
Bromobenzene	1	nd	nd			
Bromochloromethane	1	nd	nd			
Bromodichloromethane	1	nd	nd			
Bromoform	1	nd	nd			
Bromomethane	1	nd	nd			
n-Butylbenzene	1	nd	nd			
sec-Butylbenzene	1	nd	nd			
tert-Butylbenzene	1	nd	nd			
Carbon tetrachloride	1	nd	nd			
Chlorobenzene	1	nd	nd			
Chloroethane	1	nd	nd			
Chloroform	1	nd	nd			
Chloromethane	1	nd	nd			
2-Chlorotoluene	1	nd	nd			
4-Chlorotoluene	1	nd	nd			
Dibromochloromethane	1	nd	nd			
1.2-Dibromo-3-chloropropane	1	nd	nd			
1.2-Dibromoethane (EDB)	1	nd	nd			
Dibromomethane	1	nd	nd			
1.2-Dichlorobenzene	1	nd	nd			
1.3-Dichlorobenzene	1	nd	nd			
1.4-Dichlorobenzene	1	nd	nd			
Dichlorodifluoromethane	1	nd	nd			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179645	E179647			
		MW41D	MW38D			
	Sample Id	7.0m	2-2.45m			
	PQL					
1.1-Dichloroethene	1	nd	nd			
1.2-Dichloroethane	1	nd	nd			
1.1-Dichloroethane	1	nd	nd			
cis-1.2-Dichloroethene	1	nd	nd			
trans-1.2-Dichloroethene	1	nd	nd			
1.2-Dichloropropane	1	nd	nd			
1.3-Dichloropropane	1	nd	nd			
2.2-Dichloropropane	1	nd	nd			
1.1-Dichloropropylene	1	nd	nd			
cis-1.3-Dichloropropylene	1	nd	nd			
trans-1.3-Dichloropropylene	1	nd	nd			
Ethylbenzene	1	nd	nd			
Hexachlorobutadiene	1	nd	nd			
Isopropylbenzene	1	nd	nd			
p-Isopropyltoluene	1	nd	nd			
Methylene chloride	1	nd	nd			
Naphthalene	1	nd	nd			
n-Propylbenzene	1	nd	nd			
Styrene	1	nd	nd			
1.1.1.2-Tetrachloroethane	1	nd	nd			
1.1.2.2-Tetrachloroethane	1	nd	nd			
Tetrachloroethene	1	nd	nd			
Toluene	1	nd	nd			
1.2.3-Trichlorobenzene	1	nd	nd			
1.2.4-Trichlorobenzene	1	nd	nd			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179645	E179647			
		MW41D	MW38D			
	Sample Id	7.0m	2-2.45m			
	PQL					
1.1.1-Trichloroethane	1	nd	nd			
1.1.2-Trichloroethane	1	nd	nd			
Trichloroethene	1	nd	nd			
Trichlorofluoromethane	1	nd	nd			
1.2.3-Trichloropropane	1	nd	nd			
1.2.4-Trimethylbenzene	1	nd	nd			
1.3.5-Trimethylbenzene	1	nd	nd			
Vinyl chloride	1	nd	nd			
ortho-Xylene	1	nd	nd			
meta- & para-Xylene	2	nd	nd			
Pentafluorobenzene-SURROGATE	1	96%	98%			
Toluene-D8-SURROGATE	1	102%	97%			
4-Bromofluorobenzene-SURROGATE	1	98%	99%			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674

Client : Sinclair Knight Merz

Reference : EN01669

Project : MACDONALDTOWN

Analyte	Lab No	E179645	E179647			
		MW41D	MW38D			
	Sample Id	7.0m	2-2.45m			
	PQL					
E1180 Semivolatile Organic Compounds						
Phenol	1	nd	nd			
Aniline	10	nd	nd			
Bis(2-chloroethyl) ether	1	nd	nd			
2-Chlorophenol	1	nd	nd			
1.3-Dichlorobenzene	1	nd	nd			
1.4-Dichlorobenzene	1	nd	nd			
1.2-Dichlorobenzene	1	nd	nd			
Benzyl Alcohol	1	nd	nd			
2-Methylphenol	1	nd	nd			
N-Nitrosodi-n-propylamine	1	nd	nd			
Bis(2-chloroisopropyl) ether	1	nd	nd			
3 and 4-Methyl phenol	1	nd	nd			
Hexachloroethane	1	nd	nd			
Nitrobenzene	1	nd	nd			
Isophorone	1	nd	nd			
2-Nitrophenol	1	nd	nd			
2.4-Dimethylphenol	1	nd	nd			
Bis(2-chloroethoxy) methane	1	nd	nd			
Benzoic Acid	10	nd	nd			
2.4-Dichlorophenol	1	nd	nd			
1.2.4-Trichlorobenzene	1	nd	nd			
Naphthalene	1	nd	nd			
4-Chloroaniline	1	nd	nd			
Hexachlorobutadiene	1	nd	nd			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

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Job Number : 5E0674
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179645	E179647			
		MW41D	MW38D			
	Sample Id	7.0m	2-2.45m			
	PQL					
4-Chloro-3-methylphenol	1	nd	nd			
2-Methylnaphthalene	1	nd	nd			
Hexachlorocyclopentadiene	1	nd	nd			
2.4.6-Trichlorophenol	1	nd	nd			
2.4.5-Trichlorophenol	1	nd	nd			
2-Chloronaphthalene	1	nd	nd			
2-Nitroaniline	1	nd	nd			
Dimethyl phthalate	1	nd	nd			
2.6-Dinitrotoluene	1	nd	nd			
Acenaphthylene	1	nd	nd			
3-Nitroaniline	1	nd	nd			
Acenaphthene	1	nd	nd			
2.4-Dinitrophenol	1	nd	nd			
4-Nitrophenol	1	nd	nd			
Dibenzofuran	1	nd	nd			
Diethyl phthalate	1	nd	nd			
Fluorene	1	nd	nd			
4-Chlorophenyl phenyl ether	1	nd	nd			
4-Nitroaniline	1	nd	nd			
4.6-Dinitro-2-methylphenol	1	nd	nd			
Azobenzene	10	nd	nd			
N-Nitrosodiphenylamine	10	nd	nd			
a-BHC	1	nd	nd			
4-Bromophenyl phenyl ether	1	nd	nd			
Hexachlorobenzene	1	nd	nd			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

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Job Number : 5E0674
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179645	E179647			
		MW41D	MW38D			
	Sample Id	7.0m	2-2.45m			
	PQL					
b-BHC	1	nd	nd			
Pentachlorophenol	1	nd	nd			
g-BHC	1	nd	nd			
Phenanthrene	1	nd	nd			
Anthracene	1	nd	nd			
d-BHC	1	nd	nd			
Heptachlor	1	nd	nd			
Di-n-butyl phthalate	1	nd	nd			
Aldrin	1	nd	nd			
Heptachlor epoxide	1	nd	nd			
Fluoranthene	1	nd	nd			
Pyrene	1	nd	nd			
Endosulfan 1	1	nd	nd			
4.4-DDE	1	nd	nd			
Dieldrin	1	nd	nd			
Endrin	1	nd	nd			
Endosulfan 2	1	nd	nd			
4.4-DDD	1	nd	nd			
Endrin aldehyde	1	nd	nd			
Butyl benzyl phthalate	1	nd	nd			
Endosulfan sulfate	1	nd	nd			
4.4-DDT	1	nd	nd			
3.3-Dichlorobenzidine	10	nd	nd			
Benzo(a)anthracene	1	nd	nd			
Chrysene	1	nd	nd			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179645	E179647			
		MW41D	MW38D			
	Sample Id	7.0m	2-2.45m			
	PQL					
Bis(2-ethylhexyl) phthalate	1	nd	nd			
Di-n-octylphthalate	1	nd	nd			
Benzo(b)fluoranthene	1	nd	nd			
Benzo(k)fluoranthene	1	nd	nd			
Benzo(a)pyrene	1	nd	nd			
Indeno(1.2.3-cd)pyrene	1	nd	nd			
Dibenz(a.h)anthracene	1	nd	nd			
Benzo(g.h.i)perylene	1	nd	nd			
2-Fluorophenol-SURROGATE	1	72%	70%			
Phenol-D5-SURROGATE	1	95%	98%			
Nitrobenzene-D5-SURROGATE	1	72%	73%			
2-Fluorobiphenyl-SURROGATE	1	108%	99%			
2.4.6-Tribromophenol-SURROGATE	1	79%	77%			
p-Terphenyl-D14-SURROGATE	1	101%	102%			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

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AMDEL INTERNAL QUALITY ASSURANCE REVIEW.

Job No. 5E0674

General

1. Laboratory QA/QC including Method Blanks, Duplicates, Matrix Spikes, Laboratory Control Samples or CRM's are included in this QA/QC appendix. (Where applicable)
2. Inter-Laboratory proficiency trial results are available upon request.
3. PQLs are matrix dependent and are increased accordingly where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spike or surrogate recoveries.
5. Where 3 and 2 significant figures are reported for >10x PQL and <10x PQL respectively, the last figure is uncertain and is provided for statistical purposes only.
6. Samples duplicated or spiked are from this job only and are identified in the following QA/QC report.
7. SVOC analyses on waters are performed on homogenized, unfiltered samples, unless noted otherwise.

Maximum Holding Times for Soils, Sediments and Waters

Parameter	Holding Times
Soils	
Volatile and Semi-Volatile Organic Analysis.	Extracted in 14 days, analysed within 40 days.
Metals	Extracted and analysed within 28 days-6 months.
Inorganics*	Extracted and analysed within 7-28 days.
TCLPs*	Extracted and analysed within 14 days, (Zero Headspace-TCLP 7 days).
Waters	
Volatile Organic Analysis	Analysed within 7 days (USEPA requires 14 days).
Semi-Volatile Organic Analysis	Extracted in 7 days, analysed within 40 days.
Inorganics*	Analysed within 24 hrs-28 days.
Metals (dissolved metals should be supplied field filtered)	Prepared and analysed within 28 days.

* Please refer to 'Preservation Information Chart for Soils, Sediments & Waters' for further information. (ISFORM.098). Holding times may be extended with the use of preservation bottles and/or freezing samples. Holding times can be calculated from dates reported in the body of the report. Tests clearly exceeding holding times will be noted when sufficient information is provided.
Reference: USEPA SW846 and AMDEL SPM-01 (incorporating NEPM Guidelines).

Chain of Custody and Sample Integrity	Yes/NO/NA
Chain of Custody / instructions received with samples	Yes
Custody seals were received intact, if used	NA
Samples were received chilled and in good condition	Yes
Samples received appropriately preserved for all tests	Yes
VOC/SVOC samples were received in teflon lined containers	Yes
Samples received with Zero Headspace	Yes
Chain of Custody completed and attached (if applicable)	Yes

Chromatography Calibration/Acceptence Criteria (if applicable)

Retention time window meets acceptance criteria (+/-2%)	Yes
Reference standard meets acceptance criteria (+/-10%)	Yes
Recalibration standard meets acceptance criteria (+/-15%)	Yes
Internal standard recovery acceptable.	Yes

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AMDEL INTERNAL QUALITY ASSURANCE REVIEW Cont..

Amdel QA/QC Compliance Assessment

	Compliance
Surrogates performed on all appropriate GC analyses and meet acceptance limits (70% - 130% recovery*).	Please see body of report
Matrix Spikes performed once per process batch and at least 1 in 20 samples (Results meet acceptance limits - 70% - 130% recovery* or 80% - 120% recovery* for inorganics in water.)	Please see body of report
Laboratory Control samples performed once per process batch and at least 1 in 20 samples (Results meet acceptance limits - 70% - 130% recovery* in soil or 70%-130%/90-110% recovery* for waters.)	Yes
Laboratory Duplicate samples performed once per process batch and at least 1 in 10 samples	Yes
Laboratory duplicates meet acceptance criteria <4 PQL - +/- 2 PQL 4-10 PQL - 25-50 or 50% RPD >10 PQL - 10-30 or 30% RPD	Please see body of report
Method Blanks performed once per process batch and at least 1 in 20 samples (Results not detected at the PQL).	Yes

N/A=Not Applicable.

* Phenols 50% - 130% recovery
* SVOCs 60% - 130% recovery
* Phenoxy Acid Herbicides 60% - 140% recovery

QA/QC Appendix

Please refer to the following pages for the QA/QC data.
For further information on samples or non-conformance in QC protocols please see notations in the body of the report plus comments on the following page.

Additional Comments

James McMahon B.Sc.,Ph.D. (Chem.)
Manager - Environmental

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AMDEL STANDARD LABORATORY QUALIFIER CODES.

Job NO. 5E0674

Qualifier Codes	Description
*	PQLs are raised due to matrix interference.
@	PQLs are raised due to insufficient sample provided for analysis.
S	The mass imbalance indicates the presence of other ions not measured as part of this procedure.
nd	< PQL
--	Not applicable
LNR	The sample was listed on the COC, but not received.
IS	Insufficient sample was supplied to conduct this analysis.
AN	The analysis indicates the presences of an analyte that has been 'tentatively' identified, and the associated numerical value represents it's approximate concentration.
A	Sample results are reported on an 'as received' basis (not moisture corrected).
B	The sample was not received in a suitable timeframe to allow completion within the recommended holding time.
C	This sample was received with headspace.
D	This sample was received with the incorrect preservation for this analysis.
E	The raw data indicates the absence of 0.055g of Copper Sulphate in the sample.
F	This sample contained significant amounts of solids and was therefore analysed by settling and decanting the aqueous phase to avoid including the solid in the analysis portion.
G	This test was performed outside the recommended holding time.
H	This sample contained significant material >5mm which was removed prior to analysis.
ISD	Insufficient sample was supplied to conduct duplicate analyses.
ISM	Insufficient sample was supplied to conduct matrix spike analyses.
W	The spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
J	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause.
K	The matrix spike concentration is less than five times the background concentration in the sample, and therfore the spike recovery can not be determined.
L	The surrogate recovery is outside of the recommended acceptance criteria, due to matrix interference.
M	The surrogate recovery is outside of the recommended acceptance criteria. Insufficent sample remains to perform re-analysis.
N	Results are expressed in mg/L (ppm) due to the high concentration of the analyte.
O	The results reported are 'recoverable organics' for this fraction, as the chromatogram and peak shape indicates the presence of a significant concentration of polar compounds.
P	The concentration reported is mainly due to a single peak.
Q	This samples contains volatile halogenated oxygenated or other compounds that are included and quantitated as part of TPH C6-9.
R	Theoretically the total result should be greater or equal to the dissolved concentration. However the difference reported is within the uncertainty of the individual tests.
S	The mass imbalance was equal to or less than 0.2 milli-equivalents.
T	During Kjeldahl digestion, nitrate (>10mg/L) can oxidise ammonia resulting in a negative TKN interference, which may have occurred for this sample.
U	Theoretically the TKN result should be greater or equal to ammonia concentration. However the difference reported is within the uncertainty of the individual tests.
V	This sample contained significant amounts of sediment which was included in the analysis portion as requested.
SUR	Surrogate recoveries could not be determined due to the dilution required to quantify the analyte.

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Job Number : 5E0674

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E1230 TPH in Soil by Purge & Trap/GC-MS							
C6-C9 Fraction	100	75			75%		
E1221 TPH in Soil							
C10-C14 Fraction							
C15-C28 Fraction	550	440			79%		
C29-C36 Fraction							
E1010 BTEX (P&T) in Soil							
Benzene	10	10			102%		
Toluene	10	10			103%		
Ethylbenzene	10	9			94%		
m&p-Xylene	20	19			93%		
o-Xylene	10	10			96%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E1230 TPH in Soil by Purge & Trap/GC-MS						
C6-C9 Fraction	5	nd				
E1221 TPH in Soil						
C10-C14 Fraction	10	nd				
C15-C28 Fraction	50	nd				
C29-C36 Fraction	50	nd				
E1010 BTEX (P&T) in Soil						
Benzene	0.2	nd				
Toluene	1	nd				
Ethylbenzene	1	nd				
m&p-Xylene	2	nd				
o-Xylene	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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Job Number : 5E0674

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E5910 Metals in Soil							
Arsenic	50	51			103%		
Cadmium	50	48			96%		
Chromium	50	51			101%		
Copper	50	53			106%		
Nickel	50	51			102%		
Lead	50	51			101%		
Zinc	50	48			96%		
E5950 Mercury in Soil							
Mercury	0.50	0.53			106%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E5910 Metals in Soil						
Arsenic	5	nd				
Cadmium	0.5	nd				
Chromium	5	nd				
Copper	5	nd				
Nickel	2	nd				
Lead	5	nd				
Zinc	5	nd				
E5950 Mercury in Soil						
Mercury	0.05	nd				

PQL = Practical Quantitation Limit
nd = < PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0674

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E1290 Volatile Organic Compounds in Soil							
Benzene	10	10			99%		
Bromobenzene							
Bromochloromethane							
Bromodichloromethane							
Bromoform							
Bromomethane							
n-Butylbenzene							
sec-Butylbenzene							
tert-Butylbenzene							
Carbon tetrachloride							
Chlorobenzene	10	10			101%		
Chloroethane							
Chloroform							
Chloromethane							
2-Chlorotoluene							
4-Chlorotoluene							
Dibromochloromethane							
1.2-Dibromo-3-chloropropane							
1.2-Dibromoethane (EDB)							
Dibromomethane							
1.2-Dichlorobenzene							
1.3-Dichlorobenzene							
1.4-Dichlorobenzene							
Dichlorodifluoromethane							

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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Job Number : 5E0674

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
1.1-Dichloroethene	10	9			86%		
1.2-Dichloroethane							
1.1-Dichloroethane							
cis-1.2-Dichloroethene							
trans-1.2-Dichloroethene							
1.2-Dichloropropane							
1.3-Dichloropropane							
2.2-Dichloropropane							
1.1-Dichloropropylene							
cis-1.3-Dichloropropylene							
trans-1.3-Dichloropropylene							
Ethylbenzene							
Hexachlorobutadiene							
Isopropylbenzene							
p-Isopropyltoluene							
Methylene chloride							
Naphthalene							
n-Propylbenzene							
Styrene							
1.1.1.2-Tetrachloroethane							
1.1.2.2-Tetrachloroethane							
Tetrachloroethene							
Toluene	10	10			97%		
1.2.3-Trichlorobenzene							
1.2.4-Trichlorobenzene							

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0674

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
1.1.1-Trichloroethane							
1.1.2-Trichloroethane							
Trichloroethene	10	9			95%		
Trichlorofluoromethane							
1.2.3-Trichloropropane							
1.2.4-Trimethylbenzene							
1.3.5-Trimethylbenzene							
Vinyl chloride							
ortho-Xylene							
meta- & para-Xylene							

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E1290 Volatile Organic Compounds in Soil						
Benzene	0.5	nd				
Bromobenzene	1	nd				
Bromochloromethane	1	nd				
Bromodichloromethane	1	nd				
Bromoform	1	nd				
Bromomethane	1	nd				
n-Butylbenzene	1	nd				
sec-Butylbenzene	1	nd				
tert-Butylbenzene	1	nd				
Carbon tetrachloride	1	nd				
Chlorobenzene	1	nd				
Chloroethane	1	nd				
Chloroform	1	nd				
Chloromethane	1	nd				
2-Chlorotoluene	1	nd				
4-Chlorotoluene	1	nd				
Dibromochloromethane	1	nd				
1.2-Dibromo-3-chloropropane	1	nd				
1.2-Dibromoethane (EDB)	1	nd				
Dibromomethane	1	nd				
1.2-Dichlorobenzene	1	nd				
1.3-Dichlorobenzene	1	nd				
1.4-Dichlorobenzene	1	nd				
Dichlorodifluoromethane	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
1.1-Dichloroethene	1	nd				
1.2-Dichloroethane	1	nd				
1.1-Dichloroethane	1	nd				
cis-1.2-Dichloroethene	1	nd				
trans-1.2-Dichloroethene	1	nd				
1.2-Dichloropropane	1	nd				
1.3-Dichloropropane	1	nd				
2.2-Dichloropropane	1	nd				
1.1-Dichloropropylene	1	nd				
cis-1.3-Dichloropropylene	1	nd				
trans-1.3-Dichloropropylene	1	nd				
Ethylbenzene	1	nd				
Hexachlorobutadiene	1	nd				
Isopropylbenzene	1	nd				
p-Isopropyltoluene	1	nd				
Methylene chloride	1	nd				
Naphthalene	1	nd				
n-Propylbenzene	1	nd				
Styrene	1	nd				
1.1.1.2-Tetrachloroethane	1	nd				
1.1.2.2-Tetrachloroethane	1	nd				
Tetrachloroethene	1	nd				
Toluene	1	nd				
1.2.3-Trichlorobenzene	1	nd				
1.2.4-Trichlorobenzene	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
1.1.1-Trichloroethane	1	nd				
1.1.2-Trichloroethane	1	nd				
Trichloroethene	1	nd				
Trichlorofluoromethane	1	nd				
1.2.3-Trichloropropane	1	nd				
1.2.4-Trimethylbenzene	1	nd				
1.3.5-Trimethylbenzene	1	nd				
Vinyl chloride	1	nd				
ortho-Xylene	1	nd				
meta- & para-Xylene	2	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0674

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E1180 Semivolatile Organic Compounds							
Phenol	20	13			64%		
Aniline	-						
Bis(2-chloroethyl) ether	-						
2-Chlorophenol	20	20			99%		
1.3-Dichlorobenzene	-						
1.4-Dichlorobenzene	20	15			77%		
1.2-Dichlorobenzene	-						
Benzyl Alcohol	-						
2-Methylphenol	-						
N-Nitrosodi-n-propylamine	20	17			87%		
Bis(2-chloroisopropyl) ether	-						
3 and 4-Methyl phenol	-						
Hexachloroethane	-						
Nitrobenzene	-						
Isophorone	-						
2-Nitrophenol	-						
2.4-Dimethylphenol	-						
Bis(2-chloroethoxy) methane	-						
Benzoic Acid	-						
2.4-Dichlorophenol	-						
1.2.4-Trichlorobenzene	20	16			79%		
Naphthalene	-						
4-Chloroaniline	-						
Hexachlorobutadiene	-						

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0674

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
4-Chloro-3-methylphenol	20	18			88%		
2-Methylnaphthalene	-						
Hexachlorocyclopentadiene	-						
2.4.6-Trichlorophenol	-						
2.4.5-Trichlorophenol	-						
2-Chloronaphthalene	-						
2-Nitroaniline	-						
Dimethyl phthalate	-						
2.6-Dinitrotoluene	-						
Acenaphthylene	-						
3-Nitroaniline	-						
Acenaphthene	20	18			91%		
2.4-Dinitrophenol	-						
4-Nitrophenol							
Dibenzofuran	-						
Diethyl phthalate	-						
Fluorene	-						
4-Chlorophenyl phenyl ether	-						
4-Nitroaniline	-						
4.6-Dinitro-2-methylphenol	-						
Azobenzene	-						
N-Nitrosodiphenylamine	-						
a-BHC	-						
4-Bromophenyl phenyl ether	-						
Hexachlorobenzene	-						

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0674

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
b-BHC	-						
Pentachlorophenol	20	19			96%		
g-BHC	-						
Phenanthrene	-						
Anthracene	-						
d-BHC	-						
Heptachlor	-						
Di-n-butyl phthalate	-						
Aldrin	-						
Heptachlor epoxide	-						
Fluoranthene	-						
Pyrene	20	18			92%		
Endosulfan 1	-						
4.4-DDE	-						
Dieldrin	-						
Endrin	-						
Endosulfan 2	-						
4.4-DDD	-						
Endrin aldehyde	-						
Butyl benzyl phthalate	-						
Endosulfan sulfate	-						
4.4-DDT	-						
3.3-Dichlorobenzidine	-						
Benzo(a)anthracene	-						
Chrysene	-						

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0674

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
Bis(2-ethylhexyl) phthalate	-						
Di-n-octylphthalate	-						
Benzo(b)fluoranthene	-						
Benzo(k)fluoranthene	-						
Benzo(a)pyrene	-						
Indeno(1.2.3-cd)pyrene	-						
Dibenz(a.h)anthracene	-						
Benzo(g.h.i)perylene	-						

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0674

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E1180 Semivolatile Organic Compounds						
Phenol	1	nd				
Aniline	10	nd				
Bis(2-chloroethyl) ether	1	nd				
2-Chlorophenol	1	nd				
1.3-Dichlorobenzene	1	nd				
1.4-Dichlorobenzene	1	nd				
1.2-Dichlorobenzene	1	nd				
Benzyl Alcohol	1	nd				
2-Methylphenol	1	nd				
N-Nitrosodi-n-propylamine	1	nd				
Bis(2-chloroisopropyl) ether	1	nd				
3 and 4-Methyl phenol	1	nd				
Hexachloroethane	1	nd				
Nitrobenzene	1	nd				
Isophorone	1	nd				
2-Nitrophenol	1	nd				
2.4-Dimethylphenol	1	nd				
Bis(2-chloroethoxy) methane	1	nd				
Benzoic Acid	10	nd				
2.4-Dichlorophenol	1	nd				
1.2.4-Trichlorobenzene	1	nd				
Naphthalene	1	nd				
4-Chloroaniline	1	nd				
Hexachlorobutadiene	1	nd				

PQL = Practical Quantitation Limit
nd = < PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
4-Chloro-3-methylphenol	1	nd				
2-Methylnaphthalene	1	nd				
Hexachlorocyclopentadiene	1	nd				
2.4.6-Trichlorophenol	1	nd				
2.4.5-Trichlorophenol	1	nd				
2-Chloronaphthalene	1	nd				
2-Nitroaniline	1	nd				
Dimethyl phthalate	1	nd				
2.6-Dinitrotoluene	1	nd				
Acenaphthylene	1	nd				
3-Nitroaniline	1	nd				
Acenaphthene	1	nd				
2.4-Dinitrophenol	1	nd				
4-Nitrophenol	1	nd				
Dibenzofuran	1	nd				
Diethyl phthalate	1	nd				
Fluorene	1	nd				
4-Chlorophenyl phenyl ether	1	nd				
4-Nitroaniline	1	nd				
4.6-Dinitro-2-methylphenol	1	nd				
Azobenzene	10	nd				
N-Nitrosodiphenylamine	10	nd				
a-BHC	1	nd				
4-Bromophenyl phenyl ether	1	nd				
Hexachlorobenzene	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
b-BHC	1	nd				
Pentachlorophenol	1	nd				
g-BHC	1	nd				
Phenanthrene	1	nd				
Anthracene	1	nd				
d-BHC	1	nd				
Heptachlor	1	nd				
Di-n-butyl phthalate	1	nd				
Aldrin	1	nd				
Heptachlor epoxide	1	nd				
Fluoranthene	1	nd				
Pyrene	1	nd				
Endosulfan 1	1	nd				
4.4-DDE	1	nd				
Dieldrin	1	nd				
Endrin	1	nd				
Endosulfan 2	1	nd				
4.4-DDD	1	nd				
Endrin aldehyde	1	nd				
Butyl benzyl phthalate	1	nd				
Endosulfan sulfate	1	nd				
4.4-DDT	1	nd				
3.3-Dichlorobenzidine	10	nd				
Benzo(a)anthracene	1	nd				
Chrysene	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
Bis(2-ethylhexyl) phthalate	1	nd				
Di-n-octylphthalate	1	nd				
Benzo(b)fluoranthene	1	nd				
Benzo(k)fluoranthene	1	nd				
Benzo(a)pyrene	1	nd				
Indeno(1.2.3-cd)pyrene	1	nd				
Dibenz(a.h)anthracene	1	nd				
Benzo(g.h.i)perylene	1	nd				

PQL = Practical Quantitation Limit
nd = < PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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NATA Accredited Laboratory Number: 1464

The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to Australian national standards of measurement. This document shall not be reproduced except in full.

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CERTIFICATE OF ANALYSIS

Contents :
1. Cover Pages (2)
2. Analysis Report Pages
3. QA/QC Appendix
4. Additional Reports - External (if applicable)
5. Chain of Custody (if applicable)

Report No.	:	5E0674A
Attention	:	Ms Louise Macdonald
Client	:	Sinclair Knight Merz
	:	PO Box 164
	:	ST LEONARDS NSW 1590
Samples	:	1
Reference/Order	:	EN01669
Project	:	MACDONALDTOWN
Received Samples	:	22/02/05
Instructions	:	21/02/05
Date Reported	:	18/03/05

PLEASE SEE FOLLOWING PAGES FOR METHOD LISTING AND RESULTS

RESULTS

All samples were analysed as received. This report relates specifically to the samples as received. Results relate to the source material only to the extent that the samples as supplied are truly representative of the sample source. This report replaces any preliminary results issued. Note that for methods indicated with "#", NATA accreditation does not cover the performance of this service. Three significant figures (or 2 for <10PQL) are reported for statistical purposes only. Where "Total" concentrations are reported for organic suites of compounds this is the summation of the individual compounds and the PQL is noted for reporting purposes only. This report has been authorized by the NATA signatories listed in the method descriptions section on the following page.

James McMahon B.Sc.,Ph.D. (Chem.)
Manager - Environmental

amdel

Report No. : 5E0674A

Please note: Where samples are collected/submitted over several days, the date on which the last samples were analysed or extracted is reported.
Unless Ferrous Iron is determined on site, the possibility of a ferrous-ferric ratio change may occur.

Method	Description	Extracted	Analysed	Authorised	
E7500	Moisture (%w/w)	22/02/05	23/02/05	LHA	096
E1230	TPH C6-C9 by Purge & Trap	03/03/05	07/03/05	GTO	094
E1221	TPH (C10-C36)	23/02/05	24/02/05	GTO	094
E1010	Benzene,Toluene,Ethylbenzene & Xylene	03/03/05	07/03/05	GTO	094
E5910	Metals by ICP-AES	25/02/05	25/02/05	DLU	093
E5950	Mercury in Soil	23/02/05	24/02/05	DLU	093
E1180	Semivolatile Organic Compounds	23/02/05	28/02/05	LHA	095
E1290	Volatile Organic Compounds	23/02/05	23/02/05	GTO	094
E1224	#HRAF in Soil for Health based guideline	23/02/05	28/02/05	GTO	094

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NATA Signatory

Initials	Name	Sections/Methods
MCM	James McMahon	093, 094, 095, 101
MNG	Minh Nguyen	094, 095
MFA	Mark Fahmy	094, 095
LHA	Ly Kim Ha	094, 095, 096
DJA	Dilanthi Jayamanne	094
GTO	Greg Towers	094
GPE	Geoff Peterson	095
DLU	Darrel Luck	093
MAV	Merrin Avery	101
DBL	Dianne Blane	101
NCO	Nathan Cooper	101
AGR	Alison Graham	101
PKE	Peter Keyte	101

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Job Number : 5E0674A
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179646				
		MW39D				
	Sample Id	10.5m				
	PQL					
E7500 Moisture (%w/w) in Soil						
Moistures test performed at 105oC						
Moisture Content	1	22%				
E1230 TPH in Soil by Purge & Trap/GC-MS						
C6-C9 Fraction	5	nd				
E1221 TPH in Soil						
C10-C14 Fraction	10	40				
C15-C28 Fraction	50	80				
C29-C36 Fraction	50	nd				
E1010 BTEX (P&T) in Soil						
Benzene	0.2	nd				
Toluene	1	nd				
Ethylbenzene	1	nd				
m&p-Xylene	2	nd				
o-Xylene	1	nd				
4-Bromofluorobenzene-SURROGATE	1	90%				

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674A

Client : Sinclair Knight Merz

Reference : EN01669

Project : MACDONALDTOWN

Analyte	Lab No	E179646
	Sample Id	MW39D
	PQL	10.5m
E5910 Metals in Soil		
Arsenic	5	nd
Cadmium	0.5	nd
Chromium	5	6
Copper	5	24
Nickel	2	3
Lead	5	6
Zinc	5	10
E5950 Mercury in Soil		
Mercury	0.05	0.08
#E1223 HRAF in Soil		
Not covered by NATA Accreditation 1464		
> nC9-C12 aliphatic*	10	nd
> nC12-C16 aliphatic*	10	nd
> nC16-C28 aliphatic*	50	nd
> nC28-C35 aliphatic*	50	nd
> nC9-C12 aromatic*	10	nd
> nC12-C16 aromatic*	10	45
> nC16-C28 aromatic*	50	116
> nC28-C35 aromatic*	50	nd

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674A
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179646				
		MW39D				
	Sample Id	10.5m				
	PQL					
E1180 Semivolatile Organic Compounds						
Phenol	1	nd				
Aniline	10	nd				
Bis(2-chloroethyl) ether	1	nd				
2-Chlorophenol	1	nd				
1.3-Dichlorobenzene	1	nd				
1.4-Dichlorobenzene	1	nd				
1.2-Dichlorobenzene	1	nd				
Benzyl Alcohol	1	nd				
2-Methylphenol	1	nd				
N-Nitrosodi-n-propylamine	1	nd				
Bis(2-chloroisopropyl) ether	1	nd				
3 and 4-Methyl phenol	1	nd				
Hexachloroethane	1	nd				
Nitrobenzene	1	nd				
Isophorone	1	nd				
2-Nitrophenol	1	nd				
2.4-Dimethylphenol	1	nd				
Bis(2-chloroethoxy) methane	1	nd				
Benzoic Acid	10	nd				
2.4-Dichlorophenol	1	nd				
1.2.4-Trichlorobenzene	1	nd				
Naphthalene	1	8				
4-Chloroaniline	1	nd				
Hexachlorobutadiene	1	nd				

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674A
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179646				
	Sample Id	MW39D				
	PQL	10.5m				
4-Chloro-3-methylphenol	1	nd				
2-Methylnaphthalene	1	2				
Hexachlorocyclopentadiene	1	nd				
2.4.6-Trichlorophenol	1	nd				
2.4.5-Trichlorophenol	1	nd				
2-Chloronaphthalene	1	nd				
2-Nitroaniline	1	nd				
Dimethyl phthalate	1	nd				
2.6-Dinitrotoluene	1	nd				
Acenaphthylene	1	nd				
3-Nitroaniline	1	nd				
Acenaphthene	1	nd				
2.4-Dinitrophenol	1	nd				
4-Nitrophenol	1	nd				
Dibenzofuran	1	nd				
Diethyl phthalate	1	nd				
Fluorene	1	nd				
4-Chlorophenyl phenyl ether	1	nd				
4-Nitroaniline	1	nd				
4.6-Dinitro-2-methylphenol	1	nd				
Azobenzene	10	nd				
N-Nitrosodiphenylamine	10	nd				
a-BHC	1	nd				
4-Bromophenyl phenyl ether	1	nd				
Hexachlorobenzene	1	nd				

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674A
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179646				
	Sample Id	MW39D 10.5m				
	PQL					
b-BHC	1	nd				
Pentachlorophenol	1	nd				
g-BHC	1	nd				
Phenanthrene	1	nd				
Anthracene	1	nd				
d-BHC	1	nd				
Heptachlor	1	nd				
Di-n-butyl phthalate	1	nd				
Aldrin	1	nd				
Heptachlor epoxide	1	nd				
Fluoranthene	1	nd				
Pyrene	1	nd				
Endosulfan 1	1	nd				
4.4-DDE	1	nd				
Dieldrin	1	nd				
Endrin	1	nd				
Endosulfan 2	1	nd				
4.4-DDD	1	nd				
Endrin aldehyde	1	nd				
Butyl benzyl phthalate	1	nd				
Endosulfan sulfate	1	nd				
4.4-DDT	1	nd				
3.3-Dichlorobenzidine	10	nd				
Benzo(a)anthracene	1	nd				
Chrysene	1	nd				

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674A
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179646 MW39D
	Sample Id	10.5m
	PQL	
Bis(2-ethylhexyl) phthalate	1	nd
Di-n-octylphthalate	1	nd
Benzo(b)fluoranthene	1	nd
Benzo(k)fluoranthene	1	nd
Benzo(a)pyrene	1	nd
Indeno(1.2.3-cd)pyrene	1	nd
Dibenz(a.h)anthracene	1	nd
Benzo(g.h.i)perylene	1	nd
2-Fluorophenol-SURROGATE	1	110%
Phenol-D5-SURROGATE	1	96%
Nitrobenzene-D5-SURROGATE	1	80%
2-Fluorobiphenyl-SURROGATE	1	91%
2.4.6-Tribromophenol-SURROGATE	1	76%
p-Terphenyl-D14-SURROGATE	1	98%

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674A
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179646				
	Sample Id	MW39D 10.5m				
	PQL					
E1290 Volatile Organic Compounds in Soil						
Benzene	0.5	nd				
Bromobenzene	1	nd				
Bromochloromethane	1	nd				
Bromodichloromethane	1	nd				
Bromoform	1	nd				
Bromomethane	1	nd				
n-Butylbenzene	1	nd				
sec-Butylbenzene	1	nd				
tert-Butylbenzene	1	nd				
Carbon tetrachloride	1	nd				
Chlorobenzene	1	nd				
Chloroethane	1	nd				
Chloroform	1	nd				
Chloromethane	1	nd				
2-Chlorotoluene	1	nd				
4-Chlorotoluene	1	nd				
Dibromochloromethane	1	nd				
1.2-Dibromo-3-chloropropane	1	nd				
1.2-Dibromoethane (EDB)	1	nd				
Dibromomethane	1	nd				
1.2-Dichlorobenzene	1	nd				
1.3-Dichlorobenzene	1	nd				
1.4-Dichlorobenzene	1	nd				
Dichlorodifluoromethane	1	nd				

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674A
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179646 MW39D				
	Sample Id	10.5m				
	PQL					
1.1-Dichloroethene	1	nd				
1.2-Dichloroethane	1	nd				
1.1-Dichloroethane	1	nd				
cis-1.2-Dichloroethene	1	nd				
trans-1.2-Dichloroethene	1	nd				
1.2-Dichloropropane	1	nd				
1.3-Dichloropropane	1	nd				
2.2-Dichloropropane	1	nd				
1.1-Dichloropropylene	1	nd				
cis-1.3-Dichloropropylene	1	nd				
trans-1.3-Dichloropropylene	1	nd				
Ethylbenzene	1	nd				
Hexachlorobutadiene	1	nd				
Isopropylbenzene	1	nd				
p-Isopropyltoluene	1	nd				
Methylene chloride	1	nd				
Naphthalene	1	5				
n-Propylbenzene	1	nd				
Styrene	1	nd				
1.1.1.2-Tetrachloroethane	1	nd				
1.1.2.2-Tetrachloroethane	1	nd				
Tetrachloroethene	1	nd				
Toluene	1	nd				
1.2.3-Trichlorobenzene	1	nd				
1.2.4-Trichlorobenzene	1	nd				

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 5E0674A
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN

Analyte	Lab No	E179646				
	Sample Id	MW39D				
	PQL	10.5m				
1.1.1-Trichloroethane	1	nd				
1.1.2-Trichloroethane	1	nd				
Trichloroethene	1	nd				
Trichlorofluoromethane	1	nd				
1.2.3-Trichloropropane	1	nd				
1.2.4-Trimethylbenzene	1	nd				
1.3.5-Trimethylbenzene	1	nd				
Vinyl chloride	1	nd				
ortho-Xylene	1	nd				
meta- & para-Xylene	2	nd				
Pentafluorobenzene-SURROGATE	1	97%				
Toluene-D8-SURROGATE	1	99%				
4-Bromofluorobenzene-SURROGATE	1	94%				

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

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AMDEL INTERNAL QUALITY ASSURANCE REVIEW.

Job No. 5E0674A

General

1. Laboratory QA/QC including Method Blanks, Duplicates, Matrix Spikes, Laboratory Control Samples or CRM's are included in this QA/QC appendix. (Where applicable)
2. Inter-Laboratory proficiency trial results are available upon request.
3. PQLs are matrix dependent and are increased accordingly where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spike or surrogate recoveries.
5. Where 3 and 2 significant figures are reported for >10x PQL and <10x PQL respectively, the last figure is uncertain and is provided for statistical purposes only.
6. Samples duplicated or spiked are from this job only and are identified in the following QA/QC report.
7. SVOC analyses on waters are performed on homogenized, unfiltered samples, unless noted otherwise.

Maximum Holding Times for Soils, Sediments and Waters

Parameter	Holding Times
Soils	
Volatile and Semi-Volatile Organic Analysis.	Extracted in 14 days, analysed within 40 days.
Metals	Extracted and analysed within 28 days-6 months.
Inorganics*	Extracted and analysed within 7-28 days.
TCLPs*	Extracted and analysed within 14 days, (Zero Headspace-TCLP 7 days).
Waters	
Volatile Organic Analysis	Analysed within 7 days (USEPA requires 14 days).
Semi-Volatile Organic Analysis	Extracted in 7 days, analysed within 40 days.
Inorganics*	Analysed within 24 hrs-28 days.
Metals (dissolved metals should be supplied field filtered)	Prepared and analysed within 28 days.

* Please refer to 'Preservation Information Chart for Soils, Sediments & Waters' for further information. (ISFORM.098). Holding times may be extended with the use of preservation bottles and/or freezing samples. Holding times can be calculated from dates reported in the body of the report. Tests clearly exceeding holding times will be noted when sufficient information is provided.
Reference: USEPA SW846 and AMDEL SPM-01 (incorporating NEPM Guidelines).

Chain of Custody and Sample Integrity	Yes/NO/NA
Chain of Custody / instructions received with samples	Yes
Custody seals were received intact, if used	NA
Samples were received chilled and in good condition	Yes
Samples received appropriately preserved for all tests	Yes
VOC/SVOC samples were received in teflon lined containers	Yes
Samples received with Zero Headspace	Yes
Chain of Custody completed and attached (if applicable)	Yes

Chromatography Calibration/Acceptence Criteria (if applicable)	
Retention time window meets acceptance criteria (+/-2%)	Yes
Reference standard meets acceptance criteria (+/-10%)	Yes
Recalibration standard meets acceptance criteria (+/-15%)	Yes
Internal standard recovery acceptable.	Yes

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AMDEL INTERNAL QUALITY ASSURANCE REVIEW Cont..

Amdel QA/QC Compliance Assessment

	Compliance
Surrogates performed on all appropriate GC analyses and meet acceptance limits (70% - 130% recovery*).	Please see body of report
Matrix Spikes performed once per process batch and at least 1 in 20 samples (Results meet acceptance limits - 70% - 130% recovery* or 80% - 120% recovery* for inorganics in water.)	Please see body of report
Laboratory Control samples performed once per process batch and at least 1 in 20 samples (Results meet acceptance limits - 70% - 130% recovery* in soil or 70%-130%/90-110% recovery* for waters.)	Yes
Laboratory Duplicate samples performed once per process batch and at least 1 in 10 samples	Yes
Laboratory duplicates meet acceptance criteria <4 PQL - +/- 2 PQL 4-10 PQL - 25-50 or 50% RPD >10 PQL - 10-30 or 30% RPD	Please see body of report
Method Blanks performed once per process batch and at least 1 in 20 samples (Results not detected at the PQL).	Yes

N/A=Not Applicable.

* Phenols 50% - 130% recovery
* SVOCs 60% - 130% recovery
* Phenoxy Acid Herbicides 60% - 140% recovery

QA/QC Appendix

Please refer to the following pages for the QA/QC data.
For further information on samples or non-conformance in QC protocols please see notations in the body of the report plus comments on the following page.

Additional Comments

James McMahon B.Sc.,Ph.D. (Chem.)
Manager - Environmental

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AMDEL STANDARD LABORATORY QUALIFIER CODES.

Job NO. 5E0674A

Qualifier Codes	Description
*	PQLs are raised due to matrix interference.
@	PQLs are raised due to insufficient sample provided for analysis.
S	The mass imbalance indicates the presence of other ions not measured as part of this procedure.
nd	<PQL
--	Not applicable
LNR	The sample was listed on the COC, but not received.
IS	Insufficient sample was supplied to conduct this analysis.
AN	The analysis indicates the presences of an analyte that has been 'tentatively' identified, and the associated numerical value represents it's approximate concentration.
A	Sample results are reported on an 'as received' basis (not moisture corrected).
B	The sample was not received in a suitable timeframe to allow completion within the recommended holding time.
C	This sample was received with headspace.
D	This sample was received with the incorrect preservation for this analysis.
E	The raw data indicates the absence of 0.055g of Copper Sulphate in the sample.
F	This sample contained significant amounts of solids and was therefore analysed by settling and decanting the aqueous phase to avoid including the solid in the analysis portion.
G	This test was performed outside the recommended holding time.
H	This sample contained significant material >5mm which was removed prior to analysis.
ISD	Insufficient sample was supplied to conduct duplicate analyses.
ISM	Insufficient sample was supplied to conduct matrix spike analyses.
W	The spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
J	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause.
K	The matrix spike concentration is less than five times the background concentration in the sample, and therfore the spike recovery can not be determined.
L	The surrogate recovery is outside of the recommended acceptance criteria, due to matrix interference.
M	The surrogate recovery is outside of the recommended acceptance criteria. Insufficent sample remains to perform re-analysis.
N	Results are expressed in mg/L (ppm) due to the high concentration of the analyte.
O	The results reported are 'recoverable organics' for this fraction, as the chromatogram and peak shape indicates the presence of a significant concentration of polar compounds.
P	The concentration reported is mainly due to a single peak.
Q	This samples contains volatile halogenated oxygenated or other compounds that are included and quantitated as part of TPH C6-9.
R	Theoretically the total result should be greater or equal to the dissolved concentration. However the difference reported is within the uncertainty of the individual tests.
S	The mass imbalance was equal to or less than 0.2 milli-equivalents.
T	During Kjeldahl digestion, nitrate (>10mg/L) can oxidise ammonia resulting in a negative TKN interference, which may have occurred for this sample.
U	Theoretically the TKN result should be greater or equal to ammonia concentration. However the difference reported is within the uncertainty of the individual tests.
V	This sample contained significant amounts of sediment which was included in the analysis portion as requested.
SUR	Surrogate recoveries could not be determined due to the dilution required to quantify the analyte.

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Job Number : 5E0674A

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E1230 TPH in Soil by Purge & Trap/GC-MS							
C6-C9 Fraction	100	84			84%		
E1221 TPH in Soil							
C10-C14 Fraction							
C15-C28 Fraction	550	420			77%		
C29-C36 Fraction							
E1010 BTEX (P&T) in Soil							
Benzene	10	10			101%		
Toluene	10	11			106%		
Ethylbenzene	10	10			98%		
m&p-Xylene	20	20			101%		
o-Xylene	10	10			104%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E1230 TPH in Soil by Purge & Trap/GC-MS						
C6-C9 Fraction	5	nd				
E1221 TPH in Soil						
C10-C14 Fraction	10	nd				
C15-C28 Fraction	50	nd				
C29-C36 Fraction	50	nd				
E1010 BTEX (P&T) in Soil						
Benzene	0.2	nd				
Toluene	1	nd				
Ethylbenzene	1	nd				
m&p-Xylene	2	nd				
o-Xylene	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0674A

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E5910 Metals in Soil							
Arsenic	50	49			98%		
Cadmium	50	47			95%		
Chromium	50	53			105%		
Copper	50	53			107%		
Nickel	50	52			103%		
Lead	50	50			99%		
Zinc	50	44			88%		
E5950 Mercury in Soil							
Mercury	0.50	0.55			110%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E5910 Metals in Soil						
Arsenic	5	nd				
Cadmium	0.5	nd				
Chromium	5	nd				
Copper	5	nd				
Nickel	2	nd				
Lead	5	nd				
Zinc	5	nd				
E5950 Mercury in Soil						
Mercury	0.05	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0674A

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E1180 Semivolatile Organic Compounds							
Phenol	20	13			64%		
Aniline	-						
Bis(2-chloroethyl) ether	-						
2-Chlorophenol	20	20			99%		
1.3-Dichlorobenzene	-						
1.4-Dichlorobenzene	20	15			77%		
1.2-Dichlorobenzene	-						
Benzyl Alcohol	-						
2-Methylphenol	-						
N-Nitrosodi-n-propylamine	20	17			87%		
Bis(2-chloroisopropyl) ether	-						
3 and 4-Methyl phenol	-						
Hexachloroethane	-						
Nitrobenzene	-						
Isophorone	-						
2-Nitrophenol	-						
2.4-Dimethylphenol	-						
Bis(2-chloroethoxy) methane	-						
Benzoic Acid	-						
2.4-Dichlorophenol	-						
1.2.4-Trichlorobenzene	20	16			79%		
Naphthalene	-						
4-Chloroaniline	-						
Hexachlorobutadiene	-						

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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Job Number : 5E0674A

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
4-Chloro-3-methylphenol	20	18			88%		
2-Methylnaphthalene	-						
Hexachlorocyclopentadiene	-						
2.4.6-Trichlorophenol	-						
2.4.5-Trichlorophenol	-						
2-Chloronaphthalene	-						
2-Nitroaniline	-						
Dimethyl phthalate	-						
2.6-Dinitrotoluene	-						
Acenaphthylene	-						
3-Nitroaniline	-						
Acenaphthene	20	18			91%		
2.4-Dinitrophenol	-						
4-Nitrophenol							
Dibenzofuran	-						
Diethyl phthalate	-						
Fluorene	-						
4-Chlorophenyl phenyl ether	-						
4-Nitroaniline	-						
4.6-Dinitro-2-methylphenol	-						
Azobenzene	-						
N-Nitrosodiphenylamine	-						
a-BHC	-						
4-Bromophenyl phenyl ether	-						
Hexachlorobenzene	-						

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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Job Number : 5E0674A

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
b-BHC	-						
Pentachlorophenol	20	19			96%		
g-BHC	-						
Phenanthrene	-						
Anthracene	-						
d-BHC	-						
Heptachlor	-						
Di-n-butyl phthalate	-						
Aldrin	-						
Heptachlor epoxide	-						
Fluoranthene	-						
Pyrene	20	18			92%		
Endosulfan 1	-						
4.4-DDE	-						
Dieldrin	-						
Endrin	-						
Endosulfan 2	-						
4.4-DDD	-						
Endrin aldehyde	-						
Butyl benzyl phthalate	-						
Endosulfan sulfate	-						
4.4-DDT	-						
3.3-Dichlorobenzidine	-						
Benzo(a)anthracene	-						
Chrysene	-						

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0674A

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
Bis(2-ethylhexyl) phthalate	-						
Di-n-octylphthalate	-						
Benzo(b)fluoranthene	-						
Benzo(k)fluoranthene	-						
Benzo(a)pyrene	-						
Indeno(1.2.3-cd)pyrene	-						
Dibenz(a.h)anthracene	-						
Benzo(g.h.i)perylene	-						

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E1180 Semivolatile Organic Compounds						
Phenol	1	nd				
Aniline	10	nd				
Bis(2-chloroethyl) ether	1	nd				
2-Chlorophenol	1	nd				
1.3-Dichlorobenzene	1	nd				
1.4-Dichlorobenzene	1	nd				
1.2-Dichlorobenzene	1	nd				
Benzyl Alcohol	1	nd				
2-Methylphenol	1	nd				
N-Nitrosodi-n-propylamine	1	nd				
Bis(2-chloroisopropyl) ether	1	nd				
3 and 4-Methyl phenol	1	nd				
Hexachloroethane	1	nd				
Nitrobenzene	1	nd				
Isophorone	1	nd				
2-Nitrophenol	1	nd				
2.4-Dimethylphenol	1	nd				
Bis(2-chloroethoxy) methane	1	nd				
Benzoic Acid	10	nd				
2.4-Dichlorophenol	1	nd				
1.2.4-Trichlorobenzene	1	nd				
Naphthalene	1	nd				
4-Chloroaniline	1	nd				
Hexachlorobutadiene	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
4-Chloro-3-methylphenol	1	nd				
2-Methylnaphthalene	1	nd				
Hexachlorocyclopentadiene	1	nd				
2.4.6-Trichlorophenol	1	nd				
2.4.5-Trichlorophenol	1	nd				
2-Chloronaphthalene	1	nd				
2-Nitroaniline	1	nd				
Dimethyl phthalate	1	nd				
2.6-Dinitrotoluene	1	nd				
Acenaphthylene	1	nd				
3-Nitroaniline	1	nd				
Acenaphthene	1	nd				
2.4-Dinitrophenol	1	nd				
4-Nitrophenol	1	nd				
Dibenzofuran	1	nd				
Diethyl phthalate	1	nd				
Fluorene	1	nd				
4-Chlorophenyl phenyl ether	1	nd				
4-Nitroaniline	1	nd				
4.6-Dinitro-2-methylphenol	1	nd				
Azobenzene	10	nd				
N-Nitrosodiphenylamine	10	nd				
a-BHC	1	nd				
4-Bromophenyl phenyl ether	1	nd				
Hexachlorobenzene	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
b-BHC	1	nd				
Pentachlorophenol	1	nd				
g-BHC	1	nd				
Phenanthrene	1	nd				
Anthracene	1	nd				
d-BHC	1	nd				
Heptachlor	1	nd				
Di-n-butyl phthalate	1	nd				
Aldrin	1	nd				
Heptachlor epoxide	1	nd				
Fluoranthene	1	nd				
Pyrene	1	nd				
Endosulfan 1	1	nd				
4.4-DDE	1	nd				
Dieldrin	1	nd				
Endrin	1	nd				
Endosulfan 2	1	nd				
4.4-DDD	1	nd				
Endrin aldehyde	1	nd				
Butyl benzyl phthalate	1	nd				
Endosulfan sulfate	1	nd				
4.4-DDT	1	nd				
3.3-Dichlorobenzidine	10	nd				
Benzo(a)anthracene	1	nd				
Chrysene	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
Bis(2-ethylhexyl) phthalate	1	nd				
Di-n-octylphthalate	1	nd				
Benzo(b)fluoranthene	1	nd				
Benzo(k)fluoranthene	1	nd				
Benzo(a)pyrene	1	nd				
Indeno(1.2.3-cd)pyrene	1	nd				
Dibenz(a.h)anthracene	1	nd				
Benzo(g.h.i)perylene	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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Job Number : 5E0674A

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E1290 Volatile Organic Compounds in Soil							
Benzene	10	10			99%		
Bromobenzene							
Bromochloromethane							
Bromodichloromethane							
Bromoform							
Bromomethane							
n-Butylbenzene							
sec-Butylbenzene							
tert-Butylbenzene							
Carbon tetrachloride							
Chlorobenzene	10	10			101%		
Chloroethane							
Chloroform							
Chloromethane							
2-Chlorotoluene							
4-Chlorotoluene							
Dibromochloromethane							
1.2-Dibromo-3-chloropropane							
1.2-Dibromoethane (EDB)							
Dibromomethane							
1.2-Dichlorobenzene							
1.3-Dichlorobenzene							
1.4-Dichlorobenzene							
Dichlorodifluoromethane							

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0674A

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
1.1-Dichloroethene	10	9			86%		
1.2-Dichloroethane							
1.1-Dichloroethane							
cis-1.2-Dichloroethene							
trans-1.2-Dichloroethene							
1.2-Dichloropropane							
1.3-Dichloropropane							
2.2-Dichloropropane							
1.1-Dichloropropylene							
cis-1.3-Dichloropropylene							
trans-1.3-Dichloropropylene							
Ethylbenzene							
Hexachlorobutadiene							
Isopropylbenzene							
p-Isopropyltoluene							
Methylene chloride							
Naphthalene							
n-Propylbenzene							
Styrene							
1.1.1.2-Tetrachloroethane							
1.1.2.2-Tetrachloroethane							
Tetrachloroethene							
Toluene	10	10			97%		
1.2.3-Trichlorobenzene							
1.2.4-Trichlorobenzene							

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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Job Number : 5E0674A

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
1.1.1-Trichloroethane							
1.1.2-Trichloroethane							
Trichloroethene	10	9			95%		
Trichlorofluoromethane							
1.2.3-Trichloropropane							
1.2.4-Trimethylbenzene							
1.3.5-Trimethylbenzene							
Vinyl chloride							
ortho-Xylene							
meta- & para-Xylene							

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E1290 Volatile Organic Compounds in Soil						
Benzene	0.5	nd				
Bromobenzene	1	nd				
Bromochloromethane	1	nd				
Bromodichloromethane	1	nd				
Bromoform	1	nd				
Bromomethane	1	nd				
n-Butylbenzene	1	nd				
sec-Butylbenzene	1	nd				
tert-Butylbenzene	1	nd				
Carbon tetrachloride	1	nd				
Chlorobenzene	1	nd				
Chloroethane	1	nd				
Chloroform	1	nd				
Chloromethane	1	nd				
2-Chlorotoluene	1	nd				
4-Chlorotoluene	1	nd				
Dibromochloromethane	1	nd				
1.2-Dibromo-3-chloropropane	1	nd				
1.2-Dibromoethane (EDB)	1	nd				
Dibromomethane	1	nd				
1.2-Dichlorobenzene	1	nd				
1.3-Dichlorobenzene	1	nd				
1.4-Dichlorobenzene	1	nd				
Dichlorodifluoromethane	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
1.1-Dichloroethene	1	nd				
1.2-Dichloroethane	1	nd				
1.1-Dichloroethane	1	nd				
cis-1.2-Dichloroethene	1	nd				
trans-1.2-Dichloroethene	1	nd				
1.2-Dichloropropane	1	nd				
1.3-Dichloropropane	1	nd				
2.2-Dichloropropane	1	nd				
1.1-Dichloropropylene	1	nd				
cis-1.3-Dichloropropylene	1	nd				
trans-1.3-Dichloropropylene	1	nd				
Ethylbenzene	1	nd				
Hexachlorobutadiene	1	nd				
Isopropylbenzene	1	nd				
p-Isopropyltoluene	1	nd				
Methylene chloride	1	nd				
Naphthalene	1	nd				
n-Propylbenzene	1	nd				
Styrene	1	nd				
1.1.1.2-Tetrachloroethane	1	nd				
1.1.2.2-Tetrachloroethane	1	nd				
Tetrachloroethene	1	nd				
Toluene	1	nd				
1.2.3-Trichlorobenzene	1	nd				
1.2.4-Trichlorobenzene	1	nd				

PQL = Practical Quantitation Limit
nd = < PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
1.1.1-Trichloroethane	1	nd				
1.1.2-Trichloroethane	1	nd				
Trichloroethene	1	nd				
Trichlorofluoromethane	1	nd				
1.2.3-Trichloropropane	1	nd				
1.2.4-Trimethylbenzene	1	nd				
1.3.5-Trimethylbenzene	1	nd				
Vinyl chloride	1	nd				
ortho-Xylene	1	nd				
meta- & para-Xylene	2	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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NATA Accredited Laboratory Number: 1464

The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to Australian national standards of measurement. This document shall not be reproduced, except in full.

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CERTIFICATE OF ANALYSIS

Contents :
1. Cover Pages (2)
2. Analysis Report Pages
3. QA/QC Appendix
4. Additional Reports - External (if applicable)
5. Chain of Custody (if applicable)

Report No.	:	5E0835
Attention	:	Mr Simon Opper
Client	:	Sinclair Knight Merz PO Box 164 ST LEONARDS NSW 1590
Samples	:	2
Reference/Order	:	EN01669
Project	:	EN01669
Received Samples	:	03/03/05
Instructions	:	03/03/05
Date Reported	:	18/03/05

PLEASE SEE FOLLOWING PAGES FOR METHOD LISTING AND RESULTS

RESULTS

All samples were analysed as received. This report relates specifically to the samples as received. Results relate to the source material only to the extent that the samples as supplied are truly representative of the sample source. This report replaces any preliminary results issued. Note that for methods indicated with "#", NATA accreditation does not cover the performance of this service. Three significant figures (or 2 for < 10PQL) are reported for statistical purposes only. Where "Total" concentrations are reported for organic suites of compounds this is the summation of the individual compounds and the PQL is noted for reporting purposes only. This report has been authorized by the NATA signatories listed in the method descriptions section on the following page.

James McMahon B.Sc.,Ph.D. (Chem.)
Manager - Environmental

amdel

Report No. : 5E0835

Please note: Where samples are collected/submitted over several days, the date on which the last samples were analysed or extracted is reported.
Unless Ferrous Iron is determined on site, the possibility of a ferrous-ferric ratio change may occur.

Method	Description	Extracted	Analysed	Authorised	
E0230	TPH C6-C9 by purge & trap	07/03/05	07/03/05	GTO	094
E0221F	TPH (C10-C36)	10/03/05	11/03/05	GTO	094
E0010	Benzene,Toluene,Ethylbenzene & Xylene	07/03/05	07/03/05	GTO	094
E4870	Dissolved Metals by ICP-MS	10/03/05	10/03/05	DLU	093
E4850	Mercury	09/03/05	09/03/05	DLU	093
E4830	Hexavalent Chromium	14/03/05	14/03/05	PKE	101
E0143A	Phenols by GC/MS	11/03/05	15/03/05	MFA	095
E0110	Polycyclic Aromatic Hydrocarbons	10/03/05	11/03/05	MFA	095
E2530	Total Hardness	10/03/05	10/03/05	DLU	093
E2350	BOD (5)	09/03/05	14/03/05	PKE	101
E2420	Chemical Oxygen Demand	07/03/05	07/03/05	PKE	101
E2580	Total Organic Carbon	09/03/05	09/03/05	PKE	101
E2570	Total Nitrogen	18/03/05	18/03/05	PKE	101
E2770	TKN	10/03/05	11/03/05	PKE	101
E2550	Nitrate-N	08/03/05	08/03/05	PKE	101
E2560	Nitrite-N	08/03/05	08/03/05	PKE	101
E2330	Ammonia as N	08/03/05	08/03/05	PKE	101

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NATA Signatory

Initials	Name	Sections/Methods
MCM	James McMahon	093, 094, 095, 101
MNG	Minh Nguyen	094, 095
MFA	Mark Fahmy	094, 095
LHA	Ly Kim Ha	094, 095, 096
DJA	Dilanthi Jayamanne	094
GTO	Greg Towers	094
GPE	Geoff Peterson	095
DLU	Darrel Luck	093
MAV	Merrin Avery	101
DBL	Dianne Blane	101
NCO	Nathan Cooper	101
AGR	Alison Graham	101
PKE	Peter Keyte	101

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Job Number : 5E0835
Client : Sinclair Knight Merz
Reference : EN01669
Project : EN01669

Analyte	Lab No	E181850	E181851		
		DUP1	DUP3		
	Sample Id	2.3.05	3.3.05		
	PQL				
E0230 TPH in Water by P&T/GC-MS (ug/L)					
C6-C9 Fraction	20	20	70		
E0221 TPH in Water (ug/L)					
C10-C14 Fraction	20	90	120		
C15-C28 Fraction	100	nd	nd		
C29-C36 Fraction	100	nd	nd		
E0010 BTEX (P&T) in Water (ug/L)					
Benzene	0.5	20	29		
Toluene	1	nd	3		
Ethylbenzene	1	1	12		
m&p-Xylene	2	nd	18		
o-Xylene	1	nd	11		
4-Bromofluorobenzene-SURROGATE	1	119%	115%		

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

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Job Number : 5E0835

Client : Sinclair Knight Merz

Reference : EN01669

Project : EN01669

Analyte	Lab No	E181850	E181851			
		DUP1	DUP3			
	Sample Id	2.3.05	3.3.05			
	PQL					
E4870 Dissolved Metals in Waters						
Arsenic	0.001	0.004	nd			
Cadmium	0.0001	nd	nd			
Copper	0.001	nd	nd			
Nickel	0.001	0.009	0.003			
Lead	0.001	0.013	nd			
Zinc	0.002	0.039	0.021			
E4850 Dissolved Mercury in Waters						
Mercury	0.001	nd	nd			
E4830 Hexavalent Chromium in Water						
Chromium(VI)	0.05	nd	nd			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

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Job Number : 5E0835
Client : Sinclair Knight Merz
Reference : EN01669
Project : EN01669

Analyte	Lab No	E181850	E181851			
		DUP1	DUP3			
	Sample Id	2.3.05	3.3.05			
	PQL					
E0143 Phenols By GC/MS In Water (ug/L)						
Phenol	5	nd	nd			
2-Chlorophenol	5	nd	nd			
2-Methylphenol	5	nd	nd			
3-Methylphenol & 4-Methylpheno	5	nd	nd			
2-Nitrophenol	5	nd	nd			
2.4-Dimethylphenol	5	nd	nd			
2.4-Dichlorophenol	5	nd	nd			
2.6-Dichlorophenol	5	nd	nd			
4-Chloro-3-methylphenol	5	nd	nd			
2.4.5-Trichlorophenol	5	nd	nd			
2.4.6-Trichlorophenol	5	nd	nd			
2.4-Dinitrophenol	50	nd	nd			
4-Nitrophenol	10	nd	nd			
2.3.4.6-Tetrachlorophenol	5	nd	nd			
4.6-Dinitro-2-methylphenol	20	nd	nd			
Pentachlorophenol	10	nd	nd			
4.6-Dinitro-2-sec-butylphenol	20	nd	nd			
2.4.6-Tribromophenol-SURROGATE	1	67%	81%			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

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Job Number : 5E0835

Client : Sinclair Knight Merz

Reference : EN01669

Project : EN01669

Analyte	Lab No	E181850	E181851			
		DUP1	DUP3			
	Sample Id	2.3.05	3.3.05			
	PQL					
E0110 Priority PAH's in Water (ug/L)						
Naphthalene	1	nd	nd			
Acenaphthylene	1	nd	nd			
Acenaphthene	1	nd	2			
Fluorene	1	nd	7			
Phenanthrene	1	nd	9			
Anthracene	1	nd	2			
Fluoranthene	1	nd	nd			
Pyrene	1	nd	1			
Benz(a)anthracene	1	nd	nd			
Chrysene	1	nd	nd			
Benzo(b) & (k)fluoranthene	2	nd	nd			
Benzo(a)pyrene	1	nd	nd			
Indeno(1.2.3-cd)pyrene	1	nd	nd			
Dibenz(a.h)anthracene	1	nd	nd			
Benzo(g.h.i)perylene	1	nd	nd			
Total USEPA Priority PAHs	1	nd	21			
2-Fluorobiphenyl-SURROGATE	1	97%	82%			
Anthracene-D10-SURROGATE	1	107%	85%			
p-Terphenyl-D14-SURROGATE	1	112%	86%			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

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Job Number : 5E0835
Client : Sinclair Knight Merz
Reference : EN01669
Project : EN01669

Analyte	Lab No	E181850	E181851			
		DUP1	DUP3			
	Sample Id	2.3.05	3.3.05			
	PQL					
E2530 Total Hardness						
Total Hardness as CaCO3	0.5	120	59			
E2350 BOD in Water (5-Day)						
BOD	2	<2	<2			
E2420 Chemical Oxygen Demand						
COD	10	40	100			
E2580 TOC in Water						
TOC	2	9	F 2			
Total Nitrogen	0.1	1.8	5.8			
E2770 Kjeldahl Nitrogen in Water						
Kjeldahl Nitrogen	0.1	1.6	5.6			
E2550 Nitrate as N in Water						
Nitrate as N	0.02	0.04	0.11			
E2560 Nitrite as N in Water						
Nitrite as N	0.02	nd	nd			
E2330 Ammonia as N in Water						
Ammonia as N	0.01	0.15	0.09			

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

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AMDEL INTERNAL QUALITY ASSURANCE REVIEW.

Job No. 5E0835

General

1. Laboratory QA/QC including Method Blanks, Duplicates, Matrix Spikes, Laboratory Control Samples or CRM's are included in this QA/QC appendix. (Where applicable)
2. Inter-Laboratory proficiency trial results are available upon request.
3. PQLs are matrix dependent and are increased accordingly where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spike or surrogate recoveries.
5. Where 3 and 2 significant figures are reported for >10x PQL and <10x PQL respectively, the last figure is uncertain and is provided for statistical purposes only.
6. Samples duplicated or spiked are from this job only and are identified in the following QA/QC report.
7. SVOC analyses on waters are performed on homogenized, unfiltered samples, unless noted otherwise.

Maximum Holding Times for Soils, Sediments and Waters

Parameter	Holding Times
Soils	
Volatile and Semi-Volatile Organic Analysis.	Extracted in 14 days, analysed within 40 days.
Metals	Extracted and analysed within 28 days-6 months.
Inorganics*	Extracted and analysed within 7-28 days.
TCLPs*	Extracted and analysed within 14 days, (Zero Headspace-TCLP 7 days).
Waters	
Volatile Organic Analysis	Analysed within 7 days (USEPA requires 14 days).
Semi-Volatile Organic Analysis	Extracted in 7 days, analysed within 40 days.
Inorganics*	Analysed within 24 hrs-28 days.
Metals (dissolved metals should be supplied field filtered)	Prepared and analysed within 28 days.

* Please refer to 'Preservation Information Chart for Soils, Sediments & Waters' for further information. (ISFORM.098). Holding times may be extended with the use of preservation bottles and/or freezing samples. Holding times can be calculated from dates reported in the body of the report. Tests clearly exceeding holding times will be noted when sufficient information is provided.
Reference: USEPA SW846 and AMDEL SPM-01 (incorporating NEPM Guidelines).

Chain of Custody and Sample Integrity	Yes/NO/NA
Chain of Custody / instructions received with samples	Yes
Custody seals were received intact, if used	NA
Samples were received chilled and in good condition	Yes
Samples received appropriately preserved for all tests	Yes
VOC/SVOC samples were received in teflon lined containers	Yes
Samples received with Zero Headspace	Yes
Chain of Custody completed and attached (if applicable)	Yes

Chromatography Calibration/Acceptence Criteria (if applicable)	
Retention time window meets acceptance criteria (+/-2%)	Yes
Reference standard meets acceptance criteria (+/-10%)	Yes
Recalibration standard meets acceptance criteria (+/-15%)	Yes
Internal standard recovery acceptable.	Yes

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AMDEL INTERNAL QUALITY ASSURANCE REVIEW Cont..

Amdel QA/QC Compliance Assessment

	Compliance
Surrogates performed on all appropriate GC analyses and meet acceptance limits (70% - 130% recovery*).	Please see body of report
Matrix Spikes performed once per process batch and at least 1 in 20 samples (Results meet acceptance limits - 70% - 130% recovery* or 80% - 120% recovery* for inorganics in water.)	Please see body of report
Laboratory Control samples performed once per process batch and at least 1 in 20 samples (Results meet acceptance limits - 70% - 130% recovery* in soil or 70%-130%/90-110% recovery* for waters.)	Yes
Laboratory Duplicate samples performed once per process batch and at least 1 in 10 samples	Yes
Laboratory duplicates meet acceptance criteria <4 PQL - +/- 2 PQL 4-10 PQL - 25-50 or 50% RPD >10 PQL - 10-30 or 30% RPD	Please see body of report
Method Blanks performed once per process batch and at least 1 in 20 samples (Results not detected at the PQL).	Yes

N/A=Not Applicable.

* Phenols 50% - 130% recovery
* SVOCs 60% - 130% recovery
* Phenoxy Acid Herbicides 60% - 140% recovery

QA/QC Appendix

Please refer to the following pages for the QA/QC data.
For further information on samples or non-conformance in QC protocols please see notations in the body of the report plus comments on the following page.

Additional Comments

James McMahon B.Sc.,Ph.D. (Chem.)
Manager - Environmental

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AMDEL STANDARD LABORATORY QUALIFIER CODES.

Job NO. 5E0835

Qualifier Codes	Description
*	PQLs are raised due to matrix interference.
@	PQLs are raised due to insufficient sample provided for analysis.
$	The mass imbalance indicates the presence of other ions not measured as part of this procedure.
nd	<PQL
--	Not applicable
LNR	The sample was listed on the COC, but not received.
IS	Insufficient sample was supplied to conduct this analysis.
AN	The analysis indicates the presences of an analyte that has been 'tentatively' identified, and the associated numerical value represents it's approximate concentration.
A	Sample results are reported on an 'as received' basis (not moisture corrected).
B	The sample was not received in a suitable timeframe to allow completion within the recommended holding time.
C	This sample was received with headspace.
D	This sample was received with the incorrect preservation for this analysis.
E	The raw data indicates the absence of 0.055g of Copper Sulphate in the sample.
F	This sample contained significant amounts of solids and was therefore analysed by settling and decanting the aqueous phase to avoid including the solid in the analysis portion.
G	This test was performed outside the recommended holding time.
H	This sample contained significant material >5mm which was removed prior to analysis.
ISD	Insufficient sample was supplied to conduct duplicate analyses.
ISM	Insufficient sample was supplied to conduct matrix spike analyses.
W	The spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
J	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause.
K	The matrix spike concentration is less than five times the background concentration in the sample, and therfore the spike recovery can not be determined.
L	The surrogate recovery is outside of the recommended acceptance criteria, due to matrix interference.
M	The surrogate recovery is outside of the recommended acceptance criteria. Insufficent sample remains to perform re-analysis.
N	Results are expressed in mg/L (ppm) due to the high concentration of the analyte.
O	The results reported are 'recoverable organics' for this fraction, as the chromatogram and peak shape indicates the presence of a significant concentration of polar compounds.
P	The concentration reported is mainly due to a single peak.
Q	This samples contains volatile halogenated oxygenated or other compounds that are included and quantitated as part of TPH C6-9.
R	Theoretically the total result should be greater or equal to the dissolved concentration. However the difference reported is within the uncertainty of the individual tests.
S	The mass imbalance was equal to or less than 0.2 milli-equivalents.
T	During Kjeldahl digestion, nitrate (>10mg/L) can oxidise ammonia resulting in a negative TKN interference, which may have occurred for this sample.
U	Theoretically the TKN result should be greater or equal to ammonia concentration. However the difference reported is within the uncertainty of the individual tests.
V	This sample contained significant amounts of sediment which was included in the analysis portion as requested.
SUR	Surrogate recoveries could not be determined due to the dilution required to quantify the analyte.

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Job Number : 5E0835

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E0230 TPH in Water by P&T/GC-MS (ug/L)							
C6-C9 Fraction	200	220			114%		
E0221 TPH in Water (ug/L)							
C15-C28 Fraction	5500	6240			113%		
E0010 BTEX (P&T) in Water (ug/L)							
Benzene	10	11			106%		
Toluene	10	10			104%		
Ethylbenzene	10	9			95%		
m&p-Xylene	20	21			107%		
o-Xylene	10	11			105%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E0230 TPH in Water by P&T/GC-MS (ug/L)						
C6-C9 Fraction	20	nd				
E0221 TPH in Water (ug/L)						
C15-C28 Fraction	100	nd				
E0010 BTEX (P&T) in Water (ug/L)						
Benzene	0.5	nd				
Toluene	1	nd				
Ethylbenzene	1	nd				
m&p-Xylene	2	nd				
o-Xylene	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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Job Number : 5E0835

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E4870 Dissolved Metals in Waters							
Arsenic	0.100	0.093			93%		
Cadmium	0.1000	0.11			105%		
Copper	0.100	0.099			99%		
Nickel	0.100	0.103			103%		
Lead	0.100	0.102			102%		
Zinc	0.100	0.103			103%		
E4850 Dissolved Mercury in Waters							
Mercury	0.010	0.009			90%		
E4830 Hexavalent Chromium in Water							
Chromium(VI)	0.25	0.27			108%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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Job Number : 5E0835

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E4870 Dissolved Metals in Waters						
Arsenic	0.001	nd				
Cadmium	0.0001	nd				
Copper	0.001	nd				
Nickel	0.001	nd				
Lead	0.001	nd				
Zinc	0.002	nd				
E4850 Dissolved Mercury in Waters						
Mercury	0.001	nd				
E4830 Hexavalent Chromium in Water						
Chromium(VI)	0.05	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0835

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E0143 Phenols By GC/MS In Water (ug/L)							
Phenol	100	96			96%		
2-Chlorophenol	100	98			98%		
2-Methylphenol							
3-Methylphenol & 4-Methylpheno							
2-Nitrophenol							
2.4-Dimethylphenol							
2.4-Dichlorophenol							
2.6-Dichlorophenol							
4-Chloro-3-methylphenol	100	95			95%		
2.4.5-Trichlorophenol							
2.4.6-Trichlorophenol							
2.4-Dinitrophenol							
4-Nitrophenol	100	60			60%		
2.3.4.6-Tetrachlorophenol							
4.6-Dinitro-2-methylphenol							
Pentachlorophenol	100	120			126%		
4.6-Dinitro-2-sec-butylphenol							

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E0143 Phenols By GC/MS In Water (ug/L)						
Phenol	5	nd				
2-Chlorophenol	5	nd				
2-Methylphenol	5	nd				
3-Methylphenol & 4-Methylpheno	5	nd				
2-Nitrophenol	5	nd				
2.4-Dimethylphenol	5	nd				
2.4-Dichlorophenol	5	nd				
2.6-Dichlorophenol	5	nd				
4-Chloro-3-methylphenol	5	nd				
2.4.5-Trichlorophenol	5	nd				
2.4.6-Trichlorophenol	5	nd				
2.4-Dinitrophenol	50	nd				
4-Nitrophenol	10	nd				
2.3.4.6-Tetrachlorophenol	5	nd				
4.6-Dinitro-2-methylphenol	20	nd				
Pentachlorophenol	10	nd				
4.6-Dinitro-2-sec-butylphenol	20	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0835

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E0110 Priority PAH's in Water (ug/L)							
Naphthalene	10	10			97%		
Acenaphthylene	10	10			96%		
Acenaphthene	10	10			100%		
Fluorene	10	10			101%		
Phenanthrene	10	10			102%		
Anthracene	10	10			102%		
Fluoranthene	10	10			101%		
Pyrene	10	10			102%		
Benz(a)anthracene	10	10			98%		
Chrysene	10	11			108%		
Benzo(b) & (k)fluoranthene	20	20			101%		
Benzo(a)pyrene	10	10			98%		
Indeno(1.2.3-cd)pyrene	10	9			89%		
Dibenz(a.h)anthracene	10	10			97%		
Benzo(g.h.i)perylene	10	10			101%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E0110 Priority PAH's in Water (ug/L)						
Naphthalene	1	nd				
Acenaphthylene	1	nd				
Acenaphthene	1	nd				
Fluorene	1	nd				
Phenanthrene	1	nd				
Anthracene	1	nd				
Fluoranthene	1	nd				
Pyrene	1	nd				
Benz(a)anthracene	1	nd				
Chrysene	1	nd				
Benzo(b) & (k)fluoranthene	2	nd				
Benzo(a)pyrene	1	nd				
Indeno(1.2.3-cd)pyrene	1	nd				
Dibenz(a.h)anthracene	1	nd				
Benzo(g.h.i)perylene	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0835

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E2530 Total Hardness							
Total Hardness as CaCO3	66.2	63			95%		
E2350 BOD in Water (5-Day)							
BOD	198	170			88%		
E2420 Chemical Oxygen Demand							
COD	200	220	220		107%	105%	
E2580 TOC in Water							
TOC	100	100			102%		
E2770 Kjeldahl Nitrogen in Water							
Kjeldahl Nitrogen	1	1.0			106%		
E2550 Nitrate as N in Water							
Nitrate as N	1.0	1.01			101%		
E2560 Nitrite as N in Water							
Nitrite as N	1.0	1.07	1.06		107%	106%	
E2330 Ammonia as N in Water							
Ammonia as N	1.0	0.98	0.99		99%	99%	

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 5E0835

QAQC : Laboratory Duplicate(s)

Analyte	Dupl A	Dupl B	Average	RPD (%)	Dupl A	Dupl B	Average	RPD (%)
E2580 TOC in Water (E181850)								
TOC	9	9	9	0%				
E2770 Kjeldahl Nitrogen in Water (E181850)								
Kjeldahl Nitrogen	1.8	1.6	1.8	11%				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

The number in brackets after the method header identifies the sample tested.

amdel

Job Number : 5E0835

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E2530 Total Hardness						
Total Hardness as CaCO3	0.5	nd				
E2350 BOD in Water (5-Day)						
BOD	2	nd				
E2420 Chemical Oxygen Demand						
COD	10	nd				
E2580 TOC in Water						
TOC	2	nd				
E2770 Kjeldahl Nitrogen in Water						
Kjeldahl Nitrogen	0.1	nd				
E2550 Nitrate as N in Water						
Nitrate as N	0.02	nd				
E2560 Nitrite as N in Water						
Nitrite as N	0.02	nd				
E2330 Ammonia as N in Water						
Ammonia as N	0.01	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

ALS Environmental

Certificate of Analysis

LABORATORY REPORT NO: NE17326

CLIENT REFERENCE: ENO1669

CLIENT: Sinclair Knight Merz
PO Box 164
ST LEONARDS NSW 1590

ATTENTION: Mr Simon Opper

DATE REPORTED: 4/04/05

DATE RECEIVED: 29/03/05

TITLE: Air Analysis

SAMPLES: 4 Charcoal Tubes & 1 Sorbent Tube

Please find results for the above samples.

Sampled by Sinclair Knight Merz, analysed as received.

Please do not hesitate to contact us if we can be of assistance.

Yours faithfully

Australian Laboratory Services Pty Ltd

NATA Accredited Laboratory
Number: 825 Site: Newcastle

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Authorising Chemist
Petro Holowinskyj

AUSTRALIAN LABORATORY SERVICES PTY LTD ABN 84 009 936 029
Newcastle Laboratory
5 Rosegum Close, Warabrook NSW 2304
Phone: 61-2-4968 9433 Fax: 61-2-4968 0349 Website: www.alsenviro.com.au

A Campbell Brothers Limited Company

ORGANIC ANALYSIS

Report No: NE17326

Client Reference: -ENO1669

METHOD	ANALYSIS DESCRIPTION	UNITS	LOR	Sa	NE17326/4Front	NE17326/4Back					QA/QC	
				Client ID	MW34	MW34					Blank	Spike/Control % Recovery
				Date Sampled	22-Mar-05	22-Mar-05						
				Date Received	29-Mar-05	29-Mar-05						
EP077	Naphthalene	µg/section	0.1		1.2	0.3					<0.1	87%
EP077	Acenaphthylene	µg/section	0.1		<0.1	<0.1					<0.1	80%
EP077	Acenaphthene	µg/section	0.1		<0.1	<0.1					<0.1	84%
EP077	Fluorene	µg/section	0.1		<0.1	<0.1					<0.1	86%
EP077	Phenanthrene	µg/section	0.1		<0.1	<0.1					<0.1	85%
EP077	Anthracene	µg/section	0.1		<0.1	<0.1					<0.1	79%
EP077	Fluoranthene	µg/section	0.1		<0.1	<0.1					<0.1	76%
EP077	Pyrene	µg/section	0.1		<0.1	<0.1					<0.1	82%
EP077	Benz(a)anthracene	µg/section	0.1		<0.1	<0.1					<0.1	86%
EP077	Chrysene	µg/section	0.1		<0.1	<0.1					<0.1	86%
EP077	Benzo(b)fluoranthene	µg/section	0.1		<0.1	<0.1					<0.1	79%
EP077	Benzo(k)fluoranthene	µg/section	0.1		<0.1	<0.1					<0.1	78%
EP077	Benzo(a)pyrene	µg/section	0.1		<0.1	<0.1					<0.1	71%
EP077	Indeno(123:cd)pyrene	µg/section	0.1		<0.1	<0.1					<0.1	78%
EP077	Dibenzo(ah)anthracene	µg/section	0.1		<0.1	<0.1					<0.1	77%
EP077	Benzo(ghi)perylene	µg/section	0.1		<0.1	<0.1					<0.1	80%
EP077	Sum of Reported PAH's	µg/section	0.1		1.2	0.3					<0.1	81%
				Date Extracted	30-Mar-05	30-Mar-05					30-Mar-05	30-Mar-05
				Date Analysed	01-Apr-05	01-Apr-05					01-Apr-05	01-Apr-05

Authorising Chemist: Petro Holowinskyj

Petro Holowinskyj

Date: 4/4/2005

ALS Environmental Australian Laboratory Services Pty Ltd (ABN 84 ... 036 030)

ORGANIC ANALYSIS

Report No: NE17326

Client Reference: -ENO1669

METHOD	ANALYSIS DESCRIPTION	UNITS	LOR	Sam	26/1Front	NE17326/1Back	NE17326/2Front	NE17326/2Back	[illegible]Front	NE17326/3Back	NE17326/4Front	NE17326/4Back		QC
				Client ID	MW30	MW30	MW32	MW32	MW[illegible]	MW33	MW34	MW34	Blank	Spike/Control % Recovery
				Date Sampled	22-Mar-05	22-Mar-05	22-Mar-05	22-Mar-05	22-Mar-05	22-Mar-05	22-Mar-05	22-Mar-05		
				Date Received	29-Mar-05	29-Mar-05	29-Mar-05	29-Mar-05	29-Mar-05	29-Mar-05	29-Mar-05	29-Mar-05		
					Charcoal Tube	Charcoal Tube	Charcoal Tube	Charcoal Tube	Charcoal Tube	Charcoal Tube	Charcoal Tube	Charcoal Tube		
EP091	Benzene	ug/section	0.5		<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	104%
EP091	Toluene	ug/section	0.5		432	<0.5	45.8	<0.5	1.0	<0.5	840	<0.5	<0.5	94%
EP091	Ethyl Benzene	ug/section	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	97%
EP091	m- & p-xylene	ug/section	1		<1	<1	<1	<1	<1	<1	<1	<1	<1	95%
EP091	o-xylene	ug/section	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
				Date Extracted	29-Mar-05	29-Mar-05	29-Mar-05	29-Mar-05	29-Mar-05	29-Mar-05	29-Mar-05	29-Mar-05	29-Mar-05	29-Mar-05
				Date Analysed	30-Mar-05	30-Mar-05	30-Mar-05	30-Mar-05	30-Mar-05	30-Mar-05	30-Mar-05	30-Mar-05	30-Mar-05	30-Mar-05

Authorising Chemist: _____

Petro Holowinskyj

Date: _____

ALS Environmental

Certificate of Analysis

LABORATORY REPORT NO: NE17394

CLIENT REFERENCE: EN01669

CLIENT: Sinclair Knight Merz
PO Box 164
ST LEONARDS NSW 1590

ATTENTION: Ms Christine Tropman

DATE REPORTED: 18/04/05

DATE RECEIVED: 07/04/05

TITLE: Air Analysis

SAMPLES: 4 Air Samples

Please find results for the above samples.

Sampled by Sinclair Knight Merz, analysed as received.

Please do not hesitate to contact us if we can be of assistance.

Yours faithfully

Australian Laboratory Services Pty Ltd

NATA Accredited Laboratory
Number: 825 Site: Newcastle

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Authorising Chemist
Petro Holowinskyj

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A Campbell Brothers Limited Company

ORGANIC ANALYSIS

Report No: NE17394

Client Reference: -EN01669

										QA/QC	
		ıple		NE17394/2Front	NE17394/2Back					Blank	Spike/Control % Recovery
		Client ID		MW31	MW31						
		Date Sampled		04-Apr-05	04-Apr-05						
		Date Received		07-Apr-05	07-Apr-05						
METHOD	ANALYSIS DESCRIPTION	UNITS	LOR	Charcoal Tube	Charcoal Tube						
EP091	Benzene	ug/Section	0.5	<0.5	<0.5					<0.5	117%
EP091	Toluene	ug/Section	0.5	7.9	<0.5					<0.5	104%
EP091	Ethyl Benzene	ug/Section	0.5	<0.5	<0.5					<0.5	100%
EP091	m- & p-xylene	ug/Section	1	<1	<1					<1	98%
EP091	o-xylene	ug/Section	0.5	<0.5	<0.5					<0.5	-
		Date Extracted		08-Apr-05	08-Apr-05					08-Apr-05	08-Apr-05
		Date Analysed		13-Apr-05	13-Apr-05					13-Apr-05	13-Apr-05

Authorising Chemist: _____ Date: _____

Petro Holowinskyj

ORGANIC ANALYSIS

Report No: NE17394

Client Reference: -EN01669

		Sample	NE17394/1Front	NE17394/1Back	NE17394/2Front	NE17394/2Back	NE17394/3Front	NE17394/3Back	NE17394/4Front	NE17394/4Back	QC	
		Client ID	MW30	MW30	MW31	MW31	MW33	MW33	MW32	MW32		
		Date Sampled	04-Apr-05	04-Apr-05	04-Apr-05	04-Apr-05	04-Apr-05	04-Apr-05	04-Apr-05	04-Apr-05	Blank	Spike/Control % Recovery
		Date Received	07-Apr-05	07-Apr-05	07-Apr-05	07-Apr-05	07-Apr-05	07-Apr-05	07-Apr-05	07-Apr-05		
METHOD	ANALYSIS DESCRIPTION	UNITS	LOR	XAD Tube	XAD Tube	XAD Tube	XAD Tube	XAD Tube	XAD Tube	XAD Tube	XAD Tube		
EP077	Naphthalene	µg	0.1	0.6	<0.1	0.6	<0.1	0.6	<0.1	0.5	<0.1	<0.1	86%
EP077	Acenaphthylene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	80%
EP077	Acenaphthene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	82%
EP077	Fluorene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	83%
EP077	Phenanthrene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	83%
EP077	Anthracene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	77%
EP077	Fluoranthene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	75%
EP077	Pyrene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	80%
EP077	Benz(a)anthracene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	81%
EP077	Chrysene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	80%
EP077	Benzo(b)fluoranthene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	77%
EP077	Benzo(k)fluoranthene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	81%
EP077	Benzo(a)pyrene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	75%
EP077	Indeno(123:cd)pyrene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	75%
EP077	Dibenzo(ah)anthracene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	74%
EP077	Benzo(ghi)perylene	µg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	72%
EP077	Sum of Reported PAH's	µg	0.1	0.6	<0.1	0.6	<0.1	0.6	<0.1	0.5	<0.1	<0.1	79%
		Date Extracted		08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05
		Date Analysed		08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05	08-Apr-05

Authorising Chemist: _____

Petro Holowinskyj

Date: _____

Australian Laboratory Services Pty Ltd (ABN 84 009 936 029)

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NATA Accredited Laboratory Number: 1464

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ABN 30 008 127 802
Correspondence to:
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HUNTER REGIONAL MAIL
CENTRE NSW 2310

99 Mitchell Rd
CARDIFF NSW 2285
Telephone: (02) 4902 4800
Facsimile: (02) 4902 4899

CERTIFICATE OF ANALYSIS

Contents :
1. Cover Pages (2)
2. Analysis Report Pages
3. QA/QC Appendix
4. Additional Reports - External (if applicable)
5. Chain of Custody (if applicable)

Report No.	:	4E2321
Attention	:	Ms Louise Macdonald
Client	:	Sinclair Knight Merz
	:	PO Box 164
	:	ST LEONARDS NSW 1590
Samples	:	8
Reference/Order	:	EN01669
Project	:	MACDONALDTOWN RISK ASSESSMENT
Received Samples	:	09/12/04
Instructions	:	09/12/04
Date Reported	:	24/12/04

PLEASE SEE FOLLOWING PAGES FOR METHOD LISTING AND RESULTS

RESULTS

All samples were analysed as received. This report relates specifically to the samples as received. Results relate to the source material only to the extent that the samples as supplied are truly representative of the sample source. This report replaces any preliminary results issued. Note that for methods indicated with "#", NATA accreditation does not cover the performance of this service. Three significant figures (or 2 for <10PQL) are reported for statistical purposes only. Where "Total" concentrations are reported for organic suites of compounds this is the summation of the individual compounds and the PQL is noted for reporting purposes only. This report has been authorized by the NATA signatories listed in the method descriptions section on the following page.

James McMahon B.Sc.,Ph.D. (Chem.)
Manager - Environmental

amdel

Report No. : 4E2321

Please note: Where samples are collected/submitted over several days, the date on which the last samples were analysed or extracted is reported.
Unless Ferrous Iron is determined on site, the possibility of a ferrous-ferric ratio change may occur.

Method	Description	Extracted	Analysed	Authorised
E7500	Moisture (%w/w)	13/12/04	13/12/04	ZSI 096
E1224	#HRAF in Soil for Health based guideline	10/12/04	17/12/04	MNG 094
E1010	Benzene,Toluene,Ethylbenzene & Xylene	09/12/04	13/12/04	MNG 094

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NATA Signatory

Initials	Name	Sections/Methods
MCM	James McMahon	093, 094, 095, 101
MNG	Minh Nguyen	094, 095
MFA	Mark Fahmy	094, 095
LHA	Ly Kim Ha	094, 095
DJA	Dilanthi Jayamanne	094
GTO	Greg Towers	094
GPE	Geoff Peterson	095
DLU	Darrel Luck	093
MAV	Merrin Avery	101
DBL	Dianne Blane	101
NCO	Nathan Cooper	101
AGR	Alison Graham	101
PKE	Peter Keyte	101

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Job Number : 4E2321
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN RISK ASSESSMENT

Analyte	Lab No	E164612	E164613	E164615	E164616	E164618
		MW30	MW31	MW32	MW33	MW34
	Sample Id	0-0.45	0-5-0.95	1.2	0.5-0.95	1.4
	PQL					
E7500 Moisture (%w/w) in Soil						
Moistures test performed at 105oC						
Moisture Content	1	6%	11%	11%	14%	24%
#E1223 HRAF in Soil						
Not covered by NATA Accreditation 1464						
> nC9-C12 aliphatic*	10	nd	nd	nd	13	55
> nC12-C16 aliphatic*	10	nd	nd	nd	218	30
> nC16-C28 aliphatic*	50	75	65	nd	217	nd
> nC28-C35 aliphatic*	50	79	nd	nd	nd	nd
> nC9-C12 aromatic*	10	nd	nd	nd	24	30
> nC12-C16 aromatic*	10	nd	nd	nd	151	29
> nC16-C28 aromatic*	50	113	nd	nd	2124	92
> nC28-C35 aromatic*	50	131	50	nd	nd	nd
E1010 BTEX (P&T) in Soil						
Benzene	0.2	nd	nd	nd	nd	nd
Toluene	1	nd	nd	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd	nd
m&p-Xylene	2	nd	nd	nd	nd	nd
o-Xylene	1	nd	nd	nd	nd	nd
4-Bromofluorobenzene-SURROGATE	1	106%	72%	72%	96%	100%

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 4E2321
Client : Sinclair Knight Merz
Reference : EN01669
Project : MACDONALDTOWN RISK ASSESSMENT

Analyte	Lab No	E164619				
		EN01669				
	Sample Id	DUP				
	PQL					
E7500 Moisture (%w/w) in Soil						
Moistures test performed at 105oC						
Moisture Content	1	14%				
#E1223 HRAF in Soil						
Not covered by NATA Accreditation 1464						
> nC9-C12 aliphatic*	10	nd				
> nC12-C16 aliphatic*	10	nd				
> nC16-C28 aliphatic*	50	220				
> nC28-C35 aliphatic*	50	nd				
> nC9-C12 aromatic*	10	nd				
> nC12-C16 aromatic*	10	nd				
> nC16-C28 aromatic*	50	nd				
> nC28-C35 aromatic*	50	nd				
E1010 BTEX (P&T) in Soil						
Benzene	0.2	--				
Toluene	1	--				
Ethylbenzene	1	--				
m&p-Xylene	2	--				
o-Xylene	1	--				
4-Bromofluorobenzene-SURROGATE	1	--				

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

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AMDEL INTERNAL QUALITY ASSURANCE REVIEW.

Job No. 4E2321

General

1. Laboratory QA/QC including Method Blanks, Duplicates, Matrix Spikes, Laboratory Control Samples or CRM's are included in this QA/QC appendix. (Where applicable)
2. Inter-Laboratory proficiency trial results are available upon request.
3. PQLs are matrix dependent and are increased accordingly where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spike or surrogate recoveries.
5. Where 3 and 2 significant figures are reported for >10x PQL and <10x PQL respectively, the last figure is uncertain and is provided for statistical purposes only.
6. Samples duplicated or spiked are from this job only and are identified in the following QA/QC report.
7. SVOC analyses on waters are performed on homogenized, unfiltered samples, unless noted otherwise.

Maximum Holding Times for Soils, Sediments and Waters

Parameter	Holding Times
Soils	
Volatile and Semi-Volatile Organic Analysis.	Extracted in 14 days, analysed within 40 days.
Metals	Extracted and analysed within 28 days-6 months.
Inorganics*	Extracted and analysed within 7-28 days.
TCLPs*	Extracted and analysed within 14 days, (Zero Headspace-TCLP 7 days).
Waters	
Volatile Organic Analysis	Analysed within 7 days (USEPA requires 14 days).
Semi-Volatile Organic Analysis	Extracted in 7 days, analysed within 40 days.
Inorganics*	Analysed within 24 hrs-28 days.
Metals (dissolved metals should be supplied field filtered)	Prepared and analysed within 28 days.

* Please refer to 'Preservation Information Chart for Soils, Sediments & Waters' for further information. (ISFORM.098). Holding times may be extended with the use of preservation bottles and/or freezing samples. Holding times can be calculated from dates reported in the body of the report. Tests clearly exceeding holding times will be noted when sufficient information is provided.
Reference: USEPA SW846 and AMDEL SPM-01 (incorporating NEPM Guidelines).

Chain of Custody and Sample Integrity	Yes/NO/NA
Chain of Custody / instructions received with samples	Yes
Custody seals were received intact, if used	NA
Samples were received chilled and in good condition	Yes
Samples received appropriately preserved for all tests	Yes
VOC/SVOC samples were received in teflon lined containers	Yes
Samples received with Zero Headspace	Yes
Chain of Custody completed and attached (if applicable)	Yes

Chromatography Calibration/Acceptence Criteria (if applicable)	
Retention time window meets acceptance criteria (+/-2%)	Yes
Reference standard meets acceptance criteria (+/-10%)	Yes
Recalibration standard meets acceptance criteria (+/-15%)	Yes
Internal standard recovery acceptable.	Yes

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AMDEL INTERNAL QUALITY ASSURANCE REVIEW Cont..

Amdel QA/QC Compliance Assessment

	Compliance
Surrogates performed on all appropriate GC analyses and meet acceptance limits (70% - 130% recovery*).	Please see body of report
Matrix Spikes performed once per process batch and at least 1 in 20 samples (Results meet acceptance limits - 70% - 130% recovery* or 80% - 120% recovery* for inorganics in water.)	Please see body of report
Laboratory Control samples performed once per process batch and at least 1 in 20 samples (Results meet acceptance limits - 70% - 130% recovery* in soil or 70%-130%/90-110% recovery* for waters.)	Yes
Laboratory Duplicate samples performed once per process batch and at least 1 in 10 samples	Yes
Laboratory duplicates meet acceptance criteria <4 PQL - +/- 2 PQL 4-10 PQL - 25-50 or 50% RPD >10 PQL - 10-30 or 30% RPD	Please see body of report
Method Blanks performed once per process batch and at least 1 in 20 samples (Results not detected at the PQL).	Yes

N/A=Not Applicable.

* Phenols 50% - 130% recovery
* SVOCs 60% - 130% recovery
* Phenoxy Acid Herbicides 60% - 140% recovery

QA/QC Appendix

Please refer to the following pages for the QA/QC data.
For further information on samples or non-conformance in QC protocols please see notations in the body of the report plus comments on the following page.

Additional Comments

James McMahon B.Sc.,Ph.D. (Chem.)
Manager - Environmental

amdel

AMDEL STANDARD LABORATORY QUALIFIER CODES.

Job NO. 4E2321

Qualifier Codes	Description
*	PQLs are raised due to matrix interference.
@	PQLs are raised due to insufficient sample provided for analysis.
$	The mass imbalance indicates the presence of other ions not measured as part of this procedure.
nd	<PQL
--	Not applicable
LNR	The sample was listed on the COC, but not received.
IS	Insufficient sample was supplied to conduct this analysis.
AN	The analysis indicates the presences of an analyte that has been 'tentatively' identified, and the associated numerical value represents it's approximate concentration.
A	Sample results are reported on an 'as received' basis (not moisture corrected).
B	The sample was not received in a suitable timeframe to allow completion within the recommended holding time.
C	This sample was received with headspace.
D	This sample was received with the incorrect preservation for this analysis.
E	The raw data indicates the absence of 0.055g of Copper Sulphate in the sample.
F	This sample contained significant amounts of solids and was therefore analysed by settling and decanting the aqueous phase to avoid including the solid in the analysis portion.
G	This test was performed outside the recommended holding time.
H	This sample contained significant material >5mm which was removed prior to analysis.
ISD	Insufficient sample was supplied to conduct duplicate analyses.
ISM	Insufficient sample was supplied to conduct matrix spike analyses.
W	The spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
J	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause.
K	The matrix spike concentration is less than five times the background concentration in the sample, and therfore the spike recovery can not be determined.
L	The surrogate recovery is outside of the recommended acceptance criteria, due to matrix interference.
M	The surrogate recovery is outside of the recommended acceptance criteria. Insufficent sample remains to perform re-analysis.
N	Results are expressed in mg/L (ppm) due to the high concentration of the analyte.
O	The results reported are 'recoverable organics' for this fraction, as the chromatogram and peak shape indicates the presence of a significant concentration of polar compounds.
P	The concentration reported is mainly due to a single peak.
Q	This samples contains volatile halogenated oxygenated or other compounds that are included and quantitated as part of TPH C6-9.
R	Theoretically the total result should be greater or equal to the dissolved concentration. However the difference reported is within the uncertainty of the individual tests.
S	The mass imbalance was equal to or less than 0.2 milli-equivalents.
T	During Kjeldahl digestion, nitrate (>10mg/L) can oxidise ammonia resulting in a negative TKN interference, which may have occurred for this sample.
U	Theoretically the TKN result should be greater or equal to ammonia concentration. However the difference reported is within the uncertainty of the individual tests.
V	This sample contained significant amounts of sediment which was included in the analysis portion as requested.
SUR	Surrogate recoveries could not be determined due to the dilution required to quantify the analyte.

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Job Number : 4E2321

QAQC : Matrix Spike(s)

Analyte	Spike Level	Level Detected		Recovery Details			
		Spike 1	Spike 2	Rec 1 (%)	Rec 2 (%)	Average (%)	RPD (%)
E1010 BTEX (P&T) in Soil (E164612)							
Benzene	10	9.4		94%			
Toluene	10	9		93%			
Ethylbenzene	10	9		89%			
m&p-Xylene	20	19		93%			
o-Xylene	10	9		91%			

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

The number in brackets after the method header identifies the sample tested.

amdel

Job Number : 4E2321

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E1010 BTEX (P&T) in Soil							
Benzene	10	10			99%		
Toluene	10	11			107%		
Ethylbenzene	10	11			105%		
m&p-Xylene	20	20			101%		
o-Xylene	10	10			104%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

amdel

Job Number : 4E2321

QAQC : Laboratory Duplicate(s)

Analyte	Dupl A	Dupl B	Average	RPD (%)	Dupl A	Dupl B	Average	RPD (%)
E1010 BTEX (P&T) in Soil (E164612)								
Benzene	nd	nd						
Toluene	nd	nd						
Ethylbenzene	nd	nd						
m&p-Xylene	nd	nd						
o-Xylene	nd	nd						

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

The number in brackets after the method header identifies the sample tested.

amdel

Job Number : 4E2321

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E1010 BTEX (P&T) in Soil						
Benzene	0.2	nd				
Toluene	1	nd				
Ethylbenzene	1	nd				
m&p-Xylene	2	nd				
o-Xylene	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

Appendix F Field Equipment Calibration & Insitu Permeability Test Documentation

PID Calibration Record

PID lamp: Minirae 2000

Calibration gas: Isobutylene

Calibration Concentration: 100ppm

Project	Date	Calibration (ppm)		
		Background	Before	After
EN01732	05/06/2004	-	-	103
EN01752	30/06/2004	0	99.7	99.8
EN01770	26/08/2004	0	100	-
EN01717	15/09/2004	0	99.8	100
EN01717	16/09/2004	0	99.9	100
EN01717	17/09/2004	0	99.7	100
EN01717	21/09/2004	0	99.8	100
EN01669	07/12/2004	0	98.2	100
EN01787	15/12/2004	4	100	100
EN01787	15/12/2004	2	100	100
EN01855	08/02/2005	0	92.7	100
EN01855	09/02/2005	0	100	100
EN01855	10/02/2005	0	101	100

SKM

PID HNU Calibration Sheet

Form ET17 August 96

Client: RAILCORP Project: Mac Town Project No: ENO1669

Project Manager: LM Section: ENV Project Director: I.S

Site: MacDonaldtown

Operator (Name & Signature): Andrea Faulkner + Cheryl Holden

Date: 7/12/04

PID Lamp Used: Minirae 2000 eV

Calibration Gas: Isobutylene

Calibrant Concentration: 100ppm

Benzene Equivalent: — (multiply calibrant concentration by 70% if isobutylene)

CALIBRATION TABLE

Time	Background Reading	Before		After		Comments
		Span	Reading	Span	Reading	
4pm	0ppm					Fresh Air
4pm			98.2ppm		100ppm	Gas

Note: PID must be calibrated at least twice a day, before and after soil gas sampling and if needed during sampling process.

FORM STATUS
Mandatory ☐
Optional (but with intent on file) ☐
Guideline ☑

Operator completes → Proj. Mgr. reviews → Proj. Mgr. files

Copy to

Sent ☐

Comment

Prepared by:

File:

RISING/FALLING HEAD PERMEABILITY TEST

Project No. EN01669

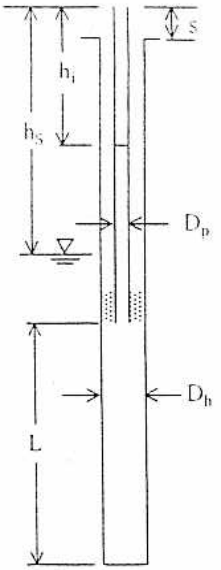
Project Macdonaldtown

Location

Remark Test 1

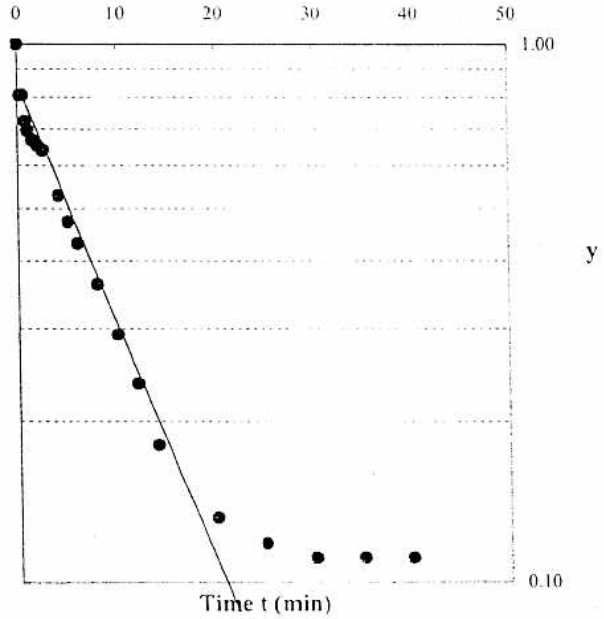
Bore No MW06S

Date 4/03/2005



Depth of borehole	3.50 m	(measured from ground surface)
Depth to bottom of seal	0.30 m	(measured from ground surface)
Test section length (L)	3.00 m	
Diameter of pipe (D_p)	0.05 m	
Diameter of test section (D_h)	0.1 m	
Diameter of water surface (d)	0.05 m	
Static depth to gw. (h_S)	2.28 m	
Bore inclination	90 °	
Stickup of pipe (s)	0.89 m	

Calculation of hydraulic conductivity K :



$K=(d^2/(8*60(t^*-t1)*L)*\ln(2*L/Dh)*\ln(y1/y^*)$

where

t*, y*, t1 = 0, y1 = 1 define slope of a straight line fitted to the observations

K = 1.41E-05 m/s

i = 1, 2, 3, ...n

i	Time t (min)	Depth to water h_i (m)	Diff. in water levels $h_S - h_i$ (m)	$y = \frac{h_S - h_i}{h_S - h_1}$
1	0.0	1.56	0.72	1.00
2	0.3	1.70	0.58	0.81
3	0.5	1.70	0.58	0.81
4	0.8	1.76	0.52	0.72
5	1.0	1.78	0.50	0.69
6	1.5	1.80	0.48	0.67
7	2.0	1.81	0.47	0.65
8	2.5	1.82	0.46	0.64
9	3.0		2.28	2.00
10	4	1.9	0.38	0.53
11	5	1.94	0.34	0.47
12	6	1.97	0.31	0.43
13	8	2.02	0.26	0.36
14	10	2.07	0.21	0.29
15	12	2.11	0.17	0.24
16	14	2.15	0.13	0.18
17	16	2.17	0.11	3.00
18	20	2.185	0.09	0.13
19	25	2.195	0.09	0.12
20	30	2.2	0.08	0.11
21	35	2.2	0.08	0.11
22	40	2.2	0.08	0.11
23				
24				

Start time

End time

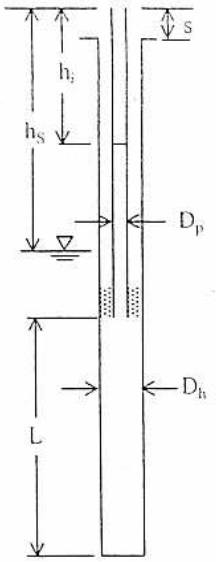
Drawn By: J.Barwood

Checked By:

RISING/FALLING HEAD PERMEABILITY TEST

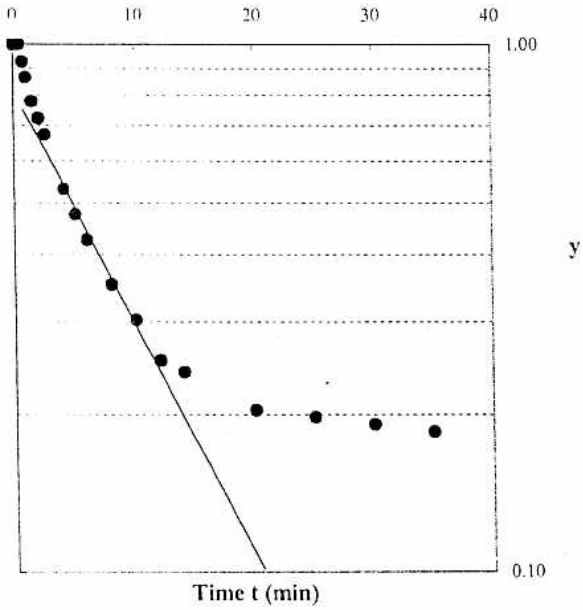
Project No. EN01669

Project	Macdonaldtown	**Bore No**	MW06S
Location		Date	22/03/2005
Remark	Test 2		



Depth of borehole	3.50	m	(measured from ground surface)
Depth to bottom of seal	0.30	m	(measured from ground surface)
Test section length (L)	3.00	m	
Diameter of pipe (D_p)	0.05	m	
Diameter of test section (D_h)	0.1	m	
Diameter of water surface (d)	0.05	m	
Static depth to gw. (h_S)	2.37	m	
Bore inclination	90	°	
Stickup of pipe (s)	0.89	m	

Calculation of hydraulic conductivity K :



$K=(d^2/(8*60(t^*-t1)*L)*\ln(2*L/Dh)*\ln(y1/y^*)$

where
t*, y*, t1 = 0, y1 = 1 define slope of a straight line fitted to the observations

K = 1.39E-05 m/s

i = 1, 2, 3, ...n

i	Time t (min)	Depth to water h_i (m)	Diff. in water levels $h_S - h_i$ (m)	$y = \frac{h_S - h_i}{h_S - h_1}$
1	0.0	1.56	0.81	1.00
2	0.3	1.47	0.90	1.11
3	0.5	1.56	0.81	1.00
4	0.8	1.62	0.75	0.93
5	1.0	1.67	0.70	0.86
6	1.5	1.74	0.63	0.78
7	2.0	1.79	0.59	0.72
8	2.5	1.83	0.55	0.67
9	3.0	1.88	0.50	2.00
10	4	1.94	0.43	0.53
11	5	1.985	0.39	0.48
12	6	2.025	0.35	0.43
13	8	2.085	0.29	0.35
14	10	2.125	0.25	0.30
15	12	2.165	0.21	0.25
16	14	2.175	0.20	0.24
17	16	2.19	0.18	3.00
18	20	2.205	0.17	0.20
19	25	2.21	0.16	0.20
20	30	2.215	0.16	0.19
21	35	2.22	0.15	0.19
22				
23				
24				

Start time	0
End time	35

Drawn By: J.Barwood

Checked By:

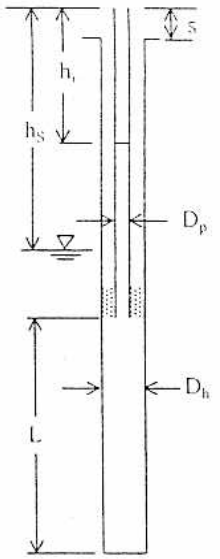
RISING/FALLING HEAD PERMEABILITY TEST

Project No. EN01669

Project Macdonaldtown **Bore No** MW07D

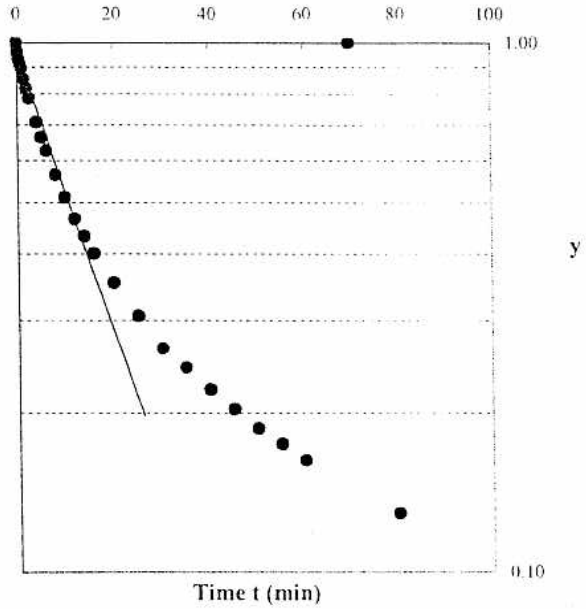
Location _____ Date 4/03/2005

Remark Test 1



Depth of borehole	12.00 m	(measured from ground surface)
Depth to bottom of seal	8.00 m	(measured from ground surface)
Test section length (L)	3.00 m	
Diameter of pipe (D_p)	0.05 m	
Diameter of test section (D_h)	0.1 m	
Diameter of water surface (d)	0.05 m	
Static depth to gw. (h_S)	3.32 m	
Bore inclination	90 °	
Stickup of pipe (s)	0.895 m	

Calculation of hydraulic conductivity K :



i = 1, 2, 3, ...n

i	Time t (min)	Depth to water h_i (m)	Diff. in water levels $h_S - h_i$ (m)	$y = \frac{h_S - h_i}{h_S - h_1}$
1	0.0	0.00	3.32	1.00
2	0.3	0.13	3.19	0.96
3	0.5	0.23	3.09	0.93
4	0.8	0.29	3.03	0.91
5	1.0	0.35	2.97	0.89
6	1.5	0.49	2.83	0.85
7	2.0	0.60	2.72	0.82
8	2.5	0.71	2.61	0.79
9	3.0	0.80	2.52	2.00
10	4	0.97	2.35	0.71
11	5	1.12	2.20	0.66
12	6	1.245	2.08	0.63
13	8	1.45	1.87	0.56
14	10	1.625	1.70	0.51
15	12	1.775	1.55	0.47
16	14	1.885	1.44	0.43
17	16	1.99	1.33	0.40
18	20	2.15	1.17	0.35
19	25	2.305	1.02	0.31
20	30	2.44	0.88	0.27
21	35	2.51	0.81	0.24
22	40	2.585	0.74	0.22
23	45	2.645	0.68	0.20
24	50	2.7	0.62	0.19
25	55	2.74	0.58	0.17
26	60	2.78	0.54	0.16

$K=(d^2/(8*60(t^*-t1)*L)*\ln(2*L/Dh)*\ln(y1/y^*)$

where
t*, y*, t1 = 0, y1 = 1 define slope of a straight line fitted to the observations

K = 1.00E-05 m/s

Drawn By: J.Barwood

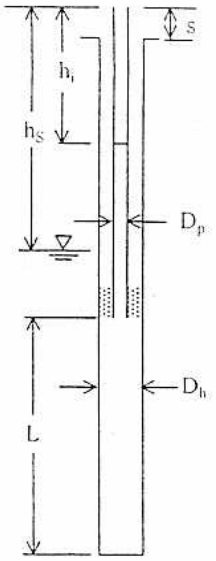
Checked By:

RISING/FALLING HEAD PERMEABILITY TEST

Project No. EN01669

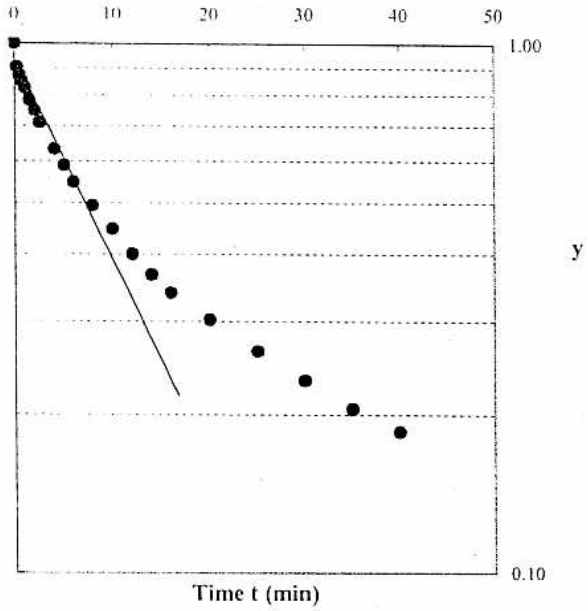
Project Macdonaldtown
Location
Remark Test 2

Bore No MW07D
Date 22/03/2005



Depth of borehole	12.00 m	(measured from ground surface)
Depth to bottom of seal	8.00 m	(measured from ground surface)
Test section length (L)	3.00 m	
Diameter of pipe (D_p)	0.05 m	
Diameter of test section (D_h)	0.1 m	
Diameter of water surface (d)	0.05 m	
Static depth to gw. (h_S)	3.37 m	
Bore inclination	90 °	
Stickup of pipe (s)	0.895 m	

Calculation of hydraulic conductivity K :



$K=(d^2/(8*60(t^*-t1)*L)*\ln(2*L/Dh)*\ln(y1/y^*)$

where
t*, y*, t1 = 0, y1 = 1 define slope of a straight line fitted to the observations

K = 1.39E-05 m/s

i = 1, 2, 3, ...n

i	Time t (min)	Depth to water h_i (m)	Diff. in water levels $h_S - h_i$ (m)	$y = \frac{h_S - h_i}{h_S - h_1}$
1	0.0	0.00	3.37	1.00
2	0.3	0.33	3.04	0.90
3	0.5	0.43	2.94	0.87
4	0.8	0.52	2.85	0.85
5	1.0	0.59	2.78	0.82
6	1.5	0.74	2.63	0.78
7	2.0	0.86	2.51	0.75
8	2.5	0.98	2.39	0.71
9	3.0	1.10	2.27	2.00
10	4	1.24	2.13	0.63
11	5	1.385	1.98	0.59
12	6	1.525	1.84	0.55
13	8	1.705	1.66	0.49
14	10	1.865	1.50	0.45
15	12	2.02	1.35	0.40
16	14	2.135	1.23	0.37
17	16	2.225	1.14	0.34
18	20	2.35	1.02	0.30
19	25	2.48	0.89	0.26
20	30	2.585	0.78	0.23
21	35	2.675	0.69	0.21
22	40	2.74	0.63	0.19

Start time 0
End time 35

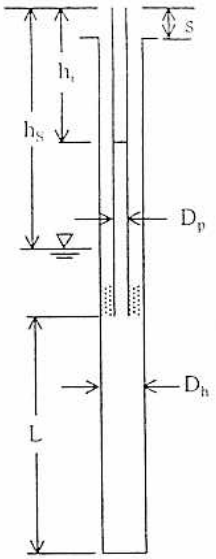
Drawn By: J.Barwood
Checked By:

RISING/FALLING HEAD PERMEABILITY TEST

Project No. EN01669

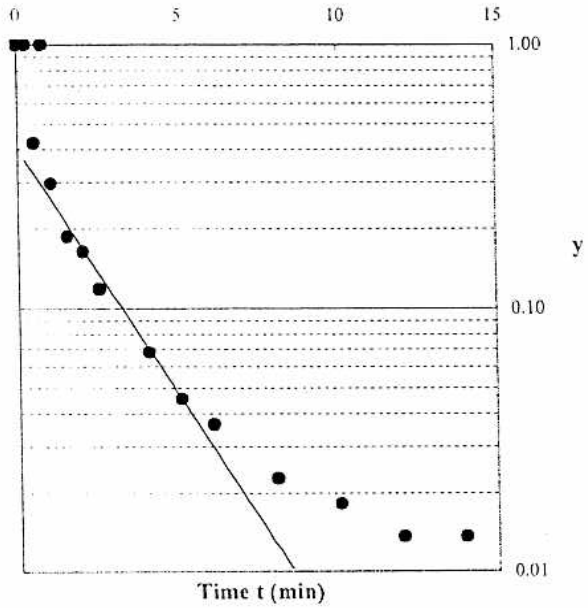
Project Macdonaldtown
Location
Remark Test 1

Bore No MW38D
Date 4/03/2005



Depth of borehole	12.00 m	(measured from ground surface)
Depth to bottom of seal	4.30 m	(measured from ground surface)
Test section length (L)	7.50 m	
Diameter of pipe (D_p)	0.05 m	
Diameter of test section (D_h)	0.1 m	
Diameter of water surface (d)	0.05 m	
Static depth to gw. (h_S)	2.20 m	
Bore inclination	90 °	
Stickup of pipe (s)	0 m	

Calculation of hydraulic conductivity **K :**



i = 1, 2, 3, ...n

i	Time t (min)	Depth to water h_i (m)	Diff. in water levels $h_S - h_i$ (m)	$y = \frac{h_S - h_i}{h_S - h_1}$
1	0.0	0.00	2.20	1.00
2	0.3		2.20	1.00
3	0.5	1.27	0.93	0.42
4	0.8		2.20	1.00
5	1.0	1.55	0.65	0.30
6	1.5	1.79	0.41	0.19
7	2.0	1.84	0.36	0.16
8	2.5	1.94	0.26	0.12
9	3.0	1.99	0.21	2.00
10	4	2.05	0.15	0.07
11	5	2.1	0.10	0.05
12	6	2.12	0.08	0.04
13	8	2.15	0.05	0.02
14	10	2.16	0.04	0.02
15	12	2.17	0.03	0.01
16	14	2.17	0.03	0.01

$K=(d^2/(8*60(t^*-t1)*L)*\ln(2*L/Dh)*\ln(y1/y^*)$

where
t^*, y^*, $t1 = 0$, $y1 = 1$ define slope of a straight line fitted to the observations

K = 3.00E-05 m/s

Drawn By: J.Barwood
Checked By:

RISING/FALLING HEAD PERMEABILITY TEST

Project No. EN01669

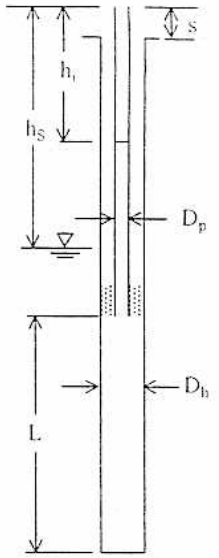
Project Macdonaldtown

Location

Remark Test 2

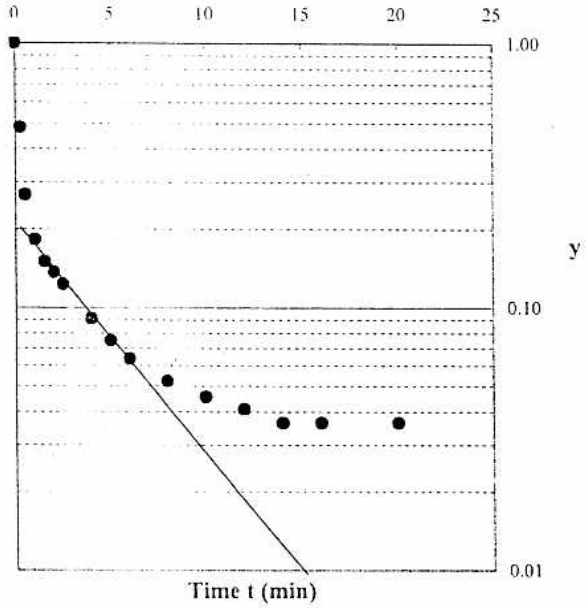
Bore No MW38D

Date 22/03/2005



Depth of borehole	12.00 m	(measured from ground surface)
Depth to bottom of seal	4.30 m	(measured from ground surface)
Test section length (L)	7.50 m	
Diameter of pipe (D_p)	0.05 m	
Diameter of test section (D_h)	0.1 m	
Diameter of water surface (d)	0.05 m	
Static depth to gw. (h_S)	2.20 m	
Bore inclination	90 °	
Stickup of pipe (s)	0 m	

Calculation of hydraulic conductivity **K :**



i = 1, 2, 3, ...n

i	Time t (min)	Depth to water h_i (m)	Diff. in water levels $h_S - h_i$ (m)	$y = \frac{h_S - h_i}{h_S - h_1}$
1	0.0	0.00	2.20	1.00
2	0.3	1.14	1.06	0.48
3	0.5	1.61	0.59	0.27
4			2.20	1.00
5	1.0	1.80	0.40	0.18
6	1.5	1.87	0.33	0.15
7	2.0	1.90	0.30	0.14
8	2.5	1.93	0.27	0.12
9	3.0	1.96	0.25	2.00
10	4	2	0.20	0.09
11	5	2.035	0.17	0.08
12	6	2.06	0.14	0.06
13	8	2.085	0.12	0.05
14	10	2.1	0.10	0.05
15	12	2.11	0.09	0.04
16	14	2.12	0.08	0.04
17	16	2.12	0.08	0.04
18	20	2.12	0.08	0.04

$K=(d^2/(8*60(t^*-t1)*L)*\ln(2*L/Dh)*\ln(y1/y^*)$

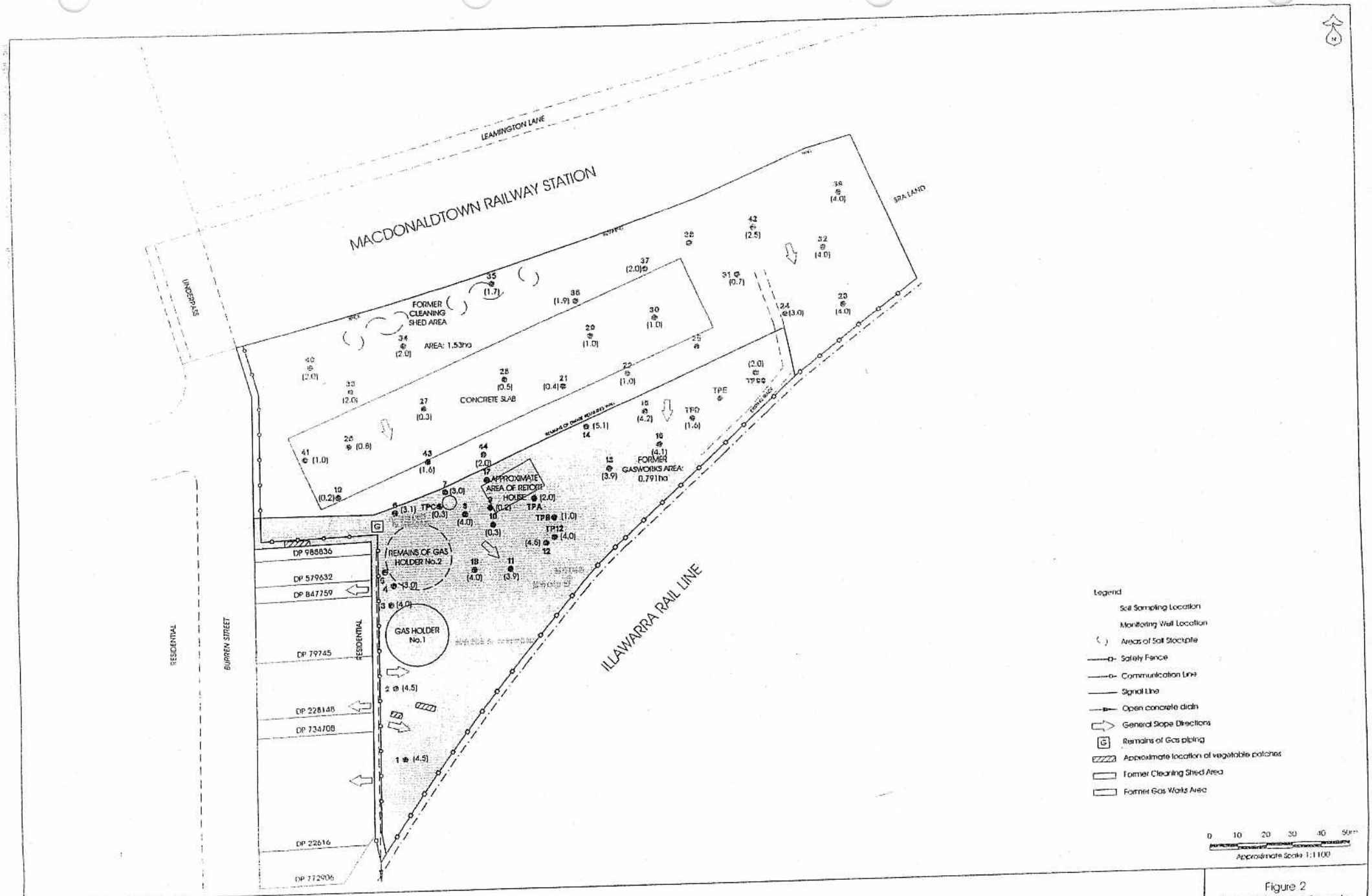
where
t*, y*, t1 = 0, y1 = 1 define slope of a straight line fitted to the observations

K = 1.44E-05 m/s

Drawn By: J.Barwood

Checked By:

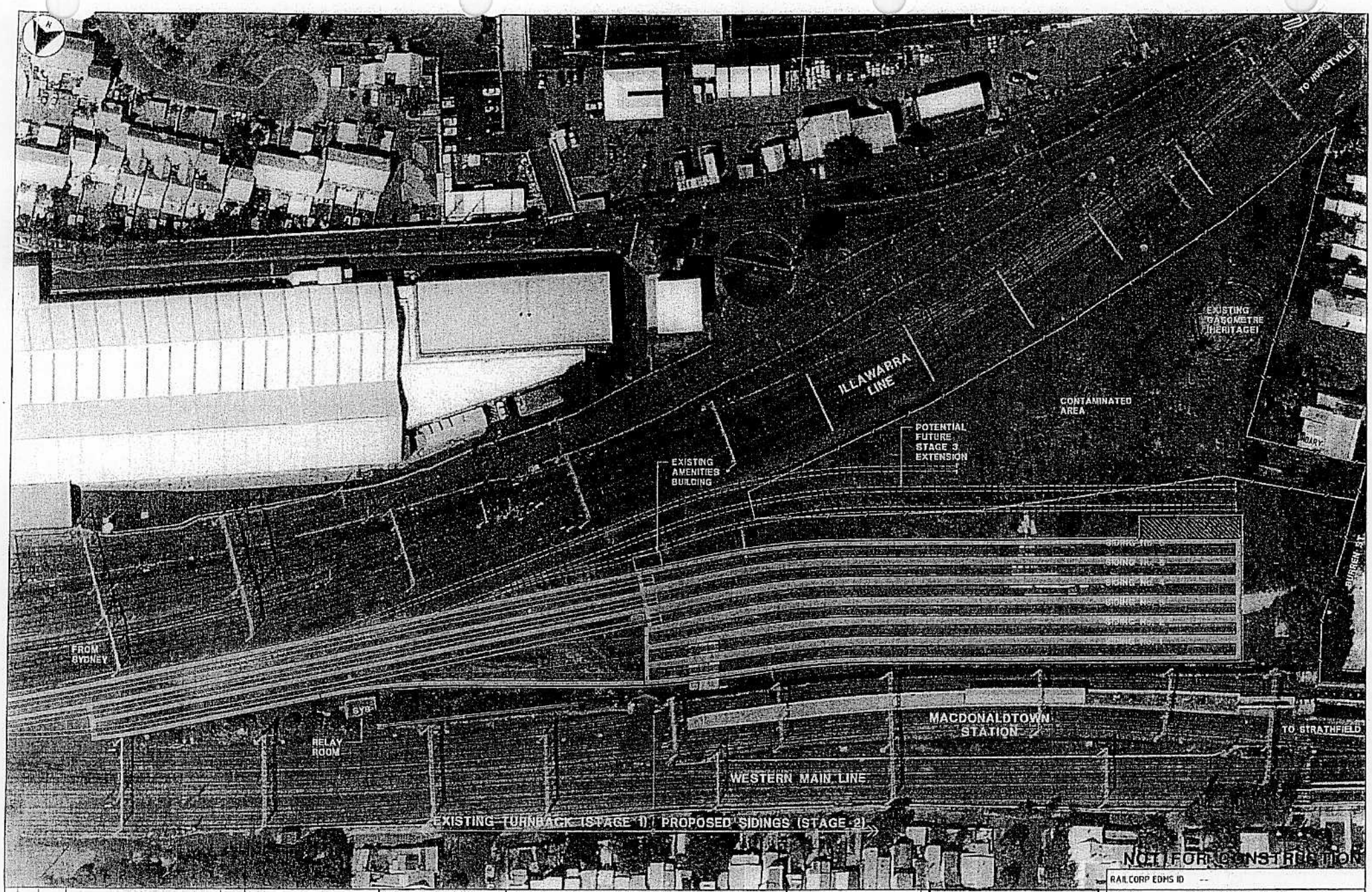
Appendix G Copies of Laboratory Summary Tables and Figures from Previous Investigations



CITIZEN HILL

MACDONALDTOWN TRIANGLE

Figure 2
Site Layout and Sample Location Plan



REVISION IN PROGRESS

NO	BY	DATE	DESCRIPTION	APPD

Scales: 0 10 20m — FULL SIZE AT

Professional Services Contractor: MAUNSELL AECOM

Maunsell Australia Pty Ltd A.B.N. 91 093 846 925

THE INFORMATION SHOWN ON THIS DRAWING IS FOR THE PURPOSES OF THE RAIL CLEARWAYS PROJECT ONLY. NO WARRANTY IS GIVEN OR IMPLIED AS TO ITS SUITABILITY FOR ANY OTHER PURPOSE.

	PREPARED	CHECKED	PSC APPROVED
DESIGN			
DRAFTING			DATE

Technical Advisor: MAUNSELL AECOM

Maunsell Australia Pty Ltd A.B.N. 91 093 846 925

In Association with: Connell Wagner

Connell Wagner Pty Ltd ABN 54 005 139 873

CHECK PRINT — PRELIM / FINAL — INITIAL / DATE

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RAILCORP EDMS ID --

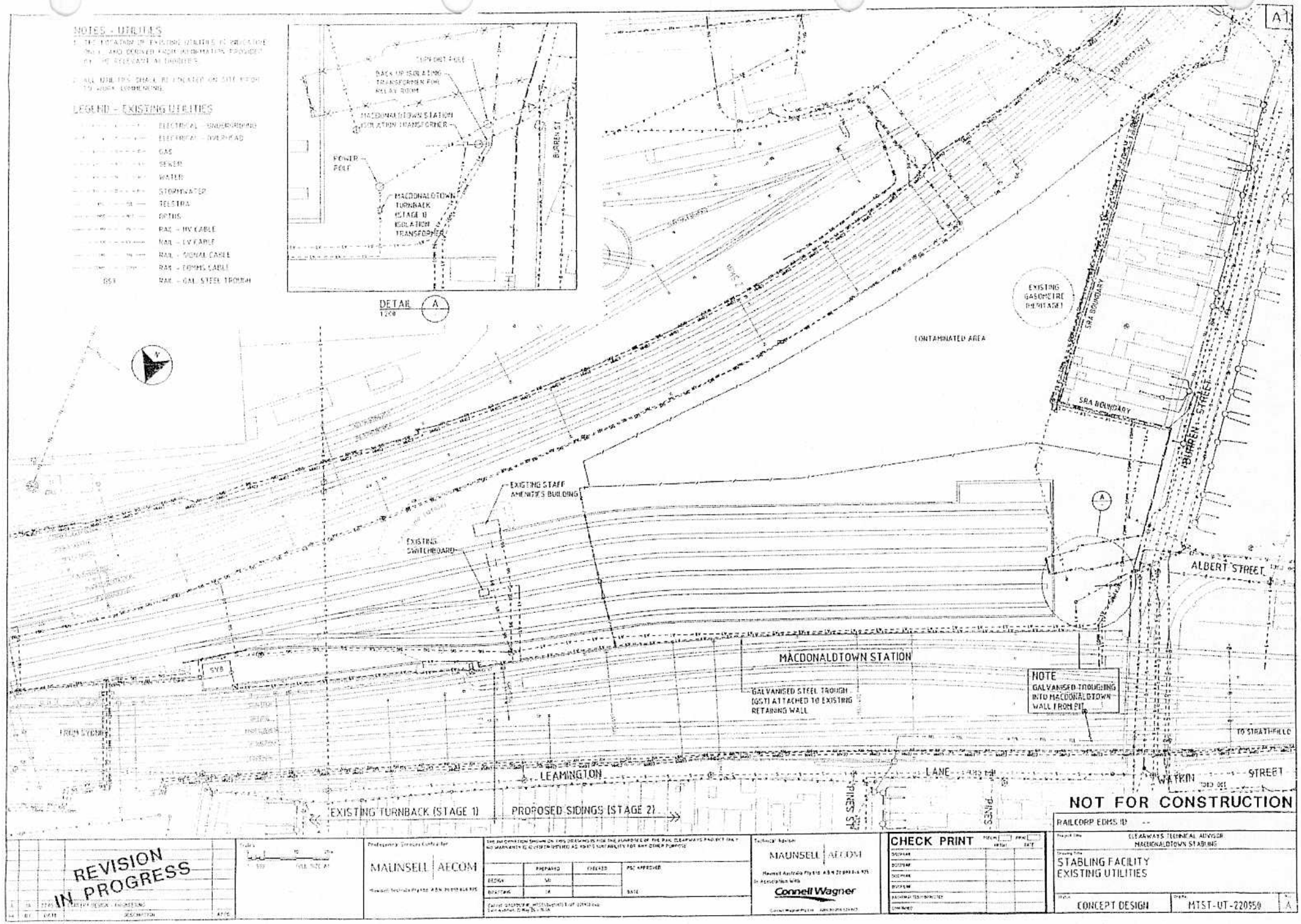
Project Title: CLEARWAYS TECHNICAL ADVISOR
MACDONALDTOWN STABLING

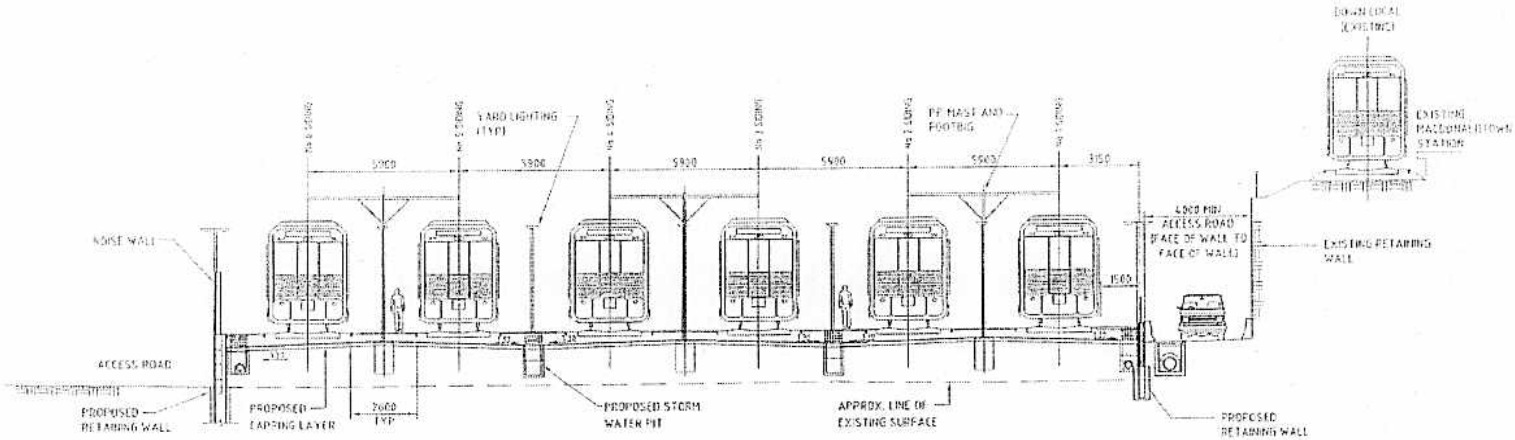
Drawing Title: AERIAL PHOTOGRAPHY

Status: CONCEPT DESIGN

Drg No: MTST-RA-220003

Rev: A


NOTES - UTILITIES
1. THE LOCATION OF EXISTING UTILITIES IS APPROXIMATE ONLY AND DERIVED FROM INFORMATION PROVIDED BY THE RELEVANT AUTHORITIES.
2. ALL UTILITIES SHALL BE LOCATED ON SITE PRIOR TO WORKS COMMENCING.
LEGEND - EXISTING UTILITIES
ELECTRICAL - UNDERGROUND
ELECTRICAL - OVERHEAD
GAS
SEWER
WATER
STORMWATER
TELSTRA
OPTUS
RAIL - HV CABLE
RAIL - LV CABLE
RAIL - SIGNAL CABLE
RAIL - COMMS CABLE
RAIL - GAL. STEEL TROUGH
DETAIL A 1:200
TOP OF DIRT PILE
BACK UP ISOLATING TRANSFORMER FOR RELAY ROOM
MACDONALDTOWN STATION ISOLATION TRANSFORMER
POWER POLE
MACDONALDTOWN TURNBACK (STAGE 1) ISOLATION TRANSFORMER
BURREN ST
EXISTING GASOMETRE HERITAGE
CONTAMINATED AREA
SRA BOUNDARY
EXISTING STAFF AMENITIES BUILDING
EXISTING SWITCHBOARD
ALBERT STREET
MACDONALDTOWN STATION
GALVANISED STEEL TROUGH (GST) ATTACHED TO EXISTING RETAINING WALL
NOTE
GALVANISED TROUGHING INTO MACDONALDTOWN WALL FROM PIT
TO STRATHFIELD
FROM SYDNEY
LEAMINGTON LANE
WATKIN STREET
EXISTING TURNBACK (STAGE 1)
PROPOSED SIDINGS (STAGE 2)
NS SIDING
NS SIDING
NOT FOR CONSTRUCTION
REVISION IN PROGRESS
MAUNSELL AECOM
CHECK PRINT
RAILCORP EDMS ID --
CLEARWAYS TECHNICAL ADVISOR
MACDONALDTOWN STABLING
STABLING FACILITY
EXISTING UTILITIES
CONCEPT DESIGN
MTST-UT-220950
A



TYPICAL CROSS SECTION

SECTION 1 SCALE 1:100 (A1)

TRACK STRUCTURE COMPONENTS

60kg RAIL	176mm
RAIL PAD	8mm
CONCRETE SLEEPER	2500x230 DEEP x256 WIDE
BALLAST	AS SHOWN

NOT FOR CONSTRUCTION

REVISION IN PROGRESS

MAUNSELL AECOM

MAUNSELL AECOM

Connell Wagner

CHECK PRINT

RAILCORP EDMS ID --

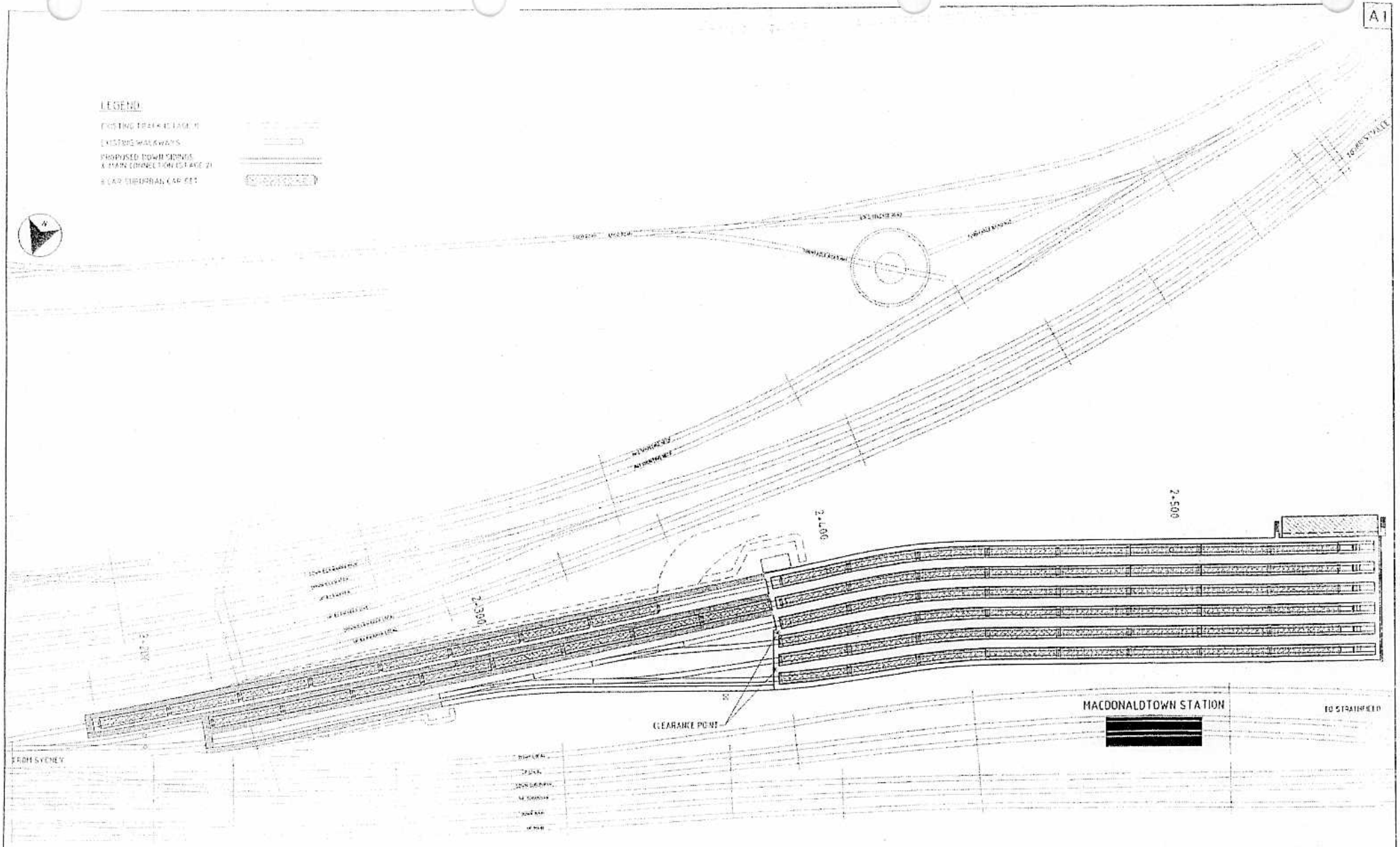
CLEARWAYS TECHNICAL ADVISOR
MACDONALDTOWN STABLING

STABLING FACILITY
TYPICAL CROSS SECTION

CONCEPT DESIGN

MTST-RA-220020

A1



NOT FOR CONSTRUCTION

REVISION IN PROGRESS

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MAUNSELL AECOM

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CLEARWAYS TECHNICAL ADVISOR
MACDONALDTOWN STABLING

STABLING FACILITY
STABLING ARRANGEMENT

CONCEPT DESIGN

MTST-RA-220012

A

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB42	SB42	SB42	SB42	BH43	BH43
Sample Depth (metres)	0.00-0.10	0.70-0.80	DUP4	1.0-1.1	0.4	0.7

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4,4'-DDD	mg/kg	0.1			na	na	na	na	na	na
Endosulphan II	mg/kg	0.1			na	na	na	na	na	na
4,4'-DDT	mg/kg	0.1	1000		na	na	na	na	na	na
Endosulphan sulphate	mg/kg	0.1			na	na	na	na	na	na
Methoxychlor	mg/kg	0.1			na	na	na	na	na	na
PCBs										
Arochlor 1016	mg/kg	1			na	na	na	na	na	na
Arochlor 1221	mg/kg	1			na	na	na	na	na	na
Arochlor 1232	mg/kg	1			na	na	na	na	na	na
Arochlor 1242	mg/kg	1			na	na	na	na	na	na
Arochlor 1248	mg/kg	1			na	na	na	na	na	na
Arochlor 1254	mg/kg	1			na	na	na	na	na	na
Arochlor 1260	mg/kg	1			na	na	na	na	na	na
Total PCBs			50		**na**	**na**	**na**	**na**	**na**	**na**

NOTE:

Exceeds NEHF - Level F (1996)

Exceeds NSW EPA Guidelines for the Assessment of Service Station Sites (1995)

n/a = not applicable
LOR = Laboratory Limits of Reporting
na = not selected for analysis
nd = not detected above laboratory LOR
* = sample required dilution

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB42	SB42	SB42	SB42	BH43	BH43
Sample Depth (metres)	0.00-0.10	0.70-0.80	DUP4	1.0-1.1	0.4	0.7

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4-Chloro-3-methylphenol	mg/kg	0.5			na	na	na	na	na	na
2.4.5-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2.4.6-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dinitrophenol	mg/kg	2			na	na	na	na	na	na
4-Nitrophenol	mg/kg	1			na	na	na	na	na	na
2.3.4.6-Tetrachlorophenol	mg/kg	1			na	na	na	na	na	na
4.6-Dinitro-2-methylphenol	mg/kg	2			na	na	na	na	na	na
Pentachlorophenol	mg/kg	1			na	na	na	na	na	na
4.6-Dinitro-2-sec-butylphenol	mg/kg	2			na	na	na	na	na	na
Total Phenols	mg/kg				na	na	na	na	na	na
OCPs										
HCB	mg/kg	0.1			na	na	na	na	na	na
alpha-BHC	mg/kg	0.1			na	na	na	na	na	na
gamma-BHC	mg/kg	0.1			na	na	na	na	na	na
Heptachlor	mg/kg	0.1	50		na	na	na	na	na	na
Aldrin	mg/kg	0.1	50		na	na	na	na	na	na
Dieldrin	mg/kg	0.1			na	na	na	na	na	na
beta-BHC	mg/kg	0.1			na	na	na	na	na	na
delta-BHC	mg/kg	0.1			na	na	na	na	na	na
Oxychlordane	mg/kg	0.1			na	na	na	na	na	na
Heptachlor epoxide	mg/kg	0.1			na	na	na	na	na	na
Endosulphan I	mg/kg	0.1			na	na	na	na	na	na
Chlordane-trans	mg/kg	0.1	250		na	na	na	na	na	na
Chlordane-cis	mg/kg	0.1			na	na	na	na	na	na
trans-Nonachlor	mg/kg	0.1			na	na	na	na	na	na
4,4'-DDE	mg/kg	0.1			na	na	na	na	na	na
Endrin	mg/kg	0.1			na	na	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB42	SB42	SB42	SB42	BH43	BH43
Sample Depth (metres)	0.00-0.10	0.70-0.80	DUP4	1.0-1.1	0.4	0.7

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
Total Xylenes	mg/kg	3		14	na	nd	nd	nd	nd	na
PAHs										
Naphthalene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Acenaphthylene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Acenaphthene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Fluorene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Phenanthrene	mg/kg	0.5			nd	2.8	0.9	nd	3.4	nd
Anthracene	mg/kg	0.5			nd	0.7	nd	nd	0.9	nd
Fluoranthene	mg/kg	0.5			0.9	3.8	1.6	nd	7	nd
Pyrene	mg/kg	0.5			0.9	3.8	1.6	nd	10	nd
Benzo(a)anthracene	mg/kg	0.5			0.7	2.8	1.2	nd	6.8	nd
Chrysene	mg/kg	0.5			nd	1.8	0.8	nd	4.8	nd
Benzo(b)&(k)fluoranthene	mg/kg	1			1	4	2	nd	17	nd
Benzo(a)pyrene	mg/kg	0.5	5	1	0.8	3.2	1.4	nd	13	nd
Indeno(1.2.3-cd)pyrene	mg/kg	0.5			0.7	2	1	nd	11	nd
Dibenz(a.h)anthracene	mg/kg	0.5			nd	nd	nd	nd	1.2	nd
Benzo(g.h.I)perylene	mg/kg	0.5			nd	1.4	0.6	nd	8.2	nd
Total PAHs	mg/kg		100	20	5	26.3	11.1	nd	83.3	0
Phenols										
Phenol	mg/kg	0.5	42500		na	na	na	na	na	na
2-Chlorophenol	mg/kg	0.5			na	na	na	na	na	na
2-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
3-Methylphenol & 4-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
2-Nitorphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dimethylphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2.6-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB42	SB42	SB42	SB42	BH43	BH43
Sample Depth (metres)	0.00-0.10	0.70-0.80	DUP4	1.0-1.1	0.4	0.7

Analyte	Units	LOR	NEHF - Level II Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Styrene	mg/kg	1			na	na	na	na	na	nd
1.1.1.2-Tetrachloroethane	mg/kg	1			na	na	na	na	na	nd
1.1.2.2-Tetrachloroethane	mg/kg	1			na	na	na	na	na	nd
Tetrachloroethene	mg/kg	1			na	na	na	na	na	nd
Toluene	mg/kg	1		1.4	na	na	na	na	na	nd
1.2.3-Trichlorobenzene	mg/kg	1			na	na	na	na	na	nd
1.2.4-Trichlorobenzene	mg/kg	1			na	na	na	na	na	nd
1.1.1-Trichloroethane	mg/kg	1			na	na	na	na	na	nd
1.1.2-Trichloroethane	mg/kg	1			na	na	na	na	na	nd
Trichloroethene	mg/kg	1			na	na	na	na	na	nd
Trichlorofluoromethane	mg/kg	1			na	na	na	na	na	nd
1.2.3-Trichloropropane	mg/kg	1			na	na	na	na	na	nd
1.2.4-Trimethylbenzene	mg/kg	1			na	na	na	na	na	nd
1.3.5-Trimethylbenzene	mg/kg	1			na	na	na	na	na	nd
Vinyl chloride	mg/kg	1			na	na	na	na	na	nd
ortho-Xylene	mg/kg	1		14	na	na	na	na	na	nd
meta- & para-Xylene	mg/kg	1			na	na	na	na	na	nd
TPH										
C6-C9	mg/kg	10		65	na	nd	nd	na	na	na
C10-C14	mg/kg	10			na	nd	nd	na	na	na
C15-C28	mg/kg	50			na	280	140	na	na	na
C29-C36	mg/kg	50			na	220	120	na	na	na
Total C10-C36	mg/kg			1000	**na**	**500**	**260**	**na**	**na**	**na**
BTEX										
Benzene	mg/kg	0.5		1	na	nd	nd	nd	nd	na
Toluene	mg/kg	1		1.4	na	nd	nd	nd	2	na
Ethylbenzene	mg/kg	1		3.1	na	nd	nd	nd	nd	na

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location					CLEANING SHED AREA					
Consultant					CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location					SB42	SB42	SB42	SB42	BH43	BH43
Sample Depth (metres)					0.00-0.10	0.70-0.80	DUP4	1.0-1.1	0.4	0.7
Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4-Chlorotoluene	mg/kg	1			na	na	na	na	na	nd
Dibromochloromethane	mg/kg	1			na	na	na	na	na	nd
1,2-Dibromo-3-Chloropropane	mg/kg	1			na	na	na	na	na	nd
1,2-Dibromomethane (EDB)	mg/kg	1			na	na	na	na	na	nd
Dibromomethane	mg/kg	1			na	na	na	na	na	nd
1,2-Dichlorobenzene	mg/kg	1			na	na	na	na	na	nd
1,3-Dichlorobenzene	mg/kg	1			na	na	na	na	na	nd
1,4-Dichlorobenzene	mg/kg	1			na	na	na	na	na	nd
Dichlorodifluoromethane	mg/kg	1			na	na	na	na	na	nd
1,1-Dichloroethene	mg/kg	1			na	na	na	na	na	nd
1,2-Dichloroethane	mg/kg	1			na	na	na	na	na	nd
1,1-Dichloroethane	mg/kg	1			na	na	na	na	na	nd
cis-1,2-Dichloroethene	mg/kg	1			na	na	na	na	na	nd
trans-1,2-Dichloroethene	mg/kg	1			na	na	na	na	na	nd
1,2-Dichloropropane	mg/kg	1			na	na	na	na	na	nd
1,3-Dichloropropane	mg/kg	1			na	na	na	na	na	nd
2,2-Dichloropropane	mg/kg	1			na	na	na	na	na	nd
1,1-Dichloropropylene	mg/kg	1			na	na	na	na	na	nd
cis-1,3-Dichloropropylene	mg/kg	1			na	na	na	na	na	nd
trans-1,3-Dichloropropylene	mg/kg	1			na	na	na	na	na	nd
Ethylbenzene	mg/kg	1		3.1	na	na	na	na	na	nd
Hexachlorobutadiene	mg/kg	1			na	na	na	na	na	nd
Isopropylene	mg/kg	1			na	na	na	na	na	nd
p-Isopropyltoluene	mg/kg	1			na	na	na	na	na	nd
Methylene chloride	mg/kg	1			na	na	na	na	na	nd
Naphthalene	mg/kg	1			na	na	na	na	na	nd
n-Propylbenzene	mg/kg	1			na	na	na	na	na	nd

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB42	SB42	SB42	SB42	BH43	BH43
Sample Depth (metres)	0.00-0.10	0.70-0.80	DUP4	1.0-1.1	0.4	0.7

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
HEAVY METALS										
Arsenic	mg/kg	5	500		nd	10	6	nd	nd	nd
Cadmium	mg/kg	0.5	100		nd	nd	nd	nd	1.4	nd
Chromium	mg/kg	5	500		nd	8	6	nd	7	13
Copper	mg/kg	5	5000		51	140	160	nd	95	9
Nickel	mg/kg	2	3000		6	18	17	nd	23	nd
Lead	mg/kg	5	1500	300	32	930	240	nd	160	54
Zinc	mg/kg	5	35000		32	280	230	10	330	65
Mercury	mg/kg	0.05	75		0.1	0.76	0.81	nd	0.09	0.08
Total Cyanide	mg/kg	0.5	2500		na	nd	nd	na	na	na
VOCs										
Benzene	mg/kg	0.5		1	na	na	na	na	na	nd
Bromobenzene	mg/kg	1			na	na	na	na	na	nd
Bromochloromethane	mg/kg	1			na	na	na	na	na	nd
Bromodichloromethane	mg/kg	1			na	na	na	na	na	nd
Bromoform	mg/kg	1			na	na	na	na	na	nd
Bromomethane	mg/kg	1			na	na	na	na	na	nd
n-Butylbenzene	mg/kg	1			na	na	na	na	na	nd
sec-Butylbenzene	mg/kg	1			na	na	na	na	na	nd
tert-Butylbenzene	mg/kg	1			na	na	na	na	na	nd
Carbon Tetrachloride	mg/kg	1			na	na	na	na	na	nd
cis-1.2-Dichloroethene	mg/kg	1			na	na	na	na	na	nd
Chlorobenzene	mg/kg	1			na	na	na	na	na	nd
Chloroethane	mg/kg	1			na	na	na	na	na	nd
Chloroform	mg/kg	1			na	na	na	na	na	nd
Chloromethane	mg/kg	1			na	na	na	na	na	nd
2-Chlorotoluene	mg/kg	1			na	na	na	na	na	nd

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB39	TP40	TP40	BH41	BH41	BH41
Sample Depth (metres)	1.1-1.2	0.00-0.10	DUP	0.2	DUP	0.9

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4.4'-DDD	mg/kg	0.1			na	na	na	na	na	na
Endosulphan II	mg/kg	0.1			na	na	na	na	na	na
4.4'-DDT	mg/kg	0.1	1000		na	na	na	na	na	na
Endosulphan sulphate	mg/kg	0.1			na	na	na	na	na	na
Methoxychlor	mg/kg	0.1			na	na	na	na	na	na
PCBs										
Arochlor 1016	mg/kg	1			na	na	na	na	na	na
Arochlor 1221	mg/kg	1			na	na	na	na	na	na
Arochlor 1232	mg/kg	1			na	na	na	na	na	na
Arochlor 1242	mg/kg	1			na	na	na	na	na	na
Arochlor 1248	mg/kg	1			na	na	na	na	na	na
Arochlor 1254	mg/kg	1			na	na	na	na	na	na
Arochlor 1260	mg/kg	1			na	na	na	na	na	na
Total PCBs			50		**na**	**na**	**na**	**na**	**na**	**na**

NOTE:

Exceeds NEHF - Level F (1996)

Exceeds NSW EPA Guidelines for the Assessment of Service Station Sites (1995)

n/a = not applicable
LOR = Laboratory Limits of Reporting
na = not selected for analysis
nd = not detected above laboratory LOR
* = sample required dilution

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB39	TP40	TP40	BH41	BH41	BH41
Sample Depth (metres)	1.1-1.2	0.00-0.10	DUP	0.2	DUP	0.9

Analyte	Units	LOR	NEHF - Level B Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4-Chloro-3-methylphenol	mg/kg	0.5			na	na	na	na	na	na
2.4.5-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2.4.6-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dinitrophenol	mg/kg	2			na	na	na	na	na	na
4-Nitrophenol	mg/kg	1			na	na	na	na	na	na
2.3.4.6-Tetrachlorophenol	mg/kg	1			na	na	na	na	na	na
4.6-Dinitro-2-methylphenol	mg/kg	2			na	na	na	na	na	na
Pentachlorophenol	mg/kg	1			na	na	na	na	na	na
4.6-Dinitro-2-sec-butylphenol	mg/kg	2			na	na	na	na	na	na
Total Phenols	mg/kg				**na**	**na**	**na**	**na**	**na**	**na**
OCPs										
HCB	mg/kg	0.1			na	na	na	na	na	na
alpha-BHC	mg/kg	0.1			na	na	na	na	na	na
gamma-BHC	mg/kg	0.1			na	na	na	na	na	na
Heptachlor	mg/kg	0.1	50		na	na	na	na	na	na
Aldrin	mg/kg	0.1	50		na	na	na	na	na	na
Dieldrin	mg/kg	0.1			na	na	na	na	na	na
beta-BHC	mg/kg	0.1			na	na	na	na	na	na
delta-BHC	mg/kg	0.1			na	na	na	na	na	na
Oxychlordane	mg/kg	0.1			na	na	na	na	na	na
Heptachlor epoxide	mg/kg	0.1			na	na	na	na	na	na
Endosulphan I	mg/kg	0.1			na	na	na	na	na	na
Chlordane-trans	mg/kg	0.1	250		na	na	na	na	na	na
Chlordane-cis	mg/kg	0.1			na	na	na	na	na	na
trans-Nonachlor	mg/kg	0.1			na	na	na	na	na	na
4,4'-DDE	mg/kg	0.1			na	na	na	na	na	na
Endrin	mg/kg	0.1			na	na	na	na	na	na

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB39	TP40	TP40	BH41	BH41	BH41
Sample Depth (metres)	1.1-1.2	0.00-0.10	DUP	0.2	DUP	0.9

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Total Xylenes	mg/kg	3		14	nd	nd	nd	nd	nd	nd
PAHs										
Naphthalene	mg/kg	0.5			na	nd	nd	0.5	nd	nd
Acenaphthylene	mg/kg	0.5			na	nd	nd	1	1.2	nd
Acenaphthene	mg/kg	0.5			na	nd	nd	nd	nd	nd
Fluorene	mg/kg	0.5			na	nd	nd	0.8	nd	nd
Phenanthrene	mg/kg	0.5			na	1.4	nd	5.8	6.2	1
Anthracene	mg/kg	0.5			na	nd	nd	1.6	1.8	nd
Fluoranthene	mg/kg	0.5			na	3.2	nd	8.4	9	1.4
Pyrene	mg/kg	0.5			na	3.6	nd	8.8	10	1.4
Benzo(a)anthracene	mg/kg	0.5			na	2.2	nd	5	6.8	0.8
Chrysene	mg/kg	0.5			na	1.4	nd	3.6	3.8	0.6
Benzo(b)&(k)fluoranthene	mg/kg	1			na	4	nd	8	9	1
Benzo(a)pyrene	mg/kg	0.5	5	1	na	2.2	nd	4.6	5.6	0.5
Indeno(1.2.3-cd)pyrene	mg/kg	0.5			na	2	nd	3.4	4	nd
Dibenz(a.h)anthracene	mg/kg	0.5			na	nd	nd	nd	nd	nd
Benzo(g.h.I)perylene	mg/kg	0.5			na	1.2	nd	1.8	2.2	nd
Total PAHs	mg/kg		100	20	na	21.2	0	53.3	59.6	6.7
Phenols										
Phenol	mg/kg	0.5	42500		na	na	na	na	na	na
2-Chlorophenol	mg/kg	0.5			na	na	na	na	na	na
2-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
3-Methylphenol & 4-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
2-Nitorphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dimethylphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2.6-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB39	TP40	TP40	BH41	BH41	BH41
Sample Depth (metres)	1.1-1.2	0.00-0.10	DUP	0.2	DUP	0.9

Analyte	Units	LOR	NEHF - Level 1 Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
Styrene	mg/kg	1			na	nd	nd	na	na	nd
1.1.1.2-Tetrachloroethane	mg/kg	1			na	nd	nd	na	na	nd
1.1.2.2-Tetrachloroethane	mg/kg	1			na	nd	nd	na	na	nd
Tetrachloroethene	mg/kg	1			na	nd	nd	na	na	nd
Toluene	mg/kg	1		1.4	na	nd	nd	na	na	nd
1.2.3-Trichlorobenzene	mg/kg	1			na	nd	nd	na	na	nd
1.2.4-Trichlorobenzene	mg/kg	1			na	nd	nd	na	na	nd
1.1.1-Trichloroethane	mg/kg	1			na	nd	nd	na	na	nd
1.1.2-Trichloroethane	mg/kg	1			na	nd	nd	na	na	nd
Trichloroethene	mg/kg	1			na	nd	nd	na	na	nd
Trichlorofluoromethane	mg/kg	1			na	nd	nd	na	na	nd
1.2.3-Trichloropropane	mg/kg	1			na	nd	nd	na	na	nd
1.2.4-Trimethylbenzene	mg/kg	1			na	nd	nd	na	na	nd
1.3.5-Trimethylbenzene	mg/kg	1			na	nd	nd	na	na	nd
Vinyl chloride	mg/kg	1			na	nd	nd	na	na	nd
ortho-Xylene	mg/kg	1		14	na	nd	nd	na	na	nd
meta- & para-Xylene	mg/kg	1			na	nd	nd	na	na	nd
TPH										
C6-C9	mg/kg	10		65	na	na	na	na	na	na
C10-C14	mg/kg	10			na	na	na	na	na	na
C15-C28	mg/kg	50			na	na	na	na	na	na
C29-C36	mg/kg	50			na	na	na	na	na	na
Total C10-C36	mg/kg			1000	**na**	**na**	**na**	**na**	**na**	**na**
BTEX										
Benzene	mg/kg	0.5		1	nd	nd	nd	nd	nd	nd
Toluene	mg/kg	1		1.4	nd	nd	nd	nd	nd	nd
Ethylbenzene	mg/kg	1		3.1	nd	nd	nd	nd	nd	nd

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location					CLEANING SHED AREA					
Consultant					CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location					SB39	TP40	TP40	BH41	BH41	BH41
Sample Depth (metres)					1.1-1.2	0.00-0.10	DUP	0.2	DUP	0.9
Analyte	Units	LOR	NEHF - Level F Monographs - (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4-Chlorotoluene	mg/kg	1			na	nd	nd	na	na	nd
Dibromochloromethane	mg/kg	1			na	nd	nd	na	na	nd
1,2-Dibromo-3-Chloropropane	mg/kg	1			na	nd	nd	na	na	nd
1,2-Dibromomethane (EDB)	mg/kg	1			na	nd	nd	na	na	nd
Dibromomethane	mg/kg	1			na	nd	nd	na	na	nd
1,2-Dichlorobenzene	mg/kg	1			na	nd	nd	na	na	nd
1,3-Dichlorobenzene	mg/kg	1			na	nd	nd	na	na	nd
1,4-Dichlorobenzene	mg/kg	1			na	nd	nd	na	na	nd
Dichlorodifluoromethane	mg/kg	1			na	nd	nd	na	na	nd
1,1-Dichloroethene	mg/kg	1			na	nd	nd	na	na	nd
1,2-Dichloroethane	mg/kg	1			na	nd	nd	na	na	nd
1,1-Dichloroethane	mg/kg	1			na	nd	nd	na	na	nd
cis-1,2-Dichloroethene	mg/kg	1			na	nd	nd	na	na	nd
trans-1,2-Dichloroethene	mg/kg	1			na	nd	nd	na	na	nd
1,2-Dichloropropane	mg/kg	1			na	nd	nd	na	na	nd
1,3-Dichloropropane	mg/kg	1			na	nd	nd	na	na	nd
2,2-Dichloropropane	mg/kg	1			na	nd	nd	na	na	nd
1,1-Dichloropropylene	mg/kg	1			na	nd	nd	na	na	nd
cis-1,3-Dichloropropylene	mg/kg	1			na	nd	nd	na	na	nd
trans-1,3-Dichloropropylene	mg/kg	1			na	nd	nd	na	na	nd
Ethylbenzene	mg/kg	1		3	na	nd	nd	na	na	nd
Hexachlorobutadiene	mg/kg	1			na	nd	nd	na	na	nd
Isopropylene	mg/kg	1			na	nd	nd	na	na	nd
p-Isopropyltoluene	mg/kg	1			na	nd	nd	na	na	nd
Methylene chloride	mg/kg	1			na	nd	nd	na	na	nd
Naphthalene	mg/kg	1			na	nd	nd	na	na	nd
n-Propylbenzene	mg/kg	1			na	nd	nd	na	na	nd

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB39	TP40	TP40	BH41	BH41	BH41
Sample Depth (metres)	1.1-1.2	0.00-0.10	DUP	0.2	DUP	0.9

Analyte	Units	LOR	NEHC - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
HEAVY METALS										
Arsenic	mg/kg	5	500		nd	47	nd	51	45	nd
Cadmium	mg/kg	0.5	100		nd	0.8	nd	0.8	0.7	nd
Chromium	mg/kg	5	500		nd	12	28	20	16	17
Copper	mg/kg	5	5000		nd	180	nd	160	150	nd
Nickel	mg/kg	2	3000		nd	13	2	14	15	3
Lead	mg/kg	5	1500	300	5	260	16	220	250	20
Zinc	mg/kg	5	35000		6	210	7	340	420	24
Mercury	mg/kg	0.05	75		nd	0.41	nd	0.21	0.22	nd
Total Cyanide	mg/kg	0.5	2500		na	na	na	na	na	na
VOCs										
Benzene	mg/kg	0.5			na	nd	nd	na	na	nd
Bromobenzene	mg/kg	1			na	nd	nd	na	na	nd
Bromochloromethane	mg/kg	1			na	nd	nd	na	na	nd
Bromodichloromethane	mg/kg	1			na	nd	nd	na	na	nd
Bromoform	mg/kg	1			na	nd	nd	na	na	nd
Bromomethane	mg/kg	1			na	nd	nd	na	na	nd
n-Butylbenzene	mg/kg	1			na	nd	nd	na	na	nd
sec-Butylbenzene	mg/kg	1			na	nd	nd	na	na	nd
tert-Butylbenzene	mg/kg	1			na	nd	nd	na	na	nd
Carbon Tetrachloride	mg/kg	1			na	nd	nd	na	na	nd
cis-1.2-Dichloroethene	mg/kg	1			na	nd	nd	na	na	nd
Chlorobenzene	mg/kg	1			na	nd	nd	na	na	nd
Chloroethane	mg/kg	1			na	nd	nd	na	na	nd
Chloroform	mg/kg	1			na	nd	nd	na	na	nd
Chloromethane	mg/kg	1			na	nd	nd	na	na	nd
2-Chlorotoluene	mg/kg	1			na	nd	nd	na	na	nd

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH36	BH37	BH37	SB39	SB39	SB39
Sample Depth (metres)	0.3	0.2	0.5	0.00-0.10	0.90-1.00	DUP1

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4,4'-DDD	mg/kg	0.1			nd	na	na	na	na	na
Endosulphan II	mg/kg	0.1			nd	na	na	na	na	na
4,4'-DDT	mg/kg	0.1	1000		nd	na	na	na	na	na
Endosulphan sulphate	mg/kg	0.1			nd	na	na	na	na	na
Methoxychlor	mg/kg	0.1			nd	na	na	na	na	na
PCBs										
Arochlor 1016	mg/kg	1			na	na	na	na	na	na
Arochlor 1221	mg/kg	1			na	na	na	na	na	na
Arochlor 1232	mg/kg	1			na	na	na	na	na	na
Arochlor 1242	mg/kg	1			na	na	na	na	na	na
Arochlor 1248	mg/kg	1			na	na	na	na	na	na
Arochlor 1254	mg/kg	1			na	na	na	na	na	na
Arochlor 1260	mg/kg	1			na	na	na	na	na	na
Total PCBs			50		**na**	**na**	**na**	na	**na**	na

NOTE:

Exceeds NEHF - Level F (1996)

Exceeds NSW EPA Guidelines for the Assessment of Service Station Sites (1995)

n/a = not applicable
LOR = Laboratory Limits of Reporting
na = not selected for analysis
nd = not detected above laboratory LOR
* = sample required dilution

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH36	BH37	BH37	SB39	SB39	SB39
Sample Depth (metres)	0.3	0.2	0.5	0.00-0.10	0.90-1.00	DUP1

Analyte	Units	LOR	NEHF Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
4-Chloro-3-methylphenol	mg/kg	0.5			na	na	na	na	na	na
2,4,5-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,4,6-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,4-Dinitrophenol	mg/kg	2			na	na	na	na	na	na
4-Nitrophenol	mg/kg	1			na	na	na	na	na	na
2,3,4,6-Tetrachlorophenol	mg/kg	1			na	na	na	na	na	na
4,6-Dinitro-2-methylphenol	mg/kg	2			na	na	na	na	na	na
Pentachlorophenol	mg/kg	1			na	na	na	na	na	na
4,6-Dinitro-2-sec-butylphenol	mg/kg	2			na	na	na	na	na	na
Total Phenols	mg/kg				na	na	na	na	na	na
OCPs										
HCB	mg/kg	0.1			nd	na	na	na	na	na
alpha-BHC	mg/kg	0.1			nd	na	na	na	na	na
gamma-BHC	mg/kg	0.1			nd	na	na	na	na	na
Heptachlor	mg/kg	0.1	50		nd	na	na	na	na	na
Aldrin	mg/kg	0.1	50		nd	na	na	na	na	na
Dieldrin	mg/kg	0.1			nd	na	na	na	na	na
beta-BHC	mg/kg	0.1			nd	na	na	na	na	na
delta-BHC	mg/kg	0.1			nd	na	na	na	na	na
Oxychlordane	mg/kg	0.1			nd	na	na	na	na	na
Heptachlor epoxide	mg/kg	0.1			nd	na	na	na	na	na
Endosulphan I	mg/kg	0.1			nd	na	na	na	na	na
Chlordane-trans	mg/kg	0.1	250		nd	na	na	na	na	na
Chlordane-cis	mg/kg	0.1			nd	na	na	na	na	na
trans-Nonachlor	mg/kg	0.1			nd	na	na	na	na	na
4,4'-DDE	mg/kg	0.1			nd	na	na	na	na	na
Endrin	mg/kg	0.1			nd	na	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location					CLEANING SHED AREA					
Consultant					CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location					BH36	BH37	BH37	SB39	SB39	SB39
Sample Depth (metres)					0.3	0.2	0.5	0.00-0.10	0.90-1.00	DUP1
Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Total Xylenes	mg/kg	3		14	nd	nd	nd	na	nd	nd
PAHs										
Naphthalene	mg/kg	0.5			2	nd	nd	nd	nd	nd
Acenaphthylene	mg/kg	0.5			5.6	nd	nd	nd	nd	nd
Acenaphthene	mg/kg	0.5			1.6	nd	nd	nd	nd	nd
Fluorene	mg/kg	0.5			8.4	nd	nd	nd	nd	nd
Phenanthrene	mg/kg	0.5			49	0.7	2.2	1	0.8	0.5
Anthracene	mg/kg	0.5			15	nd	0.6	nd	nd	nd
Fluoranthene	mg/kg	0.5			54	0.8	4.6	2.2	0.8	0.6
Pyrene	mg/kg	0.5			56	0.8	5	2.2	0.8	0.6
Benzo(a)anthracene	mg/kg	0.5			31	nd	3.4	1.2	0.5	nd
Chrysene	mg/kg	0.5			21	nd	2	1.2	0.6	nd
Benzo(b)&(k)fluoranthene	mg/kg	1			40	nd	6	2	nd	nd
Benzo(a)pyrene	mg/kg	0.5	5	1	29	nd	4.2	1.2	nd	nd
Indeno(1.2.3-cd)pyrene	mg/kg	0.5			17	nd	3.8	0.9	nd	nd
Dibenz(a.h)anthracene	mg/kg	0.5			2	nd	nd	nd	nd	nd
Benzo(g.h.I)perylene	mg/kg	0.5			9.6	nd	2.2	0.6	nd	nd
Total PAHs	mg/kg		100	20	340	2.3	54	12.5	3.5	1.7
Phenols										
Phenol	mg/kg	0.5	42500		na	na	na	na	na	na
2-Chlorophenol	mg/kg	0.5			na	na	na	na	na	na
2-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
3-Methylphenol & 4-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
2-Nitorphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dimethylphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2.6-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH36	BH37	BH37	SB39	SB39	SB39
Sample Depth (metres)	0.3	0.2	0.5	0.00-0.10	0.90-1.00	DUP1
Analyte	Units	LOR	NEHR - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Styrene	mg/kg	1			nd	nd	na	na	na	na
1.1.1.2-Tetrachloroethane	mg/kg	1			nd	nd	na	na	na	na
1.1.2.2-Tetrachloroethane	mg/kg	1			nd	nd	na	na	na	na
Tetrachloroethene	mg/kg	1			nd	nd	na	na	na	na
Toluene	mg/kg	1		1.4	nd	nd	na	na	na	na
1.2.3-Trichlorobenzene	mg/kg	1			nd	nd	na	na	na	na
1.2.4-Trichlorobenzene	mg/kg	1			nd	nd	na	na	na	na
1.1.1-Trichloroethane	mg/kg	1			nd	nd	na	na	na	na
1.1.2-Trichloroethane	mg/kg	1			nd	nd	na	na	na	na
Trichloroethene	mg/kg	1			nd	nd	na	na	na	na
Trichlorofluoromethane	mg/kg	1			nd	nd	na	na	na	na
1.2.3-Trichloropropane	mg/kg	1			nd	nd	na	na	na	na
1.2.4-Trimethylbenzene	mg/kg	1			nd	nd	na	na	na	na
1.3.5-Trimethylbenzene	mg/kg	1			nd	nd	na	na	na	na
Vinyl chloride	mg/kg	1			nd	nd	na	na	na	na
ortho-Xylene	mg/kg	1			nd	nd	na	na	na	na
meta- & para-Xylene	mg/kg	1			nd	nd	na	na	na	na
TPH										
C6-C9	mg/kg	10		65	na	na	na	na	na	na
C10-C14	mg/kg	10			na	na	na	na	na	na
C15-C28	mg/kg	50			na	na	na	na	na	na
C29-C36	mg/kg	50			na	na	na	na	na	na
Total C10-C36	mg/kg			1000	**na**	**na**	**na**	**na**	**na**	**na**
BTEX										
Benzene	mg/kg	0.5		1	nd	nd	nd	na	nd	nd
Toluene	mg/kg	1		1.4	nd	nd	nd	na	nd	nd
Ethylbenzene	mg/kg	1		3.1	nd	nd	nd	na	nd	nd

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH36	BH37	BH37	SB39	SB39	SB39
Sample Depth (metres)	0.3	0.2	0.5	0.00-0.10	0.90-1.00	DUP1

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4-Chlorotoluene	mg/kg	1			nd	nd	na	na	na	na
Dibromochloromethane	mg/kg	1			nd	nd	na	na	na	na
1.2-Dibromo-3-Chloropropane	mg/kg	1			nd	nd	na	na	na	na
1.2-Dibromomethane (EDB)	mg/kg	1			nd	nd	na	na	na	na
Dibromomethane	mg/kg	1			nd	nd	na	na	na	na
1.2-Dichlorobenzene	mg/kg	1			nd	nd	na	na	na	na
1.3-Dichlorobenzene	mg/kg	1			nd	nd	na	na	na	na
1.4-Dichlorobenzene	mg/kg	1			nd	nd	na	na	na	na
Dichlorodifluoromethane	mg/kg	1			nd	nd	na	na	na	na
1.1-Dichloroethene	mg/kg	1			nd	nd	na	na	na	na
1.2-Dichloroethane	mg/kg	1			nd	nd	na	na	na	na
1.1-Dichloroethane	mg/kg	1			nd	nd	na	na	na	na
cis-1.2-Dichloroethene	mg/kg	1			nd	nd	na	na	na	na
trans-1.2-Dichloroethene	mg/kg	1			nd	nd	na	na	na	na
1.2-Dichloropropane	mg/kg	1			nd	nd	na	na	na	na
1.3-Dichloropropane	mg/kg	1			nd	nd	na	na	na	na
2.2-Dichloropropane	mg/kg	1			nd	nd	na	na	na	na
1.1-Dichloropropylene	mg/kg	1			nd	nd	na	na	na	na
cis-1.3-Dichloropropylene	mg/kg	1			nd	nd	na	na	na	na
trans-1.3-Dichloropropylene	mg/kg	1			nd	nd	na	na	na	na
Ethylbenzene	mg/kg	1		3.1	nd	nd	na	na	na	na
Hexachlorobutadiene	mg/kg	1			nd	nd	na	na	na	na
Isopropylene	mg/kg	1			nd	nd	na	na	na	na
p-Isopropyltoluene	mg/kg	1			nd	nd	na	na	na	na
Methylene chloride	mg/kg	1			nd	nd	na	na	na	na
Naphthalene	mg/kg	1			nd	nd	na	na	na	na
n-Propylbenzene	mg/kg	1			nd	nd	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH36	BH37	BH37	SB39	SB39	SB39
Sample Depth (metres)	0.3	0.2	0.5	0.00-0.10	0.90-1.00	DUP1

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
HEAVY METALS									
Arsenic	mg/kg	5	500		8	13	6	9	nd	nd
Cadmium	mg/kg	0.5	100		0.7	nd	0.5	nd	nd	nd
Chromium	mg/kg	5	500		12	15	11	6	nd	nd
Copper	mg/kg	5	5000		180	130	100	45	110	120
Nickel	mg/kg	2	3000		28	42	31	4	16	16
Lead	mg/kg	5	1500	300	320	40	150	88	120	110
Zinc	mg/kg	5	35000		740	62	420	62	100	97
Mercury	mg/kg	0.05	75		0.56	0.08	0.26	0.35	0.2	0.2
Total Cyanide	mg/kg	0.5	2500		na	na	na	na	na	na
VOCs										
Benzene	mg/kg	0.5		1	nd	nd	na	na	na	na
Bromobenzene	mg/kg	1			nd	nd	na	na	na	na
Bromochloromethane	mg/kg	1			nd	nd	na	na	na	na
Bromodichloromethane	mg/kg	1			nd	nd	na	na	na	na
Bromoform	mg/kg	1			nd	nd	na	na	na	na
Bromomethane	mg/kg	1			nd	nd	na	na	na	na
n-Butylbenzene	mg/kg	1			nd	nd	na	na	na	na
sec-Butylbenzene	mg/kg	1			nd	nd	na	na	na	na
tert-Butylbenzene	mg/kg	1			nd	nd	na	na	na	na
Carbon Tetrachloride	mg/kg	1			nd	nd	na	na	na	na
cis-1.2-Dichloroethene	mg/kg	1			nd	nd	na	na	na	na
Chlorobenzene	mg/kg	1			nd	nd	na	na	na	na
Chloroethane	mg/kg	1			nd	nd	na	na	na	na
Chloroform	mg/kg	1			nd	nd	na	na	na	na
Chloromethane	mg/kg	1			nd	nd	na	na	na	na
2-Chlorotoluene	mg/kg	1			nd	nd	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH33	TP34	TP34	BH35	BH35	BH36
Sample Depth (metres)	2	0.00-0.10	0.40-0.50	0.2	0.8	0.1

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
4,4'-DDD	mg/kg	0.1			na	nd	na	na	na	na
Endosulphan II	mg/kg	0.1			na	nd	na	na	na	na
4,4'-DDT	mg/kg	0.1	1000		na	nd	na	na	na	na
Endosulphan sulphate	mg/kg	0.1			na	nd	na	na	na	na
Methoxychlor	mg/kg	0.1			na	nd	na	na	na	na
PCBs										
Arochlor 1016	mg/kg	1			na	nd	na	na	na	na
Arochlor 1221	mg/kg	1			na	nd	na	na	na	na
Arochlor 1232	mg/kg	1			na	nd	na	na	na	na
Arochlor 1242	mg/kg	1			na	nd	na	na	na	na
Arochlor 1248	mg/kg	1			na	nd	na	na	na	na
Arochlor 1254	mg/kg	1			na	nd	na	na	na	na
Arochlor 1260	mg/kg	1			na	nd	na	na	na	na
Total PCBs			50		**na**	0	na	na	na	na

NOTE:

Exceeds NEHF - Level F (1996)

Exceeds NSW EPA Guidelines for the Assessment of Service Station Sites (1995)

n/a = not applicable

LOR = Laboratory Limits of Reporting

na = not selected for analysis

nd = not detected above laboratory LOR

* = sample required dilution

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH33	TP34	TP34	BH35	BH35	BH36
Sample Depth (metres)	2	0.00-0.10	0.40-0.50	0.2	0.8	0.1

Analyte	Units	LOR	NEHF - Level II Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4-Chloro-3-methylphenol	mg/kg	0.5			na	na	nd*	nd*	na	na
2.4.5-Trichlorophenol	mg/kg	0.5			na	na	nd*	nd*	na	na
2.4.6-Trichlorophenol	mg/kg	0.5			na	na	nd*	nd*	na	na
2.4-Dinitrophenol	mg/kg	2			na	na	nd*	nd*	na	na
4-Nitrophenol	mg/kg	1			na	na	nd*	nd*	na	na
2.3.4.6-Tetrachlorophenol	mg/kg	1			na	na	nd*	nd*	na	na
4.6-Dinitro-2-methylphenol	mg/kg	2			na	na	nd*	nd*	na	na
Pentachlorophenol	mg/kg	1			na	na	nd*	nd*	na	na
4.6-Dinitro-2-sec-butylphenol	mg/kg	2			na	na	nd*	nd*	na	na
Total Phenols	mg/kg				**na**	**na**	**0**	**0**	**na**	**na**
OCPs										
HCB	mg/kg	0.1			na	nd	na	na	na	na
alpha-BHC	mg/kg	0.1			na	nd	na	na	na	na
gamma-BHC	mg/kg	0.1			na	nd	na	na	na	na
Heptachlor	mg/kg	0.1	50		na	nd	na	na	na	na
Aldrin	mg/kg	0.1	50		na	nd	na	na	na	na
Dieldrin	mg/kg	0.1			na	nd	na	na	na	na
beta-BHC	mg/kg	0.1			na	nd	na	na	na	na
delta-BHC	mg/kg	0.1			na	nd	na	na	na	na
Oxychlordane	mg/kg	0.1			na	nd	na	na	na	na
Heptachlor epoxide	mg/kg	0.1			na	nd	na	na	na	na
Endosulphan I	mg/kg	0.1			na	nd	na	na	na	na
Chlordane-trans	mg/kg	0.1	250		na	nd	na	na	na	na
Chlordane-cis	mg/kg	0.1			na	nd	na	na	na	na
trans-Nonachlor	mg/kg	0.1			na	nd	na	na	na	na
4,4'-DDE	mg/kg	0.1			na	nd	na	na	na	na
Endrin	mg/kg	0.1			na	nd	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location					CLEANING SHED AREA					
Consultant					CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location					BH33	TP34	TP34	BH35	BH35	BH36
Sample Depth (metres)					2	0.00-0.10	0.40-0.50	0.2	0.8	0.1
Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Total Xylenes	mg/kg	3		14	nd	nd	nd	nd	nd	na
PAHs										
Naphthalene	mg/kg	0.5			nd	nd	0.9	2.2	nd	nd
Acenaphthylene	mg/kg	0.5			nd	nd	3.2	7.8	nd	0.6
Acenaphthene	mg/kg	0.5			nd	nd	0.6	1.2	nd	nd
Fluorene	mg/kg	0.5			nd	nd	1.6	5.6	nd	0.7
Phenanthrene	mg/kg	0.5			nd	nd	17	34	nd	4
Anthracene	mg/kg	0.5			nd	nd	5.6	8.6	nd	1.2
Fluoranthene	mg/kg	0.5			nd	nd	41	33	nd	6.4
Pyrene	mg/kg	0.5			nd	nd	41	32	nd	6.2
Benzo(a)anthracene	mg/kg	0.5			nd	nd	26	19	nd	3.4
Chrysene	mg/kg	0.5			nd	nd	19	10	nd	2.2
Benzo(b)&(k)fluoranthene	mg/kg	1			nd	nd	38	24	nd	6
Benzo(a)pyrene	mg/kg	0.5	5	1	nd	nd	30	14	nd	4.6
Indeno(1.2.3-cd)pyrene	mg/kg	0.5			nd	nd	16	12	nd	2.6
Dibenz(a.h)anthracene	mg/kg	0.5			nd	nd	4.6	1	nd	nd
Benzo(g.h.I)perylene	mg/kg	0.5			nd	nd	15	6	nd	1.6
Total PAHs	mg/kg		100	20	0	0	259.5	210.4	0	39
Phenols										
Phenol	mg/kg	0.5	42500		na	na	nd*	nd*	na	na
2-Chlorophenol	mg/kg	0.5			na	na	nd*	nd*	na	na
2-Methylphenol	mg/kg	0.5			na	na	nd*	nd*	na	na
3-Methylphenol & 4-Methylphenol	mg/kg	0.5			na	na	nd*	nd*	na	na
2-Nitorphenol	mg/kg	0.5			na	na	nd*	nd*	na	na
2.4-Dimethylphenol	mg/kg	0.5			na	na	nd*	nd*	na	na
2.4-Dichlorophenol	mg/kg	0.5			na	na	nd*	nd*	na	na
2.6-Dichlorophenol	mg/kg	0.5			na	na	nd*	nd*	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH33	TP34	TP34	BH35	BH35	BH36
Sample Depth (metres)	2	0.00-0.10	0.40-0.50	0.2	0.8	0.1

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
Styrene	mg/kg	1			na	nd	na	nd	na	na
1.1.1.2-Tetrachloroethane	mg/kg	1			na	nd	na	nd	na	na
1.1.2.2-Tetrachloroethane	mg/kg	1			na	nd	na	nd	na	na
Tetrachloroethene	mg/kg	1			na	nd	na	nd	na	na
Toluene	mg/kg	1		1.4	na	nd	na	nd	na	na
1.2.3-Trichlorobenzene	mg/kg	1			na	nd	na	nd	na	na
1.2.4-Trichlorobenzene	mg/kg	1			na	nd	na	nd	na	na
1.1.1-Trichloroethane	mg/kg	1			na	nd	na	nd	na	na
1.1.2-Trichloroethane	mg/kg	1			na	nd	na	nd	na	na
Trichloroethene	mg/kg	1			na	nd	na	nd	na	na
Trichlorofluoromethane	mg/kg	1			na	nd	na	nd	na	na
1.2.3-Trichloropropane	mg/kg	1			na	nd	na	nd	na	na
1.2.4-Trimethylbenzene	mg/kg	1			na	nd	na	nd	na	na
1.3.5-Trimethylbenzene	mg/kg	1			na	nd	na	nd	na	na
Vinyl chloride	mg/kg	1			na	nd	na	nd	na	na
ortho-Xylene	mg/kg	1		14	na	nd	na	nd	na	na
meta- & para-Xylene	mg/kg	1			na	nd	na	nd	na	na
TPH										
C6-C9	mg/kg	10		65	na	na	na	na	na	na
C10-C14	mg/kg	10			na	na	na	na	na	na
C15-C28	mg/kg	50			na	na	na	na	na	na
C29-C36	mg/kg	50			na	na	na	na	na	na
Total C10-C36	mg/kg			1000	na	na	na	na	na	na
BTEX										
Benzene	mg/kg	0.5		1	nd	nd	nd	nd	nd	na
Toluene	mg/kg	1		1.4	nd	nd	nd	nd	nd	na
Ethylbenzene	mg/kg	1		3.1	nd	nd	nd	nd	nd	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH33	TP34	TP34	BH35	BH35	BH36
Sample Depth (metres)	2	0.00-0.10	0.40-0.50	0.2	0.8	0.1

Analyte	Units	LOR	NEHF - Level D Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
4-Chlorotoluene	mg/kg	1			na	nd	na	nd	na	na
Dibromochloromethane	mg/kg	1			na	nd	na	nd	na	na
1.2-Dibromo-3-Chloropropane	mg/kg	1			na	nd	na	nd	na	na
1.2-Dibromomethane (EDB)	mg/kg	1			na	nd	na	nd	na	na
Dibromomethane	mg/kg	1			na	nd	na	nd	na	na
1.2-Dichlorobenzene	mg/kg	1			na	nd	na	nd	na	na
1.3-Dichlorobenzene	mg/kg	1			na	nd	na	nd	na	na
1.4-Dichlorobenzene	mg/kg	1			na	nd	na	nd	na	na
Dichlorodifluoromethane	mg/kg	1			na	nd	na	nd	na	na
1.1-Dichloroethene	mg/kg	1			na	nd	na	nd	na	na
1.2-Dichloroethane	mg/kg	1			na	nd	na	nd	na	na
1.1-Dichloroethane	mg/kg	1			na	nd	na	nd	na	na
cis-1.2-Dichloroethene	mg/kg	1			na	nd	na	nd	na	na
trans-1.2-Dichloroethene	mg/kg	1			na	nd	na	nd	na	na
1.2-Dichloropropane	mg/kg	1			na	nd	na	nd	na	na
1.3-Dichloropropane	mg/kg	1			na	nd	na	nd	na	na
2.2-Dichloropropane	mg/kg	1			na	nd	na	nd	na	na
1.1-Dichloropropylene	mg/kg	1			na	nd	na	nd	na	na
cis-1.3-Dichloropropylene	mg/kg	1			na	nd	na	nd	na	na
trans-1.3-Dichloropropylene	mg/kg	1			na	nd	na	nd	na	na
Ethylbenzene	mg/kg	1		3.1	na	nd	na	nd	na	na
Hexachlorobutadiene	mg/kg	1			na	nd	na	nd	na	na
Isopropylene	mg/kg	1			na	nd	na	nd	na	na
p-Isopropyltoluene	mg/kg	1			na	nd	na	nd	na	na
Methylene chloride	mg/kg	1			na	nd	na	nd	na	na
Naphthalene	mg/kg	1			na	nd	na	nd	na	na
n-Propylbenzene	mg/kg	1			na	nd	na	nd	na	na

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location					CLEANING SHED AREA					
Consultant					CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location					BH33	TP34	TP34	BH35	BH35	BH36
Sample Depth (metres)					2	0.00-0.10	0.40-0.50	0.2	0.8	0.1
Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
HEAVY METALS										
Arsenic	mg/kg	5	500		5	10	nd	15	nd	nd
Cadmium	mg/kg	0.5	100		nd	nd	nd	1.4	nd	nd
Chromium	mg/kg	5	500		21	39	7	14	nd	14
Copper	mg/kg	5	5000		8	130	100	210	10	94
Nickel	mg/kg	2	3000		3	40	11	20	nd	81
Lead	mg/kg	5	1500	300	65	170	180	320	8	46
Zinc	mg/kg	5	35000		33	89	440	660	9	160
Mercury	mg/kg	0.05	75		0.18	nd	1.37	0.28	nd	0.08
Total Cyanide	mg/kg	0.5	2500		na	na	na	na	na	na
VOCs										
Benzene	mg/kg	0.5		1	na	nd	na	nd	na	na
Bromobenzene	mg/kg	1			na	nd	na	nd	na	na
Bromochloromethane	mg/kg	1			na	nd	na	nd	na	na
Bromodichloromethane	mg/kg	1			na	nd	na	nd	na	na
Bromoform	mg/kg	1			na	nd	na	nd	na	na
Bromomethane	mg/kg	1			na	nd	na	nd	na	na
n-Butylbenzene	mg/kg	1			na	nd	na	nd	na	na
sec-Butylbenzene	mg/kg	1			na	nd	na	nd	na	na
tert-Butylbenzene	mg/kg	1			na	nd	na	nd	na	na
Carbon Tetrachloride	mg/kg	1			na	nd	na	nd	na	na
cis-1.2-Dichloroethene	mg/kg	1			na	nd	na	nd	na	na
Chlorobenzene	mg/kg	1			na	nd	na	nd	na	na
Chloroethane	mg/kg	1			na	nd	na	nd	na	na
Chloroform	mg/kg	1			na	nd	na	nd	na	na
Chloromethane	mg/kg	1			na	nd	na	nd	na	na
2-Chlorotoluene	mg/kg	1			na	nd	na	nd	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB31	SB31	SB32	SB32	SB32	BH33
Sample Depth (metres)	0.00-0.10	0.60-0.70	0.00-0.10	1.10-1.20	1.60-1.70	0.2
4,4'-DDD	na	na	na	na	na	na
Endosulphan II	na	na	na	na	na	na
4,4'-DDT	na	na	na	na	na	na
Endosulphan sulphate	na	na	na	na	na	na
Methoxychlor	na	na	na	na	na	na
PCBs						
Arochlor 1016	na	na	na	na	na	na
Arochlor 1221	na	na	na	na	na	na
Arochlor 1232	na	na	na	na	na	na
Arochlor 1242	na	na	na	na	na	na
Arochlor 1248	na	na	na	na	na	na
Arochlor 1254	na	na	na	na	na	na
Arochlor 1260	na	na	na	na	na	na
Total PCBs	**na**	**na**	**na**	**na**	**na**	**na**

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)
4,4'-DDD	mg/kg	0.1		
Endosulphan II	mg/kg	0.1		
4,4'-DDT	mg/kg	0.1	1000	
Endosulphan sulphate	mg/kg	0.1		
Methoxychlor	mg/kg	0.1		
PCBs				
Arochlor 1016	mg/kg	1		
Arochlor 1221	mg/kg	1		
Arochlor 1232	mg/kg	1		
Arochlor 1242	mg/kg	1		
Arochlor 1248	mg/kg	1		
Arochlor 1254	mg/kg	1		
Arochlor 1260	mg/kg	1		
Total PCBs			50	

NOTE:

Exceeds NEHF - Level F (1996)

Exceeds NSW EPA Guidelines for the Assessment of Service Station Sites (1995)

n/a = not applicable

LOR = Laboratory Limits of Reporting

na = not selected for analysis

nd = not detected above laboratory LOR

* = sample required dilution

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB31	SB31	SB32	SB32	SB32	BH33
Sample Depth (metres)	0.00-0.10	0.60-0.70	0.00-0.10	1.10-1.20	1.60-1.70	0.2

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4-Chloro-3-methylphenol	mg/kg	0.5			na	na	na	na	na	na
2,4,5-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,4,6-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,4-Dinitrophenol	mg/kg	2			na	na	na	na	na	na
4-Nitrophenol	mg/kg	1			na	na	na	na	na	na
2,3,4,6-Tetrachlorophenol	mg/kg	1			na	na	na	na	na	na
4,6-Dinitro-2-methylphenol	mg/kg	2			na	na	na	na	na	na
Pentachlorophenol	mg/kg	1			na	na	na	na	na	na
4,6-Dinitro-2-sec-butylphenol	mg/kg	2			na	na	na	na	na	na
Total Phenols	mg/kg				na	na	na	na	na	na
OCPs										
HCB	mg/kg	0.1			na	na	na	na	na	na
alpha-BHC	mg/kg	0.1			na	na	na	na	na	na
gamma-BHC	mg/kg	0.1			na	na	na	na	na	na
Heptachlor	mg/kg	0.1	50		na	na	na	na	na	na
Aldrin	mg/kg	0.1	50		na	na	na	na	na	na
Dieldrin	mg/kg	0.1			na	na	na	na	na	na
beta-BHC	mg/kg	0.1			na	na	na	na	na	na
delta-BHC	mg/kg	0.1			na	na	na	na	na	na
Oxychlordane	mg/kg	0.1			na	na	na	na	na	na
Heptachlor epoxide	mg/kg	0.1			na	na	na	na	na	na
Endosulphan I	mg/kg	0.1			na	na	na	na	na	na
Chlordane-trans	mg/kg	0.1	250		na	na	na	na	na	na
Chlordane-cis	mg/kg	0.1			na	na	na	na	na	na
trans-Nonachlor	mg/kg	0.1			na	na	na	na	na	na
4,4'-DDE	mg/kg	0.1			na	na	na	na	na	na
Endrin	mg/kg	0.1			na	na	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB31	SB31	SB32	SB32	SB32	BH33
Sample Depth (metres)	0.00-0.10	0.60-0.70	0.00-0.10	1.10-1.20	1.60-1.70	0.2

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Total Xylenes	mg/kg	3		14	na	nd	na	nd	nd	nd
PAHs										
Naphthalene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Acenaphthylene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Acenaphthene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Fluorene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Phenanthrene	mg/kg	0.5			nd	1.8	nd	nd	nd	nd
Anthracene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Fluoranthene	mg/kg	0.5			nd	2.6	nd	nd	nd	nd
Pyrene	mg/kg	0.5			nd	2.6	nd	nd	nd	nd
Benzo(a)anthracene	mg/kg	0.5			nd	1.4	nd	nd	nd	nd
Chrysene	mg/kg	0.5			nd	1.8	nd	nd	nd	nd
Benzo(b)&(k)fluoranthene	mg/kg	1			nd	3	nd	nd	nd	nd
Benzo(a)pyrene	mg/kg	0.5	5	1	nd	1.4	nd	nd	nd	nd
Indeno(1.2.3-cd)pyrene	mg/kg	0.5			nd	1.4	nd	nd	nd	nd
Dibenz(a.h)anthracene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Benzo(g.h.I)perylene	mg/kg	0.5			nd	0.9	nd	nd	nd	nd
Total PAHs	mg/kg		100	20	**0**	**16.9**	**0**	**0**	**0**	**0**
Phenols										
Phenol	mg/kg	0.5	42500		na	na	na	na	na	na
2-Chlorophenol	mg/kg	0.5			na	na	na	na	na	na
2-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
3-Methylphenol & 4-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
2-Nitorphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dimethylphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2.6-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB31	SB31	SB32	SB32	SB32	BH33
Sample Depth (metres)	0.00-0.10	0.60-0.70	0.00-0.10	1.10-1.20	1.60-1.70	0.2

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Styrene	mg/kg	1			na	na	na	na	na	nd
1.1.1.2-Tetrachloroethane	mg/kg	1			na	na	na	na	na	nd
1.1.2.2-Tetrachloroethane	mg/kg	1			na	na	na	na	na	nd
Tetrachloroethene	mg/kg	1			na	na	na	na	na	nd
Toluene	mg/kg	1		1.4	na	na	na	na	na	nd
1.2.3-Trichlorobenzene	mg/kg	1			na	na	na	na	na	nd
1.2.4-Trichlorobenzene	mg/kg	1			na	na	na	na	na	nd
1.1.1-Trichloroethane	mg/kg	1			na	na	na	na	na	nd
1.1.2-Trichloroethane	mg/kg	1			na	na	na	na	na	nd
Trichloroethene	mg/kg	1			na	na	na	na	na	nd
Trichlorofluoromethane	mg/kg	1			na	na	na	na	na	nd
1.2.3-Trichloropropane	mg/kg	1			na	na	na	na	na	nd
1.2.4-Trimethylbenzene	mg/kg	1			na	na	na	na	na	nd
1.3.5-Trimethylbenzene	mg/kg	1			na	na	na	na	na	nd
Vinyl chloride	mg/kg	1			na	na	na	na	na	nd
ortho-Xylene	mg/kg	1		14	na	na	na	na	na	nd
meta- & para-Xylene	mg/kg	1			na	na	na	na	na	nd
TPH										
C6-C9	mg/kg	10		65	na	na	na	na	na	na
C10-C14	mg/kg	10			na	na	na	na	na	na
C15-C28	mg/kg	50			na	na	na	na	na	na
C29-C36	mg/kg	50			na	na	na	na	na	na
Total C10-C36	mg/kg			1000	na	na	na	na	na	na
BTEX										
Benzene	mg/kg	0.5		1	na	nd	na	nd	nd	nd
Toluene	mg/kg	1		1.4	na	nd	na	nd	nd	nd
Ethylbenzene	mg/kg	1		3.1	na	nd	na	nd	nd	nd

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB31	SB31	SB32	SB32	SB32	BH33
Sample Depth (metres)	0.00-0.10	0.60-0.70	0.00-0.10	1.10-1.20	1.60-1.70	0.2

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4-Chlorotoluene	mg/kg	1			na	na	na	na	na	nd
Dibromochloromethane	mg/kg	1			na	na	na	na	na	nd
1,2-Dibromo-3-Chloropropane	mg/kg	1			na	na	na	na	na	nd
1,2-Dibromomethane (EDB)	mg/kg	1			na	na	na	na	na	nd
Dibromomethane	mg/kg	1			na	na	na	na	na	nd
1,2-Dichlorobenzene	mg/kg	1			na	na	na	na	na	nd
1,3-Dichlorobenzene	mg/kg	1			na	na	na	na	na	nd
1,4-Dichlorobenzene	mg/kg	1			na	na	na	na	na	nd
Dichlorodifluoromethane	mg/kg	1			na	na	na	na	na	nd
1,1-Dichloroethene	mg/kg	1			na	na	na	na	na	nd
1,2-Dichloroethane	mg/kg	1			na	na	na	na	na	nd
1,1-Dichloroethane	mg/kg	1			na	na	na	na	na	nd
cis-1,2-Dichloroethene	mg/kg	1			na	na	na	na	na	nd
trans-1,2-Dichloroethene	mg/kg	1			na	na	na	na	na	nd
1,2-Dichloropropane	mg/kg	1			na	na	na	na	na	nd
1,3-Dichloropropane	mg/kg	1			na	na	na	na	na	nd
2,2-Dichloropropane	mg/kg	1			na	na	na	na	na	nd
1,1-Dichloropropylene	mg/kg	1			na	na	na	na	na	nd
cis-1,3-Dichloropropylene	mg/kg	1			na	na	na	na	na	nd
trans-1,3-Dichloropropylene	mg/kg	1			na	na	na	na	na	nd
Ethylbenzene	mg/kg	1		3.1	na	na	na	na	na	nd
Hexachlorobutadiene	mg/kg	1			na	na	na	na	na	nd
Isopropylene	mg/kg	1			na	na	na	na	na	nd
p-Isopropyltoluene	mg/kg	1			na	na	na	na	na	nd
Methylene chloride	mg/kg	1			na	na	na	na	na	nd
Naphthalene	mg/kg	1			na	na	na	na	na	nd
n-Propylbenzene	mg/kg	1			na	na	na	na	na	nd

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB31	SB31	SB32	SB32	SB32	BH33
Sample Depth (metres)	0.00-0.10	0.60-0.70	0.00-0.10	1.10-1.20	1.60-1.70	0.2

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
HEAVY METALS										
Arsenic	mg/kg	5	500		18	15	12	nd	nd	19
Cadmium	mg/kg	0.5	100		nd	0.6	nd	nd	nd	nd
Chromium	mg/kg	5	500		nd	10	13	nd	nd	10
Copper	mg/kg	5	5000		170	3600	200	nd	9	120
Nickel	mg/kg	2	3000		8	18	16	nd	nd	17
Lead	mg/kg	5	1500	300	30	430	76	8	11	120
Zinc	mg/kg	5	35000		100	530	120	25	56	70
Mercury	mg/kg	0.05	75		nd	0.32	0.08	0.06	nd	0.26
Total Cyanide	mg/kg	0.5	2500		na	nd	na	na	nd	na
VOCs										
Benzene	mg/kg	0.5			na	na	na	na	na	nd
Bromobenzene	mg/kg	1			na	na	na	na	na	nd
Bromochloromethane	mg/kg	1			na	na	na	na	na	nd
Bromodichloromethane	mg/kg	1			na	na	na	na	na	nd
Bromoform	mg/kg	1			na	na	na	na	na	nd
Bromomethane	mg/kg	1			na	na	na	na	na	nd
n-Butylbenzene	mg/kg	1			na	na	na	na	na	nd
sec-Butylbenzene	mg/kg	1			na	na	na	na	na	nd
tert-Butylbenzene	mg/kg	1			na	na	na	na	na	nd
Carbon Tetrachloride	mg/kg	1			na	na	na	na	na	nd
cis-1,2-Dichloroethene	mg/kg	1			na	na	na	na	na	nd
Chlorobenzene	mg/kg	1			na	na	na	na	na	nd
Chloroethane	mg/kg	1			na	na	na	na	na	nd
Chloroform	mg/kg	1			na	na	na	na	na	nd
Chloromethane	mg/kg	1			na	na	na	na	na	nd
2-Chlorotoluene	mg/kg	1			na	na	na	na	na	nd

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH29	BH29	BH30	BH30	BH31	BH31
Sample Depth (metres)	0.2	0.6	0.2	0.6	0.20-0.30	0.6

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4,4'-DDD	mg/kg	0.1			na	na	na	na	nd	na
Endosulphan II	mg/kg	0.1			na	na	na	na	nd	na
4,4'-DDT	mg/kg	0.1	1000		na	na	na	na	nd	na
Endosulphan sulphate	mg/kg	0.1			na	na	na	na	nd	na
Methoxychlor	mg/kg	0.1			na	na	na	na	nd	na
PCBs										
Arochlor 1016	mg/kg	1			na	na	na	na	nd	na
Arochlor 1221	mg/kg	1			na	na	na	na	nd	na
Arochlor 1232	mg/kg	1			na	na	na	na	nd	na
Arochlor 1242	mg/kg	1			na	na	na	na	nd	na
Arochlor 1248	mg/kg	1			na	na	na	na	nd	na
Arochlor 1254	mg/kg	1			na	na	na	na	nd	na
Arochlor 1260	mg/kg	1			na	na	na	na	nd	na
Total PCBs			50		**na**	**na**	**na**	**na**	0	**na**

NOTE:

Exceeds NEHF - Level F (1996)

Exceeds NSW EPA Guidelines for the Assessment of Service Station Sites (1995)

n/a = not applicable

LOR = Laboratory Limits of Reporting

na = not selected for analysis

nd = not detected above laboratory LOR

* = sample required dilution

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH29	BH29	BH30	BH30	BH31	BH31
Sample Depth (metres)	0.2	0.6	0.2	0.6	0.20-0.30	0.6

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4-Chloro-3-methylphenol	mg/kg	0.5			na	na	na	na	na	na
2,4,5-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,4,6-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,4-Dinitrophenol	mg/kg	2			na	na	na	na	na	na
4-Nitrophenol	mg/kg	1			na	na	na	na	na	na
2,3,4,6-Tetrachlorophenol	mg/kg	1			na	na	na	na	na	na
4,6-Dinitro-2-methylphenol	mg/kg	2			na	na	na	na	na	na
Pentachlorophenol	mg/kg	1			na	na	na	na	na	na
4,6-Dinitro-2-sec-butylphenol	mg/kg	2			na	na	na	na	na	na
Total Phenols	mg/kg				na	na	na	na	na	na
OCPs										
HCB	mg/kg	0.1			na	na	na	na	nd	na
alpha-BHC	mg/kg	0.1			na	na	na	na	nd	na
gamma-BHC	mg/kg	0.1			na	na	na	na	nd	na
Heptachlor	mg/kg	0.1	50		na	na	na	na	nd	na
Aldrin	mg/kg	0.1	50		na	na	na	na	nd	na
Dieldrin	mg/kg	0.1			na	na	na	na	nd	na
beta-BHC	mg/kg	0.1			na	na	na	na	nd	na
delta-BHC	mg/kg	0.1			na	na	na	na	nd	na
Oxychlordane	mg/kg	0.1			na	na	na	na	nd	na
Heptachlor epoxide	mg/kg	0.1			na	na	na	na	nd	na
Endosulphan I	mg/kg	0.1			na	na	na	na	nd	na
Chlordane-trans	mg/kg	0.1	250		na	na	na	na	nd	na
Chlordane-cis	mg/kg	0.1			na	na	na	na	nd	na
trans-Nonachlor	mg/kg	0.1			na	na	na	na	nd	na
4,4'-DDE	mg/kg	0.1			na	na	na	na	nd	na
Endrin	mg/kg	0.1			na	na	na	na	nd	na

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH29	BH29	BH30	BH30	BH31	BH31
Sample Depth (metres)	0.2	0.6	0.2	0.6	0.20-0.30	0.6

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Total Xylenes	mg/kg	3		14	nd	nd	na	nd	na	na
PAHs										
Naphthalene	mg/kg	0.5			nd	nd	0.8	nd	na	na
Acenaphthylene	mg/kg	0.5			nd	nd	nd	nd	na	na
Acenaphthene	mg/kg	0.5			nd	nd	nd	nd	na	na
Fluorene	mg/kg	0.5			nd	nd	nd	nd	na	na
Phenanthrene	mg/kg	0.5			1.6	1.6	1.8	1.6	na	na
Anthracene	mg/kg	0.5			nd	nd	nd	nd	na	na
Fluoranthene	mg/kg	0.5			3.4	2.2	2.2	4	na	na
Pyrene	mg/kg	0.5			4	2.4	1.8	4.4	na	na
Benzo(a)anthracene	mg/kg	0.5			2.6	1.6	1.6	3.6	na	na
Chrysene	mg/kg	0.5			1.6	0.9	0.8	1.6	na	na
Benzo(b)&(k)fluoranthene	mg/kg	1			8	5	5	12	na	na
Benzo(a)pyrene	mg/kg	0.5	5	1	2.4	1.4	1.2	4.4	na	na
Indeno(1,2,3-cd)pyrene	mg/kg	0.5			2	1.2	1	3.6	na	na
Dibenz(a,h)anthracene	mg/kg	0.5			nd	nd	nd	nd	na	na
Benzo(g,h,i)perylene	mg/kg	0.5			1.2	0.7	0.6	2	na	na
Total PAHs	mg/kg		100	20	26.8	17	16.8	37.2	na	na
Phenols										
Phenol	mg/kg	0.5	42500		na	na	na	na	na	na
2-Chlorophenol	mg/kg	0.5			na	na	na	na	na	na
2-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
3-Methylphenol & 4-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
2-Nitorphenol	mg/kg	0.5			na	na	na	na	na	na
2,4-Dimethylphenol	mg/kg	0.5			na	na	na	na	na	na
2,4-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,6-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH29	BH29	BH30	BH30	BH31	BH31
Sample Depth (metres)	0.2	0.6	0.2	0.6	0.20-0.30	0.6

Analyte	Units	LOR	NEHF - Level II Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Styrene	mg/kg	1			na	nd	na	na	nd	na
1.1.1.2-Tetrachloroethane	mg/kg	1			na	nd	na	na	nd	na
1.1.2.2-Tetrachloroethane	mg/kg	1			na	nd	na	na	nd	na
Tetrachloroethene	mg/kg	1			na	nd	na	na	nd	na
Toluene	mg/kg	1		1.4	na	nd	na	na	nd	na
1.2.3-Trichlorobenzene	mg/kg	1			na	nd	na	na	nd	na
1.2.4-Trichlorobenzene	mg/kg	1			na	nd	na	na	nd	na
1.1.1-Trichloroethane	mg/kg	1			na	nd	na	na	nd	na
1.1.2-Trichloroethane	mg/kg	1			na	nd	na	na	nd	na
Trichloroethene	mg/kg	1			na	nd	na	na	nd	na
Trichlorofluoromethane	mg/kg	1			na	nd	na	na	nd	na
1.2.3-Trichloropropane	mg/kg	1			na	nd	na	na	nd	na
1.2.4-Trimethylbenzene	mg/kg	1			na	nd	na	na	nd	na
1.3.5-Trimethylbenzene	mg/kg	1			na	nd	na	na	nd	na
Vinyl chloride	mg/kg	1			na	nd	na	na	nd	na
ortho-Xylene	mg/kg	1		14	na	nd	na	na	nd	na
meta- & para-Xylene	mg/kg	1			na	nd	na	na	nd	na
TPH										
C6-C9	mg/kg	10		65	na	na	na	na	na	na
C10-C14	mg/kg	10			na	na	na	na	na	na
C15-C28	mg/kg	50			na	na	na	na	na	na
C29-C36	mg/kg	50			na	na	na	na	na	na
Total C10-C36	mg/kg			1000	na	na	na	na	na	na
BTEX										
Benzene	mg/kg	0.5		1	nd	nd	na	nd	na	na
Toluene	mg/kg	1		1.4	nd	nd	na	nd	na	na
Ethylbenzene	mg/kg	1		3.1	nd	nd	na	nd	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH29	BH29	BH30	BH30	BH31	BH31
Sample Depth (metres)	0.2	0.6	0.2	0.6	0.20-0.30	0.6

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4-Chlorotoluene	mg/kg	1			na	nd	na	na	nd	na
Dibromochloromethane	mg/kg	1			na	nd	na	na	nd	na
1,2-Dibromo-3-Chloropropane	mg/kg	1			na	nd	na	na	nd	na
1,2-Dibromomethane (EDB)	mg/kg	1			na	nd	na	na	nd	na
Dibromomethane	mg/kg	1			na	nd	na	na	nd	na
1,2-Dichlorobenzene	mg/kg	1			na	nd	na	na	nd	na
1,3-Dichlorobenzene	mg/kg	1			na	nd	na	na	nd	na
1,4-Dichlorobenzene	mg/kg	1			na	nd	na	na	nd	na
Dichlorodifluoromethane	mg/kg	1			na	nd	na	na	nd	na
1,1-Dichloroethene	mg/kg	1			na	nd	na	na	nd	na
1,2-Dichloroethane	mg/kg	1			na	nd	na	na	nd	na
1,1-Dichloroethane	mg/kg	1			na	nd	na	na	nd	na
cis-1,2-Dichloroethene	mg/kg	1			na	nd	na	na	nd	na
trans-1,2-Dichloroethene	mg/kg	1			na	nd	na	na	nd	na
1,2-Dichloropropane	mg/kg	1			na	nd	na	na	nd	na
1,3-Dichloropropane	mg/kg	1			na	nd	na	na	nd	na
2,2-Dichloropropane	mg/kg	1			na	nd	na	na	nd	na
1,1-Dichloropropylene	mg/kg	1			na	nd	na	na	nd	na
cis-1,3-Dichloropropylene	mg/kg	1			na	nd	na	na	nd	na
trans-1,3-Dichloropropylene	mg/kg	1			na	nd	na	na	nd	na
Ethylbenzene	mg/kg	1		3.1	na	nd	na	na	nd	na
Hexachlorobutadiene	mg/kg	1			na	nd	na	na	nd	na
Isopropylene	mg/kg	1			na	nd	na	na	nd	na
p-Isopropyltoluene	mg/kg	1			na	nd	na	na	nd	na
Methylene chloride	mg/kg	1			na	nd	na	na	nd	na
Naphthalene	mg/kg	1			na	nd	na	na	nd	na
n-Propylbenzene	mg/kg	1			na	nd	na	na	nd	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	BH29	BH29	BH30	BH30	BH31	BH31
Sample Depth (metres)	0.2	0.6	0.2	0.6	0.20-0.30	0.6

Analyte	Units	LOR	NEHF - Level 1 Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
HEAVY METALS										
Arsenic	mg/kg	5	500		69	52	79	72	160	nd
Cadmium	mg/kg	0.5	100		3	1.2	1	2.2	nd	nd
Chromium	mg/kg	5	500		27	24	180	24	24	8
Copper	mg/kg	5	5000		460	250	170	540	160	8
Nickel	mg/kg	2	3000		25	25	150	41	21	nd
Lead	mg/kg	5	1500	300	250	220	140	340	140	11
Zinc	mg/kg	5	35000		270	420	220	330	130	nd
Mercury	mg/kg	0.05	75		0.21	0.18	0.15	0.87	0.16	nd
Total Cyanide	mg/kg	0.5	2500		na	na	na	na	na	na
VOCs										
Benzene	mg/kg	0.5		1	na	nd	na	na	nd	na
Bromobenzene	mg/kg	1			na	nd	na	na	nd	na
Bromochloromethane	mg/kg	1			na	nd	na	na	nd	na
Bromodichloromethane	mg/kg	1			na	nd	na	na	nd	na
Bromoform	mg/kg	1			na	nd	na	na	nd	na
Bromomethane	mg/kg	1			na	nd	na	na	nd	na
n-Butylbenzene	mg/kg	1			na	nd	na	na	nd	na
sec-Butylbenzene	mg/kg	1			na	nd	na	na	nd	na
tert-Butylbenzene	mg/kg	1			na	nd	na	na	nd	na
Carbon Tetrachloride	mg/kg	1			na	nd	na	na	nd	na
cis-1,2-Dichloroethene	mg/kg	1			na	nd	na	na	nd	na
Chlorobenzene	mg/kg	1			na	nd	na	na	nd	na
Chloroethane	mg/kg	1			na	nd	na	na	nd	na
Chloroform	mg/kg	1			na	nd	na	na	nd	na
Chloromethane	mg/kg	1			na	nd	na	na	nd	na
2-Chlorotoluene	mg/kg	1			na	nd	na	na	nd	na

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB24	SB24	BH26	BH26	BH27	BH28
Sample Depth (metres)	1.0-1.1	DUP3	0.2	0.8	0.2	0.30-0.40
Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4,4'-DDD	mg/kg	0.1			na	na	na	na	na	na
Endosulphan II	mg/kg	0.1			na	na	na	na	na	na
4,4'-DDT	mg/kg	0.1	1000		na	na	na	na	na	na
Endosulphan sulphate	mg/kg	0.1			na	na	na	na	na	na
Methoxychlor	mg/kg	0.1			na	na	na	na	na	na
PCBs										
Arochlor 1016	mg/kg	1			na	na	na	na	na	na
Arochlor 1221	mg/kg	1			na	na	na	na	na	na
Arochlor 1232	mg/kg	1			na	na	na	na	na	na
Arochlor 1242	mg/kg	1			na	na	na	na	na	na
Arochlor 1248	mg/kg	1			na	na	na	na	na	na
Arochlor 1254	mg/kg	1			na	na	na	na	na	na
Arochlor 1260	mg/kg	1			na	na	na	na	na	na
Total PCBs			50		na	na	na	na	na	na

NOTE:

Exceeds NEHF - Level F (1996)

Exceeds NSW EPA Guidelines for the Assessment of Service Station Sites (1995)

n/a = not applicable
LOR = Laboratory Limits of Reporting
na = not selected for analysis
nd = not detected above laboratory LOR
* = sample required dilution

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB24	SB24	BH26	BH26	BH27	BH28
Sample Depth (metres)	1.0-1.1	DUP3	0.2	0.8	0.2	0.30-0.40

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
4-Chloro-3-methylphenol	mg/kg	0.5			na	na	na	na	na	na
2,4,5-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,4,6-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,4-Dinitrophenol	mg/kg	2			na	na	na	na	na	na
4-Nitrophenol	mg/kg	1			na	na	na	na	na	na
2,3,4,6-Tetrachlorophenol	mg/kg	1			na	na	na	na	na	na
4,6-Dinitro-2-methylphenol	mg/kg	2			na	na	na	na	na	na
Pentachlorophenol	mg/kg	1			na	na	na	na	na	na
4,6-Dinitro-2-sec-butylphenol	mg/kg	2			na	na	na	na	na	na
Total Phenols	mg/kg				**na**	**na**	**na**	**na**	**na**	**na**
OCPs										
HCB	mg/kg	0.1			na	na	na	na	na	na
alpha-BHC	mg/kg	0.1			na	na	na	na	na	na
gamma-BHC	mg/kg	0.1			na	na	na	na	na	na
Heptachlor	mg/kg	0.1	50		na	na	na	na	na	na
Aldrin	mg/kg	0.1	50		na	na	na	na	na	na
Dieldrin	mg/kg	0.1			na	na	na	na	na	na
beta-BHC	mg/kg	0.1			na	na	na	na	na	na
delta-BHC	mg/kg	0.1			na	na	na	na	na	na
Oxychlordane	mg/kg	0.1			na	na	na	na	na	na
Heptachlor epoxide	mg/kg	0.1			na	na	na	na	na	na
Endosulphan I	mg/kg	0.1			na	na	na	na	na	na
Chlordane-trans	mg/kg	0.1	250		na	na	na	na	na	na
Chlordane-cis	mg/kg	0.1			na	na	na	na	na	na
trans-Nonachlor	mg/kg	0.1			na	na	na	na	na	na
4,4'-DDE	mg/kg	0.1			na	na	na	na	na	na
Endrin	mg/kg	0.1			na	na	na	na	na	na

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

					CLEANING SHED AREA					
Location					CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Consultant					SB24	SB24	BH26	BH26	BH27	BH28
Sample Location					1.0-1.1	DUP3	0.2	0.8	0.2	0.30-0.40
Sample Depth (metres)										
Analyte	Units	LOR	NEHF - Level 1 Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Total Xylenes	mg/kg	3		14	nd	nd	nd	na	na	nd
PAHs										
Naphthalene	mg/kg	0.5			nd	nd	0.6	na	nd	nd
Acenaphthylene	mg/kg	0.5			nd	nd	nd	na	nd	nd
Acenaphthene	mg/kg	0.5			nd	nd	nd	na	nd	nd
Fluorene	mg/kg	0.5			nd	nd	nd	na	nd	nd
Phenanthrene	mg/kg	0.5			nd	3	4.6	na	nd	0.5
Anthracene	mg/kg	0.5			nd	0.9	1	na	nd	nd
Fluoranthene	mg/kg	0.5			nd	4.6	7.4	na	0.5	0.9
Pyrene	mg/kg	0.5			nd	5	7.2	na	0.5	0.9
Benzo(a)anthracene	mg/kg	0.5			nd	5.2	4.2	na	nd	0.6
Chrysene	mg/kg	0.5			nd	3	2.6	na	nd	nd
Benzo(b)&(k)fluoranthene	mg/kg	1			nd	8	13	na	1	2
Benzo(a)pyrene	mg/kg	0.5	5	1	nd	6.8	4.6	na	nd	0.6
Indeno(1.2.3-cd)pyrene	mg/kg	0.5			nd	4.2	3.6	na	nd	0.5
Dibenz(a.h)anthracene	mg/kg	0.5			nd	0.7	nd	na	nd	nd
Benzo(g.h.i)perylene	mg/kg	0.5			nd	2.6	1.8	na	nd	nd
Total PAHs	mg/kg		100	20	**nd**	**44**	**50.6**	**na**	2	6
Phenols										
Phenol	mg/kg	0.5	42500		na	na	na	na	na	na
2-Chlorophenol	mg/kg	0.5			na	na	na	na	na	na
2-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
3-Methylphenol & 4-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
2-Nitorphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dimethylphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2.6-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB24	SB24	BH26	BH26	BH27	BH28
Sample Depth (metres)	1.0-1.1	DUP3	0.2	0.8	0.2	0.30-0.40

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
Styrene	mg/kg	1			na	na	na	nd	na	nd
1.1.1.2-Tetrachloroethane	mg/kg	1			na	na	na	nd	na	nd
1.1.2.2-Tetrachloroethane	mg/kg	1			na	na	na	nd	na	nd
Tetrachloroethene	mg/kg	1			na	na	na	nd	na	nd
Toluene	mg/kg	1		1.4	na	na	na	nd	na	nd
1.2.3-Trichlorobenzene	mg/kg	1			na	na	na	nd	na	nd
1.2.4-Trichlorobenzene	mg/kg	1			na	na	na	nd	na	nd
1.1.1-Trichloroethane	mg/kg	1			na	na	na	nd	na	nd
1.1.2-Trichloroethane	mg/kg	1			na	na	na	nd	na	nd
Trichloroethene	mg/kg	1			na	na	na	nd	na	nd
Trichlorofluoromethane	mg/kg	1			na	na	na	nd	na	nd
1.2.3-Trichloropropane	mg/kg	1			na	na	na	nd	na	nd
1.2.4-Trimethylbenzene	mg/kg	1			na	na	na	nd	na	nd
1.3.5-Trimethylbenzene	mg/kg	1			na	na	na	nd	na	nd
Vinyl chloride	mg/kg	1			na	na	na	nd	na	nd
ortho-Xylene	mg/kg	1		14	na	na	na	nd	na	nd
meta- & para-Xylene	mg/kg	1			na	na	na	nd	na	nd
TPH										
C6-C9	mg/kg	10		65	na	nd	na	na	na	na
C10-C14	mg/kg	10			na	nd	na	na	na	na
C15-C28	mg/kg	50			na	260	na	na	na	na
C29-C36	mg/kg	50			na	160	na	na	na	na
Total C10-C36	mg/kg			1000	na	420	na	na	na	na
BTEX										
Benzene	mg/kg	0.5		1	nd	nd	nd	na	na	nd
Toluene	mg/kg	1		1.4	nd	nd	nd	na	na	nd
Ethylbenzene	mg/kg	1		3.1	nd	nd	nd	na	na	nd

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB24	SB24	BH26	BH26	BH27	BH28
Sample Depth (metres)	1.0-1.1	DUP3	0.2	0.8	0.2	0.30-0.40

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
4-Chlorotoluene	mg/kg	1			na	na	na	nd	na	nd
Dibromochloromethane	mg/kg	1			na	na	na	nd	na	nd
1,2-Dibromo-3-Chloropropane	mg/kg	1			na	na	na	nd	na	nd
1,2-Dibromomethane (EDB)	mg/kg	1			na	na	na	nd	na	nd
Dibromomethane	mg/kg	1			na	na	na	nd	na	nd
1,2-Dichlorobenzene	mg/kg	1			na	na	na	nd	na	nd
1,3-Dichlorobenzene	mg/kg	1			na	na	na	nd	na	nd
1,4-Dichlorobenzene	mg/kg	1			na	na	na	nd	na	nd
Dichlorodifluoromethane	mg/kg	1			na	na	na	nd	na	nd
1,1-Dichloroethene	mg/kg	1			na	na	na	nd	na	nd
1,2-Dichloroethane	mg/kg	1			na	na	na	nd	na	nd
1,1-Dichloroethane	mg/kg	1			na	na	na	nd	na	nd
cis-1,2-Dichloroethene	mg/kg	1			na	na	na	nd	na	nd
trans-1,2-Dichloroethene	mg/kg	1			na	na	na	nd	na	nd
1,2-Dichloropropane	mg/kg	1			na	na	na	nd	na	nd
1,3-Dichloropropane	mg/kg	1			na	na	na	nd	na	nd
2,2-Dichloropropane	mg/kg	1			na	na	na	nd	na	nd
1,1-Dichloropropylene	mg/kg	1			na	na	na	nd	na	nd
cis-1,3-Dichloropropylene	mg/kg	1			na	na	na	nd	na	nd
trans-1,3-Dichloropropylene	mg/kg	1			na	na	na	nd	na	nd
Ethylbenzene	mg/kg	1		3.1	na	na	na	nd	na	nd
Hexachlorobutadiene	mg/kg	1			na	na	na	nd	na	nd
Isopropylene	mg/kg	1			na	na	na	nd	na	nd
p-Isopropyltoluene	mg/kg	1			na	na	na	nd	na	nd
Methylene chloride	mg/kg	1			na	na	na	nd	na	nd
Naphthalene	mg/kg	1			na	na	na	nd	na	nd
n-Propylbenzene	mg/kg	1			na	na	na	nd	na	nd

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB24	SB24	BH26	BH26	BH27	BH28
Sample Depth (metres)	1.0-1.1	DUP3	0.2	0.8	0.2	0.30-0.40

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
HEAVY METALS									
Arsenic	mg/kg	5	500		5	9	31	na	27	43
Cadmium	mg/kg	0.5	100		nd	nd	nd	na	nd	1.2
Chromium	mg/kg	5	500		9	8	18	na	23	16
Copper	mg/kg	5	5000		20	430	120	na	62	290
Nickel	mg/kg	2	3000		nd	15	21	na	2	19
Lead	mg/kg	5	1500	300	14	300	100	na	36	200
Zinc	mg/kg	5	35000		nd	170	140	na	17	200
Mercury	mg/kg	0.05	75		nd	0.17	0.09	na	nd	0.31
Total Cyanide	mg/kg	0.5	2500		na	nd	na	na	na	na
VOCs										
Benzene	mg/kg	0.5		1	na	na	na	nd	na	nd
Bromobenzene	mg/kg	1			na	na	na	nd	na	nd
Bromochloromethane	mg/kg	1			na	na	na	nd	na	nd
Bromodichloromethane	mg/kg	1			na	na	na	nd	na	nd
Bromoform	mg/kg	1			na	na	na	nd	na	nd
Bromomethane	mg/kg	1			na	na	na	nd	na	nd
n-Butylbenzene	mg/kg	1			na	na	na	nd	na	nd
sec-Butylbenzene	mg/kg	1			na	na	na	nd	na	nd
tert-Butylbenzene	mg/kg	1			na	na	na	nd	na	nd
Carbon Tetrachloride	mg/kg	1			na	na	na	nd	na	nd
cis-1,2-Dichloroethene	mg/kg	1			na	na	na	nd	na	nd
Chlorobenzene	mg/kg	1			na	na	na	nd	na	nd
Chloroethane	mg/kg	1			na	na	na	nd	na	nd
Chloroform	mg/kg	1			na	na	na	nd	na	nd
Chloromethane	mg/kg	1			na	na	na	nd	na	nd
2-Chlorotoluene	mg/kg	1			na	na	na	nd	na	nd

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB23	SB23	SB23	SB23	SB24	SB24
Sample Depth (metres)	0.00-0.10	0.50-0.60	DUP2	2.00-2.10	0.00-0.10	0.20-0.30

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4.4'-DDD	mg/kg	0.1			na	na	na	na	na	na
Endosulphan II	mg/kg	0.1			na	na	na	na	na	na
4.4'-DDT	mg/kg	0.1	1000		na	na	na	na	na	na
Endosulphan sulphate	mg/kg	0.1			na	na	na	na	na	na
Methoxychlor	mg/kg	0.1			na	na	na	na	na	na
PCBs										
Arochlor 1016	mg/kg	1			na	na	na	na	na	na
Arochlor 1221	mg/kg	1			na	na	na	na	na	na
Arochlor 1232	mg/kg	1			na	na	na	na	na	na
Arochlor 1242	mg/kg	1			na	na	na	na	na	na
Arochlor 1248	mg/kg	1			na	na	na	na	na	na
Arochlor 1254	mg/kg	1			na	na	na	na	na	na
Arochlor 1260	mg/kg	1			na	na	na	na	na	na
Total PCBs			50		**na**	**na**	**na**	**na**	**na**	**na**

NOTE:

Exceeds NEHF - Level F (1996)

Exceeds NSW EPA Guidelines for the Assessment of Service Station Sites (1995)

n/a = not applicable

LOR = Laboratory Limits of Reporting

na = not selected for analysis

nd = not detected above laboratory LOR

* = sample required dilution

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB23	SB23	SB23	SB23	SB24	SB24
Sample Depth (metres)	0.00-0.10	0.50-0.60	DUP2	2.00-2.10	0.00-0.10	0.20-0.30

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4-Chloro-3-methylphenol	mg/kg	0.5			na	na	na	na	na	na
2,4,5-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,4,6-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,4-Dinitrophenol	mg/kg	2			na	na	na	na	na	na
4-Nitrophenol	mg/kg	1			na	na	na	na	na	na
2,3,4,6-Tetrachlorophenol	mg/kg	1			na	na	na	na	na	na
4,6-Dinitro-2-methylphenol	mg/kg	2			na	na	na	na	na	na
Pentachlorophenol	mg/kg	1			na	na	na	na	na	na
4,6-Dinitro-2-sec-butylphenol	mg/kg	2			na	na	na	na	na	na
Total Phenols	mg/kg				**na**	**na**	**na**	**na**	**na**	**na**
OCPs										
HCB	mg/kg	0.1			na	na	na	na	na	na
alpha-BHC	mg/kg	0.1			na	na	na	na	na	na
gamma-BHC	mg/kg	0.1			na	na	na	na	na	na
Heptachlor	mg/kg	0.1	50		na	na	na	na	na	na
Aldrin	mg/kg	0.1	50		na	na	na	na	na	na
Dieldrin	mg/kg	0.1			na	na	na	na	na	na
beta-BHC	mg/kg	0.1			na	na	na	na	na	na
delta-BHC	mg/kg	0.1			na	na	na	na	na	na
Oxychlordane	mg/kg	0.1			na	na	na	na	na	na
Heptachlor epoxide	mg/kg	0.1			na	na	na	na	na	na
Endosulphan I	mg/kg	0.1			na	na	na	na	na	na
Chlordane-trans	mg/kg	0.1	250		na	na	na	na	na	na
Chlordane-cis	mg/kg	0.1			na	na	na	na	na	na
trans-Nonachlor	mg/kg	0.1			na	na	na	na	na	na
4,4'-DDE	mg/kg	0.1			na	na	na	na	na	na
Endrin	mg/kg	0.1			na	na	na	na	na	na

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location					CLEANING SHED AREA					
Consultant					CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location					SB23	SB23	SB23	SB23	SB24	SB24
Sample Depth (metres)					0.00-0.10	0.50-0.60	DUP2	2.00-2.10	0.00-0.10	0.20-0.30
Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Total Xylenes	mg/kg	3		14	na	nd	nd	nd	na	nd
PAHs										
Naphthalene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Acenaphthylene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Acenaphthene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Fluorene	mg/kg	0.5			nd	nd	nd	nd	nd	nd
Phenanthrene	mg/kg	0.5			nd	0.6	nd	nd	1	2.8
Anthracene	mg/kg	0.5			nd	nd	nd	nd	nd	0.9
Fluoranthene	mg/kg	0.5			nd	0.7	nd	nd	1.4	4.6
Pyrene	mg/kg	0.5			nd	0.8	nd	nd	1.6	5.4
Benzo(a)anthracene	mg/kg	0.5			nd	0.6	nd	nd	0.9	5
Chrysene	mg/kg	0.5			nd	0.6	nd	nd	0.7	3.6
Benzo(b)&(k)fluoranthene	mg/kg	1			nd	nd	nd	nd	1	8
Benzo(a)pyrene	mg/kg	0.5	5	1	nd	0.6	nd	nd	0.8	6.4
Indeno(1.2.3-cd)pyrene	mg/kg	0.5			nd	nd	nd	nd	0.7	4.6
Dibenz(a.h)anthracene	mg/kg	0.5			nd	nd	nd	nd	nd	0.8
Benzo(g.h.i)perylene	mg/kg	0.5			nd	nd	nd	nd	nd	3
Total PAHs	mg/kg		100	20	0	3.9	0	0	8.1	45.1
Phenols										
Phenol	mg/kg	0.5	42500		na	na	na	na	na	na
2-Chlorophenol	mg/kg	0.5			na	na	na	na	na	na
2-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
3-Methylphenol & 4-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
2-Nitorphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dimethylphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2.6-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB23	SB23	SB23	SB23	SB24	SB24
Sample Depth (metres)	0.00-0.10	0.50-0.60	DUP2	2.00-2.10	0.00-0.10	0.20-0.30

Analyte	Units	LOR	NEHF - Level II Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
Styrene	mg/kg	1			na	na	na	na	na	na
1.1.1.2-Tetrachloroethane	mg/kg	1			na	na	na	na	na	na
1.1.2.2-Tetrachloroethane	mg/kg	1			na	na	na	na	na	na
Tetrachloroethene	mg/kg	1			na	na	na	na	na	na
Toluene	mg/kg	1		1.4	na	na	na	na	na	na
1.2.3-Trichlorobenzene	mg/kg	1			na	na	na	na	na	na
1.2.4-Trichlorobenzene	mg/kg	1			na	na	na	na	na	na
1.1.1-Trichloroethane	mg/kg	1			na	na	na	na	na	na
1.1.2-Trichloroethane	mg/kg	1			na	na	na	na	na	na
Trichloroethene	mg/kg	1			na	na	na	na	na	na
Trichlorofluoromethane	mg/kg	1			na	na	na	na	na	na
1.2.3-Trichloropropane	mg/kg	1			na	na	na	na	na	na
1.2.4-Trimethylbenzene	mg/kg	1			na	na	na	na	na	na
1.3.5-Trimethylbenzene	mg/kg	1			na	na	na	na	na	na
Vinyl chloride	mg/kg	1			na	na	na	na	na	na
ortho-Xylene	mg/kg	1		14	na	na	na	na	na	na
meta- & para-Xylene	mg/kg	1			na	na	na	na	na	na
TPH										
C6-C9	mg/kg	10		65	na	nd	nd	na	na	nd
C10-C14	mg/kg	10			na	nd	nd	na	na	nd
C15-C28	mg/kg	50			na	100	100	na	na	340
C29-C36	mg/kg	50			na	60	120	na	na	220
Total C10-C36	mg/kg			1000	na	160	220	na	na	560
BTEX										
Benzene	mg/kg	0.5		1	na	nd	nd	nd	na	nd
Toluene	mg/kg	1		1.4	na	nd	nd	nd	na	nd
Ethylbenzene	mg/kg	1		3.1	na	nd	nd	nd	na	nd

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB23	SB23	SB23	SB23	SB24	SB24
Sample Depth (metres)	0.00-0.10	0.50-0.60	DUP2	2.00-2.10	0.00-0.10	0.20-0.30

Analyte	Units	LOR	NEHF - Level E Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
4-Chlorotoluene	mg/kg	1			na	na	na	na	na	na
Dibromochloromethane	mg/kg	1			na	na	na	na	na	na
1,2-Dibromo-3-Chloropropane	mg/kg	1			na	na	na	na	na	na
1,2-Dibromomethane (EDB)	mg/kg	1			na	na	na	na	na	na
Dibromomethane	mg/kg	1			na	na	na	na	na	na
1,2-Dichlorobenzene	mg/kg	1			na	na	na	na	na	na
1,3-Dichlorobenzene	mg/kg	1			na	na	na	na	na	na
1,4-Dichlorobenzene	mg/kg	1			na	na	na	na	na	na
Dichlorodifluoromethane	mg/kg	1			na	na	na	na	na	na
1,1-Dichloroethene	mg/kg	1			na	na	na	na	na	na
1,2-Dichloroethane	mg/kg	1			na	na	na	na	na	na
1,1-Dichloroethane	mg/kg	1			na	na	na	na	na	na
cis-1,2-Dichloroethene	mg/kg	1			na	na	na	na	na	na
trans-1,2-Dichloroethene	mg/kg	1			na	na	na	na	na	na
1,2-Dichloropropane	mg/kg	1			na	na	na	na	na	na
1,3-Dichloropropane	mg/kg	1			na	na	na	na	na	na
2,2-Dichloropropane	mg/kg	1			na	na	na	na	na	na
1,1-Dichloropropylene	mg/kg	1			na	na	na	na	na	na
cis-1,3-Dichloropropylene	mg/kg	1			na	na	na	na	na	na
trans-1,3-Dichloropropylene	mg/kg	1			na	na	na	na	na	na
Ethylbenzene	mg/kg	1		3.1	na	na	na	na	na	na
Hexachlorobutadiene	mg/kg	1			na	na	na	na	na	na
Isopropylene	mg/kg	1			na	na	na	na	na	na
p-Isopropyltoluene	mg/kg	1			na	na	na	na	na	na
Methylene chloride	mg/kg	1			na	na	na	na	na	na
Naphthalene	mg/kg	1			na	na	na	na	na	na
n-Propylbenzene	mg/kg	1			na	na	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	SB23	SB23	SB23	SB23	SB24	SB24
Sample Depth (metres)	0.00-0.10	0.50-0.60	DUP2	2.00-2.10	0.00-0.10	0.20-0.30

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
HEAVY METALS										
Arsenic	mg/kg	5	500		19	8	7	15	21	7
Cadmium	mg/kg	0.5	100		0.5	nd	nd	nd	0.6	nd
Chromium	mg/kg	5	500		14	7	8	49	14	7
Copper	mg/kg	5	5000		140	140	110	nd	200	100
Nickel	mg/kg	2	3000		52	18	16	nd	17	18
Lead	mg/kg	5	1500	300	85	140	150	26	180	290
Zinc	mg/kg	5	35000		91	93	110	nd	150	150
Mercury	mg/kg	0.05	75		0.08	0.16	0.09	nd	0.2	0.25
Total Cyanide	mg/kg	0.5	2500		na	nd	nd	nd	na	nd
VOCs										
Benzene	mg/kg	0.5		1	na	na	na	na	na	na
Bromobenzene	mg/kg	1			na	na	na	na	na	na
Bromochloromethane	mg/kg	1			na	na	na	na	na	na
Bromodichloromethane	mg/kg	1			na	na	na	na	na	na
Bromoform	mg/kg	1			na	na	na	na	na	na
Bromomethane	mg/kg	1			na	na	na	na	na	na
n-Butylbenzene	mg/kg	1			na	na	na	na	na	na
sec-Butylbenzene	mg/kg	1			na	na	na	na	na	na
tert-Butylbenzene	mg/kg	1			na	na	na	na	na	na
Carbon Tetrachloride	mg/kg	1			na	na	na	na	na	na
cis-1,2-Dichloroethene	mg/kg	1			na	na	na	na	na	na
Chlorobenzene	mg/kg	1			na	na	na	na	na	na
Chloroethane	mg/kg	1			na	na	na	na	na	na
Chloroform	mg/kg	1			na	na	na	na	na	na
Chloromethane	mg/kg	1			na	na	na	na	na	na
2-Chlorotoluene	mg/kg	1			na	na	na	na	na	na

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	TP19	BH21	BH22	BH22	BH23	BH23
Sample Depth (metres)	0.00-0.10	0.2	0.2	0.6	0.2	0.6

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
4,4'-DDD	mg/kg	0.1			na	na	na	nd	na	na
Endosulphan II	mg/kg	0.1			na	na	na	nd	na	na
4,4'-DDT	mg/kg	0.1	1000		na	na	na	nd	na	na
Endosulphan sulphate	mg/kg	0.1			na	na	na	nd	na	na
Methoxychlor	mg/kg	0.1			na	na	na	nd	na	na
PCBs										
Arochlor 1016	mg/kg	1			na	na	na	nd	na	na
Arochlor 1221	mg/kg	1			na	na	na	nd	na	na
Arochlor 1232	mg/kg	1			na	na	na	nd	na	na
Arochlor 1242	mg/kg	1			na	na	na	nd	na	na
Arochlor 1248	mg/kg	1			na	na	na	nd	na	na
Arochlor 1254	mg/kg	1			na	na	na	nd	na	na
Arochlor 1260	mg/kg	1			na	na	na	nd	na	na
Total PCBs			50		**na**	**na**	**na**	**0**	**na**	**na**

NOTE:

Exceeds NEHF - Level F (1996)

Exceeds NSW EPA Guidelines for the Assessment of Service Station Sites (1995)

n/a = not applicable
LOR = Laboratory Limits of Reporting
na = not selected for analysis
nd = not detected above laboratory LOR
* = sample required dilution

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	TP19	BH21	BH22	BH22	BH23	BH23
Sample Depth (metres)	0.00-0.10	0.2	0.2	0.6	0.2	0.6

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA - Guidelines for the Assessment of Service Station Sites (1994)						
4-Chloro-3-methylphenol	mg/kg	0.5			na	na	na	na	na	na
2,4,5-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,4,6-Trichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2,4-Dinitrophenol	mg/kg	2			na	na	na	na	na	na
4-Nitrophenol	mg/kg	1			na	na	na	na	na	na
2,3,4,6-Tetrachlorophenol	mg/kg	1			na	na	na	na	na	na
4,6-Dinitro-2-methylphenol	mg/kg	2			na	na	na	na	na	na
Pentachlorophenol	mg/kg	1			na	na	na	na	na	na
4,6-Dinitro-2-sec-butylphenol	mg/kg	2			na	na	na	na	na	na
Total Phenols	mg/kg				**na**	**na**	**na**	**na**	**na**	**na**
OCPs										
HCB	mg/kg	0.1			na	na	na	nd	na	na
alpha-BHC	mg/kg	0.1			na	na	na	nd	na	na
gamma-BHC	mg/kg	0.1			na	na	na	nd	na	na
Heptachlor	mg/kg	0.1	50		na	na	na	nd	na	na
Aldrin	mg/kg	0.1	50		na	na	na	nd	na	na
Dieldrin	mg/kg	0.1			na	na	na	nd	na	na
beta-BHC	mg/kg	0.1			na	na	na	nd	na	na
delta-BHC	mg/kg	0.1			na	na	na	nd	na	na
Oxychlordane	mg/kg	0.1			na	na	na	nd	na	na
Heptachlor epoxide	mg/kg	0.1			na	na	na	nd	na	na
Endosulphan I	mg/kg	0.1			na	na	na	nd	na	na
Chlordane-trans	mg/kg	0.1	250		na	na	na	nd	na	na
Chlordane-cis	mg/kg	0.1			na	na	na	nd	na	na
trans-Nonachlor	mg/kg	0.1			na	na	na	nd	na	na
4,4'-DDE	mg/kg	0.1			na	na	na	nd	na	na
Endrin	mg/kg	0.1			na	na	na	nd	na	na

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	TP19	BH21	BH22	BH22	BH23	BH23
Sample Depth (metres)	0.00-0.10	0.2	0.2	0.6	0.2	0.6

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Total Xylenes	mg/kg	3		14	nd	na	nd	na	nd	na
PAHs										
Naphthalene	mg/kg	0.5			nd	nd	nd	na	nd	nd
Acenaphthylene	mg/kg	0.5			nd	nd	nd	na	nd	nd
Acenaphthene	mg/kg	0.5			nd	nd	nd	na	nd	nd
Fluorene	mg/kg	0.5			nd	nd	nd	na	nd	nd
Phenanthrene	mg/kg	0.5			nd	0.5	nd	na	0.7	nd
Anthracene	mg/kg	0.5			nd	nd	nd	na	nd	nd
Fluoranthene	mg/kg	0.5			0.6	1	nd	na	1	nd
Pyrene	mg/kg	0.5			0.6	1	nd	na	1	nd
Benzo(a)anthracene	mg/kg	0.5			nd	0.6	nd	na	0.6	nd
Chrysene	mg/kg	0.5			nd	0.6	nd	na	0.5	nd
Benzo(b)&(k)fluoranthene	mg/kg	1			nd	1	nd	na	2	nd
Benzo(a)pyrene	mg/kg	0.5	5	1	nd	0.5	nd	na	0.6	nd
Indeno(1.2.3-cd)pyrene	mg/kg	0.5			nd	nd	nd	na	nd	nd
Dibenz(a.h)anthracene	mg/kg	0.5			nd	nd	nd	na	nd	nd
Benzo(g.h.i)perylene	mg/kg	0.5			nd	nd	nd	na	nd	nd
Total PAHs	mg/kg		100	20	1.2	5.2	0	na	6.4	0
Phenols										
Phenol	mg/kg	0.5	42500		na	na	na	na	na	na
2-Chlorophenol	mg/kg	0.5			na	na	na	na	na	na
2-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
3-Methylphenol & 4-Methylphenol	mg/kg	0.5			na	na	na	na	na	na
2-Nitorphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dimethylphenol	mg/kg	0.5			na	na	na	na	na	na
2.4-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na
2.6-Dichlorophenol	mg/kg	0.5			na	na	na	na	na	na

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location					CLEANING SHED AREA					
Consultant					CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location					TP19	BH21	BH22	BH22	BH23	BH23
Sample Depth (metres)					0.00-0.10	0.2	0.2	0.6	0.2	0.6
Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)						
Styrene	mg/kg	1			nd	nd	na	nd	na	nd
1.1.1.2-Tetrachloroethane	mg/kg	1			nd	nd	na	nd	na	nd
1.1.2.2-Tetrachloroethane	mg/kg	1			nd	nd	na	nd	na	nd
Tetrachloroethene	mg/kg	1			nd	nd	na	nd	na	nd
Toluene	mg/kg	1		1.4	nd	nd	na	nd	na	nd
1.2.3-Trichlorobenzene	mg/kg	1			nd	nd	na	nd	na	nd
1.2.4-Trichlorobenzene	mg/kg	1			nd	nd	na	nd	na	nd
1.1.1-Trichloroethane	mg/kg	1			nd	nd	na	nd	na	nd
1.1.2-Trichloroethane	mg/kg	1			nd	nd	na	nd	na	nd
Trichloroethene	mg/kg	1			nd	nd	na	nd	na	nd
Trichlorofluoromethane	mg/kg	1			nd	nd	na	nd	na	nd
1.2.3-Trichloropropane	mg/kg	1			nd	nd	na	nd	na	nd
1.2.4-Trimethylbenzene	mg/kg	1			nd	nd	na	nd	na	nd
1.3.5-Trimethylbenzene	mg/kg	1			nd	nd	na	nd	na	nd
Vinyl chloride	mg/kg	1			nd	nd	na	nd	na	nd
ortho-Xylene	mg/kg	1		14	nd	nd	na	nd	na	nd
meta- & para-Xylene	mg/kg	1			nd	nd	na	nd	na	nd
TPH										
C6-C9	mg/kg	10		65	na	na	na	na	na	na
C10-C14	mg/kg	10			na	na	na	na	na	na
C15-C28	mg/kg	50			na	na	na	na	na	na
C29-C36	mg/kg	50			na	na	na	na	na	na
Total C10-C36	mg/kg			1000	**na**	**na**	**na**	**na**	**na**	**na**
BTEX										
Benzene	mg/kg	0.5		1	nd	na	nd	na	nd	na
Toluene	mg/kg	1		1.4	nd	na	nd	na	nd	na
Ethylbenzene	mg/kg	1		3.1	nd	na	nd	na	nd	na

TABLE 6.1
SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	TP19	BH21	BH22	BH22	BH23	BH23
Sample Depth (metres)	0.00-0.10	0.2	0.2	0.6	0.2	0.6

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
4-Chlorotoluene	mg/kg	1			nd	nd	na	nd	na	nd
Dibromochloromethane	mg/kg	1			nd	nd	na	nd	na	nd
1,2-Dibromo-3-Chloropropane	mg/kg	1			nd	nd	na	nd	na	nd
1,2-Dibromomethane (EDB)	mg/kg	1			nd	nd	na	nd	na	nd
Dibromomethane	mg/kg	1			nd	nd	na	nd	na	nd
1,2-Dichlorobenzene	mg/kg	1			nd	nd	na	nd	na	nd
1,3-Dichlorobenzene	mg/kg	1			nd	nd	na	nd	na	nd
1,4-Dichlorobenzene	mg/kg	1			nd	nd	na	nd	na	nd
Dichlorodifluoromethane	mg/kg	1			nd	nd	na	nd	na	nd
1,1-Dichloroethene	mg/kg	1			nd	nd	na	nd	na	nd
1,2-Dichloroethane	mg/kg	1			nd	nd	na	nd	na	nd
1,1-Dichloroethane	mg/kg	1			nd	nd	na	nd	na	nd
cis-1,2-Dichloroethene	mg/kg	1			nd	nd	na	nd	na	nd
trans-1,2-Dichloroethene	mg/kg	1			nd	nd	na	nd	na	nd
1,2-Dichloropropane	mg/kg	1			nd	nd	na	nd	na	nd
1,3-Dichloropropane	mg/kg	1			nd	nd	na	nd	na	nd
2,2-Dichloropropane	mg/kg	1			nd	nd	na	nd	na	nd
1,1-Dichloropropylene	mg/kg	1			nd	nd	na	nd	na	nd
cis-1,3-Dichloropropylene	mg/kg	1			nd	nd	na	nd	na	nd
trans-1,3-Dichloropropylene	mg/kg	1			nd	nd	na	nd	na	nd
Ethylbenzene	mg/kg	1		3.1	nd	nd	na	nd	na	nd
Hexachlorobutadiene	mg/kg	1			nd	nd	na	nd	na	nd
Isopropylene	mg/kg	1			nd	nd	na	nd	na	nd
p-Isopropyltoluene	mg/kg	1			nd	nd	na	nd	na	nd
Methylene chloride	mg/kg	1			nd	nd	na	nd	na	nd
Naphthalene	mg/kg	1			nd	nd	na	nd	na	nd
n-Propylbenzene	mg/kg	1			nd	nd	na	nd	na	nd

TABLE 6.1

SOIL ANALYTICAL RESULTS - FORMER CLEANING SHED AREA

Location	CLEANING SHED AREA					
Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	TP19	BH21	BH22	BH22	BH23	BH23
Sample Depth (metres)	0.00-0.10	0.2	0.2	0.6	0.2	0.6

Analyte	Units	LOR	NEHF - Level F Monographs (1996)	NSW EPA Guidelines for the Assessment of Service Station Sites (1994)					
HEAVY METALS									
Arsenic	mg/kg	5	500		86	16	20	na	63	na
Cadmium	mg/kg	0.5	100		2	0.6	0.7	na	0.7	na
Chromium	mg/kg	5	500		27	8	25	na	19	na
Copper	mg/kg	5	5000		310	130	140	na	230	na
Nickel	mg/kg	2	3000		18	8	28	na	17	na
Lead	mg/kg	5	1500	300	230	100	97	na	140	na
Zinc	mg/kg	5	35000		350	83	970	na	140	na
Mercury	mg/kg	0.05	75		0.25	0.52	0.1	na	0.13	na
Total Cyanide	mg/kg	0.5	2500		na	na	na	na	na	na
VOCs										
Benzene	mg/kg	0.5		1	nd	nd	na	nd	na	nd
Bromobenzene	mg/kg	1			nd	nd	na	nd	na	nd
Bromochloromethane	mg/kg	1			nd	nd	na	nd	na	nd
Bromodichloromethane	mg/kg	1			nd	nd	na	nd	na	nd
Bromoform	mg/kg	1			nd	nd	na	nd	na	nd
Bromomethane	mg/kg	1			nd	nd	na	nd	na	nd
n-Butylbenzene	mg/kg	1			nd	nd	na	nd	na	nd
sec-Butylbenzene	mg/kg	1			nd	nd	na	nd	na	nd
tert-Butylbenzene	mg/kg	1			nd	nd	na	nd	na	nd
Carbon Tetrachloride	mg/kg	1			nd	nd	na	nd	na	nd
cis-1,2-Dichloroethene	mg/kg	1			nd	nd	na	nd	na	nd
Chlorobenzene	mg/kg	1			nd	nd	na	nd	na	nd
Chloroethane	mg/kg	1			nd	nd	na	nd	na	nd
Chloroform	mg/kg	1			nd	nd	na	nd	na	nd
Chloromethane	mg/kg	1			nd	nd	na	nd	na	nd
2-Chlorotoluene	mg/kg	1			nd	nd	na	nd	na	nd

TABLE 13.1
SOIL ANALYTICAL RESULTS - MACDONALDTOWN TRIANGLE - EAST BURREN STREET / RESIDENCE

Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	MW14S090100	MW14D140150	MW16S090100	MW16D140150	MW15S090100	MW15D140150	MW09S130140	A31 BURREN ST	MW19S120130	A29 BURREN ST	MW10S090110	A25 BURREN ST	MW11S060080
Fill/Natural	Fill	Natural	Fill	Natural	Natural	Natural	Natural	Fill	Natural	Fill	Fill	Fill	Fill
Sample Depth (metres)	1.4-1.5	1.4-1.5	0.9-1.0	1.4-1.5	0.9-1.0	1.4-1.5	1.3-1.4	0.0-0.1	1.2-1.3	0.0-0.1	0.9-1.1	0.0-0.1	0.6-0.8

Analyte	Units	LOR	NEHF A	NEHF B	NEHF C												
Physical																	
Moisture	%	0.1				19.4	20.3	19.2	19.7	19.8	19.7	22.5	13.6	16.7	24.7	19.9	22.5	17.7
Metals																		
Arsenic	mg/kg	1	100	500	20	4	9	5	9	9	7	14	14	15	14	18	5	14
Cadmium	mg/kg	1	20	100	3	nd	nd	nd	nd	nd	nd	2	1	1	2	2	nd	2
Chromium	mg/kg	1	100	500	400**	13	27	16	37	30	26	35	21	23	22	24	10	17
Copper	mg/kg	1	1,000	5,000	100	7	2	6	1	6	3	57	161	117	207	149	35	77
Nickel	mg/kg	1	600	3,000	50	2	1	3	1	nd	nd	6	11	17	13	18	6	10
Lead	mg/kg	1	300	1,500	600	83	14	31	19	14	16	453	1100	1030	1220	1160	146	772
Zinc	mg/kg	1	7,000	35,000	200	169	15	24	15	15	8	383	451	593	512	545	184	818
Mercury	mg/kg	0.1	15	50	-	0.2	nd	nd	nd	nd	nd	0.3	0.5	0.6	0.7	0.5	0.1	0.4
Total Organic Carbon	%	0.02				1.15	0.16	0.71	0.33	0.15	0.15	0.71	5.23	2.52	8.13	4.25	8.71	3.5
Total Petroleum Hydrocarbons (TPH)																		
C6 - C9 Fraction	mg/kg	2	65	-	-	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
C10 - C36 Fraction	mg/kg	250	1000	-	-	nd	nd	nd	nd	nd	nd	nd	558	nd	1654	352	792	nd
BTEX																		
Benzene	mg/kg	0.2	1	-	-	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	mg/kg	0.2	1.4	-	-	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	mg/kg	0.2	-	-	-	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	mg/kg	0.2	3.1	-	-	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Xylene	mg/kg	0.4	14	-	-	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Fumigants																		
2,2-Dichloropropane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,3-Dichloropropylene	mg/kg	1				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
trans-1,3-Dichloropropylene	mg/kg	1				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Halogenated Aliphatic Hydrocarbons (VOL)																		
Dichlorodifluoromethane	mg/kg	5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chloromethane	mg/kg	5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl chloride	mg/kg	5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Bromomethane	mg/kg	5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chloroethane	mg/kg	5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	mg/kg	5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Iodomethane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloropropylene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Dibromomethane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
trans-1,4-Dichloro-2-butene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,4-Dichloro-2-butene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Pentachloroethane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Hexachlorobutadiene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Halogenated Aromatic Hydrocarbons																		
Chlorobenzene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Bromobenzene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2-Chlorotoluene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
4-Chlorotoluene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Trihalomethanes (Volatiles)																		
Chloroform	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Bromoform	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Phenols																		
Phenol	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2-Chlorophenol	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2-Methylphenol	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
3- & 4-Methylphenol	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2-Nitrophenol	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2,4-Dimethylphenol	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2,4-Dichlorophenol	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2,6-Dichlorophenol	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
4-Chloro-3-methylphenol	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2,4,6-Trichlorophenol	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2,4,5-Trichlorophenol	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Pentachlorophenol	mg/kg	1				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total Phenols	mg/kg	6.5	8500	42500	-	0	0	0	0	0	0	0	0	0	0	0	0	0
Polynuclear Aromatics																		
Naphthalene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	0.6	nd	nd	nd
2-Methylnaphthalene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2-Chloronaphthalene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	1	nd	2.6	1.2	nd	0.8
Acenaphthylene	mg/kg	0.5				nd	nd	0.7	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Acenaphthene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	nd	nd	0.5	nd	nd	nd
Fluorene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	4.4	1.5	7.5	5	nd	3.6
Phenanthrene	mg/kg	0.5				nd	nd	3.5	nd	nd	nd	nd	1.3	nd	2.7	1.5	nd	0.9
Anthracene	mg/kg	0.5				nd	nd	0.9	nd	nd	nd	nd	8.6	3.2	20.3	10.6	nd	4.9
Fluoranthene	mg/kg	0.5				0.7	nd	4.1	nd	nd	nd	nd	9.7	3.6	24.7	12	nd	4.9
Pyrene	mg/kg	0.5				0.6	nd	3.8	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
N-2-Fluorenylacetamide	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	4.8	1.9	13.6	6.7	nd	2.4
Benz(a)anthracene	mg/kg	0.5				nd	nd	1.9	nd	nd	nd	nd	5.6	1.8	12.7	6.7	nd	2.4
Chrysene	mg/kg	0.5				nd	nd	1.5	nd	nd	nd	nd	8	3	20	9	nd	3
Benzo(b) & (k)fluoranthene	mg/kg	1				nd	nd	2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
7,12-Dimethylbenz(a)anthracene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	5	1.6	12.3	6.7	nd	1.9
Benzo(a)pyrene	mg/kg	0.5	1	5	-	nd	nd	1.8	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
3-Methylcholanthrene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	2.4	0.7	5.6	2.5	nd	0.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.5				nd	nd	0.7	nd	nd	nd	nd	0.7	nd	1.9	0.8	nd	nd
Dibenz(a,h)anthracene	mg/kg	0.5				nd	nd	nd	nd	nd	nd	nd	2.8	0.8	6.1	2.8	nd	0.8
Benzo(g,h,i)perylene	mg/kg	0.5				nd	nd	0.8	nd	nd	nd	nd	2.8	0.8	6.1	2.8	nd	0.8
Total PAHs	mg/kg	10.5	20	100	-	1.3	0	21.5	0	0	0	0	54.3	18.1	131.1	64.5	0	26.4

LOR Limit of Reporting
na Not Analysed
nd None Detected above laboratory Limit of Reporting
* Based on NSW EPA "Guidelines for the NSW Site Auditor Scheme", Health Based Investigation Level for Aldrin + Dieldrin.
** Chromium (III) criteria used as values assumed torepresent background levels. NSW background chromium levels estimated at 17.83 mg/kg (Langley and Van Alphen, 1993).
Shading indicates result above NEHF A
Bold indicates result above NEHF B
Underline indicates result above Phytotoxicity based level

TABLE 13.2
SOIL ANALYTICAL RESULTS - MACDONALDTOWN TRIANGLE - FORMER GASWORKS AREA

Consultant	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location	MW07D140150	MW08D140150	bMW12D140150	aMW13S090100	MW13D140150	MW17D140150	MW18D140150	MW20S090100
Fill/Natural	Natural	Natural	Fill	Fill	Fill	Fill	Natural	Fill
Sample Depth (metres)	1.4-1.5	1.4-1.5	1.4-1.5	0.9-1.0	1.4-1.5	1.4-1.5	1.4-1.5	0.9-1.0

Analyte	Units	LOR	NEHF A Residential with gardens and accessible soil	NEHF C Commercial/ Industrial	Criteria (2.5 times NEHF F)	Phytotoxicity Based levels							
Physical													
Moisture	%	0.1					21.4	13.6	30.4	10.3	10.8	22.3	17.9	20.2
Metals														
Arsenic	mg/kg	1	100	500	[illegible]	20	4	11	4	179	7	10	10	13
Cadmium	mg/kg	1	20	100	250	3	nd	nd	nd	nd	nd	nd	nd	nd
Chromium	mg/kg	1	100	500	1,250	400	13	50	12	14	4	8	31	5
Copper	mg/kg	1	1,000	5,000	12,500	100	12	7	17	85	28	64	19	64
Nickel	mg/kg	1	600	3,000	7,500	60	2	3	nd	9	2	6	nd	3
Lead	mg/kg	1	300	1,500	3,750	600	100	129	32	474	27	223	30	394
Zinc	mg/kg	1	7,000	35,000	87,500	200	31	21	55	177	75	157	22	166
Mercury	mg/kg	0.1	15	50	125	-	0.2	nd	na	na	na	na	nd	na
Total Organic Carbon	%	0.02					2.86	0.66	na	na	na	na	0.5	na
Total Petroleum Hydrocarbons (TPH)														
C6 - C9 Fraction	mg/kg	2	65	-	162.5	-	nd	nd	nd	nd	nd	nd	nd	nd
C10 - C36 Fraction	mg/kg	250	1000	-	2,500	-	nd	nd	nd	[illegible]	nd	595	nd	398
BTEX														
Benzene	mg/kg	0.2	1	-	2.5	-	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	mg/kg	0.2	1.4	-	3.5	-	nd	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	mg/kg	0.2	-	-	-	-	nd	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	mg/kg	0.2	3.1	-	7.75	-	nd	nd	nd	nd	nd	nd	nd	nd
Xylene	mg/kg	0.4	14	-	35	-	nd	nd	nd	nd	nd	nd	nd	nd
Monocylic Aromatic Hydrocarbons														
Benzene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
Toluene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
Ethylbenzene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
meta- & para-Xylene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
Styrene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
ortho-Xylene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
Isopropylbenzene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
n-Propylbenzene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
1,3,5-Trimethylbenzene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
sec-Butylbenzene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
1,2,4-Trimethylbenzene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
tert-Butylbenzene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
p-Isopropyltoluene	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
n-Butylbenzene	mg/kg	0.5												
Oxygenated Hydrocarbons														
Vinyl Acetate	mg/kg	5					na	na	nd	nd	nd	nd	na	nd
2-Butanone (MEK)	mg/kg	5					na	na	nd	nd	nd	nd	na	nd
4-Methyl-2-pentanone (MIBK)	mg/kg	5					na	na	nd	nd	nd	nd	na	nd
2-Hexanone (MBK)	mg/kg	5					na	na	nd	nd	nd	nd	na	nd
Sulfonated Compounds														
Carbon disulfide	mg/kg	0.5					na	na	nd	nd	nd	nd	na	nd
Fumigants														
2,2-Dichloropropane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
cis-1,3-Dichloropropylene	mg/kg	1					nd	nd	nd	nd	nd	nd	nd	nd
trans-1,3-Dichloropropylene	mg/kg	1					nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB)	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Halogenated Aliphatic Hydrocarbons (VOL)														
Dichlorodifluoromethane	mg/kg	5					nd	nd	nd	nd	nd	nd	nd	nd
Chloromethane	mg/kg	5					nd	nd	nd	nd	nd	nd	nd	nd
Vinyl chloride	mg/kg	5					nd	nd	nd	nd	nd	nd	nd	nd
Bromomethane	mg/kg	5					nd	nd	nd	nd	nd	nd	nd	nd
Chloroethane	mg/kg	5					nd	nd	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	mg/kg	5					nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Iodomethane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloropropylene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Dibromomethane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
trans-1,4-Dichloro-2-butene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
cis-1,4-Dichloro-2-butene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Pentachloroethane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Hexachlorobutadiene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Halogenated Aromatic Hydrocarbons														
Chlorobenzene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Bromobenzene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
2-Chlorotoluene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
4-Chlorotoluene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Trihalomethanes (Volatiles)														
Chloroform	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Bromoform	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Naphthalene														
Naphthalene	mg/kg	5					na	na	nd	nd	nd	nd	na	nd
Phenols														
Phenol	mg/kg	0.5					nd	nd	nd	1.5	nd	nd	nd	nd
2-Chlorophenol	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
2-Methylphenol	mg/kg	0.5					nd	nd	nd	1	nd	nd	nd	nd
3- & 4-Methylphenol	mg/kg	0.5					nd	nd	nd	1.7	nd	nd	nd	nd
2-Nitrophenol	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
2,4-Dimethylphenol	mg/kg	0.5					nd	nd	nd	1.7	nd	nd	nd	nd
2,4-Dichlorophenol	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
2,6-Dichlorophenol	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
4-Chloro-3-methylphenol	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
2,4,6-Trichlorophenol	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
2,4,5-Trichlorophenol	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Pentachlorophenol	mg/kg	1					0	0	0	5.9	0	0	0	0
Total Phenols	mg/kg	6.5	8,500	42,500	106,250	-								
Polynuclear Aromatics														
Naphthalene	mg/kg	0.5					nd	nd	nd	5.7	nd	nd	nd	nd
2-Methylnaphthalene	mg/kg	0.5					nd	nd	nd	4	nd	nd	nd	nd
2-Chloronaphthalene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Acenaphthylene	mg/kg	0.5					nd	nd	0.7	10.7	0.7	2.1	nd	1.3
Acenaphthene	mg/kg	0.5					nd	nd	nd	1	nd	0.7	nd	nd
Fluorene	mg/kg	0.5					nd	nd	0.5	4.2	nd	1	nd	0.5
Phenanthrene	mg/kg	0.5					nd	0.7	4.5	31.2	nd	18.4	nd	7.3
Anthracene	mg/kg	0.5					nd	nd	1.5	10.1	nd	5	nd	2.2
Fluoranthene	mg/kg	0.5					nd	1.2	6.6	41.8	0.6	27.5	nd	11.4
Pyrene	mg/kg	0.5					nd	1.5	9.1	63.3	1.2	28.7	nd	12.7
N-2-Fluorenylacetamide	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Benz[a]anthracene	mg/kg	0.5					nd	0.8	4	23.5	0.6	12.9	nd	6.8
Chrysene	mg/kg	0.5					nd	0.7	4.2	26.9	0.8	12.2	nd	6.5
Benzo(b) & (k)fluoranthene	mg/kg	1					nd	nd	9	46	2	17	nd	8
7,12-Dimethylbenz(a)anthracene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Benzo(a)pyrene	mg/kg	0.5	1	5	12.5	-	nd	0.7	7.7	41	1	11.7	nd	6.1
3-Methylcholanthrene	mg/kg	0.5					nd	nd	nd	nd	nd	nd	nd	nd
Indeno(1,2,3-cd)pyrene	mg/kg	0.5					nd	nd	3.8	16	0.6	5	nd	2.4
Dibenz(a,h)anthracene	mg/kg	0.5					nd	nd	1.2	4.6	nd	1.7	nd	0.9
Benzo(g,h,i)perylene	mg/kg	0.5					nd	nd	5.4	22.1	0.8	5.4	nd	2.8
Total PAHs	mg/kg	10.5	20	100	250	-	0	5.6	58.2	354.5	8.3	149.3	0	68.9

LOR Limit of Reporting
na Not Analysed
nd None Detected above laboratory Limit of Reporting
* Based on NSW EPA "Guidelines for the NSW Site Auditor Scheme", Health Based Investigation Level for Aldrin + Dieldrin.
Shading indicates result above NEHF A
Bold indicates result above NEHF F
Underline indicates result above Phytotoxicity based levels
Bold, Shading, White Text indicates a result above Polycyclic Criteria (2.5 times NEHF F SIL)

TABLE 13.3
95% UCL ANALYSIS - MACDONALDTOWN TRIANGLE - EBR - NEHF A - INSITU NATURAL

Consultant			CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location			MW09S130140	MW19S120130	MW14D140150	MW16D140150	MW15S090100	MW15D140150
Sample Depth (metres)			1.3-1.4	1.2-1.3	1.4-1.5	1.4-1.5	0.9-1.0	1.4-1.5
Analyte	Units	LOR						
Metals								
Arsenic	mg/kg	1	14	15	9	9	9	7
Cadmium	mg/kg	1	2	1	0.5	0.5	0.5	0.5
Chromium	mg/kg	1	35	23	27	37	30	26
Copper	mg/kg	1	57	117	2	1	6	3
Nickel	mg/kg	1	6	17	1	1	0.5	0.5
Lead	mg/kg	1	453		14	19	14	16
Zinc	mg/kg	1	383	593	15	15	15	8
Mercury	mg/kg	0.1	0.3	0.6	0.05	0.05	0.05	0.05
Polynuclear Aromatics								
Naphthalene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25
2-Methylnaphthalene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25
2-Chloronaphthalene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25
Acenaphthylene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25
Acenaphthene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25
Fluorene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25
Phenanthrene	mg/kg	0.5	0.25	1.5	0.25	0.25	0.25	0.25
Anthracene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25
Fluoranthene	mg/kg	0.5	0.25	3.2	0.25	0.25	0.25	0.25
Pyrene	mg/kg	0.5	0.25	3.6	0.25	0.25	0.25	0.25
N-2-Fluorenylacetamide	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25
Benz(a)anthracene	mg/kg	0.5	0.25	1.9	0.25	0.25	0.25	0.25
Chrysene	mg/kg	0.5	0.25	1.8	0.25	0.25	0.25	0.25
Benzo(b) & (k)fluoranthene	mg/kg	1	0.5	3	0.5	0.5	0.5	0.5
7.12-Dimethylbenz(a)anthracene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25
Benzo(a)pyrene	mg/kg	0.5	0.25	1.6	0.25	0.25	0.25	0.25
3-Methylcholanthrene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25
Indeno(1.2.3-cd)pyrene	mg/kg	0.5	0.25	0.7	0.25	0.25	0.25	0.25
Dibenz(a.h)anthracene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25
Benzo(g.h.i)perylene	mg/kg	0.5	0.25	0.8	0.25	0.25	0.25	0.25
Total PAHs	mg/kg	10.5	5.25	20.85	5.25	5.25	5.25	5.25

Analyte	Count	Maximum	Minimum	Mean	SD	$t_{\alpha=0.05,\, n-1}$	Distribution	95% UCL	Site SIL	Hotspot Criteria (2.5 times SIL)
Metals										
Arsenic	6	15	7	10.50	3.21	2.02	normal	13.14	100	250
Cadmium	6	2	0.5	0.83	0.61	2.02	normal	1.33	20	50
Chromium	6	37	23	29.67	5.43	2.02	normal	34.13	100	250
Copper	6	117	1	31.00	47.38	2.02	normal	69.97	1,000	2500
Nickel	6	17	0.5	4.33	6.55	2.02	normal	9.73	600	1500
Lead	6	1030	14	257.67	416.84	2.02	normal	600.57	300	750
Zinc	6	593	8	171.50	254.01	2.02	normal	380.46	7,000	17500
Mercury	6	0.6	0.05	0.18	0.23	2.02	normal	0.37	15	37.5
Polynuclear Aromatics										
Naphthalene	6	0.25	0.25	0.25	0.00	2.02	normal	0.25	na	na
2-Methylnaphthalene	6	0.25	0.25	0.25	0.00	2.02	normal	0.25	na	na
2-Chloronaphthalene	6	0.25	0.25	0.25	0.00	2.02	normal	0.25	na	na
Acenaphthylene	6	0.25	0.25	0.25	0.00	2.02	normal	0.25	na	na
Acenaphthene	6	0.25	0.25	0.25	0.00	2.02	normal	0.25	na	na
Fluorene	6	0.25	0.25	0.25	0.00	2.02	normal	0.88	na	na
Phenanthrene	6	1.5	0.25	0.46	0.51	2.02	normal	0.25	na	na
Anthracene	6	0.25	0.25	0.25	0.00	2.02	normal	5.22	na	na
Fluoranthene	6	3.2	0.25	0.74	2.83	2.02	lognormal	6.71	na	na
Pyrene	6	3.6	0.25	0.81	2.97	2.02	lognormal	0.25	na	na
N-2-Fluorenylacetamide	6	0.25	0.25	0.25	0.00	2.02	normal	1.95	na	na
Benz(a)anthracene	6	1.9	0.25	0.53	2.25	2.02	lognormal	1.78	na	na
Chrysene	6	1.8	0.25	0.51	2.24	2.02	lognormal	1.76	na	na
Benzo(b) & (k)fluoranthene	6	3	0.5	0.92	1.02	2.02	normal	0.25	na	na
7.12-Dimethylbenz(a)anthracene	6	0.25	0.25	0.25	0.00	2.02	normal	0.93	1	2.5
Benzo(a)pyrene	6	1.6	0.25	0.48	0.55	2.02	normal	0.25	na	na
3-Methylcholanthrene	6	0.25	0.25	0.25	0.00	2.02	normal	0.48	na	na
Indeno(1.2.3-cd)pyrene	6	0.7	0.25	0.33	0.18	2.02	normal	0.25	na	na
Dibenz(a.h)anthracene	6	0.25	0.25	0.25	0.00	2.02	normal	0.53	na	na
Benzo(g.h.i)perylene	6	0.8	0.25	0.34	0.22	2.02	normal	13.09	20	50
Total PAHs	6	20.85	5.25	7.85	6.37	2.02	normal			

Bold shading indicates "hotspot"

indicates result greater than 2.5 times SIL

95% UCL calculated for analyte results above the LOR.

Insufficient samples to recalculate 95% UCL after removal of "hotspots". All remaining results significantly below site criteria or

TABLE 13.4
95% UCL ANALYSIS - MACDONALDTOWN TRIANGLE - EBR - NEHF A - FILL

Consultant			CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
Sample Location			A31 BURREN ST	A29 BURREN ST	MW10S090110	A25 BURREN ST	MW11S060080	MW14S090100	MW16S090100
Sample Depth (metres)			0.0-0.1	0.0-0.1	0.9-1.1	0.0-0.1	0.6-0.8	1.4-1.5	0.9-1.0
Analyte	Units	LOR							
Metals									
Arsenic	mg/kg	1	14	14	18	5	14	4	5
Cadmium	mg/kg	1	1	2	2	0.5	2	0.5	0.5
Chromium	mg/kg	1	21	22	24	10	17	13	16
Copper	mg/kg	1	161	207	149	35	77	7	6
Nickel	mg/kg	1	11	13	18	6	10	2	3
Lead	mg/kg	1				146		83	31
Zinc	mg/kg	1	451	512	545	184	818	169	24
Mercury	mg/kg	0.1	0.5	0.7	0.5	0.1	0.4	0.2	0.05
Total Petroleum Hydrocarbons (TPH)									
C6 - C9 Fraction	mg/kg	2	1	1	1	1	1	1	1
C10 - C36 Fraction	mg/kg	250	558	1654	352	792	125	125	125
Polynuclear Aromatics									
Naphthalene	mg/kg	0.5	0.25	0.6	0.25	0.25	0.25	0.25	0.25
2-Methylnaphthalene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25
2-Chloronaphthalene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Acenaphthylene	mg/kg	0.5	1	2.6	1.2	0.25	0.8	0.25	0.7
Acenaphthene	mg/kg	0.5	0.25	0.6	0.25	0.25	0.25	0.25	0.25
Fluorene	mg/kg	0.5	0.25	0.5	0.25	0.25	0.25	0.25	0.25
Phenanthrene	mg/kg	0.5	4.4	7.5	5	0.25	3.6	0.25	3.5
Anthracene	mg/kg	0.5	1.3	2.7	1.5	0.25	0.9	0.25	0.9
Fluoranthene	mg/kg	0.5	8.6	20.3	10.6	0.25	4.9	0.7	4.1
Pyrene	mg/kg	0.5	9.7	24.7	12	0.25	4.9	0.6	3.8
N-2-Fluorenylacetamide	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Benz(a)anthracene	mg/kg	0.5	4.8	13.6	6.7	0.25	2.4	0.25	1.9
Chrysene	mg/kg	0.5	5.6	12.7	6.7	0.25	2.4	0.25	1.5
Benzo(b) & (k)fluoranthene	mg/kg	1	8	20	9	0.25	3	0.25	2
7.12-Dimethylbenz(a)anthracene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Benzo(a)pyrene	mg/kg	0.5				0.25	1.9	0.25	1.6
3-Methylcholanthrene	mg/kg	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Indeno(1.2.3-cd)pyrene	mg/kg	0.5	2.4	5.6	2.5	0.25	0.8	0.25	0.7
Dibenz(a.h)anthracene	mg/kg	0.5	0.7	1.9	0.8	0.25	0.25	0.25	0.25
Benzo(g.h.i)perylene	mg/kg	0.5	2.8	6.1	2.8	0.25	0.8	0.25	0.8
Total PAHs	mg/kg	10.5				5	28.65	1.3	21.5

Analyte	Count	Maximum	Minimum	Mean	SD	$t_{1-0.05, n-1}$	Distribution	95% UCL	Site SIL	Hotspot Criteria (2.5 times SIL)
Metals										
Arsenic	7	18	4	10.57	5.71	1.94	normal	14.77	100	250
Cadmium	7	2	0.5	1.21	0.76	1.94	normal	1.77	20	50
Chromium	7	24	10	17.57	5.06	1.94	normal	21.29	100	250
Copper	7	207	6	91.71	80.96	1.94	normal	151.18	1,000	2500
Nickel	7	18	2	9.00	5.72	1.94	normal	13.20	600	1500
Lead	7	1220	31	643.14	540.16	1.94	normal	1039.86	300	750
Zinc	7	818	24	386.14	274.15	1.94	normal	587.49	7,000	17500
Mercury	7	0.7	0.05	0.35	0.24	1.94	normal	0.53	15	37.5
Total Petroleum Hydrocarbons (TPH)										
C6 - C9 Fraction	7	1	1	1.00	0.00	1.94	normal	1.00	65	162.5
C10 - C36 Fraction	7	1654	125	533.00	556.25	1.94	normal	941.54	1000	2500
Polynuclear Aromatics										
Naphthalene	7	0.6	0.25	0.30	0.13	1.94	normal	0.40	na	na
2-Methylnaphthalene	7	0.25	0.25	0.25	0.00	1.94	normal	0.25	na	na
2-Chloronaphthalene	7	0.25	0.25	0.25	0.00	1.94	normal	0.25	na	na
Acenaphthylene	7	2.6	0.25	0.97	0.80	1.94	normal	1.56	na	na
Acenaphthene	7	0.6	0.25	0.30	0.13	1.94	normal	0.40	na	na
Fluorene	7	0.5	0.25	0.29	0.09	1.94	normal	0.36	na	na
Phenanthrene	7	7.5	0.25	3.50	2.59	1.94	normal	5.40	na	na
Anthracene	7	2.7	0.25	1.11	0.84	1.94	normal	1.73	na	na
Fluoranthene	7	20.3	0.25	7.06	6.96	1.94	normal	12.17	na	na
Pyrene	7	24.7	0.25	7.99	8.56	1.94	normal	14.28	na	na
N-2-Fluorenylacetamide	7	0.25	0.25	0.25	0.00	1.94	normal	0.25	na	na
Benz(a)anthracene	7	13.6	0.25	4.27	4.74	1.94	normal	7.75	na	na
Chrysene	7	12.7	0.25	4.20	4.51	1.94	normal	7.51	na	na
Benzo(b) & (k)fluoranthene	7	20	0.25	6.07	7.07	1.94	normal	11.27	na	na
7.12-Dimethylbenz(a)anthracene	7	0.25	0.25	0.25	0.00	1.94	normal	0.25	na	na
Benzo(a)pyrene	7	12.3	0.25	3.86	4.30	1.94	normal	7.02	1	2.5
3-Methylcholanthrene	7	0.25	0.25	0.25	0.00	1.94	normal	0.25	na	na
Indeno(1.2.3-cd)pyrene	7	5.6	0.25	1.79	1.93	1.94	normal	3.20	na	na
Dibenz(a.h)anthracene	7	1.9	0.25	0.63	0.61	1.94	normal	1.08	na	na
Benzo(g.h.i)perylene	7	6.1	0.25	1.97	2.12	1.94	normal	3.53	na	na
Total PAHs	7	132.95	1.3	44.60	45.92	1.94	normal	78.33	20	50

Bold shading indicates "hotspot"
indicates result greater than 2.5 times SIL
95% UCL calculated for analyte results above the LOR.
Insufficient samples to recalculate 95% UCL after removal of "hotspots". All remaining results significantly below site criteria or LOR.