

Issue Date : 22-DEC-2008 10:50
 Page : 2 of 3
 Work Order : ES0818838
 Client : C M JEWELL & ASSOC PTY LTD



Sample Container(s)/Preservation Non-Compliances

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

Method	Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
EK055G - Ammonia as N by Discrete analyser			
GW:1		- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Sulphuric Acid
GW:2		- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Sulphuric Acid
GW:3		- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Sulphuric Acid
GW:D		- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Sulphuric Acid
GW:4		- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Sulphuric Acid
BH01		- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Sulphuric Acid

Summary of Sample(s) and Requested Analysis

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

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020A-F Dissolved Metals by ICPMS - Suite A	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EK058G Nitrate as N by Discrete Analyser	WATER - EK071G Reactive Phosphorus by Discrete analyser	WATER - EN055 - TS Ionic Balance (TS)	WATER - EP002 Dissolved Organic Carbon (DOC)	WATER - EP074DEFG VOC - Fumigants, Hal Aliphatics, Hal Aromatics, THM	WATER - NT-01 Major Cations (Ca, Mg, Na, K)
ES0818838-001	[19-DEC-2008]	GW:1	✓	✓	✓	✓	✓	✓	✓	✓
ES0818838-002	[19-DEC-2008]	GW:2	✓	✓	✓	✓	✓	✓	✓	✓
ES0818838-003	[19-DEC-2008]	GW:3	✓	✓	✓	✓	✓	✓	✓	✓
ES0818838-004	[19-DEC-2008]	GW:D	✓	✓	✓	✓	✓	✓	✓	✓
ES0818838-005	[19-DEC-2008]	GW:4	✓	✓	✓	✓	✓	✓	✓	✓
ES0818838-006	[19-DEC-2008]	BH01	✓	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - NT-02 Major Anions (Cl, SO4, Alkalinity)	WATER - W-02 8 Metals	WATER - W-04 TPH/BTEX
ES0818838-001	[19-DEC-2008]	GW:1	✓		
ES0818838-002	[19-DEC-2008]	GW:2	✓		
ES0818838-003	[19-DEC-2008]	GW:3	✓		
ES0818838-004	[19-DEC-2008]	GW:D	✓		
ES0818838-005	[19-DEC-2008]	GW:4	✓	✓	✓
ES0818838-006	[19-DEC-2008]	BH01	✓	✓	✓

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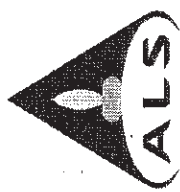


Requested Deliverables

MR CRAIG WICENCIAK

- *AU Certificate of Analysis - NATA
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA
- A4 - AU Sample Receipt Notification - Environmental
- A4 - AU Tax Invoice
- Default - Chain of Custody
- EDI Format - ENMRG (ENMRG)

Email	craig@cm-jewell.com.au
Email	craig@cm-jewell.com.au
Email	craig@cm-jewell.com.au
Email	craig@cm-jewell.com.au
Print	MR CRAIG WICENCIAK
Email	craig@cm-jewell.com.au
Email	craig@cm-jewell.com.au



Environmental Division

QUALITY CONTROL REPORT

Work Order	: ES0819015	Page	: 1 of 11
Client	: C M JEWELL & ASSOC PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR CRAIG WICENCIAK	Contact	: Charlie Pierce
Address	: P O BOX 10 WENTWORTH FALLS NSW, AUSTRALIA 2782	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: craig@cm-jewell.com.au	E-mail	: charlie.pierce@alsenviro.com
Telephone	: +61 47593251	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 47593257	Facsimile	: +61-2-8784 8500
Project	: J141B	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: KIRRAWEE BRICK PIT	Date Samples Received	: 24-DEC-2008
C-O-C number	: —	Issue Date	: 06-JAN-2009
Sampler	: CW DE	No. of samples received	: 16
Order number	: SY100/08	No. of samples analysed	: 16
Quote number	: SY100/08		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Edwandy Fadjar	Senior Organic Chemist	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Inorganics
Sarah Millington	Senior Inorganic Chemist	Organics
		Inorganics



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Work Order : ES0819015
Client : CM JEWELL & ASSOC PTY LTD
Project : J141B

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :

Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = Chemistry Abstract Services number

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC



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Work Order : ES0819015
Client : CM JEWELL & ASSOC PTY LTD
Project : J141B

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWM-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting. Result < 10 times LOR - No Limit; Result between 10 and 20 times LOR - 0% - 50%; Result > 20 times LOR - 0% - 20%.

Sub-Matrix: SOIL										
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
EA055: Moisture Content (QC Lot: 854631)										
ES0819012-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	—	1.0	%	8.9	9.7	9.3	No Limit	
ES0819015-008	BP-04:0.15	EA055-103: Moisture Content (dried @ 103°C)	—	1.0	%	62.3	51.3	19.4	0% - 20%	
EG005T: Total Metals by ICP-AES (QC Lot: 852848)										
ES0819015-003	BP-02:0.05	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit	
		EG005T: Chromium	7440-47-3	2	mg/kg	8	6	19.4	No Limit	
		EG005T: Nickel	7440-02-0	2	mg/kg	16	14	9.2	No Limit	
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	<5	0.0	No Limit	
		EG005T: Copper	7440-50-8	5	mg/kg	17	16	0.0	No Limit	
		EG005T: Lead	7439-92-1	5	mg/kg	24	23	5.9	No Limit	
		EG005T: Manganese	7439-96-5	5	mg/kg	250	252	0.9	0% - 20%	
		EG005T: Zinc	7440-66-6	5	mg/kg	130	115	11.9	0% - 20%	
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit	
		EG005T: Chromium	7440-47-3	2	mg/kg	23	20	11.0	0% - 50%	
ES0819015-013	BP-07:0.05	EG005T: Nickel	7440-02-0	2	mg/kg	11	10	0.0	No Limit	
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	7	19.5	No Limit	
		EG005T: Copper	7440-50-8	5	mg/kg	28	23	18.2	No Limit	
		EG005T: Lead	7439-92-1	5	mg/kg	46	43	7.0	No Limit	
		EG005T: Manganese	7439-96-5	5	mg/kg	70	63	11.6	0% - 50%	
		EG005T: Zinc	7440-66-6	5	mg/kg	122	113	8.1	0% - 20%	
		EG035T: Total Recoverable Mercury by FIMS (QC Lot: 852847)								
ES0818904-019	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	0.0	No Limit	
ES0818904-026	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit	
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 852849)										
ES0819015-003	BP-02:0.05	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	0.0	No Limit	
ES0819015-013	BP-07:0.05	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit	
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 853376)										
ES0819015-001	BP-01:0.05	EK067G: Total Phosphorus as P	—	2	mg/kg	1040	1250	18.0	0% - 20%	
ES0819015-010	BP-05:0.15	EK067G: Total Phosphorus as P	—	2	mg/kg	301	338	11.7	0% - 20%	
EP068A: Organochlorine Pesticides (OC) (QC Lot: 854639)										
ES0819011-032	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	



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Work Order : ES0819015
Client : C M JEWELL & ASSOC PTY LTD
Project : J141B

Sub-Matrix: SOIL		Laboratory Duplicate (DUP) Report									
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP068A: Organochlorine Pesticides (OC) (QC Lot: 854639) - continued											
ES0819011-032											
ES0819015-002	BP:01:0.15	EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
EP068A: Organochlorine Pesticides (OC) (QC Lot: 854641)											
ES0819015-012											
ES0819015-012	BP:06:0.15	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		



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Work Order : ES0819015
Client : C M JEWELL & ASSOC PTY LTD
Project : J141B

Sub-Matrix: SOIL		Laboratory Duplicate (DUP) Report									
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP068A: Organochlorine Pesticides (OC) (QC Lot: 85484.1) - continued ES0819015-012	BP:06:0.15	EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: alpha-Endosulfan	959-98-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 85484.6) ES0819015-001	BP:01:0.05	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<4.0	<4.0	0.0	No Limit
				EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<4.0	<4.0	0.0	No Limit
EP075(SIM): Acenaphthene	83-32-9			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Fluorene	86-73-7			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Phenanthrene	85-01-8			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Anthracene	120-12-7			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Fluoranthene	206-44-0			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Pyrene	129-00-0			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Benz(a)anthracene	56-55-3			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Chrysene	218-01-9			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Benzo(b)fluoranthene	205-99-2			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Benzo(k)fluoranthene	207-08-9			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Benzo(a)pyrene	50-32-8			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Dibenzo(a,h)anthracene	53-70-3			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Benzo(g,h,i)perylene	191-24-2			0.5	mg/kg	<4.0	<4.0	0.0	No Limit		
EP075(SIM): Naphthalene	91-20-3			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Acenaphthylene	208-96-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP075(SIM): Acenaphthene	83-32-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES0819015-011	BP:06:0.05										



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Work Order : ES0819015
Client : CM JEWELL & ASSOC PTY LTD
Project : J141B

Sub-Matrix: SOIL		Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 854845) - continued									
ES0819015-011	BP:06:0.05	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 854845)									
ES0819015-001	BP:01:0.05	EP071: C15 - C28 Fraction	—	100	mg/kg	<500	<500	0.0	No Limit
		EP071: C29 - C36 Fraction	—	100	mg/kg	<500	<500	0.0	No Limit
		EP071: C10 - C14 Fraction	—	50	mg/kg	<250	<250	0.0	No Limit
		EP071: C15 - C28 Fraction	—	100	mg/kg	<100	<100	0.0	No Limit
ES0819015-011	BP:06:0.05	EP071: C29 - C36 Fraction	—	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	—	50	mg/kg	<50	<50	0.0	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound				Method Blank (MB) Report	Spike Concentration	Laboratory Control Spike (LCS) Report		
CAS Number	LOR	Unit	Result			Spike Recovery (%)	LCS	Recovery Limits (%)
Sub-Matrix: SOIL								
EG005T: Total Metals by ICP-AES (QCLot: 852848)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.1 mg/kg	110	90.1	124
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2.76 mg/kg	104	83.3	111
EG005T: Chromium	7440-47-3	2	mg/kg	<2	60.9 mg/kg	104	89.2	117
EG005T: Copper	7440-50-8	5	mg/kg	<5	54.7 mg/kg	102	90.1	114
EG005T: Lead	7439-92-1	5	mg/kg	<5	55.2 mg/kg	103	85.2	111
EG005T: Manganese	7439-96-5	5	mg/kg	<5	—	—	—	—
EG005T: Nickel	7440-02-0	2	mg/kg	<2	54.8 mg/kg	107	88.3	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	104 mg/kg	104	81.9	112
EG035T: Total Recoverable Mercury by FIMS (QCLot: 852847)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	1.4 mg/kg	86.2	67	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 852849)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	1.4 mg/kg	82.0	67	118
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 853376)								
EK067G: Total Phosphorus as P	—	2	mg/kg	<2	442 mg/kg	97.6	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 854639)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.25 mg/kg	86.8	60.8	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.25 mg/kg	89.9	59.4	115
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.25 mg/kg	79.6	59.8	117
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.25 mg/kg	87.7	59.8	118
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.25 mg/kg	81.6	65.8	114
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.25 mg/kg	87.2	65.6	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.25 mg/kg	75.7	67	113
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.25 mg/kg	74.0	65.6	113
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.25 mg/kg	73.0	60.7	113
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.25 mg/kg	78.7	65.8	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.25 mg/kg	73.3	57.3	120
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.25 mg/kg	86.9	67.4	116
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.25 mg/kg	76.4	67.5	114
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.25 mg/kg	77.5	63	121
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.25 mg/kg	75.2	66.1	117
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.25 mg/kg	80.2	65.3	116
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.25 mg/kg	85.1	57.3	115
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.25 mg/kg	77.8	63.6	119
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.25 mg/kg	109	58.4	127



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Sub-Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) Report		
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	Low	High	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QCLot: 854639) - continued									
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.25 mg/kg	77.5	63.6	117	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.25 mg/kg	114	50.4	132	
EP068A: Organochlorine Pesticides (OC) (QCLot: 854641)									
EP068: alpha-BHC	319-94-6	0.05	mg/kg	<0.05	0.25 mg/kg	84.3	60.8	116	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.25 mg/kg	86.8	59.4	115	
EP068: beta-BHC	319-95-7	0.05	mg/kg	<0.05	0.25 mg/kg	90.1	59.8	117	
EP068: gamma-BHC	58-99-9	0.05	mg/kg	<0.05	0.25 mg/kg	85.6	59.8	118	
EP068: delta-BHC	319-96-8	0.05	mg/kg	<0.05	0.25 mg/kg	86.8	65.8	114	
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.25 mg/kg	86.5	65.6	115	
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.25 mg/kg	78.7	67	113	
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.25 mg/kg	85.5	65.6	113	
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.25 mg/kg	84.0	60.7	113	
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.25 mg/kg	81.5	65.8	116	
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.25 mg/kg	83.0	57.3	120	
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.25 mg/kg	80.2	67.4	116	
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.25 mg/kg	81.5	67.5	114	
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.25 mg/kg	78.4	63	121	
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.25 mg/kg	78.3	66.1	117	
EP068: 4,4'-DDD	72-64-8	0.05	mg/kg	<0.05	0.25 mg/kg	81.3	65.3	116	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.25 mg/kg	76.5	57.3	115	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.25 mg/kg	76.3	63.6	119	
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.25 mg/kg	80.0	58.4	127	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.25 mg/kg	74.8	63.6	117	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.25 mg/kg	84.0	50.4	132	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 854646)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	94.5	81.9	113	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	89.0	79.6	113	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	92.3	81.5	112	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	88.8	79.9	112	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	96.1	79.4	114	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	102	81.1	112	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	102	78.8	113	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	98.8	78.9	113	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	83.9	77.2	112	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	105	79.8	114	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	81.8	71.8	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	103	74.2	117	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	101	76.4	113	
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	91.7	71	113	

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Sub-Matrix: SOIL				Laboratory Control Spike (LCS) Report			
Method Blank (MB) Report				Spike Recovery (%)			
Method	Compound	CAS Number	LOR	Unit	Result	Concentration	Recovery Limits (%)
EP075(SIM): Polynuclear Aromatic Hydrocarbons (QCLot: 854646) - continued							
EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	92.6	71.7 113
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	110	72.4 114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 854645)							
EP071: C10 - C14 Fraction	—	50	mg/kg	<50	200 mg/kg	105	75.2 116
EP071: C15 - C28 Fraction	—	100	mg/kg	<100	200 mg/kg	100	75.3 113
EP071: C29 - C36 Fraction	—	100	mg/kg	<100	200 mg/kg	96.0	72.6 117



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Matrix Spike (MS) Report

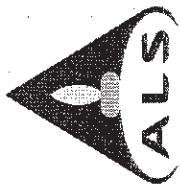
The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)	MS	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QCLot: 852848)							
ES0819015-003	BP:02:0.05	EG005T: Arsenic	7440-38-2	50 mg/kg	92.8	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	93.4	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	92.8	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	97.4	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	91.4	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.5	70	130
EG005T: Zinc							
EG035T: Total Recoverable Mercury by FIMS (QCLot: 852847)							
ES0818904-019	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	99.4	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 852849)							
ES0819015-003	BP:02:0.05	EG035T: Mercury	7439-97-6	5 mg/kg	98.7	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 853376)							
ES0819015-001	BP:01:0.05	EK067G: Total Phosphorus as P	---	100 mg/kg	82.0	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 854639)							
ES0819011-032	Anonymous	EP068: gamma-BHC	58-89-9	0.25 mg/kg	80.1	75.65	110.44
		EP068: Heptachlor	76-44-8	0.25 mg/kg	77.2	72.2	106.71
		EP068: Aldrin	309-00-2	0.25 mg/kg	# 73.4	77.54	107.0
		EP068: Dieldrin	60-57-1	0.25 mg/kg	# 75.1	76.37	109.7
		EP068: Endrin	72-20-8	1 mg/kg	# 121	68.51	119.47
		EP068: 4,4'-DDT	50-29-3	1 mg/kg	# 63.9	67.12	118.10
EP068A: Organochlorine Pesticides (OC) (QCLot: 854641)							
ES0819015-012	BP:06:0.15	EP068: gamma-BHC	58-89-9	0.25 mg/kg	79.9	75.65	110.44
		EP068: Heptachlor	76-44-8	0.25 mg/kg	# 108	72.2	106.71
		EP068: Aldrin	309-00-2	0.25 mg/kg	84.5	77.54	107.0
		EP068: Dieldrin	60-57-1	0.25 mg/kg	77.9	76.37	109.7
		EP068: Endrin	72-20-8	1 mg/kg	# 121	68.51	119.47
		EP068: 4,4'-DDT	50-29-3	1 mg/kg	# 62.1	67.12	118.10
EP075(SIM): Polynuclear Aromatic Hydrocarbons (QCLot: 854646)							
ES0819015-001	BP:01:0.05	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	87.4	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	99.6	70	130
EP080: Total Petroleum Hydrocarbons (QCLot: 854645)							
ES0819015-001	BP:01:0.05	EP071: C10 - C14 Fraction	---	640 mg/kg	125	70	130
		EP071: C15 - C28 Fraction	---	3140 mg/kg	119	70	130
		EP071: C29 - C36 Fraction	---	2860 mg/kg	120	70	130
		EP071: C37 - C44 Fraction	---	120	70	130	130

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Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES0819015	Page	: 1 of 6
Client	: G M JEWELL & ASSOC PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR CRAIG VICENCIAK	Contact	: Charlie Pierce
Address	: P O BOX 10 WENTWORTH FALLS NSW, AUSTRALIA 2782	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: craig@cm-jewell.com.au	E-mail	: charlie.pierce@alsenviro.com
Telephone	: +61 47593251	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 47593257	Facsimile	: +61-2-8784 8500
Project	: J141B	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: KIRRAWEE BRICK PIT	Date Samples Received	: 24-DEC-2008
C-O-C number	: —	Issue Date	: 06-JAN-2009
Sampler	: CW DE	No. of samples received	: 16
Order number	: SY/100/08	No. of samples analysed	: 16
Quote number	: SY/100/08		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

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



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 Work Order : ES0819015
 Client : C M JEWELL & ASSOC PTY LTD
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Analysis Holding Time Compliance

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

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

Matrix: SOIL		Evaluation: x = Holding time breach ; ✓ = Within holding time.			
Method	Sample Date	Extraction / Preparation		Analysis	
Container / Client Sample ID(s)		Date extracted	Due for extraction	Date analysed	Due for analysis
EA055: Moisture Content					
Soil Glass Jar - Unpreserved					
BP-01:0.15,	24-DEC-2008	---	---	31-DEC-2008	31-DEC-2008
BP-02:0.15,					
BP-03:0.15,					
BP-04:0.15,					
BP-05:0.15,					
BP-06:0.15,					
BP-07:0.15,					
BP-SD1,					
EG005T: Total Metals by ICP-AES					
Soil Glass Jar - Unpreserved					
BP-01:0.15,	24-DEC-2008	29-DEC-2008	22-JUN-2009	29-DEC-2008	22-JUN-2009
BP-02:0.15,					
BP-03:0.15,					
BP-04:0.15,					
BP-05:0.15,					
BP-06:0.15,					
BP-07:0.15,					
BP-SD1,					
EG035T: Total Recoverable Mercury by FIMS					
Soil Glass Jar - Unpreserved					
BP-01:0.15,	24-DEC-2008	29-DEC-2008	22-JUN-2009	30-DEC-2008	21-JAN-2009
BP-02:0.15,					
BP-03:0.15,					
BP-04:0.15,					
BP-05:0.15,					
BP-06:0.15,					
BP-07:0.15,					
BP-SD1,					



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 Client : C M JEWELL & ASSOC PTY LTD
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Matrix: SOIL		Evaluation: x = Holding time breach ; ✓ = Within holding time.			
Method	Sample Date	Extraction / Preparation		Analysis	
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Due for analysis
EK067G: Total Phosphorus as P by Discrete Analyser					
Soil Glass Jar - Unpreserved					
BP-01:0.15, BP-02:0.15, BP-03:0.15, BP-04:0.15, BP-05:0.15, BP-06:0.15, BP-07:0.15, BP-SD1, BP-SD2	24-DEC-2008	29-DEC-2008	22-JUN-2009	✓	22-JUN-2009
EP068A: Organochlorine Pesticides (OC)					
Soil Glass Jar - Unpreserved					
BP-01:0.15, BP-02:0.15, BP-03:0.15, BP-04:0.15, BP-05:0.15, BP-06:0.15, BP-07:0.15, BP-SD1, BP-SD2	24-DEC-2008	31-DEC-2008	07-JAN-2009	✓	09-FEB-2009
EP075(SMIB): Polynuclear Aromatic Hydrocarbons					
Soil Glass Jar - Unpreserved					
BP-01:0.15, BP-02:0.15, BP-03:0.15, BP-04:0.15, BP-05:0.15, BP-06:0.15, BP-07:0.15, BP-SD1, BP-SD2	24-DEC-2008	31-DEC-2008	07-JAN-2009	✓	09-FEB-2009
EP080/071: Total Petroleum Hydrocarbons					
Soil Glass Jar - Unpreserved					
BP-01:0.15, BP-02:0.15, BP-03:0.15, BP-04:0.15, BP-05:0.15, BP-06:0.15, BP-07:0.15, BP-SD1, BP-SD2	24-DEC-2008	31-DEC-2008	07-JAN-2009	✓	09-FEB-2009



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 Project : J141B

Quality Control Parameter Frequency Compliance

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

Matrix: SOIL

Matrix: SOIL							
Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification							
Quality Control Sample Type	Method	Count		Rate (%)		Quality Control Specification	
Analytical Methods		QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EAD55-103	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
	EP075(SIM)	2	16	12.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP068	3	25	12.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EG035T	4	34	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG005T	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EK067G	2	16	12.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus By Discrete Analyser	EP071	2	16	12.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction							
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	2	25	8.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	34	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus By Discrete Analyser	EK067G	1	16	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	2	25	8.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	34	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus By Discrete Analyser	EK067G	1	16	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	16	6.3	5.0	✓	ALS QCS3 requirement
Pesticides by GCMS	EP068	2	25	8.0	5.0	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	34	5.9	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	ALS QCS3 requirement
Total Phosphorus By Discrete Analyser	EK067G	1	16	6.3	5.0	✓	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	16	6.3	5.0	✓	ALS QCS3 requirement



Page : 5 of 6
 Work Order : ES0819015
 Client : C M JEWELL & ASSOC PTY LTD
 Project : J141B

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Description
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (1999) Schedule B(3) (Method 102)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICP-AES) Metals are determined following an appropriate acid digestion of the soil. The ICP-AES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (1999) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3)
Total Phosphorus By Discrete Analyser	EK067G	SOIL	APHA 21st ed., 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser.
Pesticides by GC/MS	EP068	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (1999) Schedule B(3) (Method 504, 505)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (1999) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 502 and 507)
TKN/TP Digestion	EK061/EK067	SOIL	APHA 21st ed., 4500 Norg-D; APHA 21st ed., 4500 P - H. Macro Kjeldahl digestion.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (1999) Schedule B(3) (Method 202)
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na ₂ SO ₄ and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



Page : 6 of 6
 Work Order : ES0819015
 Client : C M JEWELL & ASSOC PTY LTD
 Project : J141B

Summary of Outliers

Outliers : Quality Control Samples

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

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP068A: Organochlorine Pesticides (OC)	ES0819015-012	BP:06:0.15	Heptachlor	76-44-8	108 %	72.2-106.71 %	Recovery greater than upper data quality objective
EP068A: Organochlorine Pesticides (OC)	ES0819011-032	Anonymous	Aldrin	309-00-2	73.4 %	77.54-107.0 %	Recovery less than lower data quality objective
EP068A: Organochlorine Pesticides (OC)	ES0819011-032	Anonymous	Dieldrin	60-57-1	75.1 %	76.37-109.7 %	Recovery less than lower data quality objective
EP068A: Organochlorine Pesticides (OC)	ES0819011-032	Anonymous	Endrin	72-20-8	121 %	68.51-119.47 %	Recovery greater than upper data quality objective
EP068A: Organochlorine Pesticides (OC)	ES0819015-012	BP:06:0.15	Endrin	72-20-8	121 %	68.51-119.47 %	Recovery greater than upper data quality objective
EP068A: Organochlorine Pesticides (OC)	ES0819011-032	Anonymous	4,4'-DDT	50-29-3	63.9 %	67.12-118.10 %	Recovery less than lower data quality objective
EP068A: Organochlorine Pesticides (OC)	ES0819015-012	BP:06:0.15	4,4'-DDT	50-29-3	62.1 %	67.12-118.10 %	Recovery less than lower data quality objective

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

Regular Sample Surrogates

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

Outliers : Analysis Holding Time Compliance

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

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

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

- No Quality Control Sample Frequency Outliers exist.

CHAIN OF CUSTODY DOCUMENTATION



CLIENT: C.M. Jewell & Associates Pty Ltd		SAMPLER: DVE / CBW
ADDRESS / OFFICE: P.O.Box 10, Wentworth Falls, Australia 2782		MOBILE: 0428 619 804
PROJECT MANAGER (PM): Craig Wloenciak		PHONE (02) 4759 3251
PROJECT ID: J1418		EMAIL REPORT TO: Craig@cm-jewell.com.au
SITE: Kirrawee Brick Pit		EMAIL INVOICE TO: (if different to report)
P.O. NO.:		

RESULTS REQUIRED (Date):		QUOTE NO.: SY100/08				
FOR LABORATORY USE ONLY		COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:				
COOLER SEAL (circle appropriate)		Major anions: Cl, SO4, CO3, HCO3				
Intact Yes No N/A		Major cations: Na, K, Ca, Mg				
SAMPLE TEMPERATURE						
CHILLED Yes No						
SAMPLE INFORMATION (note: S = Soil, W=Water)		CONTAINER INFORMATION				
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles
	BP-02:3.5	Water	20/12/2008	X	SP - 1 litre	1
	BP-02:3.5	Water	20/12/2008	X	V - 60 ml	1-set
	BP-02:3.5	Water	20/12/2008	X	AG - 500 ml	1
	BP-02:3.5	Water	20/12/2008	X	VS - 1 vial	1
	BP-03:2.5	Water	20/12/2008	X	P - 1 litre	1
	BP-03:2.5	Water	20/12/2008	X	N - 125 ml	1
	BP-03:2.5	Water	20/12/2008	X	SP - 250 ml	1
	BP-03:2.5	Water	20/12/2008	X	SP - 1 litre	1
	BP-03:2.5	Water	20/12/2008	X	V - 60 ml	1-set
	BP-03:2.5	Water	20/12/2008	X	AG - 500 ml	1
	BP-03:2.5	Water	20/12/2008	X	VS - 1 vial	1
	BP-03:5.5	Water	20/12/2008	X	P - 1 litre	1
RELINQUISHED BY:		RECEIVED BY:				
Name: See Page 1	Date:	Name:	Date:			
Of:	Time:	Of:	Time:			
Name:	Date:	Name:	Date:			
Of:	Time:	Of:	Time:			

ANALYSIS REQUIRED INCLUDING SUITES (note - suite codes must be listed to attract suite prices)	
Major anions	
Major cations	
BOD	
Phosphate	
Metals	
NO3-, NH4+, Total P	
Oil and Grease	
TPH: C6-C9	
TPH: C10-C36	
DOC	
Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.	

METHOD OF SHIPMENT	
Con' Note No:	
Transport Co:	

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

CHAIN OF CUSTODY DOCUMENTATION

CLIENT: C.M. Jewell & Associates Pty Ltd	SAMPLER: DVE / CBW
ADDRESS / OFFICE: P.O.Box 10, Wentworth Falls, Australia 2782	MOBILE: 0428 619 804
PROJECT MANAGER (PM): Craig Wicenciak	PHONE (02) 4759 3251
PROJECT ID: J1418	EMAIL REPORT TO: Craig@cm-jewell.com.au
SITE: Kirrawee Brick Pit	EMAIL INVOICE TO: (if different to report)
P.O. NO.:	ANALYSIS REQUIRED INCLUDING SUITES (note - suite codes must be listed to attract suite prices)
QUOTE NO.: SY100/08	



Australian Laboratory Services Pty Ltd

FOR LABORATORY USE ONLY				COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:			
COOLER SEAL (circle appropriate)				Major anions: Cl, SO ₄ , CO ₃ , HCO ₃			
Infect: Yes No				Major cations: Na, K, Ca, Mg			
SAMPLE TEMPERATURE							
CHILLED: Yes No							
SAMPLE INFORMATION (note: S = Soil, W = Water)				CONTAINER INFORMATION			
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	
	BP:04:2.5	Water	20/12/2008	X	VS - 1 vial	1	
	BP:04:6.0	Water	20/12/2008	X	P - 1 litre	1	
	BP:04:6.0	Water	20/12/2008	X	N - 125 ml	1	
	BP:04:6.0	Water	20/12/2008	X	SP - 250 ml	1	
	BP:04:6.0	Water	20/12/2008	X	SP - 1 litre	1	
	BP:04:6.0	Water	20/12/2008	X	V - 60 ml	1-set	
	BP:04:6.0	Water	20/12/2008	X	AG - 500 ml	1	
	BP:04:6.0	Water	20/12/2008	X	VS - 1 vial	1	
	BP:05:2.5	Water	20/12/2008	X	P - 1 litre	1	
	BP:05:2.5	Water	20/12/2008	X	N - 125 ml	1	
	BP:05:2.5	Water	20/12/2008	X	SP - 250 ml	1	
	BP:05:2.5	Water	20/12/2008	X	SP - 1 litre	1	

RELINQUISHED BY:		RECEIVED BY:	
Name:	See Page 1	Name:	
Of:		Of:	
Name:		Name:	
Of:		Of:	
Date:		Date:	
Time:		Time:	
Date:		Date:	
Time:		Time:	

METHOD OF SHIPMENT	
Con' Note No:	
Transport Co:	
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulphuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.	

CHAIN OF CUSTODY DOCUMENTATION



Australian Laboratory Services Pty Ltd

CLIENT: C.M. Jewell & Associates Pty Ltd	SAMPLER: DVE / CBW
ADDRESS / OFFICE: P.O.Box 10, Wentworth Falls, Australia 2782	MOBILE: 0428 619 804
PROJECT MANAGER (PM): Craig Wicenciak	PHONE (02) 4759 3251
PROJECT ID: J1418	EMAIL REPORT TO: Craig@cm-jewell.com.au
SITE: Kiriwee Brick Pit	EMAIL INVOICE TO: (if different to report)

RESULTS REQUIRED (Date):	P.O. NO.:
	QUOTE NO.: SY100/08

FOR LABORATORY USE ONLY		COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:	
COOLER SEAL (circle appropriate)		Major anions: Cl, SO4, CO3, HCO3	
Intact: Yes No	NA	Major cations: Na, K, Ca, Mg	
SAMPLE TEMPERATURE			
CHILLED: Yes No			

SAMPLE INFORMATION (note: S = Soil, W=Water)				CONTAINER INFORMATION			
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	
	BP-05:2.5	Water	20/12/2008	X	V - 60 ml	1-set	
	BP-05:2.5	Water	20/12/2008	X	AG - 500 ml	1	
	BP-05:2.5	Water	20/12/2008	X	VS - 1 vial	1	
	BP-05:6.0	Water	20/12/2008	X	P - 1 litre	1	
	BP-05:6.0	Water	20/12/2008	X	N - 125 ml	1	
	BP-05:6.0	Water	20/12/2008	X	SP - 250 ml	1	
	BP-05:6.0	Water	20/12/2008	X	SP - 1 litre	1	
	BP-05:6.0	Water	20/12/2008	X	V - 60 ml	1-set	
	BP-05:6.0	Water	20/12/2008	X	AG - 500 ml	1	
	BP-05:6.0	Water	20/12/2008	X	VS - 1 vial	1	
	BP-06:0.5	Water	20/12/2008	X	P - 1 litre	1	
	BP-06:0.5	Water	20/12/2008	X	N - 125 ml	1	

RELINQUISHED BY:		RECEIVED BY:	
Name: See Page 1	Date:	Name:	Date:
Of:	Time:	Of:	Time:
Name:	Date:	Name:	Date:
Of:	Time:	Of:	Time:

Con' Note No:	
Transport Co:	

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

AUSTRALIAN LABORATORY SERVICES P/L

COC Page ____ of ____

PROJECT MANAGER (PM): Craig Wicenciak

EMAIL INVOICE TO: (if different to report)

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

RECEIVED BY

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved;

V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulphuric Preserved; Amber Glass: H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass;

Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY DOCUMENTATION

CLIENT: C.M. Jewell & Associates Pty Ltd		SAMPLER: DVE / CBW				
ADDRESS / OFFICE: P.O.Box 10, Wentworth Falls, Australia 2782		MOBILE: 0428 619 804				
PROJECT MANAGER (PM): Craig Wicenciak		PHONE (02) 4759 3251				
PROJECT ID: J1418		EMAIL REPORT TO: Craig@cm-jewell.com.au				
SITE: Kinawee Brick Pit		EMAIL INVOICE TO: (if different to report)				
P.O. NO.:		QUOTE NO.: SY/100/08				
RESULTS REQUIRED (Date):		ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)				
FOR LABORATORY USE ONLY		Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.				
COOLER SEAL (circle appropriate)						
Intact: Yes No N/A						
SAMPLE TEMPERATURE						
CHILLED: Yes No						
SAMPLE INFORMATION (note: S = Soil, W=Water)		CONTAINER INFORMATION				
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles
	BP-07;1.0	Water	20/12/2008	X	P - 1 litre	1
	BP-07;1.0	Water	20/12/2008	X	N - 125 ml	1
	BP-07;1.0	Water	20/12/2008	X	SP - 250 ml	1
	BP-07;1.0	Water	20/12/2008	X	SP - 1 litre	1
	BP-07;1.0	Water	20/12/2008	X	V - 60 ml	1-set
	BP-07;1.0	Water	20/12/2008	X	AG - 500 ml	1
	BP-07;1.0	Water	20/12/2008	X	VS - 1 vial	1
	BP-07;4.0	Water	20/12/2008	X	P - 1 litre	1
	BP-07;4.0	Water	20/12/2008	X	N - 125 ml	1
	BP-07;4.0	Water	20/12/2008	X	SP - 250 ml	1
	BP-07;4.0	Water	20/12/2008	X	SP - 1 litre	1
	BP-07;4.0	Water	20/12/2008	X	V - 60 ml	1-set
RELINQUISHED BY:						
Name: See Page 1		Date:		Time:		
Of:		Of:		Of:		
Name:		Date:		Time:		
Of:		Of:		Of:		
RECEIVED BY:						
Name:		Date:		Time:		
Of:		Of:		Of:		
Name:		Date:		Time:		
Of:		Of:		Of:		
METHOD OF SHIPMENT						
Con' Note No:		Transport Co:				

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

CHAIN OF CUSTODY DOCUMENTATION

CLIENT: C.M. Jewell & Associates Pty Ltd	SAMPLER: DVE / CBW
ADDRESS / OFFICE: P.O.Box 10, Wentworth Falls, Australia 2782	MOBILE: 0428 619 804
PROJECT MANAGER (PM): Craig Wicenciak	PHONE (02) 4759 3251
PROJECT ID: J1418	EMAIL REPORT TO: Craig@cm-jewell.com.au
SITE: Kirrawee Brick Pit	EMAIL INVOICE TO: (if different to report)
P.O. NO.:	

Australian Laboratory Services Pty Ltd



RESULTS REQUIRED (Date):		QUOTE NO.: SY100/08		ANALYSIS REQUIRED INCLUDING SUITES (note - suite codes must be listed to attract suite prices)													
FOR LABORATORY USE ONLY		COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:															
COOLER SEAL (circle appropriate)		Major anions: Cl, SO ₄ , CO ₃ , HCO ₃															
Intact: Yes No		Major cations: Na, K, Ca, Mg															
SAMPLE TEMPERATURE																	
CHILLED: Yes No																	
SAMPLE INFORMATION (note: S = Soil, W = Water)		CONTAINER INFORMATION															
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	Major anions	Major cations	BOD	Phosphate	Metals	NO ₃ -, NH ₄ +, Total P	Oil and Grease	TPH: C6-C9	TPH: C10-C36	DOC	
	BP-07:4.0	Water	20/12/2008	X	AG - 500 ml	1									X		
	BP-07:4.0	Water	20/12/2008	X	VS - 1 vial	1										X	
	BP-D1	Water	20/12/2008	X	P - 1 litre	1	X	X	X	X							
	BP-D1	Water	20/12/2008	X	N - 125 ml	1					X						
	BP-D1	Water	20/12/2008	X	SP - 250 ml	1						X					
	BP-D1	Water	20/12/2008	X	SP - 1 litre	1											
	BP-D1	Water	20/12/2008	X	V - 60 ml	1-set								X			
	BP-D1	Water	20/12/2008	X	AG - 500 ml	1								X			
	BP-D1	Water	20/12/2008	X	VS - 1 vial	1										X	
	BP-D2	Water	20/12/2008	X	P - 1 litre	1	X	X	X	X							
	BP-D2	Water	20/12/2008	X	N - 125 ml	1					X						
	BP-D2	Water	20/12/2008	X	SP - 250 ml	1						X					
RELINQUISHED BY:		RECEIVED BY:															
Name: See Page 1		Date:		Name:		Date:		Con' Note No:		METHOD OF SHIPMENT							
Of:		Time:		Of:		Time:											
Name:		Date:		Name:		Date:		Transport Co:									
Of:		Time:		Of:		Time:											

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

Australian Laboratory Services Pty Ltd

[illegible]

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



Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)
Comprehensive Report

Work Order : **ES0818896**

Client : **C M JEWELL & ASSOC PTY LTD**
Contact : **MR CRAIG WICENCIAK**
Address : **P O BOX 10**
WENTWORTH FALLS NSW,
AUSTRALIA 2782

Laboratory : **Environmental Division Sydney**
Contact : **Charlie Pierce**
Address : **277-289 Woodpark Road Smithfield**
NSW Australia 2164

E-mail : **craig@cm-jewell.com.au**
Telephone : **+61 47593251**
Facsimile : **+61 02 47593257**

E-mail : **charlie.pierce@alsenviro.com**
Telephone : **+61-2-8784 8555**
Facsimile : **+61-2-8784 8500**

Project : **J1418**
Order number : **----**
C-O-C number : **----**
Site : **KIRRAWEE BRICK PIT**
Sampler : **DVE/CBW**

Page : **1 of 3**
Quote number : **ES2008CMJEWEO115 (SY/100/08)**
QC Level : **NEPM 1999 Schedule B(3) and ALS**
QCS3 requirement

Dates

Date Samples Received : **22-DEC-2008**
Client Requested Due Date : **06-JAN-2009**

Issue Date : **23-DEC-2008 11:57**
Scheduled Reporting Date : **06-JAN-2009**

Delivery Details

Mode of Delivery : **Carrier**
No. of coolers/boxes : **4HARD**
Security Seal : **Not intact.**

Temperature : **2.3C - Ice present**
No. of samples received : **16**
No. of samples analysed : **16**

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Sample(s) have been received within recommended holding times.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Nanthini Coliparampil
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

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

- No sample container / preservation non-compliance exist.

Summary of Sample(s) and Requested Analysis

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

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020A-F Dissolved Metals by ICP/MS - Suite A	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EK058G Nitrate as N by Discrete Analyser	WATER - EK067G Total Phosphorus as P By Discrete Analyser	WATER - EK071G Reactive Phosphorus by Discrete analyser	WATER - EN055 - TS Ionic Balance (TS)	WATER - EP002 Dissolved Organic Carbon (DOC)	WATER - EP020 Oil & Grease (O&G)
ES0818896-001	20-DEC-2008 15:00	BP:01;1.5	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-002	20-DEC-2008 15:00	BP:01;3.5	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-003	20-DEC-2008 15:00	BP:02;1.5	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-004	20-DEC-2008 15:00	BP:02;3.5	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-005	20-DEC-2008 15:00	BP:03;2.5	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-006	20-DEC-2008 15:00	BP:03;5.5	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-007	20-DEC-2008 15:00	BP:04;2.5	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-008	20-DEC-2008 15:00	BP:04;6.0	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-009	20-DEC-2008 15:00	BP:05;2.5	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-010	20-DEC-2008 15:00	BP:05;6.0	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-011	20-DEC-2008 15:00	BP:06;0.5	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-012	20-DEC-2008 15:00	BP:06;2.0	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-013	20-DEC-2008 15:00	BP:07;1.0	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-014	20-DEC-2008 15:00	BP:07;4.0	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-015	20-DEC-2008 15:00	BP:D1	✓	✓	✓	✓	✓	✓	✓	✓
ES0818896-016	20-DEC-2008 15:00	BP:D2	✓	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP030 BOD	WATER - NT-01 Major Cations (Ca, Mg, Na, K)	WATER - NT-02 Major Anions (Cl, SO4, Alkalinity)	WATER - TPH TPH (fractions)	WATER - W-02 8 Metals
ES0818896-001	20-DEC-2008 15:00	BP:01;1.5	✓	✓	✓	✓	✓
ES0818896-002	20-DEC-2008 15:00	BP:01;3.5	✓	✓	✓	✓	✓
ES0818896-003	20-DEC-2008 15:00	BP:02;1.5	✓	✓	✓	✓	✓
ES0818896-004	20-DEC-2008 15:00	BP:02;3.5	✓	✓	✓	✓	✓
ES0818896-005	20-DEC-2008 15:00	BP:03;2.5	✓	✓	✓	✓	✓
ES0818896-006	20-DEC-2008 15:00	BP:03;5.5	✓	✓	✓	✓	✓
ES0818896-007	20-DEC-2008 15:00	BP:04;2.5	✓	✓	✓	✓	✓
ES0818896-008	20-DEC-2008 15:00	BP:04;6.0	✓	✓	✓	✓	✓

Issue Date : 23-DEC-2008 11:57
 Page : 3 of 3
 Work Order : ES0818896
 Client : C M JEWELL & ASSOC PTY LTD



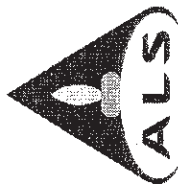
			WATER - EP030 BOD	WATER - NT-01 Major Cations (Ca, Mg, Na, K)	WATER - NT-02 Major Anions (Cl, SO4, Alkalinity)	WATER - TPH TPH (fractions)	WATER - W-02 8 Metals
ES0818896-009	20-DEC-2008 15:00	BP:05; 2.5	✓	✓	✓	✓	✓
ES0818896-010	20-DEC-2008 15:00	BP:05; 6.0	✓	✓	✓	✓	✓
ES0818896-011	20-DEC-2008 15:00	BP:06;0.5	✓	✓	✓	✓	✓
ES0818896-012	20-DEC-2008 15:00	BP:06; 2.0	✓	✓	✓	✓	✓
ES0818896-013	20-DEC-2008 15:00	BP:07; 1.0	✓	✓	✓	✓	✓
ES0818896-014	20-DEC-2008 15:00	BP:07; 4.0	✓	✓	✓	✓	✓
ES0818896-015	20-DEC-2008 15:00	BP:D1	✓	✓	✓	✓	✓
ES0818896-016	20-DEC-2008 15:00	BP:D2	✓	✓	✓	✓	✓

Requested Deliverables

MR CRAIG WICENCIAK

- *AU Certificate of Analysis - NATA
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA
- A4 - AU Sample Receipt Notification - Environmental
- A4 - AU Tax Invoice
- Default - Chain of Custody
- EDI Format - ENMRG (ENMRG)

Email	craig@cm-jewell.com.au
Email	craig@cm-jewell.com.au
Email	craig@cm-jewell.com.au
Email	craig@cm-jewell.com.au
Print	MR CRAIG WICENCIAK
Email	craig@cm-jewell.com.au
Email	craig@cm-jewell.com.au



Environmental Division

QUALITY CONTROL REPORT

Work Order	: ES0818896	Page	: 1 of 8
Client	: C M JEWELL & ASSOC PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR CRAIG WICENCIAK	Contact	: Charlie Pierce
Address	: P O BOX 10 WENTWORTH FALLS NSW, AUSTRALIA 2782	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: craig@cm-jewell.com.au	E-mail	: charlie.pierce@alsenviro.com
Telephone	: +61 47593251	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 47593257	Facsimile	: +61-2-8784 8500
Project	: J1418	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: KIRRAWEE BRICK PIT	Date Samples Received	: 22-DEC-2008
C-O-C number	: —	Issue Date	: 06-JAN-2009
Sampler	: DVE/CBW	No. of samples received	: 16
Order number	: —	No. of samples analysed	: 16
Quote number	: SY/H00/08		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

WORLD RECOGNISED
ACCREDITATION

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Edwandy Fadjar	Senior Organic Chemist	Inorganics
Nanthini Coilparampil	Senior Inorganic Chemist	Organics
Sarah Millington	Senior Inorganic Chemist	Inorganics



Page : 2 of 8
Work Order : ES0818896
Client : C M JEWELL & ASSOC PTY LTD
Project : J1418

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = Chemistry Abstract Services number

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC



Page : 3 of 8
Work Order : ES0818896
Client : C M JEWELL & ASSOC PTY LTD
Project : J1418

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWL-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting. Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: WATER

Sub-Matrix: WATER		Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED037P: Alkalinity by PC Titration (QC Lot: 852600)												
ES0818867-001	Anonymous		ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit		
			ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit		
			ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit		
			ED037-P: Total Alkalinity as CaCO3	—	1	mg/L	<1	<1	0.0	No Limit		
ES0818867-001	Anonymous		ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit		
			ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit		
			ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit		
			ED037-P: Total Alkalinity as CaCO3	—	1	mg/L	<1	<1	0.0	No Limit		
ED037P: Alkalinity by PC Titration (QC Lot: 852603)												
ES0818896-005	BP:03.2.5		ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit		
			ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	8	157	No Limit		
			ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	250	224	10.7	0% - 20%		
			ED037-P: Total Alkalinity as CaCO3	—	1	mg/L	250	233	7.1	0% - 20%		
ES0818896-014	BP:07.4.0		ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit		
			ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	18	20	11.4	0% - 20%		
			ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	248	215	14.0	0% - 20%		
			ED037-P: Total Alkalinity as CaCO3	—	1	mg/L	266	236	12.0	0% - 20%		
ED041: Sulfate (Turbidimetric) as SO4 2- (QC Lot: 852840)												
ES0818896-001	BP:01.1.5		ED041: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.0	No Limit		
ES0818896-010	BP:05.6.0		ED041: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<10	<10	0.0	No Limit		
ED045G: Chloride Discrete analyser (QC Lot: 851366)												
ES0818896-001	BP:01.1.5		ED045G: Chloride	16887-00-6	1	mg/L	189	184	3.0	0% - 20%		
ES0818896-010	BP:05.6.0		ED045G: Chloride	16887-00-6	1	mg/L	190	184	3.7	0% - 20%		
ED093F: Dissolved Major Cations (QC Lot: 852106)												
ES0818843-001	Anonymous		ED093F: Calcium	7440-70-2	1	mg/L	9	9	0.0	No Limit		
			ED093F: Magnesium	7439-95-4	1	mg/L	6	7	0.0	No Limit		
			ED093F: Sodium	7440-23-5	1	mg/L	19	18	0.0	0% - 50%		
			ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit		
ES0818843-007	Anonymous		ED093F: Calcium	7440-70-2	1	mg/L	9	9	0.0	No Limit		
			ED093F: Magnesium	7439-95-4	1	mg/L	7	6	0.0	No Limit		
			ED093F: Sodium	7440-23-5	1	mg/L	18	18	0.0	0% - 50%		
			ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit		
ED093F: Dissolved Major Cations (QC Lot: 852108)												
ES0818896-012	BP:06.2.0		ED093F: Calcium	7440-70-2	1	mg/L	27	27	0.0	0% - 20%		
			ED093F: Magnesium	7439-95-4	1	mg/L	33	33	0.0	0% - 20%		



Page : 4 of 8
Work Order : ES0818896
Client : C.M.JEWELL & ASSOC PTY LTD
Project : J1418

Sub-Matrix: WATER		Laboratory Duplicate (DUP) Report								
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
ED093F: Dissolved Major Cations (QC Lot: 852108) - continued										
ES0818896-012	BP:06; 2.0	ED093F: Sodium	7440-23-5	1	mg/L	115	115	0.0	0% - 20%	
		ED093F: Potassium	7440-09-7	1	mg/L	27	27	0.0	0% - 20%	
EG020F: Dissolved Metals by ICP-MS (QC Lot: 852146)										
ES0818896-001	BP:01;1.5	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.002	0.002	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit	
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit	
		EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
ES0818896-011	BP:06;0.5	EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.002	0.002	0.0	No Limit	
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit	
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit	
EG035F: Dissolved Mercury by FIMS (QC Lot: 851274)										
ES0818809-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES0818896-003	BP:02;1.5	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
EG035F: Dissolved Mercury by FIMS (QC Lot: 853028)										
EP0807196-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES0818903-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 851370)										
ES0818896-001	BP:01;1.5	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
ES0818896-010	BP:05; 6.0	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.70	0.70	0.0	0% - 20%	
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 851386)										
ES0818896-013	BP:07; 1.0	EK057G: Nitrite as N	—	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
ES0818896-002	BP:01;3.5	EK057G: Nitrite as N	—	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EK059G: NOx as N by Discrete Analyser (QC Lot: 851365)										
ES0818896-001	BP:01;1.5	EK059G: Nitrite + Nitrate as N	—	0.01	mg/L	0.01	<0.01	0.0	No Limit	
ES0818896-010	BP:05; 6.0	EK059G: Nitrite + Nitrate as N	—	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 852468)										
ES0818827-003	Anonymous	EK067G: Total Phosphorus as P	—	0.01	mg/L	<0.01	0.02	71.0	No Limit	
ES0818896-004	BP:02;3.5	EK067G: Total Phosphorus as P	—	0.01	mg/L	0.01	<0.01	0.0	No Limit	



Page : 5 of 8
Work Order : ES0818896
Client : C M JEWELL & ASSOC PTY LTD
Project : J1418

Sub-Matrix: WATER		Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 852469)									
ES0818896-015	BP-D1	EK067G: Total Phosphorus as P	—	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES0818942-001	Anonymous	EK067G: Total Phosphorus as P	—	0.01	mg/L	0.35	0.32	10.5	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 851388)									
ES0818896-001	BP-01:1.5	EK071G: Reactive Phosphorus as P	—	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES0818896-010	BP-05: 6.0	EK071G: Reactive Phosphorus as P	—	0.01	mg/L	0.02	0.02	0.0	No Limit
EP002: Dissolved Organic Carbon (DOC) (QC Lot: 853007)									
EP0807200-002	Anonymous	EP002: Dissolved Organic Carbon	—	1	mg/L	122	124	1.3	0% - 20%
ES0818896-007	BP-04:2.5	EP002: Dissolved Organic Carbon	—	1	mg/L	7	7	0.0	No Limit
EP030: Biochemical Oxygen Demand (BOD) (QC Lot: 851439)									
EB0817996-001	Anonymous	EP030: Biochemical Oxygen Demand	—	2	mg/L	<2	<2	0.0	No Limit
EP030: Biochemical Oxygen Demand (BOD) (QC Lot: 851441)									
ES0818896-003	BP-02:1.5	EP030: Biochemical Oxygen Demand	—	2	mg/L	3	5	50.0	No Limit
ES0818896-013	BP-07: 1.0	EP030: Biochemical Oxygen Demand	—	2	mg/L	3	4	28.6	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 851351)									
ES0818896-001	BP-01:1.5	EP080: C6 - C9 Fraction	—	20	µg/L	<20	<20	0.0	No Limit
ES0818896-009	BP-05: 2.5	EP080: C6 - C9 Fraction	—	20	µg/L	<20	<20	0.0	No Limit



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Project : J1418

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: WATER

Method/Compound	CAS Number	LOR	Unit	Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
ED037P: Alkalinity by PC Titrator (QCLot: 852600)								
ED037P: Total Alkalinity as CaCO ₃	---	1	mg/L	---	200 mg/L	105	80.2	108
ED037P: Alkalinity by PC Titrator (QCLot: 852603)								
ED037P: Total Alkalinity as CaCO ₃	---	1	mg/L	---	200 mg/L	91.0	80.2	108
ED041: Sulfate (Turbidimetric) as SO ₄ 2- (QCLot: 852840)								
ED041: Sulfate as SO ₄ - Turbidimetric	14808-79-8	1	mg/L	<1	20 mg/L	99.1	76.1	126
ED045G: Chloride Discrete analyser (QCLot: 851366)								
ED045G: Chloride	16887-00-8	1	mg/L	<1	50 mg/L	100	83.7	124
ED093F: Dissolved Major Cations (QCLot: 852106)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	106	82.9	121
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	106	82.7	114
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	98.5	77.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	84.3	118
ED093F: Dissolved Major Cations (QCLot: 852108)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	96.3	82.9	121
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	98.6	82.7	114
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	95.8	77.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	84.3	118
EG020F: Dissolved Metals by ICP-MS (QCLot: 852146)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.4	79.2	117
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.4	85.1	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	87	117
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.8	80.6	115
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.3	84.1	114
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	98.5	84	116
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.8	83	115
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.0	81.1	115
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	95.1	79.2	116
EG035F: Dissolved Mercury by FIMS (QCLot: 851274)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	99.8	80.3	122
EG035F: Dissolved Mercury by FIMS (QCLot: 853028)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	100	80.3	122
EK055G: Ammonia as N by Discrete Analyser (QCLot: 851370)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1.00 mg/L	101	79.6	122



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Sub-Matrix: WATER

Method Blank (MB) Report				Laboratory Control Spike (LCS) Report			
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)
EP057G: Nitrite as N by Discrete Analyser (QCLot: 851388)	---	0.01	mg/L	<0.01	0.96 mg/L	82.9	65.1 129
EP057G: Nitrite as N	---	0.01	mg/L	<0.01	0.96 mg/L	99.0	76.9 122
EP059G: NOX as N by Discrete Analyser (QCLot: 851385)	---	0.01	mg/L	<0.01	4.42 mg/L	84.9	64.3 120
EP059G: Nitrite + Nitrate as N	---	0.01	mg/L	<0.01	4.42 mg/L	98.0	64.3 120
EP067G: Total Phosphorus as P by Discrete Analyser (QCLot: 852468)	---	0.01	mg/L	<0.01	0.50 mg/L	101	83.8 122
EP067G: Total Phosphorus as P	---	0.01	mg/L	<0.01	10 mg/L	91.8	90.8 121
EP067G: Total Phosphorus as P by Discrete Analyser (QCLot: 852469)	---	0.01	mg/L	<0.01	5000 mg/L	99.4	81.6 107
EP067G: Total Phosphorus as P	---	0.01	mg/L	<0.01	200 mg/L	106	66.8 112
EP071G: Reactive Phosphorus as P by discrete analyser (QCLot: 851389)	---	0.01	mg/L	<0.01	200 mg/L	104	66.8 112
EP071G: Reactive Phosphorus as P	---	0.01	mg/L	<0.01	260 µg/L	85.3	75 127
EP002: Dissolved Organic Carbon (DOC) (QCLot: 853007)	---	1	mg/L	<1	200 µg/L	94.0	58.9 131
EP002: Dissolved Organic Carbon	---	5	mg/L	<5	200 µg/L	102	73.9 138
EP020: Oil and Grease (O&G) (QCLot: 854511)	---	2	mg/L	<2	200 µg/L	86.0	62.7 131
EP020: Oil & Grease	---	20	µg/L	<20			
EP030: Biochemical Oxygen Demand (BOD) (QCLot: 851439)	---	2	mg/L	<2			
EP030: Biochemical Oxygen Demand	---	2	mg/L	<2			
EP030: Biochemical Oxygen Demand (BOD) (QCLot: 851441)	---	2	mg/L	<2			
EP030: Biochemical Oxygen Demand	---	20	µg/L	<20			
EP080/071: Total Petroleum Hydrocarbons (QCLot: 851351)	---	50	µg/L	<50			
EP080: C6 - C9 Fraction	---	100	µg/L	<100			
EP080/071: Total Petroleum Hydrocarbons (QCLot: 854222)	---	50	µg/L	<50			
EP071: C10 - C14 Fraction	---	50	µg/L	<50			
EP071: C15 - C28 Fraction	---	50	µg/L	<50			
EP071: C29 - C36 Fraction	---	50	µg/L	<50			



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Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
ED045G: Chloride Discrete analyser (QCLot: 851366)							
ES0818896-001	BP-01:1.5	ED045G: Chloride	16887-00-6	250 mg/L	94.3	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 852146)							
ES0818896-001	BP-01:1.5	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	102	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	97.5	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	100	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	98.8	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.3	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	97.4	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	100	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	103	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 851274)							
ES0818896-002	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	88.0	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 853028)							
EP0807196-001	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	87.7	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 851370)							
ES0818896-001	BP-01:1.5	EK055G: Ammonia as N	7664-41-7	.50 mg/L	90.6	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 851386)							
ES0818896-013	BP-07: 1.0	EK057G: Nitrite as N	---	0.60 mg/L	128	70	130
EK059G: NOX as N by Discrete Analyser (QCLot: 851365)							
ES0818896-001	BP-01:1.5	EK059G: Nitrite + Nitrate as N	---	0.60 mg/L	93.0	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 852468)							
ES0818896-003	Anonymous	EK067G: Total Phosphorus as P	---	1.00 mg/L	87.1	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 852469)							
ES0818896-015	BP-D1	EK067G: Total Phosphorus as P	---	1.00 mg/L	91.3	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 851389)							
ES0818896-001	BP-01:1.5	EK071G: Reactive Phosphorus as P	---	0.50 mg/L	91.8	70	130
EP002: Dissolved Organic Carbon (DOC) (QCLot: 853007)							
EP0807200-003	Anonymous	EP002: Dissolved Organic Carbon	---	1000 mg/L	95.6	70	130
EP0807074: Total Petroleum Hydrocarbons (QCLot: 851351)							
ES0818896-001	BP-01:1.5	EP080: C6 - C9 Fraction	---	250 µg/L	93.9	70	130