



Appendix F

Groundwater Chain of Custody Documentation and Laboratory Certificates

GHD Chain of Custody and Analysis Request

GHD Bunbury
10 Victoria Street, Bunbury WA 6230

Ph: (08) 9721 0700
Fax: (08) 9721 0777



MANAGEMENT
ENGINEERING
ENVIRONMENT

Job No 61/21420	Project and Client Kemerton ASS Investigation Transfield Services	Laboratory- ALS Environmental, 10 Hod Way, Malaga
Project Manager Jeremy Bower	GHD Contact and email address Jeremy Bower jeremy.bower@ghd.com.au	Turnaround Time - 5

Sample ID	Laboratory Sample ID	Date Collected	Sample Matrix	Containers				Analyses Required							
				Unpreserved plastic snap lock bags	Type	Preservative	Number of bottles	Total Volume (ml)	ASS Field Test	Conductivity, pH, alkalinity, acidity, chloride, reactive phosphorus, solids, SO4, Ca, Mg, Na, K	NOx, Total P, TKN, Ammonia, NH3	Sulphide	Dissolved metals	Total metals	
Well 3	1	16/10/2007	water		Plastic bottle	none	1	1000		✓					
Well 3		16/10/2007	water		Plastic bottle	Sulphuric acid	1	250			✓				
Well 3		16/10/2007	water		Plastic bottle	Sodium hydroxide	1	250				✓			
Well 3		16/10/2007	water		Plastic bottle	none	1	125					✓		
Well 3		16/10/2007	water		Plastic bottle	none	1	125						✓	
Well 4	2	16/10/2007	water		Plastic bottle	none	1	1000		✓					
Well 4		16/10/2007	water		Plastic bottle	Sulphuric acid	1	250			✓				
Well 4		16/10/2007	water		Plastic bottle	Sodium hydroxide	1	250				✓			
Well 4		16/10/2007	water		Plastic bottle	none	1	125					✓		
Well 4		16/10/2007	water		Plastic bottle	none	1	125						✓	
Dup 1	3	16/10/2007	water		Plastic bottle	none	1	1000		✓					
Dup 1		16/10/2007	water		Plastic bottle	Sulphuric acid	1	250			✓				
Dup 1		16/10/2007	water		Plastic bottle	Sodium hydroxide	1	250				✓			
Dup 1		16/10/2007	water		Plastic bottle	none	1	125					✓		

Environmental Division
Perth
Work Order
EP0704792



Telephone : +61-8-9209 7655

GHD Chain of Custody and Analysis Request

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MANAGEMENT
ENGINEERING
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Job No 61/21420				Project and Client Kemerton ASS Investigation Transfield Services					Laboratory- ALS Environmental, 10 Hod Way, Malaga						
Project Manager Jeremy Bower				GHD Contact and email address Jeremy Bower jeremy.bower@ghd.com.au					Turnaround Time - 5						
Sample ID	Laboratory Sample ID	Date Collected	Sample Matrix	Containers			Number of bottles	Total Volume (ml)	Analyses Required						NOTES
				Unpreserved plastic snap lock bags	Type	Preservative			ASS Field Test	Conductivity, pH, alkalinity, acidity, chloride, reactive phosphorus, solids, SO4, Ca, Mg, Na, K	NOx, Total P, TKN, Ammonia, NH3	Sulphide	Dissolved metals	Total metals	
Dup 1		16/10/2007	water		Plastic bottle	none	1	125						✓	
Sampled By Kate Roehner				Date/Time 16/10/07											
Relinquished By Kate Roehner				Date/Time 16/10/07											

*Received Kristina
ALS 17/10/07
10.41*



CERTIFICATE OF ANALYSIS

<i>Client</i>	: GHD SERVICES PTY LTD	<i>Laboratory</i>	: Environmental Division Perth	<i>Page</i>	: 1 of 5
<i>Contact</i>	: MR JEREMY BOWER	<i>Contact</i>	: Shaun Crabb	<i>Work Order</i>	: EP0704792
<i>Address</i>	: GHD HOUSE PO BOX Y3106 PERTH WA AUSTRALIA 6832	<i>Address</i>	: 10 Hod Way Malaga WA Australia 6090		
<i>E-mail</i>	: Jeremy.Bower@ghd.com.au	<i>E-mail</i>	: Shaun.Crabb@alsenviro.com		
<i>Telephone</i>	: 6222 8851	<i>Telephone</i>	: +61-8-9209 7655		
<i>Facsimile</i>	: 9429 6555	<i>Facsimile</i>	: +61-8-9209 7600		
<i>Project</i>	: 6121420	<i>Quote number</i>	: EN-005-07	<i>Date received</i>	: 17 Oct 2007
<i>Order number</i>	: - Not provided -			<i>Date issued</i>	: 24 Oct 2007
<i>C-O-C number</i>	: - Not provided -			<i>No. of samples</i>	- Received : 3
<i>Site</i>	: Kemerton ASS Investigation				Analysed : 3

ALSE - Excellence in Analytical Testing



NATA Accredited Laboratory
825

This document is issued in
accordance with NATA's
accreditation requirements.

Accredited for compliance with
ISO/IEC 17025.

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatory</i>	<i>Position</i>	<i>Department</i>
Alan Foley	Senior Chemist - Inorganics	Perth Inorganics - NATA 825 (15847 - Perth)
Herman Lin	Senior Inorganic Chemist	Inorganics - NATA 825 (13778 - Melbourne)
Terrance Hettipathirana	Senior ICP/MS Chemist	Inorganics - NATA 825 (13778 - Melbourne)

Comments

This report for the ALSE reference EP0704792 supersedes any previous reports with this reference. Results apply to the samples as submitted. All pages of this report have been checked and approved for release.

This report contains the following information:

- 1 **Analytical Results for Samples Submitted**
- 1 **Surrogate Recovery Data**

The analytical procedures used by ALS Environmental 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 herein. Reference methods from which ALSE methods are based are provided in parenthesis.

When moisture determination has been performed, results are reported on a dry weight basis. When a reported 'less than' result is higher than the LOR, this may be due to primary sample extracts/digestion dilution and/or insufficient sample amount for analysis. Surrogate Recovery Limits are static and based on USEPA SW846 or ALS-QWI/EN38 (in the absence of specified USEPA limits). Where LOR of reported result differ from standard LOR, this may be due to high moisture, reduced sample amount or matrix interference. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number, LOR = Limit of Reporting. * Indicates failed Surrogate Recoveries.

Specific comments for Work Order **EP0704792**

EG035T : EM0707848 # 1 matrix spike failed for mercury due to sample matrix interference. This has been confirmed by re-analysis.

Page Number : 3 of 5
 Client : GHD SERVICES PTY LTD
 Work Order : EP0704792



Analytical Results

				Client Sample ID :	Well 3	Well 4	Dup 1		
				Sample Matrix Type / Description :	WATER	WATER	WATER		
				Sample Date / Time :	16 Oct 2007 15:00	16 Oct 2007 15:00	16 Oct 2007 15:00		
				Laboratory Sample ID :	EP0704792-001	EP0704792-002	EP0704792-003		
Analyte	CAS number	LOR	Units						
EA005P: pH by PC Titrator									
pH Value		0.01	pH Unit		7.38	7.51	7.35		
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C		1	µS/cm		956	1490	936		
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	GIS-210-010	1	mg/L		540	900	586		
EA025: Suspended Solids									
Suspended Solids (SS)		1	mg/L		64	18	38		
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1		
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1		
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		225	209	226		
Total Alkalinity as CaCO3		1	mg/L		225	209	226		
ED038A: Acidity									
Acidity as CaCO3		1	mg/L		17	22	11		
ED040F: Dissolved Major Anions									
Sulphate as SO4 2-	14808-79-8	1	mg/L		56	84	56		
Sulphur as S	63705-05-5	1	mg/L		18	28	19		
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	1.0	mg/L		158	327	156		
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		68	70	68		
Magnesium	7439-95-4	1	mg/L		28	40	28		
Sodium	7440-23-5	1	mg/L		107	222	108		
Potassium	7440-09-7	1	mg/L		<1	1	<1		
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001		
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001		
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001		
Copper	7440-50-8	0.001	mg/L		0.001	<0.001	<0.001		
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001		
Nickel	7440-02-0	0.001	mg/L		0.003	<0.001	0.001		
Zinc	7440-66-6	0.005	mg/L		<0.005	0.009	<0.005		
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001		
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001		
Chromium	7440-47-3	0.001	mg/L		0.003	<0.001	0.003		

Page Number : 4 of 5
 Client : GHD SERVICES PTY LTD
 Work Order : EP0704792



Analytical Results

				Client Sample ID :	Well 3	Well 4	Dup 1		
				Sample Matrix Type / Description :	WATER	WATER	WATER		
				Sample Date / Time :	16 Oct 2007 15:00	16 Oct 2007 15:00	16 Oct 2007 15:00		
				Laboratory Sample ID :	EP0704792-001	EP0704792-002	EP0704792-003		
Analyte	CAS number	LOR	Units						
EG020T: Total Metals by ICP-MS									
Copper	7440-50-8	0.001 mg/L		0.002	0.001	0.002			
Lead	7439-92-1	0.001 mg/L		0.003	<0.001	0.003			
Nickel	7440-02-0	0.001 mg/L		0.004	<0.001	0.005			
Zinc	7440-66-6	0.005 mg/L		0.005	<0.005	<0.005			
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001 mg/L		<0.0001	<0.0001	<0.0001			
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.0001 mg/L		<0.0001	<0.0001	<0.0001			
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.010 mg/L		0.057	0.170	0.057			
EK059G: NOX as N by Discrete Analyser									
Nitrite + Nitrate as N		0.010 mg/L		<0.010	<0.010	<0.010			
EK061: Total Kjeldahl Nitrogen (TKN)									
Total Kjeldahl Nitrogen as N		0.1 mg/L		0.2	0.2	0.1			
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P		0.01 mg/L		0.07	0.04	0.07			
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P		0.010 mg/L		0.038	0.046	0.039			
EK085M: Sulphide as S2-									
Sulphide as S2-	18496-25-8	0.1 mg/L		<0.1	<0.1	<0.1			
EN055: Ionic Balance									
Total Anions		0.01 meq/L		10.1	15.1	10.1			
Total Cations		0.01 meq/L		10.4	16.5	10.5			
Ionic Balance		0.01 %		1.29	4.41	1.78			

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Client : GHD SERVICES PTY LTD
Work Order : EP0704792



Surrogate Control Limits

- 1 No surrogates present on this report.



Environmental Division

QUALITY CONTROL REPORT

Work Order	: EP0704792	Page	: 1 of 8
Client	: GHD SERVICES PTY LTD	Laboratory	: Environmental Division Perth
Contact	: MR JEREMY BOWER	Contact	: Michael Sharp
Address	: GHD HOUSE PO BOX Y3106 PERTH WA AUSTRALIA 6832	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: Jeremy.Bower@ghd.com.au	E-mail	: Shaun.Crabb@alsenviro.com
Telephone	: +61 08 6222 8851	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9429 6555	Facsimile	: +61-8-9209 7600
Project	: 6121420	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Kemerton ASS Investigation	Date Samples Received	: 17-OCT-2007
C-O-C number	: ----	Issue Date	: 24-OCT-2007
Sampler	: KR	No. of samples received	: 3
Order number	: ----	No. of samples analysed	: 3
Quote number	: EN-005-07		

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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alan Foley	Senior Chemist - Inorganics	Perth Inorganics
Herman Lin	Senior Inorganic Chemist	Inorganics
Terrance Hettipathirana	Senior ICP/MS Chemist	Inorganics

Environmental Division Perth
Part of the **ALS Laboratory Group**

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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



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 515623)									
EP0704781-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.03	8.06	0.4	0% - 20%
EP0704792-001	Well 3	EA005-P: pH Value	----	0.01	pH Unit	7.38	7.38	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 515622)									
EP0704781-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	4500	4450	1.1	0% - 20%
EP0704792-001	Well 3	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	956	957	0.1	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 517965)									
EP0704772-001	Anonymous	EA015: Total Dissolved Solids @180°C	GIS-210-010	1	mg/L	702	672	4.4	0% - 20%
EP0704781-002	Anonymous	EA015: Total Dissolved Solids @180°C	GIS-210-010	1	mg/L	160	168	4.9	0% - 20%
EA025: Suspended Solids (QC Lot: 517850)									
EP0704772-001	Anonymous	EA025: Suspended Solids (SS)	----	1	mg/L	44	44	0.0	0% - 20%
EP0704792-002	Well 4	EA025: Suspended Solids (SS)	----	1	mg/L	18	18	0.0	0% - 50%
ED037P: Alkalinity by PC Titrator (QC Lot: 515625)									
EP0704792-001	Well 3	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	----
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	----
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	225	226	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	225	226	0.0	0% - 20%
EP0704803-004	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	----
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	----
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	270	271	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	270	271	0.0	0% - 20%
ED038A: Acidity (QC Lot: 516059)									
EP0704792-001	Well 3	ED038: Acidity as CaCO3	----	1	mg/L	17	17	0.0	0% - 50%
EP0704806-005	Anonymous	ED038: Acidity as CaCO3	----	1	mg/L	397	395	0.5	0% - 20%
ED040F: Dissolved Major Anions (QC Lot: 514812)									
EP0704791-002	Anonymous	ED040F: Sulphate as SO4 2-	14808-79-8	1	mg/L	48	49	0.0	0% - 20%
		ED040F: Sulphur as S	63705-05-5	1	mg/L	16	16	0.0	0% - 50%
EP0704794-003	Anonymous	ED040F: Sulphate as SO4 2-	14808-79-8	1	mg/L	38	39	2.6	0% - 20%
		ED040F: Sulphur as S	63705-05-5	1	mg/L	13	13	0.0	0% - 50%
ED045G: Chloride Discrete analyser (QC Lot: 516061)									
EP0704792-001	Well 3	ED045G: Chloride	16887-00-6	1.0	mg/L	158	159	0.2	0% - 20%
EP0704805-006	Anonymous	ED045G: Chloride	16887-00-6	1.0	mg/L	187	195	4.2	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 514813)									
EP0704791-002	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	11	12	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	15	15	0.0	0% - 50%

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 Work Order : EP0704792
 Client : GHD SERVICES PTY LTD
 Project : 6121420



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: 514813) - continued									
EP0704791-002	Anonymous	ED093F: Sodium	7440-23-5	1	mg/L	95	98	2.1	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	9	9	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 515823)									
EM0707842-021	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	<0.001	74.4	----
		EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0003	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	0.005	0.005	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.021	0.021	0.0	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.021	0.021	0.0	No Limit
EM0707862-016	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	----
		EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	----
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.003	0.001	73.3	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	----
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	----
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	----
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.010	0.010	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 516830)									
EM0707890-001	Anonymous	EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.008	0.008	0.0	No Limit
		EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	----
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	----
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	----
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	----
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	0.0	No Limit
EP0704806-001	Anonymous	EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	----
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	----
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	----
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	----
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	----
EG035F: Dissolved Mercury by FIMS (QC Lot: 515689)									
EP0704788-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	----
EP0704791-007	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	----
EG035T: Total Mercury by FIMS (QC Lot: 515690)									
EM0707845-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	----
EP0704798-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	----
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 517011)									
EP0704792-001	Well 3	EK055G: Ammonia as N	7664-41-7	0.010	mg/L	0.057	0.031	59.1	No Limit

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 Work Order : EP0704792
 Client : GHD SERVICES PTY LTD
 Project : 6121420



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 517011) - continued									
EP0704813-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.010	mg/L	0.019	<0.010	62.1	----
EK059G: NOX as N by Discrete Analyser (QC Lot: 516682)									
EP0704784-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.010	mg/L	0.216	0.178	19.3	0% - 50%
EP0704806-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.010	mg/L	15.1	15.0	0.2	0% - 20%
EK061: Total Kjeldahl Nitrogen (TKN) (QC Lot: 514818)									
EP0704732-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	0.0	----
EP0704772-005	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.0	1.1	0.0	0% - 50%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 514819)									
EP0704732-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.0	----
EP0704772-005	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.25	0.28	9.2	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 514853)									
EP0704792-001	Well 3	EK071G: Reactive Phosphorus as P	----	0.010	mg/L	0.038	0.036	5.4	No Limit
EK085M: Sulphide as S2- (QC Lot: 517046)									
EP0704792-001	Well 3	EK085: Sulphide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	----
EP0704805-007	Anonymous	EK085: Sulphide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	----



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		Method Blank (MB) Report			Laboratory Control Spike (LCS) Report			
		LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
EA005P: pH by PC Titrator (QCLot: 515623)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	99.7	70	130
EA010P: Conductivity by PC Titrator (QCLot: 515622)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	4000 µS/cm	101	93.2	107
EA015: Total Dissolved Solids (QCLot: 517965)								
EA015: Total Dissolved Solids @180°C	GIS-210-010	1	mg/L	<1	2000 mg/L	105	79.8	116
EA025: Suspended Solids (QCLot: 517850)								
EA025: Suspended Solids (SS)	----	1	mg/L	<1	150 mg/L	102	82	122
ED037P: Alkalinity by PC Titrator (QCLot: 515625)								
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	97.4	85.8	113
ED038A: Acidity (QCLot: 516059)								
ED038: Acidity as CaCO3	----	1	mg/L	----	20 mg/L	105	70	130
ED040F: Dissolved Major Anions (QCLot: 514812)								
ED040F: Sulphate as SO4 2-	14808-79-8	1	mg/L	<1	50 mg/L	102	85.1	114
ED040F: Sulphur as S	63705-05-5	1	mg/L	<1	----	----	----	----
ED045G: Chloride Discrete analyser (QCLot: 516061)								
ED045G: Chloride	16887-00-6	1.0	mg/L	<1.0	250 mg/L	101	80.8	119
ED093F: Dissolved Major Cations (QCLot: 514813)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	99.6	91.5	111
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.1	89.7	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.8	84.6	112
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	104	82.5	116
EG020F: Dissolved Metals by ICP-MS (QCLot: 515823)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.4	84	111
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.4	85.8	120
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.0	84.3	118
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.2	81.8	118
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.4	84.4	116
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.4	81.8	118
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.4	87.4	119
EG020T: Total Metals by ICP-MS (QCLot: 516830)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	80	115
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	105	84.5	120
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	82.7	120



Sub-Matrix: **WATER**

Method/Compound		Method Blank (MB) Report			Laboratory Control Spike (LCS) Report				
		LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG020T: Total Metals by ICP-MS (QCLot: 516830) - continued									
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	103	80	120	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	103	81.1	120	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	80.9	120	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100	80	120	
EG035F: Dissolved Mercury by FIMS (QCLot: 515689)									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	85.5	80.2	120	
EG035T: Total Mercury by FIMS (QCLot: 515690)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	85.5	80	120	
EK055G: Ammonia as N by Discrete Analyser (QCLot: 517011)									
EK055G: Ammonia as N	7664-41-7	0.010	mg/L	<0.010	1 mg/L	102	87.5	124	
EK059G: NOX as N by Discrete Analyser (QCLot: 516682)									
EK059G: Nitrite + Nitrate as N	----	0.010	mg/L	<0.010	0.96 mg/L	109	75.6	124	
EK061: Total Kjeldahl Nitrogen (TKN) (QCLot: 514818)									
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	83.2	70	130	
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 514819)									
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	85.8	70	130	
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 514853)									
EK071G: Reactive Phosphorus as P	----	0.010	mg/L	<0.010	0.5 mg/L	104	82	128	
EK085M: Sulphide as S2- (QCLot: 517046)									
EK085: Sulphide as S2-	18496-25-8	0.1	mg/L	<0.1	0.50 mg/L	106	70	130	



Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					MS	Low	High
ED045G: Chloride Discrete analyser (QCLot: 516061)							
EP0704792-002	Well 4	ED045G: Chloride	16887-00-6	250 mg/L	106	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 515823)							
EM0707842-021	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	93.2	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	103	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	80.2	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	86.6	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	75.2	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	106	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	102	70	130
EG020T: Total Metals by ICP-MS (QCLot: 516830)							
EM0707856-003	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	114	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	112	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	103	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	103	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	101	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	109	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	108	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 515689)							
EP0704788-003	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	80.0	70	130
EG035T: Total Mercury by FIMS (QCLot: 515690)							
EM0707848-001	Anonymous	EG035T: Mercury	7439-97-6	0.0100 mg/L	# 63.4	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 517011)							
EP0704792-002	Well 4	EK055G: Ammonia as N	7664-41-7	1 mg/L	77.8	70	130
EK059G: NOX as N by Discrete Analyser (QCLot: 516682)							
EP0704792-001	Well 3	EK059G: Nitrite + Nitrate as N	----	0.6 mg/L	105	70	130
EK061: Total Kjeldahl Nitrogen (TKN) (QCLot: 514818)							
EP0704732-004	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	82.6	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 514819)							
EP0704732-004	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	85.4	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 514853)							
EP0704792-002	Well 4	EK071G: Reactive Phosphorus as P	----	0.5 mg/L	104	70	130