QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E0090 OP Pesticides in Water (ug/L)						
Dichlorvos	10	nd				
Mevinphos	10	nd				
Ethoprop	10	nd				
Phorate	10	nd				
Demeton-s-methyl	10	nd				
Diazinon	10	nd				
Disulfoton	10	nd				
Ronnel	10	nd				
Chlorpyrifos methyl	10	nd				
Chlorpyrifos	10	nd				
Merphos	10	nd				
Parathion methyl	10	nd				
Fenthion	10	nd				
Malathion	10	nd				
Fenitrothion	10	nd				
Prothiofos	10	nd				
Stirophos	10	nd				
Ethion	10	nd				
Bolstar	10	nd				
Fensulfothion	10	nd				
Azinphos methyl	10	nd				
Coumaphos	10	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 : 4E1940

QAQC : Matrix Spike(s)

Analyte	Spike Level	Level Detected		Recovery Details			
		Spike 1	Spike 2	Rec 1 (%)	Rec 2 (%)	Average (%)	RPD (%)
E0110 Priority PAH's in Water (ug/L) (E149493,E149492)							
Naphthalene	10	9		90%			
Acenaphthylene	10	9		91%			
Acenaphthene	10	9		95%			
Fluorene	10	10		96%			
Phenanthrene	10	10		100%			
Anthracene	10	9		95%			
Fluoranthene	10	10		100%			
Pyrene	10	10		99%			
Benz(a)anthracene	10	9		93%			
Chryene	10	10		100%			
Benzo(b) & (k)fluoranthene	20	19		95%			
Benzo(a)pyrene	10	9		94%			
Indeno(1.2.3-cd)pyrene	10	8		81%			
Dibenz(a.h)anthracene	10	9		88%			
Benzo(g.h.i)perylene	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 : 4E1940

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	8			82%		
Acenaphthylene	10	8			84%		
Acenaphthene	10	9			86%		
Fluorene	10	9			88%		
Phenanthrene	10	9			90%		
Anthracene	10	9			91%		
Fluoranthene	10	9			90%		
Pyrene	10	9			90%		
Benz(a)anthracene	10	8			83%		
Chryene	10	10			97%		
Benzo(b) & (k)fluoranthene	20	18			88%		
Benzo(a)pyrene	10	9			89%		
Indeno(1.2.3-cd)pyrene	10	8			83%		
Dibenz(a.h)anthracene	10	8			80%		
Benzo(g.h.i)perylene	10	8			82%		

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 : 4E1940

QAQC : Laboratory Duplicate(s)

Analyte	Dupl A	Dupl B	Average	RPD (%)	Dupl A	Dupl B	Average	RPD (%)
E0110 Priority PAH's in Water (ug/L) (E149492)								
Naphthalene	nd	nd						
Acenaphthylene	nd	nd						
Acenaphthene	nd	nd						
Fluorene	nd	nd						
Phenanthrene	nd	nd						
Anthracene	nd	nd						
Fluoranthene	nd	nd						
Pyrene	nd	nd						
Benz(a)anthracene	nd	nd						
Chryene	nd	nd						
Benzo(b) & (k)fluoranthene	nd	nd						
Benzo(a)pyrene	nd	nd						
Indeno(1.2.3-cd)pyrene	nd	nd						
Dibenz(a.h)anthracene	nd	nd						
Benzo(g.h.i)perylene	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.

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				
Chryene	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

SILLIKER®
Assuring Quality Worldwide
SILLIKER MICROTECH

Attention: Ms Julie Edman

AMDEL LIMITED
99 Mitchell Road
CARDIFF NSW 2285

Fax To: (02) 4902 4899

CERTIFICATE OF ANALYSIS

Report No:	**S 04054408 ql**	**Report Date:**	**9 November 2004**
Date Received:	**19 October 2004**	**Date Tested:**	**19 October 2004**
Standing Order:	**S024507**	**Arrival Temp:**	**9°C**

RESULTS

Sample Description	Order No.
Water Samples – 18.10.04	4E1940

Sample Description	Thermotolerant Coliforms CFU per 100ml M12.2
WSP 16US	7,900 (est)
WSP 16DS	1,300 (est)
WSP 16IS	8,400 (est)
WS 803US	6,600 (est)
WS 803DS	1,700 (est)
WS 803IS	1,800 (est)
WS 803IS2	830 (est)
WS 304US	15,000 (est)
WS 304DS	9,300 (est)

Note: 'est' indicates Estimate

MARGARET BOLLIGER BSc,MASM,MAIFST
CONSULTANT MICROBIOLOGIST

NATA accredited Laboratory Number 2766 and/or 21-12. This 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.

TGA Licence No: 152612

SILLIKER MICROTECH PTY LTD
ABN 94 006 462 335
UNIT C2 REGENTS PARK ESTATE
391 PARK ROAD
REGENTS PARK NSW 2143
PO BOX 377, REGENTS PARK BC NSW 2143
TEL. +61 2 8718 6888
FAX. +61 2 8718 6899
EMAIL sales@microtechlab.com
MELBOURNE:
TEL. +61 3 9877 8222 FAX. +61 3 9877 8444
WWW.MICROTECHLAB.COM • WWW.SILLIKER.COM

Patterson Britton
& Partners Pty Ltd

consulting engineers

FORM No. 5.004.1 (DEC 1992)

job number	4142-05 / 4903 /	sheet number	of
job title	5194. Warriewood	prepared by	DS chk'd
		date	18/10/04

To Amdel.

Please test the following samples:

~~WSP16US~~, ~~WSP16DS~~, WSP16 IS,

~~WS803US~~, ~~WS803DS~~, ~~WS803IS~~, ~~WS803IS2~~

WS304 US, WS304 DS. ✓

Test all samples for:

SS

TN, NH_3-N, TKN, Nitrates + Nitrites.

TP, Ortho-P, Non filterable-P

Hardness
Phenols
OC/OP Pesticides
Oil + Grease
PAHs
Chlorophyll-a.
Algal ID
Faecal coliforms.
Metals (Cr, Pb, Zn, As, Hg, Cu)

Regards

David Stone.

9957 1619

davids@patbrit.com.au

19 OCT 2004

4E1940

ECOWISE ENVIRONMENTAL

Amdel - Newcastle
99 Mitchell Road
Cardiff NSW 2285

Attention: Julie Edman
Fax: 02 4902 4899

Date: 20 October 2004

LABORATORY ANALYTICAL REPORT

Date Sampled: - 18.10.2004
Job Name: XAMDEL2_08099

Date Received: - 20.10.2004

Nine samples were received for algae identification.
The samples were allocated the following identification numbers

Our ID	PBP ID	Amdel ID
420133	WSP16US	E149492
420133	WSP16DS	E149493
420134	WSP16IS	E149494
420135	WS803US	E149495
420136	WS803DS	E149496
420137	WS803IS	E149498
420138	WSP16IS2	E149498
420139	WS304US	E149499
420140	WS304DS	E149500

All samples were deemed to be sparse in algae and high in clay particles.

E149492
No algae were detected.

E149493
Very low concentrations of *Ankistrodesmus*, *Chlorella* (green algae), and *Synedra* (diatom) were detected.

E149494
Very low concentrations of *Schroederia*, *Chlorella* (green algae), *Navicula* and *Synedra* (diatoms) were detected.

E149495
No algae were detected.

E149496
No algae were detected.

E149498
No algae were detected.

E149498
No algae were detected. The free-swimming ciliate *Paramecium* was detected.

E149499
No algae were detected.

E149500
Very low concentrations of *Cyclotella* (diatom) were detected. The stalked-ciliate *Epistylis* was also detected.

Simon Josey
for Manager, ECOWISE Environmental

amdel
www.amdel.com
A subsidiary of The Gribbles Group

ANALYTICAL SERVICES DIVISION
ABN 30 008 127 802
Correspondence to:
PO Box 331
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.	:	5E0734
Attention	:	Mr Michael Shaw
Client	:	Patterson Britton & Partners Pty Ltd
	:	PO Box 515
	:	NORTH SYDNEY
Samples	:	5
Reference/Order	:	4467/5194
Project	:	S12 & S3 DRY WEATHER
Received Samples	:	24/02/05
Instructions	:	24/02/05
Date Reported	:	09/03/05

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. : 5E0734

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
E4970	Total Metals by ICP-MS	28/02/05	28/02/05	DLU 093
E49501	Mercury low level	02/03/05	02/03/05	DLU 093
E0140	Phenols by GC/MS	25/02/05	28/02/05	LHA 095
E0080	Organochlorine Pesticides	25/02/05	01/03/05	LHA 095
E0090	Organophosphorus Pesticides	25/02/05	28/02/05	LHA 095
E0110	Polycyclic Aromatic Hydrocarbons	25/02/05	28/02/05	LHA 095
E2670	Suspended Solids	03/03/05	03/03/05	PKE 101
E2570	Total Nitrogen	08/03/05	08/03/05	PKE 101
E2550	Nitrate-N	02/03/05	02/03/05	PKE 101
E2560	Nitrite-N	02/03/05	02/03/05	PKE 101
E2770	TKN	01/03/05	07/03/05	PKE 101
E2330	Ammonia as N	02/03/05	02/03/05	PKE 101
E2640	Phosphorus-Total	01/03/05	07/03/05	PKE 101
E2630	Dissolved Phosphorus	07/03/05	07/03/05	PKE 101
E2530	Total Hardness	28/02/05	28/02/05	DLU 093
E2395	Chlorophyll-a	28/02/05	28/02/05	PKE 101
E7500	Moisture (%w/w)	28/02/05	01/03/05	LHA 096
E5910	Metals by ICP-AES	02/03/05	02/03/05	DLU 093
E5950	Mercury in Soil	01/03/05	02/03/05	DLU 093
E1140	Phenols by GC/MS	25/02/05	02/03/05	LHA 095
E1080	Organochlorine Pesticides	25/02/05	01/03/05	LHA 095
E1110	Polycyclic Aromatic Hydrocarbons	25/02/05	28/02/05	LHA 095

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 : 5E0734

Client : Patterson Britton & Partners Pty Ltd

Reference : 4467/5194

Project : S12 & S3 DRY WEATHER

Analyte	Lab No	E180316	E180317	E180318		
		S12 5DS	S310US	S310DS		
	Sample Id	23.2.05	23.2.05	23.2.05		
	PQL					
E4970 Total Recoverable Metals in Waters						
Arsenic	0.002	0.003	nd	0.002		
Chromium	0.005	nd	nd	nd		
Copper	0.005	nd	nd	nd		
Lead	0.002	nd	nd	nd		
Zinc	0.01	nd	0.01	0.02		
E49501 Total Recoverable Mercury in Water						
Mercury	0.00005	nd	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 : 5E0734

Client : Patterson Britton & Partners Pty Ltd

Reference : 4467/5194

Project : S12 & S3 DRY WEATHER

Analyte	Lab No	E180316	E180317	E180318		
		S1275DS	S310US	S310DS		
	Sample Id	23.2.05	23.2.05	23.2.05		
	PQL					
E0140 Phenols By GC/MS In Water (ug/L)						
Phenol	5	nd	nd	nd		
2-Chlorophenol	5	nd	nd	nd		
2-Methylphenol	5	nd	nd	nd		
3-Methylphenol & 4-Methylpheno	5	nd	nd	nd		
2-Nitrophenol	5	nd	nd	nd		
2.4-Dimethylphenol	5	nd	nd	nd		
2.4-Dichlorophenol	5	nd	nd	nd		
2.6-Dichlorophenol	5	nd	nd	nd		
4-Chloro-3-methylphenol	5	nd	nd	nd		
2.4.5-Trichlorophenol	5	nd	nd	nd		
2.4.6-Trichlorophenol	5	nd	nd	nd		
2.4-Dinitrophenol	50	nd	nd	nd		
4-Nitrophenol	10	nd	nd	nd		
2.3.4.6-Tetrachlorophenol	5	nd	nd	nd		
4.6-Dinitro-2-methylphenol	20	nd	nd	nd		
Pentachlorophenol	10	nd	nd	nd		
4.6-Dinitro-2-sec-butylphenol	20	nd	nd	nd		
2-Fluorophenol-SURROGATE	1	65%	66%	67%		
Phenol-D6-SURROGATE	1	61%	65%	60%		
2.4.6-Tribromophenol-SURROGATE	1	70%	70%	72%		

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 : 5E0734

Client : Patterson Britton & Partners Pty Ltd

Reference : 4467/5194

Project : S12 & S3 DRY WEATHER

Analyte	Lab No	E180316	E180317	E180318		
		S1275DS	S310US	S310DS		
	Sample Id	23.2.05	23.2.05	23.2.05		
	PQL					
E0080 OC Pesticides in Water (ug/L)						
HCB	1	nd	nd	nd		
a-BHC	1	nd	nd	nd		
g-BHC	1	nd	nd	nd		
Heptachlor	1	nd	nd	nd		
Aldrin	1	nd	nd	nd		
b-BHC	1	nd	nd	nd		
d-BHC	1	nd	nd	nd		
Oxychlordane	1	nd	nd	nd		
Heptachlor epoxide	1	nd	nd	nd		
Endosulfan 1	1	nd	nd	nd		
Chlordane-Trans	1	nd	nd	nd		
Chlordane-Cis	1	nd	nd	nd		
trans-Nonachlor	1	nd	nd	nd		
DDE	1	nd	nd	nd		
Dieldrin	1	nd	nd	nd		
Endrin	1	nd	nd	nd		
DDD	1	nd	nd	nd		
Endosulfan 2	1	nd	nd	nd		
DDT	1	nd	nd	nd		
Endosulfan sulfate	1	nd	nd	nd		
Methoxychlor	1	nd	nd	nd		
2.4.5.6-TCMX-SURROGATE	1	72%	74%	93%		

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 : 5E0734

Client : Patterson Britton & Partners Pty Ltd

Reference : 4467/5194

Project : S12 & S3 DRY WEATHER

Analyte	Lab No	E180316	E180317	E180318		
		S1275DS	S310US	S310DS		
	Sample Id	23.2.05	23.2.05	23.2.05		
	PQL					
E0090 OP Pesticides in Water (ug/L)						
Dichlorvos	10	nd	nd	nd		
Mevinphos	10	nd	nd	nd		
Ethoprop	10	nd	nd	nd		
Phorate	10	nd	nd	nd		
Demeton-s-methyl	10	nd	nd	nd		
Diazinon	10	nd	nd	nd		
Disulfoton	10	nd	nd	nd		
Ronnel	10	nd	nd	nd		
Chlorpyrifos methyl	10	nd	nd	nd		
Chlorpyrifos	10	nd	nd	nd		
Merphos	10	nd	nd	nd		
Parathion methyl	10	nd	nd	nd		
Fenthion	10	nd	nd	nd		
Malathion	10	nd	nd	nd		
Fenitrothion	10	nd	nd	nd		
Prothiofos	10	nd	nd	nd		
Stirophos	10	nd	nd	nd		
Ethion	10	nd	nd	nd		
Bolstar	10	nd	nd	nd		
Fensulfothion	10	nd	nd	nd		
Azinphos methyl	10	nd	nd	nd		
Coumaphos	10	nd	nd	nd		
2-nitro-m-xylene-SURROGATE	1	92%	72%	103%		

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 : 5E0734

Client : Patterson Britton & Partners Pty Ltd

Reference : 4467/5194

Project : S12 & S3 DRY WEATHER

Analyte	Lab No	E180316	E180317	E180318		
		S1275DS	S310US	S310DS		
	Sample Id	23.2.05	23.2.05	23.2.05		
	PQL					
E0110 Priority PAH's in Water (ug/L)						
Naphthalene	1	nd	nd	nd		
Acenaphthylene	1	nd	nd	nd		
Acenaphthene	1	nd	nd	nd		
Fluorene	1	nd	nd	nd		
Phenanthrene	1	nd	nd	nd		
Anthracene	1	nd	nd	nd		
Fluoranthene	1	nd	nd	nd		
Pyrene	1	nd	nd	nd		
Benz(a)anthracene	1	nd	nd	nd		
Chrysene	1	nd	nd	nd		
Benzo(b) & (k)fluoranthene	2	nd	nd	nd		
Benzo(a)pyrene	1	nd	nd	nd		
Indeno(1.2.3-cd)pyrene	1	nd	nd	nd		
Dibenz(a.h)anthracene	1	nd	nd	nd		
Benzo(g.h.i)perylene	1	nd	nd	nd		
Total USEPA Priority PAHs	1	nd	nd	nd		
2-Fluorobiphenyl-SURROGATE	1	75%	78%	83%		
Anthracene-D10-SURROGATE	1	79%	84%	84%		
p-Terphenyl-D14-SURROGATE	1	81%	83%	84%		

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 : 5E0734

Client : Patterson Britton & Partners Pty Ltd

Reference : 4467/5194

Project : S12 & S3 DRY WEATHER

Analyte	Lab No	E180316	E180317	E180318		
		S127DS	S310US	S310DS		
	Sample Id	23.2.05	23.2.05	23.2.05		
	PQL					
E2670 Suspended Solids in Water						
Suspended Solids	1	17	1	3		
Total Nitrogen	0.1	0.8	0.9	1.2		
E2550 Nitrate as N in Water						
Nitrate as N	0.02	0.41	0.41	0.61		
E2560 Nitrite as N in Water						
Nitrite as N	0.02	nd	nd	nd		
E2770 Kjeldahl Nitrogen in Water						
Kjeldahl Nitrogen	0.1	0.4	0.5	0.6		
E2330 Ammonia as N in Water						
Ammonia as N	0.01	0.02	0.02	0.05		
E2640 Total Phosphorus in Water						
Phosphorus	0.02	0.15	0.03	0.13		
E2630 Dissolved Phosphorus in Water						
Dissolved Phosphorus	0.01	nd	nd	0.01		
E2530 Total Hardness						
Total Hardness as CaCO3	0.5	97	79	100		
E2395 Chlorophyll-a in Water						
Chlorophyll-a	0.005	0.037	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 : 5E0734

Client : Patterson Britton & Partners Pty Ltd

Reference : 4467/5194

Project : S12 & S3 DRY WEATHER

Analyte	Lab No	E180319	E180320			
		S3S1US	S3S1DS			
	Sample Id	23.2.05	23.2.05			
	PQL					
E7500 Moisture (%w/w) in Soil						
Moistures test performed at 105oC						
Moisture Content	1	22%	22%			
E5910 Metals in Soil						
Chromium	5	nd	nd			
Lead	5	6	nd			
Zinc	5	19	14			
Arsenic	5	nd	nd			
Copper	5	nd	nd			
E5950 Mercury in Soil						
Mercury	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.

amdel

Job Number : 5E0734

Client : Patterson Britton & Partners Pty Ltd

Reference : 4467/5194

Project : S12 & S3 DRY WEATHER

Analyte	Lab No	E180319	E180320			
		S3S1US	S3S1DS			
	Sample Id	23.2.05	23.2.05			
	PQL					
E1140 Phenols By GC/MS In Soil						
Phenol	0.5	nd	nd			
2-Chlorophenol	0.5	nd	nd			
2-Methylphenol	0.5	nd	nd			
3-Methylphenol & 4-Methylpheno	0.5	nd	nd			
2-Nitrophenol	0.5	nd	nd			
2.4-Dimethylphenol	0.5	nd	nd			
2.4-Dichlorophenol	0.5	nd	nd			
2.6-Dichlorophenol	0.5	nd	nd			
4-Chloro-3-methylphenol	0.5	nd	nd			
2.4.5-Trichlorophenol	0.5	nd	nd			
2.4.6-Trichlorophenol	0.5	nd	nd			
2.4-Dinitrophenol	5	nd	nd			
4-Nitrophenol	1	nd	nd			
2.3.4.6-Tetrachlorophenol	0.5	nd	nd			
4.6-Dinitro-2-methylphenol	2	nd	nd			
Pentachlorophenol	1	nd	nd			
4.6-Dinitro-2-sec-butylphenol	2	nd	nd			
2-Fluorophenol-SURROGATE	1	74%	79%			
Phenol-D6-SURROGATE	1	74%	81%			
2.4.6-Tribromophenol-SURROGATE	1	79%	83%			

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 : 5E0734

Client : Patterson Britton & Partners Pty Ltd

Reference : 4467/5194

Project : S12 & S3 DRY WEATHER

Analyte	Lab No	E180319	E180320			
		S3S1US	S3S1DS			
	Sample Id	23.2.05	23.2.05			
	PQL					
E1080 Organochlorine Pesticides in Soil						
HCB	0.1	nd	nd			
a-BHC	0.1	nd	nd			
g-BHC	0.1	nd	nd			
Heptachlor	0.1	nd	nd			
Aldrin	0.1	nd	nd			
b-BHC	0.1	nd	nd			
d-BHC	0.1	nd	nd			
Oxychlordane	0.1	nd	nd			
Heptachlor epoxide	0.1	nd	nd			
Endosulfan 1	0.1	nd	nd			
Chlordane-Trans	0.1	nd	nd			
Chlordane-Cis	0.1	nd	nd			
trans-Nonachlor	0.1	nd	nd			
DDE	0.1	nd	nd			
Dieldrin	0.1	nd	nd			
Endrin	0.1	nd	nd			
DDD	0.1	nd	nd			
Endosulfan 2	0.1	nd	nd			
DDT	0.1	nd	nd			
Endosulfan sulfate	0.1	nd	nd			
Methoxychlor	0.1	nd	nd			
2.4.5.6-TCMX-SURROGATE	1	99%	89%			

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 : 5E0734

Client : Patterson Britton & Partners Pty Ltd

plus Cover Page

Reference : 4467/5194

Project : S12 & S3 DRY WEATHER

Analyte	Lab No	E180319	E180320			
		S3S1US	S3S1DS			
	Sample Id	23.2.05	23.2.05			
	PQL					
E1110 Priority PAH's in Soil						
Naphthalene	0.5	nd	nd			
Acenaphthylene	0.5	nd	nd			
Acenaphthene	0.5	nd	nd			
Fluorene	0.5	nd	nd			
Phenanthrene	0.5	nd	nd			
Anthracene	0.5	nd	nd			
Fluoranthene	0.5	nd	nd			
Pyrene	0.5	nd	nd			
Benz(a)anthracene	0.5	nd	nd			
Chrysene	0.5	nd	nd			
Benzo(b) & (k)fluoranthene	1	nd	nd			
Benzo(a)pyrene	0.5	nd	nd			
Indeno(1.2.3-cd)pyrene	0.5	nd	nd			
Dibenz(a.h)anthracene	0.5	nd	nd			
Benzo(g.h.i)perylene	0.5	nd	nd			
Total USEPA Priority PAHs	0.5	nd	nd			
2-Fluorobiphenyl-SURROGATE	1	89%	86%			
Anthracene-d10-SURROGATE	1	89%	89%			
p-Terphenyl-D14-SURROGATE	1	91%	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

AMDEL INTERNAL QUALITY ASSURANCE REVIEW.

Job No. 5E0734

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	NA
Samples received with Zero Headspace	NA
Chain of Custody completed and attached (if applicable)	Yes

Chromatography Calibration/Acceptence Criteria (if applicable)	
Retention time window meets acceptance criteria (+/-2%)	NA
Reference standard meets acceptance criteria (+/-10%)	NA
Recalibration standard meets acceptance criteria (+/-15%)	NA
Internal standard recovery acceptable.	NA

amdel

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. 5E0734

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.

amdel

Job Number : 5E0734

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E4970 Total Recoverable Metals in Waters							
Arsenic	0.100	0.104			104%		
Chromium	0.100	0.098			98%		
Copper	0.100	0.103			103%		
Lead	0.100	0.097			97%		
Zinc	0.100	0.09			95%		
E49501 Total Recoverable Mercury in Water							
Mercury	0.0010	0.00090			100%		

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
E4970 Total Recoverable Metals in Waters						
Arsenic	0.002	nd				
Chromium	0.005	nd				
Copper	0.005	nd				
Lead	0.002	nd				
Zinc	0.01	nd				
E49501 Total Recoverable Mercury in Water						
Mercury	0.00005	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 : 5E0734

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E0140 Phenols By GC/MS In Water (ug/L)							
Phenol	100	72			72%		
2-Chlorophenol	100	84			84%		
2-Methylphenol							
3-Methylphenol & 4-Methylpheno							
2-Nitrophenol							
2.4-Dimethylphenol							
2.4-Dichlorophenol							
2.6-Dichlorophenol							
4-Chloro-3-methylphenol	100	92			92%		
2.4.5-Trichlorophenol							
2.4.6-Trichlorophenol							
2.4-Dinitrophenol							
4-Nitrophenol	100	90			91%		
2.3.4.6-Tetrachlorophenol							
4.6-Dinitro-2-methylphenol							
Pentachlorophenol	100	60			60%		
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
E0140 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