



APPENDIX B

Chain of Custody Documentation and Laboratory Certificates



1 Havelock Street
West Perth, WA 6005 Australia
Telephone +61 8 9213 7600 Fax +61 8 9213 7611

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10111 page 1 of 1

Project Number:	117643092	Laboratory Name:	SAS-Leeder
Short Title:	Bellevue Annual	Address:	unit 4-5 / 18 Redland Drive, VIC
Golder Contact:	Kary Chadwick	Golder Email Address:	kchadwick@golder.com.au
		Telephone/Fax:	(03) 95741988
		Contact:	Wanda Boboskic

Address where reports should be sent to ☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611 ☒ Other Email Phone _____ Fax _____										Analyses Required									
Sample Control Number (SCN)	Sample Location	Sa#	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH/MM)	Sample Type (over)	QA/QC Code (over)	Related SCN (over)	Number of Containers	Suite 1	Suite 3	Organics (As per Suite 1)	VOCs inc. BTEX	TPH cc-cg	RUSH	Remarks (over)		
Q10111 - 01	MNG45		W	W	10/6/13	10:20				5	✓								
Q10111 - 02	MNG46		W	W		12:05				5	✓								
Q10111 - 03	Ambient Air	A	W	W		11:55	FB			5	✓						Air Blank		
Q10111 - 04	Rinsate		W	W		12:30	FB			8		✓	✓						
Q10111 - 05	MNG62		W	W		3:00				6		✓							
Q10111 - 06	MNG63		W	W						6		✓							
Q10111 - 07	XXXX									-									
Q10111 - 08	Trg brk		W	W						1				✓	✓				
- 09																			
- 10																			
- 11																			
- 12																			

Sampler's Signature:	Relinquished by: Signature	Company: GOLDER	Date:	Time:	Received by: Signature	Company:
Sample Storage (°C): Esky + ICE	Relinquished by: Signature	Company:	Date:	Time:	Received by: Signature	Company:
Comments: QA 2120517WBI	Method of Shipment: AAU AIR	Waybill No:	Received for Lab by:		Date:	Time:
	Shipped by: Australian AIR express	Shipment Condition: Seal intact:	Temp (°C):	Cooler opened by:	Date:	Time:



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CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10112 page 1 of 1

Project Number: 117643092		Laboratory Name: SGS-Leeder	
Short Title: Bellevue Annual		Address: Unit 4-5 18 Redland Drive, Mitcham	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: (03) 98741988	Contact: Wanda Bobesjak

Address where reports should be sent to ☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611 ☒ Other Email: Brittany Herbert bherbert@golder.com.au Phone: Fax:										Analyses Required									
Sample Control Number (SCN)	Sample Location	Sa#	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH/MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Suite 1	Disolved metals & Nitrate (Suite 3)	VOCs	TPH/Ca	BTEX	RUSH	Remarks (over)		
Q10112 - 01	MNG69			W	11/6/13	9:30 AM				5	✓								
- 02	Lab blank									8	✓	✓							
- 03	MNG70									5	✓								
- 04	Rinsite									5	✓								
- 05	Trip BW									1			✓	✓	✓				
- 06																			
- 07																			
- 08																			
- 09																			
- 10																			
- 11																			
- 12																			

Sampler's Signature: Karly Chadwick	Relinquished by: Signature: Karly Chadwick	Company: Golder	Date: 11/6/13	Time:	Received by: Signature:	Company:
Sample Storage (°C): esky + ICE	Relinquished by: Signature:	Company:	Date:	Time:	Received by: Signature:	Company:
Comments: QQ2120517WBL	Method of Shipment: AIR	Waybill No:	Received for Lab by:		Date:	Time:
	Shipped by: AUSTRALIA AIR EXPRESS	Shipment Condition: Seal intact:	Temp (°C):	Cooler opened by:	Date:	Time:

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report



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CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10113 page 1 of 4

Project Number: 117643092		Laboratory Name: SGS-Leeder	
Short Title: Bellevue Annual		Address: Unit 4-5, 18 Redland Drive, Mitcham	
Golder Contact: KARLY CHADWICK	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: (03) 9874 1988	Contact: Wanda Baboskic

Address where reports should be sent to ☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611 ☒ Other Email: BRITTANY HERBERT bherbert@golder.com.au Phone: Fax:										Analyses Required									
Sample Control Number (SCN)	Sample Location	Sa#	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH/MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Suite 1	Vols Ind. Bldgs	TPH ₁₆ -Ca	BTXN	RUSH	Remarks (over)			
Q10113 - 01	MWG15T			W	12/6/13	915				5	✓								
- 02	MWG91A									5	✓								
- 03	Rinsate									5	✓								
- 04	MWG91B									5	✓								
- 05	MWG91C									5	✓								
- 06	Top Bk									2		✓	✓	✓					
- 07																			
- 08																			
- 09																			
- 10																			
- 11																			
- 12																			

Sampler's Signature: [Signature]	Relinquished by: Signature: [Signature]	Company: GOLDER	Date: 12/6/13	Time:	Received by: Signature:	Company:
Sample Storage (°C): Esky + ice	Relinquished by: Signature:	Company:	Date:	Time:	Received by: Signature:	Company:
Comments: Q02120517 WBI	Method of Shipment: AIR	Waybill No:	Received for Lab by:		Date:	Time:
	Shipped by: AUSTRALIAN AIR EXPRESS	Shipment Condition: Seal intact:	Temp (°C):	Cooler opened by:	Date:	Time:

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CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10114 page 1 of 1

Project Number: 117643092		Laboratory Name: SCIS - Leeder	
Short Title: Bellevue Annual		Address: Unit 4-5, 13 Redland Ave, Mitcham	
Golder Contact: Karly Cindrich Bellevue, WA 6005	Golder Email Address: kchidrich@golder.com.au	Telephone/Fax: (03) 9874 1988	Contact: Miranda B. Brooks

Address where reports should be sent to ☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611 ☒ Other email Phone 0437782585 Fax										Analyses Required											
Sample Control Number (SCN)	Sample Location	Sa#	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH/MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Suite 1	VOCs incl. BTEX	TPH, CG, BTEX							RUSH	Remarks (over)
Q10114-01	MW47			W	13/06/13	9:30				5	✓										
-02	MW48									5	✓										
-03	Rinsate					11:20AM				5	✓										
-04	MW49					1:00 PM				5	✓										
-05	MW59					3:00 PM				5	✓										
-06	MW54					4:30 PM				5	✓										
-07	Trp blk					4:00 PM				2		✓	✓								
-08																					
-09																					
-10																					
-11																					
-12																					

Sampler's Signature: [Signature]	Relinquished by: Signature [Signature]	Company: Golder	Date: 13/06/13	Time:	Received by: Signature	Company:
Sample Storage (°C): 4°C + ice	Relinquished by: Signature	Company:	Date:	Time:	Received by: Signature	Company:
Comments: Q2 2120517 w6I	Method of Shipment: AIR	Waybill No:	Received for Lab by:		Date:	Time:
	Shipped by: AUSTRALIAN AIR EXPRESS	Shipment Condition: Seal intact:	Temp (°C):	Cooler opened by:	Date:	Time:



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CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10115 page 1 of 1

Project Number: 117643092		Laboratory Name: SAS-Leader	
Short Title: Bellevue Annua)		Address: 100 100 100 100 Unit 4-5, 18 Scotland Drive	
Golder Contact: Karly chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax:	Contact:

Address where reports should be sent to ☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611 ☒ Other Email: Brittany Herbert bherbert@golder.com.au Phone 0437782585 Fax										Analyses Required									
Sample Control Number (SCN)	Sample Location	Sa#	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH/MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Suite 1	Suite 2	TMT CG-C9	VOC inc. MAH	Brominated VOCs	RUSH	Remarks (over)		
Q10115 - 01	MW42			W	17/6/13	930				5	✓								
- 02	MW42					930		FD	-01	5	✓								
- 03	Air Blank					930		FB		5	✓								
- 04	MNG65					1150				5	✓								
- 05	Rinsate					1200				7		✓							
- 06	MW464					230				7		✓							
- 07	TRIP BLANK					3:30		TB		2			✓✓✓						
- 08																			
- 09																			
- 10																			
- 11																			
- 12																			

Sampler's Signature: <i>K. Chadwick</i>	Relinquished by: Signature: <i>K. Chadwick</i>	Company: Golder	Date: 17/06/2013	Time: 3:30pm	Received by: Signature:	Company:
Sample Storage (°C): ICE + Esky	Relinquished by: Signature:	Company:	Date:	Time:	Received by: Signature:	Company:
Comments: Q10120617WBI	Method of Shipment: AIR	Waybill No:	Received for Lab by:		Date:	Time:
	Shipped by: AAE	Shipment Condition: Seal intact:	Temp (°C):	Cooler opened by:	Date:	Time:

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CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10116 page 1 of 1

Project Number: 117643092		Laboratory Name: AUS	
Short Title: Bellevue Annual		Address: 10 Hord Way Malaga	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: 92097655	Contact: Lauren Oakwell

Address where reports should be sent to ☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611 ☒ Other Brittany Herbert Email Phone 0437782555 Fax										Analyses Required									
Sample Control Number (SCN)	Sample Location	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH/MM)	Sample Type (over)	QA/QC Code (over)	Related SCN (over)	Number of Containers	TPH	VOCs (MAHs, chlorinated ethenes, ethanes, benzene)	Brominated VOCs	TPH/Cg	RUSH	Remarks (over)				
Q10116-01	MW42		W	17/6/13	9:30	FT	Q10116-01	6	✓	✓	✓	✓	✓		See: 117643092 Q8150-01 indicative for expected concentrations.				
Q10116-02	Tipbkr		W	17/6/13	9:30	TB		2		✓	✓	✓	✓						
-03																			
-04																			
-05																			
-06																			
-07																			
-08																			
-09																			
-10																			
-11																			
-12																			

Sampler's Signature: Khadwick	Relinquished by: Signature Khadwick	Company Golder	Date 17/6/13	Time	Received by: Signature	Company
Sample Storage (°C) Esky + ICE	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Comments: Bellevue Please see Lauren Oakwell RE: the analysis. Please call Karly Chadwick for any queries.	Method of Shipment: Courier	Waybill No:	Received for Lab by:	Date	Time	
	Shipped by:	Shipment Condition: Seal intact:	Temp (°C)	Cooler opened by:	Date	Time

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report



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CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10117 page 1 of 1

Project Number: 117643092		Laboratory Name: SGS - Leeder	
Short Title: Bellevue Annual		Address: Unit 4-5, 18 Redland Drive	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax:	Contact:

Address where reports should be sent to

- ☐ PO Box 1914
West Perth, WA 6872
Telephone (61 8) 9213 7600
Fax (61 8) 9213 7611
- ☒ Other

Phone 0450244266 Fax

Brittany Herbert bherbert@golder.com.au
email

Analyses Required

Sample Control Number (SCN)	Sample Location	Sa#	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH/MM)	Sample Type (over)	QA/QC Code (over)	Related SCN (over)	Number of Containers	TPH C6-C9	VOCs inc. MAH	Brominated VOCs	RUSH	Remarks (over)
Q10117-01	MW21			W	18/6/13	1015				7	✓				
Q10117-02	MW23			W	" "	1200				7	✓				
Q10117-03	Rinsate			W	" "	1:30		RB		7	✓				
Q10117-04	Lab Blank			W	" "	1:30		LB		6	✓				
Q10117-05	MW22			W	" "	230				7	✓				
Q10117-06	MW21			W	" "	230		FD -05		7	✓				
Q10117-07	Trp blank			W	18/6/13	4:00		TB		2	✓	✓	✓		
-08															
-09															
-10															
-11															
-12															

Sampler's Signature: [Signature]	Relinquished by: Signature [Signature]	Company: Golder	Date: 18/06/13	Time: 4:05pm	Received by: Signature	Company
Sample Storage (°C): 15min & ICE	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Comments: Q22120617wBI	Method of Shipment: Airc	Waybill No:	Received for Lab by:		Date	Time
	Shipped by: AAE	Shipment Condition: Seal intact:	Temp (°C)	Cooler opened by:	Date	Time

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CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10118 page 1 of 1

Project Number: 117643092		Laboratory Name: SGS-Leeder	
Short Title: Bellevue Annual		Address: Unit 4-5, 18 Keelton Drive	
Golder Contact: Kirby Chardwick	Golder Email Address: kchardwick@golder.com.au	Telephone/Fax:	Contact:

Address where reports should be sent to ☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611 ☒ Other <u>Brittany Herbert email</u> Phone <u>0450244766</u> Fax _____										Analyses Required									
Sample Control Number (SCN)	Sample Location	Sa#	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH/MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Sample 2	Sample 3	TPH CG-C9	VOC inc. MATH	Background VOCs	RUSH	Remarks (over)		
Q1018 - 01	MW25			W	19/06/13	9:00am				7	✓								
- 02	Kinzale					9:30am		RB		7	✓								
- 03	MW36					11:30am				6	✓								
- 04	MW36					11:45am		FD		6	✓								
- 05	AIR BLANK					1:30pm		FB		6	✓								
- 06	MWG 68					12:15pm				6	✓								
- 07	TRIP BLANK					3:10		TB		2			✓	✓	✓				
- 08																			
- 09																			
- 10																			
- 11																			
- 12																			

Sampler's Signature: <u>[Signature]</u>	Relinquished by: Signature: <u>[Signature]</u>	Company: <u>Golder</u>	Date: <u>19/06/13</u>	Time: <u>3:30pm</u>	Received by: Signature	Company
Sample Storage (°C): <u>ESK ICE</u>	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Comments: <u>Q221 20617WB1</u>	Method of Shipment: <u>AIR</u>	Waybill No:	Received for Lab by:		Date	Time
	Shipped by: <u>AAE</u>	Shipment Condition: Seal intact:	Temp (°C)	Cooler opened by:	Date	Time



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CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10119 page 1 of 1

Project Number: 117643092		Laboratory Name: ALS	
Short Title: Bellevue Annual		Address: 10 Hood Way Mosman	
Golder Contact: Karly Chiodwick	Golder Email Address: kchiodwick@golder.com.au	Telephone/Fax: 9209 7655	Contact: Lauren Ackwell

Address where reports should be sent to ☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611 ☒ Other <u>Briffing Hkert</u> Email <u>Briffing Hkert</u> Phone _____ Fax _____										Analyses Required									
Sample Control Number (SCN)	Sample Location	Sa#	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH/MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	TPH	VOCs (MATHs)	Unlimited esters + alcohols	benzene	Unlimited VOCs	TPH C6-C9	RUSH	Remarks (over)	
Q1019 - 01	MW 36			W	19/6/13	11:50am		FT		6	✓	✓	✓	✓	✓				
Q1019 - 02	Trip tank			W	19/06/13	11:50am		TB		4	✓	✓	✓	✓	✓				
- 03																			
- 04																			
- 05																			
- 06																			
- 07																			
- 08																			
- 09																			
- 10																			
- 11																			
- 12																			

Sampler's Signature: <u>[Signature]</u>	Relinquished by: Signature <u>[Signature]</u>	Company: <u>Golder</u>	Date: <u>19/06/13</u>	Time: <u>12:00pm</u>	Received by: Signature <u>[Signature]</u>	Company: <u>Capital</u>
Sample Storage (°C): <u>Eskey & Ice</u>	Relinquished by: Signature _____	Company: _____	Date: _____	Time: _____	Received by: Signature _____	Company: _____
Comments: <u>Bellevue Annual</u> <u>Please see Lauren Ackwell re:</u> <u>analysis. Please call Karly</u> <u>Chiodwick for my printer.</u>	Method of Shipment: <u>Courier</u>	Waybill No: _____	Received for Lab by: _____		Date: _____	Time: _____
	Shipped by: _____	Shipment Condition: _____ Seal intact: _____	Temp (°C): _____	Cooler opened by: _____	Date: _____	Time: _____

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report



Q 10120

page__of

Project Number: 117643092		Laboratory Name: SGS - Leeder	
Short Title: Bellevue Annual		Address: Unit 4-5, 18 Redland Pkwy	
Golden Contact: Karly Chodnick	Golden Email Address: kchodnick@golder.com.au	Telephone/Fax: /	Contact:

[illegible]

Sampler's Signature: <i>[Signature]</i>	Relinquished by: Signature <i>[Signature]</i>	Company <i>Colder</i>	Date <i>11/06/13</i>	Time <i>11:30</i>	Received by: Signature	Company
Sample Storage (°C) <i>Eskey ICE</i>	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Comments: <i>Q220617WB1</i>	Method of Shipment: <i>AIR</i>	Waybill No:	Received for Lab by:		Date	Time
	Shipped by: <i>AAE</i>	Shipment Condition: Seal intact:	Temp (°C)	Cooler opened by:	Date	Time

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SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **EP1304543**

Client : **GOLDER ASSOCIATES**
 Contact : **MS KARLY CHADWICK**
 Address : **PO BOX 1914**
WEST PERTH WA 6872

Laboratory : **Environmental Division Perth**
 Contact : **Scott James**
 Address : **10 Hod Way Malaga WA Australia 6090**

E-mail : **kchadwick@golder.com.au**
 Telephone : **+61 08 9213 7600**
 Facsimile : **+61 08 9427 7611**

E-mail : **perth.enviro.services@alsglobal.com**
 Telephone : **+61-8-9209 7655**
 Facsimile : **+61-8-9209 7600**

Project : **117643092**
 Order number : **----**
 C-O-C number : **Q10116**
 Site : **----**
 Sampler : **K.C.**

Page : **1 of 3**
 Quote number : **ES2012GOLASSWA0304 (EN/002/12)**
 QC Level : **NEPM 1999 Schedule B(3) and ALS QCS3 requirement**

Dates

Date Samples Received : **17-JUN-2013**
 Client Requested Due Date : **24-JUN-2013**

Issue Date : **17-JUN-2013 17:15**
 Scheduled Reporting Date : **24-JUN-2013**

Delivery Details

Mode of Delivery : **Carrier**
 No. of coolers/boxes : **1 Medium Hard Esky**
 Security Seal : **Intact.**

Temperature : **7.0 - Ice present**
 No. of samples received : **2**
 No. of samples analysed : **2**

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.
- Please see scanned COC for sample discrepancies: extra samples , samples not received etc.
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of Work Order.



Sample Container(s)/Preservation Non-Compliances

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

Method Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
EP074 : Volatile Organic Compounds		
Q10116-02	- Misc Amber VOC Vial - Unpreserved (Methane)	- Amber VOC Vial - Sulfuric Acid
EP080 : TPH Volatiles/BTEX		
Q10116-02	- Misc Amber VOC Vial - Unpreserved (Methane)	- Amber VOC Vial - Sulfuric 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.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP071(V - TPH-WD) TPH Volatiles	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP093 - BVOC Brominated Volatile Organic Compounds	WATER - TPH TPH (fractions)
EP1304543-001	17-JUN-2013 09:30	Q10116-01		✓	✓	✓
EP1304543-002	05-JUN-2013 10:00	Q10116-02	✓	✓	✓	

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✓ = Within holding time.

Method		Due for extraction	Due for analysis	Samples Received		Instructions Received	
Client Sample ID(s)	Container			Date	Evaluation	Date	Evaluation
EP074: Volatile Organic Compounds							
Q10116-02	Misc Amber VOC Vial - Unprese	12-JUN-2013	----	17-JUN-2013	✖	----	----
EP080: TPH Volatiles/BTEX							
Q10116-02	Misc Amber VOC Vial - Unprese	12-JUN-2013	----	17-JUN-2013	✖	----	----
EP093: Brominated Volatile Organic Compounds (BVOC)							
Q10116-02	Misc Amber VOC Vial - Unprese	06-JUN-2013	----	17-JUN-2013	✖	----	----

[illegible]

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: EP1304543	Page	: 1 of 7
Amendment	: 1		
Client	: GOLDER ASSOCIATES	Laboratory	: Environmental Division Perth
Contact	: MS KARLY CHADWICK	Contact	: Scott James
Address	: PO BOX 1914 WEST PERTH WA 6872	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: kchadwick@golder.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9213 7600	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9427 7611	Facsimile	: +61-8-9209 7600
Project	: 117643092	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: Q10116	Date Samples Received	: 17-JUN-2013
Sampler	: K.C.	Issue Date	: 16-AUG-2013
Site	: ----		
Quote number	: EN/002/12	No. of samples received	: 2
		No. of samples analysed	: 2

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

Signatories	Position	Accreditation Category
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Rassem Ayoubi	Senior Organic Chemist	Perth Organics



General Comments

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

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

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

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

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP080: Positive C6-C9 and C6-C10 results reported for sample "RAIL GWL 38A" due to the presence of volatile organic compounds other than BTEX.**



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				Q10116-01	Q10116-02	----	----	----
				17-JUN-2013 09:30	17-JUN-2013 10:00	----	----	----
Compound	CAS Number	LOR	Unit	EP1304543-001	EP1304543-002	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
Styrene	100-42-5	5	µg/L	<5	<5	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				Q10116-01	Q10116-02	----	----	----
				17-JUN-2013 09:30	17-JUN-2013 10:00	----	----	----
Compound	CAS Number	LOR	Unit	EP1304543-001	EP1304543-002	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	31	<5	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	8	<5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	----	----	----
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	----	----	----
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				Q10116-01	Q10116-02	----	----	----
				17-JUN-2013 09:30	17-JUN-2013 10:00	----	----	----
Compound	CAS Number	LOR	Unit	EP1304543-001	EP1304543-002	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	40	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	200	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	200	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	C6_C10	20	µg/L	40	<20	----	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	200	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	200	----	----	----	----
EP093: Brominated Volatile Organic Compounds								
Vinyl bromide	593-60-2	0.10	µg/L	<0.10	<0.10	----	----	----
Dibromomethane	74-95-3	0.10	µg/L	<0.10	<0.10	----	----	----
cis-1,2-Dibromoethene	540-49-8	0.10	µg/L	2.78	<0.10	----	----	----
trans-1,2-Dibromoethene	540-49-8	0.10	µg/L	<0.10	<0.10	----	----	----
^ 1,2-Dibromoethene (total)	540-49-8	0.10	µg/L	2.78	<0.10	----	----	----
Bromoform	75-25-2	0.10	µg/L	<0.10	<0.10	----	----	----
Tribromoethene	598-16-3	0.10	µg/L	<0.10	<0.10	----	----	----
1,1,2,2-Tetrabromoethane	79-27-6	1.0	µg/L	<1.0	<1.0	----	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	109	95.9	----	----	----
Toluene-D8	2037-26-5	0.1	%	99.1	103	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	88.5	86.2	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.3	77.7	----	----	----



Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

Client sampling date / time

				Q10116-01	Q10116-02	----	----	----
				17-JUN-2013 09:30	17-JUN-2013 10:00	----	----	----
Compound	CAS Number	LOR	Unit	EP1304543-001	EP1304543-002	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued								
Toluene-D8	2037-26-5	0.1	%	107	112	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	91.9	89.4	----	----	----
EP093S: Brominated VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	93.9	89.3	----	----	----
Toluene-D8	2037-26-5	0.1	%	102	103	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	97.4	96.2	----	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	62.3	133.9
Toluene-D8	2037-26-5	74.5	124.3
4-Bromofluorobenzene	460-00-4	63.9	118.5
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	60.5	141.2
Toluene-D8	2037-26-5	73.4	126
4-Bromofluorobenzene	460-00-4	59.6	125.3
EP093S: Brominated VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	70.0	130
Toluene-D8	2037-26-5	70.0	130
4-Bromofluorobenzene	460-00-4	70.0	130

Environmental Division

QUALITY CONTROL REPORT

Work Order	: EP1304543	Page	: 1 of 12
Amendment	: 1		
Client	: GOLDER ASSOCIATES	Laboratory	: Environmental Division Perth
Contact	: MS KARLY CHADWICK	Contact	: Scott James
Address	: PO BOX 1914 WEST PERTH WA 6872	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: kchadwick@golder.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9213 7600	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9427 7611	Facsimile	: +61-8-9209 7600
Project	: 117643092	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: Q10116	Date Samples Received	: 17-JUN-2013
Sampler	: K.C.	Issue Date	: 16-AUG-2013
Order number	: ----		
Quote number	: EN/002/12	No. of samples received	: 2
		No. of samples analysed	: 2

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

This Quality Control Report contains the following information:

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



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

Signatories	Position	Accreditation Category
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Rassem Ayoubi	Senior Organic Chemist	Perth Organics



General Comments

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

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

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 (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2929366)									
EP1304543-001	Q10116-01	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP1304558-009	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	3	3	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 2929366)									
EP1304543-001	Q10116-01	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP1304558-009	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074B: Oxygenated Compounds (QC Lot: 2929366) - continued									
EP1304558-009	Anonymous	EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2929366)									
EP1304543-001	Q10116-01	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP1304558-009	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 2929366)									
EP1304543-001	Q10116-01	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP1304558-009	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2929366)									
EP1304543-001	Q10116-01	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	31	32	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	5	6	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	8	8	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2929366) - continued											
EP1304543-001	Q10116-01	EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP1304558-009	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074F: Halogenated Aromatic Compounds (QC Lot: 2929366)									
		EP1304543-001	Q10116-01	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
EP074: Bromobenzene	108-86-1			5	µg/L	<5	<5	0.0	No Limit		
EP074: 2-Chlorotoluene	95-49-8			5	µg/L	<5	<5	0.0	No Limit		
EP074: 4-Chlorotoluene	106-43-4			5	µg/L	<5	<5	0.0	No Limit		
EP074: 1,3-Dichlorobenzene	541-73-1			5	µg/L	<5	<5	0.0	No Limit		



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 2929366) - continued									
EP1304543-001	Q10116-01	EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP1304558-009	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
		EP074G: Trihalomethanes (QC Lot: 2929366)							
EP1304543-001	Q10116-01	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP1304558-009	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 2929366)									
EP1304543-001	Q10116-01	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP1304558-009	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2921786)									
EP1304529-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP1304540-004	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2929365)									
EP1304543-001	Q10116-01	EP080: C6 - C9 Fraction	----	20	µg/L	40	30	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2921786)									
EP1304529-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP1304540-004	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	<100	0.0	No Limit

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 Work Order : EP1304543 Amendment 1
 Client : GOLDER ASSOCIATES
 Project : 117643092



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2921786) - continued									
EP1304540-004	Anonymous	EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2929365)									
EP1304543-001	Q10116-01	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	40	20	38.1	No Limit
EP093: Brominated Volatile Organic Compounds (QC Lot: 2929367)									
EP1304543-002	Q10116-02	EP093: Vinyl bromide	593-60-2	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: Dibromomethane	74-95-3	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: cis-1.2-Dibromoethene	540-49-8	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: trans-1.2-Dibromoethene	540-49-8	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: 1.2-Dibromoethene (total)	540-49-8	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: Bromoform	75-25-2	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: Tribromoethene	598-16-3	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: 1.1.2.2-Tetrabromoethane	79-27-6	1.0	µg/L	<1.0	<1.0	0.0	No Limit



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

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

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2929366)								
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	94.1	76	120
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	91.4	75	121
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	83.0	74	120
EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	20 µg/L	84.5	75	119
	106-42-3							
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	82.6	74	124
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	87.6	75	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	78.0	75	121
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	81.0	72	122
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	80.2	73	121
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	75.7	72	122
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	81.0	74	122
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	78.0	73	121
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	75.7	73	123
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	81.1	70	126
EP074B: Oxygenated Compounds (QCLot: 2929366)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	91.1	61	135
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	99.1	66	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	87.4	72	126
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	87.7	70	126
EP074C: Sulfonated Compounds (QCLot: 2929366)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	103	71	127
EP074D: Fumigants (QCLot: 2929366)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	91.5	71	129
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	93.6	74	124
EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	93.2	73	127
EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	91.4	70	130
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	91.0	74	124
EP074E: Halogenated Aliphatic Compounds (QCLot: 2929366)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	91.6	70	130
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	98.1	73	125
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	97.5	72	128
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	99.0	73	127
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	96.2	74	124

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP074E: Halogenated Aliphatic Compounds (QCLot: 2929366) - continued								
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	89.4	72	130
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	91.6	73	129
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	45.3	42	142
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	95.8	72	126
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	94.7	73	125
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	98.3	76	122
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	92.5	76	124
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	87.3	74	124
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	89.8	73	129
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	100	76	126
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	90.2	75	125
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	103	75	127
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	92.4	74	122
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	97.3	72	128
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	90.7	74	124
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	----	----
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	110	54	142
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	97.2	61	135
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	81.5	66	132
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	93.6	66	130
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	88.1	66	134
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	94.0	56	140
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	101	66	134
EP074F: Halogenated Aromatic Compounds (QCLot: 2929366)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	92.1	78	120
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	89.0	76	122
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	86.7	75	121
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	88.3	74	122
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	92.5	75	121
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	92.5	75	121
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	92.0	76	122
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	105	68	132
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	107	72	128
EP074G: Trihalomethanes (QCLot: 2929366)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	99.1	75	125
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	99.5	73	129
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	97.0	68	132
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	104	67	133
EP074H: Naphthalene (QCLot: 2929366)								



Sub-Matrix: WATER

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
EP074H: Naphthalene (QCLot: 2929366) - continued								
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	94.9	60	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2921786)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	62.1	30.7	123
EP071: C15 - C28 Fraction	----	100	µg/L	<100	400 µg/L	70.1	34	142
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	61.6	32	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2929365)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	320 µg/L	104	74.2	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2921786)								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	400 µg/L	63.9	32	126
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	600 µg/L	66.9	32	136
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	200 µg/L	52.9	28.3	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2929365)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	370 µg/L	104	74.2	142
EP093: Brominated Volatile Organic Compounds (QCLot: 2929367)								
EP093: Vinyl bromide	593-60-2	0.1	µg/L	<0.10	20 µg/L	102	81	121
EP093: Dibromomethane	74-95-3	0.1	µg/L	<0.10	20 µg/L	98.0	87	119
EP093: cis-1,2-Dibromoethene	540-49-8	0.1	µg/L	<0.10	----	----	----	----
EP093: trans-1,2-Dibromoethene	540-49-8	0.1	µg/L	<0.10	----	----	----	----
EP093: 1,2-Dibromoethene (total)	540-49-8	0.1	µg/L	<0.10	20 µg/L	106	87	117
EP093: Bromoform	75-25-2	0.1	µg/L	<0.10	20 µg/L	102	85	119
EP093: Tribromoethene	598-16-3	0.1	µg/L	<0.10	20 µg/L	96.9	86	116
EP093: 1,1,2,2-Tetrabromoethane	79-27-6	1	µg/L	<1.0	20 µg/L	117	69	125

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**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2929366)							
EP1304543-002	Q10116-02	EP074: Benzene	71-43-2	20 µg/L	100	82.7	115
		EP074: Toluene	108-88-3	20 µg/L	97.1	77.1	118
EP074E: Halogenated Aliphatic Compounds (QCLot: 2929366)							
EP1304543-002	Q10116-02	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	116	73.7	126
		EP074: Trichloroethene	79-01-6	20 µg/L	117	79.1	120
EP074F: Halogenated Aromatic Compounds (QCLot: 2929366)							



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EP080/071: Total Petroleum Hydrocarbons (QCLOT: 2929365) - continued										
EP1304543-002	Q10116-02	EP080: C6 - C9 Fraction	----	280 µg/L	87.2	----	77.0	137	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLOT: 2929365)										
EP1304543-002	Q10116-02	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	91.7	----	77.0	137	----	----
EP074A: Monocyclic Aromatic Hydrocarbons (QCLOT: 2929366)										
EP1304543-002	Q10116-02	EP074: Benzene	71-43-2	20 µg/L	100	----	82.7	115	----	----
		EP074: Toluene	108-88-3	20 µg/L	97.1	----	77.1	118	----	----
EP074E: Halogenated Aliphatic Compounds (QCLOT: 2929366)										
EP1304543-002	Q10116-02	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	116	----	73.7	126	----	----
		EP074: Trichloroethene	79-01-6	20 µg/L	117	----	79.1	120	----	----
EP074F: Halogenated Aromatic Compounds (QCLOT: 2929366)										
EP1304543-002	Q10116-02	EP074: Chlorobenzene	108-90-7	20 µg/L	104	----	81.4	115	----	----
EP093: Brominated Volatile Organic Compounds (QCLOT: 2929367)										
EP1304628-002	Anonymous	EP093: Vinyl bromide	593-60-2	20 µg/L	95.8	----	84.6	123	----	----
		EP093: Dibromomethane	74-95-3	20 µg/L	89.7	----	84.4	118	----	----
		EP093: 1,2-Dibromoethene (total)	540-49-8	20 µg/L	94.4	----	81.7	120	----	----
		EP093: Bromoform	75-25-2	20 µg/L	87.8	----	81.3	121	----	----
		EP093: Tribromoethene	598-16-3	20 µg/L	88.6	----	84.6	115	----	----
		EP093: 1,1,2,2-Tetrabromoethane	79-27-6	20 µg/L	92.9	----	75.8	132	----	----

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: EP1304543	Page	: 1 of 6
Amendment	: 1		
Client	: GOLDER ASSOCIATES	Laboratory	: Environmental Division Perth
Contact	: MS KARLY CHADWICK	Contact	: Scott James
Address	: PO BOX 1914 WEST PERTH WA 6872	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: kchadwick@golder.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9213 7600	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9427 7611	Facsimile	: +61-8-9209 7600
Project	: 117643092	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: Q10116	Date Samples Received	: 17-JUN-2013
Sampler	: K.C.	Issue Date	: 16-AUG-2013
Order number	: ----		
Quote number	: EN/002/12	No. of samples received	: 2
		No. of samples analysed	: 2

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

This Interpretive Quality Control Report contains the following information:

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



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) Q10116-01	17-JUN-2013	20-JUN-2013	24-JUN-2013	✓	21-JUN-2013	31-JUL-2013	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) Q10116-01	17-JUN-2013	17-JUN-2013	01-JUL-2013	✓	21-JUN-2013	01-JUL-2013	✓
Misc Amber VOC Vial - Unpreserved (Methane) (EP074) Q10116-02	17-JUN-2013	17-JUN-2013	24-JUN-2013	✓	21-JUN-2013	24-JUN-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) Q10116-01	17-JUN-2013	17-JUN-2013	01-JUL-2013	✓	21-JUN-2013	01-JUL-2013	✓
Misc Amber VOC Vial - Unpreserved (Methane) (EP074) Q10116-02	17-JUN-2013	17-JUN-2013	24-JUN-2013	✓	21-JUN-2013	24-JUN-2013	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) Q10116-01	17-JUN-2013	17-JUN-2013	01-JUL-2013	✓	21-JUN-2013	01-JUL-2013	✓
Misc Amber VOC Vial - Unpreserved (Methane) (EP074) Q10116-02	17-JUN-2013	17-JUN-2013	24-JUN-2013	✓	21-JUN-2013	24-JUN-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) Q10116-01	17-JUN-2013	17-JUN-2013	01-JUL-2013	✓	21-JUN-2013	01-JUL-2013	✓
Misc Amber VOC Vial - Unpreserved (Methane) (EP074) Q10116-02	17-JUN-2013	17-JUN-2013	24-JUN-2013	✓	21-JUN-2013	24-JUN-2013	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) Q10116-01	17-JUN-2013	17-JUN-2013	01-JUL-2013	✓	21-JUN-2013	01-JUL-2013	✓
Misc Amber VOC Vial - Unpreserved (Methane) (EP074) Q10116-02	17-JUN-2013	17-JUN-2013	24-JUN-2013	✓	21-JUN-2013	24-JUN-2013	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) Q10116-01	17-JUN-2013	17-JUN-2013	01-JUL-2013	✓	21-JUN-2013	01-JUL-2013	✓
Misc Amber VOC Vial - Unpreserved (Methane) (EP074) Q10116-02	17-JUN-2013	17-JUN-2013	24-JUN-2013	✓	21-JUN-2013	24-JUN-2013	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) Q10116-01	17-JUN-2013	17-JUN-2013	01-JUL-2013	✓	21-JUN-2013	01-JUL-2013	✓
Misc Amber VOC Vial - Unpreserved (Methane) (EP074) Q10116-02	17-JUN-2013	17-JUN-2013	24-JUN-2013	✓	21-JUN-2013	24-JUN-2013	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) Q10116-01	17-JUN-2013	17-JUN-2013	01-JUL-2013	✓	21-JUN-2013	01-JUL-2013	✓
Misc Amber VOC Vial - Unpreserved (Methane) (EP074) Q10116-02	17-JUN-2013	17-JUN-2013	24-JUN-2013	✓	21-JUN-2013	24-JUN-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft							
Amber VOC Vial - Sulfuric Acid (EP080) Q10116-01	17-JUN-2013	17-JUN-2013	01-JUL-2013	✓	21-JUN-2013	01-JUL-2013	✓
Misc Amber VOC Vial - Unpreserved (Methane) (EP080) Q10116-02	17-JUN-2013	17-JUN-2013	24-JUN-2013	✓	21-JUN-2013	24-JUN-2013	✓
EP093: Brominated Volatile Organic Compounds							
Misc Amber VOC Vial - Unpreserved (Methane) (EP093) Q10116-01, Q10116-02	17-JUN-2013	17-JUN-2013	18-JUN-2013	✓	17-JUN-2013	18-JUN-2013	✓



Quality Control Parameter Frequency Compliance

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

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Brominated Volatile Organic Compounds (BVOC)	EP093	1	4	25.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	8	12.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	13	15.4	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Brominated Volatile Organic Compounds (BVOC)	EP093	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Brominated Volatile Organic Compounds (BVOC)	EP093	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Brominated Volatile Organic Compounds (BVOC)	EP093	1	4	25.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	8	12.5	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Brominated Volatile Organic Compounds (BVOC)	EP093	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

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

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

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



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West Perth, WA 6005 Australia
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CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10116 page 1 of 1

Project Number: 117643092		Laboratory Name: ALS	
		Address: 10 Hood Way Malaga	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: 92097655	Contact: Lauren Ockwell

Address where reports should be sent to

☐ PO Box 1914
West Perth, WA 6872
Telephone (61 8) 9213 7600
Fax (61 8) 9213 7611

☒ Other

Brittany Herbert Email
bherbert@golder.com.au

Phone 0437782585 Fax

Analyses Required

Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers	TPH	VOCs (MAHS)	chlorinated ethenes + ethanes	benzene	Brominated VOCs	TPH _{LC} -C ₉	RUSH	Remarks (over)
1. Q10116-01	W	17/6/13	6	✓	✓	✓	✓	✓			See: 117643092 Q8150-01 for indicative concentrations
2. Q10116-02	W	17/6/13	2		✓	✓	✓	✓	✓		
- 03											
- 04											
- 05											
- 06											
- 07											
- 08											
- 09											
- 10											
- 11											
- 12											

Environmental Division
Perth

Work Order

EP1304543



Telephone : + 61-8-9209 7655

Sampler's Signature: Karly Chadwick	Relinquished by: Signature: Karly Chadwick	Company: Golder	Date: 17/6/13	Time:	Received by: Signature: [Signature]	Company: ALS
Sample Storage (°C): esku + ICE	Relinquished by: Signature:	Company:	Date:	Time:	Received by: Signature:	Company:
Comments: Bellevue *Please see Lauren Ockwell RE: the analysis. Please call Karly Chadwick for any queries.	Method of Shipment: Courier	Waybill No:	Received for Lab by: RHIANNON S	Date: 17/6/13	Time: 13:07	
	Shipped by:	Shipment Condition: Seal intact:	Temp (°C): 7.0	Cooler opened by: RHI	Date:	Time:

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: EP1304628	Page	: 1 of 7
Client	: GOLDER ASSOCIATES	Laboratory	: Environmental Division Perth
Contact	: MS KARLY CHADWICK	Contact	: Scott James
Address	: PO BOX 1914 WEST PERTH WA 6872	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: kchadwick@golder.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9213 7600	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9427 7611	Facsimile	: +61-8-9209 7600
Project	: 117643092	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: Q 10119	Date Samples Received	: 19-JUN-2013
Sampler	: B.H	Issue Date	: 24-JUN-2013
Site	: ----		
Quote number	: EN/002/2013	No. of samples received	: 2
		No. of samples analysed	: 2

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

Signatories	Position	Accreditation Category
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Benjamin Nicholson	Metals Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics



General Comments

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

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

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

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

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				Q10119 - 01	Q10119 - 02	----	----	----
				19-JUN-2013 12:00	19-JUN-2013 12:00	----	----	----
Compound	CAS Number	LOR	Unit	EP1304628-001	EP1304628-002	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	0.194	----	----	----	----
Iron	7439-89-6	0.05	mg/L	13.6	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	----	0.01	mg/L	<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
Styrene	100-42-5	5	µg/L	<5	<5	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				Q10119 - 01	Q10119 - 02	----	----	----
				19-JUN-2013 12:00	19-JUN-2013 12:00	----	----	----
Compound	CAS Number	LOR	Unit	EP1304628-001	EP1304628-002	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				Q10119 - 01	Q10119 - 02	----	----	----
				19-JUN-2013 12:00	19-JUN-2013 12:00	----	----	----
Compound	CAS Number	LOR	Unit	EP1304628-001	EP1304628-002	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	----	----	----
EP093: Brominated Volatile Organic Compounds								
Vinyl bromide	593-60-2	0.10	µg/L	<0.10	<0.10	----	----	----
Dibromomethane	74-95-3	0.10	µg/L	<0.10	<0.10	----	----	----
cis-1.2-Dibromoethene	540-49-8	0.10	µg/L	<0.10	<0.10	----	----	----
trans-1.2-Dibromoethene	540-49-8	0.10	µg/L	<0.10	<0.10	----	----	----
1.2-Dibromoethene (total)	540-49-8	0.10	µg/L	<0.10	<0.10	----	----	----
Bromoform	75-25-2	0.10	µg/L	<0.10	<0.10	----	----	----
Tribromoethene	598-16-3	0.10	µg/L	<0.10	<0.10	----	----	----



Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

				Q10119 - 01	Q10119 - 02	----	----	----
Client sampling date / time				19-JUN-2013 12:00	19-JUN-2013 12:00	----	----	----
Compound	CAS Number	LOR	Unit	EP1304628-001	EP1304628-002	----	----	----
EP093: Brominated Volatile Organic Compounds - Continued								
1.1.2.2-Tetrabromoethane	79-27-6	1.0	µg/L	<1.0	<1.0	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	103	92.9	----	----	----
Toluene-D8	2037-26-5	0.1	%	103	104	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	89.5	85.9	----	----	----
EP093S: Brominated VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	87.5	86.5	----	----	----
Toluene-D8	2037-26-5	0.1	%	102	102	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	96.5	97.5	----	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	62.3	133.9
Toluene-D8	2037-26-5	74.5	124.3
4-Bromofluorobenzene	460-00-4	63.9	118.5
EP093S: Brominated VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	70.0	130
Toluene-D8	2037-26-5	70.0	130
4-Bromofluorobenzene	460-00-4	70.0	130

Environmental Division

QUALITY CONTROL REPORT

Work Order	: EP1304628	Page	: 1 of 12
Client	: GOLDER ASSOCIATES	Laboratory	: Environmental Division Perth
Contact	: MS KARLY CHADWICK	Contact	: Scott James
Address	: PO BOX 1914 WEST PERTH WA 6872	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: kchadwick@golder.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9213 7600	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9427 7611	Facsimile	: +61-8-9209 7600
Project	: 117643092	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 19-JUN-2013
C-O-C number	: Q 10119	Issue Date	: 24-JUN-2013
Sampler	: B.H	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2
Quote number	: EN/002/2013		

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

This Quality Control Report contains the following information:

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



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

Signatories	Position	Accreditation Category
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Benjamin Nicholson	Metals Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics



General Comments

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

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2925558)									
EP1304485-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	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: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	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: 2925557)									
EP1304485-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2925958)									
EP1304612-001	Anonymous	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP1304613-010	Anonymous	EK057G: Nitrite as N	----	0.01	mg/L	0.59	0.58	0.0	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2925553)									
EP1304628-001	Q10119 - 01	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2929366)									
EP1304543-001	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP1304558-009	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	3	3	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2929366) - continued									
EP1304558-009	Anonymous	EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit		
EP074B: Oxygenated Compounds (QC Lot: 2929366)									
EP1304543-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP1304558-009	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2929366)									
EP1304543-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP1304558-009	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 2929366)									
EP1304543-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP1304558-009	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2929366)									
EP1304543-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2929366) - continued									
EP1304543-001	Anonymous	EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	31	32	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	5	6	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	8	8	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP1304558-009	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2929366) - continued									
EP1304558-009	Anonymous	EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 2929366)									
EP1304543-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP1304558-009	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 2929366)									
EP1304543-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP1304558-009	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit

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 Work Order : EP1304628
 Client : GOLDER ASSOCIATES
 Project : 117643092



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 (%)
EP074H: Naphthalene (QC Lot: 2929366)									
EP1304543-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP1304558-009	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP093: Brominated Volatile Organic Compounds (QC Lot: 2929367)									
EP1304543-002	Anonymous	EP093: Vinyl bromide	593-60-2	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: Dibromomethane	74-95-3	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: cis-1.2-Dibromoethene	540-49-8	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: trans-1.2-Dibromoethene	540-49-8	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: 1.2-Dibromoethene (total)	540-49-8	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: Bromoform	75-25-2	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: Tribromoethene	598-16-3	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP093: 1.1.2.2-Tetrabromoethane	79-27-6	1.0	µg/L	<1.0	<1.0	0.0	No Limit



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

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

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG020F: Dissolved Metals by ICP-MS (QCLot: 2925558)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.50 mg/L	89.2	77	113
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.100 mg/L	89.5	89	109
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1000 mg/L	90.3	89	109
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.100 mg/L	93.0	88	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.100 mg/L	91.8	85	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.100 mg/L	89.6	87	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.100 mg/L	87.5	87	107
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.100 mg/L	92.1	87	109
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.100 mg/L	91.5	89	115
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.50 mg/L	94.4	83	109
EG035F: Dissolved Mercury by FIMS (QCLot: 2925557)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	95.6	75	123
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2925958)								
EK057G: Nitrite as N	----	0.01	mg/L	<0.01	0.5 mg/L	102	86	112
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2925553)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	99.1	92	112
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2929366)								
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	94.1	76	120
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	91.4	75	121
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	83.0	74	120
EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	20 µg/L	84.5	75	119
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	82.6	74	124
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	87.6	75	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	78.0	75	121
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	81.0	72	122
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	80.2	73	121
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	75.7	72	122
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	81.0	74	122
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	78.0	73	121
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	75.7	73	123
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	81.1	70	126
EP074B: Oxygenated Compounds (QCLot: 2929366)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	91.1	61	135



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP074B: Oxygenated Compounds (QCLot: 2929366) - continued								
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	99.1	66	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	87.4	72	126
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	87.7	70	126
EP074C: Sulfonated Compounds (QCLot: 2929366)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	103	71	127
EP074D: Fumigants (QCLot: 2929366)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	91.5	71	129
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	93.6	74	124
EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	93.2	73	127
EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	91.4	70	130
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	91.0	74	124
EP074E: Halogenated Aliphatic Compounds (QCLot: 2929366)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	91.6	70	130
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	98.1	73	125
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	97.5	72	128
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	99.0	73	127
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	96.2	74	124
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	89.4	72	130
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	91.6	73	129
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	45.3	42	142
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	95.8	72	126
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	94.7	73	125
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	98.3	76	122
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	92.5	76	124
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	87.3	74	124
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	89.8	73	129
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	100	76	126
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	90.2	75	125
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	103	75	127
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	92.4	74	122
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	97.3	72	128
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	90.7	74	124
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	----	----
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	110	54	142
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	97.2	61	135
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	81.5	66	132
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	93.6	66	130
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	88.1	66	134
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	94.0	56	140



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit						
EP074E: Halogenated Aliphatic Compounds (QCLot: 2929366) - continued								
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	101	66	134
EP074F: Halogenated Aromatic Compounds (QCLot: 2929366)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	92.1	78	120
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	89.0	76	122
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	86.7	75	121
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	88.3	74	122
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	92.5	75	121
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	92.5	75	121
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	92.0	76	122
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	105	68	132
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	107	72	128
EP074G: Trihalomethanes (QCLot: 2929366)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	99.1	75	125
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	99.5	73	129
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	97.0	68	132
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	104	67	133
EP074H: Naphthalene (QCLot: 2929366)								
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	94.9	60	120
EP093: Brominated Volatile Organic Compounds (QCLot: 2929367)								
EP093: Vinyl bromide	593-60-2	0.1	µg/L	<0.10	20 µg/L	102	81	121
EP093: Dibromomethane	74-95-3	0.1	µg/L	<0.10	20 µg/L	98.0	87	119
EP093: cis-1,2-Dibromoethene	540-49-8	0.1	µg/L	<0.10	----	----	----	----
EP093: trans-1,2-Dibromoethene	540-49-8	0.1	µg/L	<0.10	----	----	----	----
EP093: 1,2-Dibromoethene (total)	540-49-8	0.1	µg/L	<0.10	20 µg/L	106	87	117
EP093: Bromoform	75-25-2	0.1	µg/L	<0.10	20 µg/L	102	85	119
EP093: Tribromoethene	598-16-3	0.1	µg/L	<0.10	20 µg/L	96.9	86	116
EP093: 1,1,1,2-Tetrabromoethane	79-27-6	1	µg/L	<1.0	20 µg/L	117	69	125

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				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%)	Recovery Limits (%)	
					MS	Low	High
Client sample ID	Method: Compound	CAS Number					
EG020F: Dissolved Metals by ICP-MS (QCLot: 2925558)							
EP1304628-001	Q10119 - 01	EG020A-F: Arsenic	7440-38-2	0.200 mg/L	98.9	70	130
		EG020A-F: Cadmium	7440-43-9	0.0500 mg/L	103	70	130

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2925558) - continued							
EP1304628-001	Q10119 - 01	EG020A-F: Chromium	7440-47-3	0.200 mg/L	82.6	70	130
		EG020A-F: Copper	7440-50-8	0.200 mg/L	84.6	70	130
		EG020A-F: Lead	7439-92-1	0.200 mg/L	87.0	70	130
		EG020A-F: Manganese	7439-96-5	0.200 mg/L	83.3	70	130
		EG020A-F: Nickel	7440-02-0	0.200 mg/L	85.3	70	130
		EG020A-F: Zinc	7440-66-6	0.200 mg/L	93.8	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2925557)							
EP1304628-001	Q10119 - 01	EG035F: Mercury	7439-97-6	0.0100 mg/L	83.4	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2925958)							
EP1304612-001	Anonymous	EK057G: Nitrite as N	----	0.5 mg/L	110	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2925553)							
EP1304628-001	Q10119 - 01	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	99.6	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2929366)							
EP1304543-002	Anonymous	EP074: Benzene	71-43-2	20 µg/L	100	82.7	115
		EP074: Toluene	108-88-3	20 µg/L	97.1	77.1	118
EP074E: Halogenated Aliphatic Compounds (QCLot: 2929366)							
EP1304543-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	116	73.7	126
		EP074: Trichloroethene	79-01-6	20 µg/L	117	79.1	120
EP074F: Halogenated Aromatic Compounds (QCLot: 2929366)							
EP1304543-002	Anonymous	EP074: Chlorobenzene	108-90-7	20 µg/L	104	81.4	115
EP093: Brominated Volatile Organic Compounds (QCLot: 2929367)							
EP1304628-002	Q10119 - 02	EP093: Vinyl bromide	593-60-2	20 µg/L	95.8	84.6	123
		EP093: Dibromomethane	74-95-3	20 µg/L	89.7	84.4	118
		EP093: 1,2-Dibromoethene (total)	540-49-8	20 µg/L	94.4	81.7	120
		EP093: Bromoform	75-25-2	20 µg/L	87.8	81.3	121
		EP093: Tribromoethene	598-16-3	20 µg/L	88.6	84.6	115
		EP093: 1,1,2,2-Tetrabromoethane	79-27-6	20 µg/L	92.9	75.8	132

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

Sub-Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	MS	MSD	Low	High	Value	Control Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2925553)									

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 Work Order : EP1304628
 Client : GOLDER ASSOCIATES
 Project : 117643092



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2925553) - continued										
EP1304628-001	Q10119 - 01	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	99.6	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 2925557)										
EP1304628-001	Q10119 - 01	EG035F: Mercury	7439-97-6	0.0100 mg/L	83.4	----	70	130	----	----
EG020F: Dissolved Metals by ICP-MS (QCLot: 2925558)										
EP1304628-001	Q10119 - 01	EG020A-F: Arsenic	7440-38-2	0.200 mg/L	98.9	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.0500 mg/L	103	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.200 mg/L	82.6	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.200 mg/L	84.6	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.200 mg/L	87.0	----	70	130	----	----
		EG020A-F: Manganese	7439-96-5	0.200 mg/L	83.3	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.200 mg/L	85.3	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.200 mg/L	93.8	----	70	130	----	----
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2925958)										
EP1304612-001	Anonymous	EK057G: Nitrite as N	----	0.5 mg/L	110	----	70	130	----	----
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2929366)										
EP1304543-002	Anonymous	EP074: Benzene	71-43-2	20 µg/L	100	----	82.7	115	----	----
		EP074: Toluene	108-88-3	20 µg/L	97.1	----	77.1	118	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 2929366)										
EP1304543-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	116	----	73.7	126	----	----
		EP074: Trichloroethene	79-01-6	20 µg/L	117	----	79.1	120	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 2929366)										
EP1304543-002	Anonymous	EP074: Chlorobenzene	108-90-7	20 µg/L	104	----	81.4	115	----	----
EP093: Brominated Volatile Organic Compounds (QCLot: 2929367)										
EP1304628-002	Q10119 - 02	EP093: Vinyl bromide	593-60-2	20 µg/L	95.8	----	84.6	123	----	----
		EP093: Dibromomethane	74-95-3	20 µg/L	89.7	----	84.4	118	----	----
		EP093: 1,2-Dibromoethene (total)	540-49-8	20 µg/L	94.4	----	81.7	120	----	----
		EP093: Bromoform	75-25-2	20 µg/L	87.8	----	81.3	121	----	----
		EP093: Tribromoethene	598-16-3	20 µg/L	88.6	----	84.6	115	----	----
		EP093: 1,1,2,2-Tetrabromoethane	79-27-6	20 µg/L	92.9	----	75.8	132	----	----

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: EP1304628	Page	: 1 of 6
Client	: GOLDER ASSOCIATES	Laboratory	: Environmental Division Perth
Contact	: MS KARLY CHADWICK	Contact	: Scott James
Address	: PO BOX 1914 WEST PERTH WA 6872	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: kchadwick@golder.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9213 7600	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9427 7611	Facsimile	: +61-8-9209 7600
Project	: 117643092	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 19-JUN-2013
C-O-C number	: Q 10119	Issue Date	: 24-JUN-2013
Sampler	: B.H	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2
Quote number	: EN/002/2013		

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

This Interpretive Quality Control Report contains the following information:

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



Analysis Holding Time Compliance

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

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

Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F) Q10119 - 01	19-JUN-2013	---	16-DEC-2013	----	20-JUN-2013	16-DEC-2013	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG035F) Q10119 - 01	19-JUN-2013	---	17-JUL-2013	----	20-JUN-2013	17-JUL-2013	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) Q10119 - 01	19-JUN-2013	---	21-JUN-2013	----	19-JUN-2013	21-JUN-2013	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Natural (EK059G) Q10119 - 01	19-JUN-2013	---	21-JUN-2013	----	19-JUN-2013	21-JUN-2013	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) Q10119 - 01, Q10119 - 02	19-JUN-2013	19-JUN-2013	03-JUL-2013	✓	21-JUN-2013	03-JUL-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) Q10119 - 01, Q10119 - 02	19-JUN-2013	19-JUN-2013	03-JUL-2013	✓	21-JUN-2013	03-JUL-2013	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) Q10119 - 01, Q10119 - 02	19-JUN-2013	19-JUN-2013	03-JUL-2013	✓	21-JUN-2013	03-JUL-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) Q10119 - 01, Q10119 - 02	19-JUN-2013	19-JUN-2013	03-JUL-2013	✓	21-JUN-2013	03-JUL-2013	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) Q10119 - 01, Q10119 - 02	19-JUN-2013	19-JUN-2013	03-JUL-2013	✓	21-JUN-2013	03-JUL-2013	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) Q10119 - 01, Q10119 - 02	19-JUN-2013	19-JUN-2013	03-JUL-2013	✓	21-JUN-2013	03-JUL-2013	✓

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 Work Order : EP1304628
 Client : GOLDER ASSOCIATES
 Project : 117643092



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)		19-JUN-2013	19-JUN-2013	03-JUL-2013	✓	21-JUN-2013	03-JUL-2013	✓
Q10119 - 01,	Q10119 - 02							
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074)		19-JUN-2013	19-JUN-2013	03-JUL-2013	✓	21-JUN-2013	03-JUL-2013	✓
Q10119 - 01,	Q10119 - 02							
EP093: Brominated Volatile Organic Compounds								
Misc Amber VOC Vial - Unpreserved (Methane) (EP093)		19-JUN-2013	19-JUN-2013	20-JUN-2013	✓	19-JUN-2013	20-JUN-2013	✓
Q10119 - 01,	Q10119 - 02							



Quality Control Parameter Frequency Compliance

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

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Brominated Volatile Organic Compounds (BVOC)	EP093	1	4	25.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	2	50.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	2	50.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	1	100.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	13	15.4	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Brominated Volatile Organic Compounds (BVOC)	EP093	1	4	25.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	1	100.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Brominated Volatile Organic Compounds (BVOC)	EP093	1	4	25.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	1	100.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Brominated Volatile Organic Compounds (BVOC)	EP093	1	4	25.0	5.0	✓	ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	2	50.0	5.0	✓	ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	2	50.0	5.0	✓	ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	1	100.0	5.0	✓	ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	5.0	5.0	✓	ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	13	7.7	5.0	✓	ALS QCS3 requirement



Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by 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) (Appdx. 2)
Nitrite as N by Discrete Analyser	EK057G	WATER	APHA 21st ed., 4500-NO ₂ - B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrate as N by Discrete Analyser	EK058G	WATER	APHA 21st ed., 4500-NO ₃ - F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite and Nitrate as N (NO _x) by Discrete Analyser	EK059G	WATER	APHA 21st ed., 4500-NO ₃ - F. Combined oxidised Nitrogen (NO ₂ +NO ₃) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Brominated Volatile Organic Compounds (BVOC)	EP093	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Preparation Methods	Method	Matrix	Method Descriptions
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

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

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

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

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **EP1304628**

Client : **GOLDER ASSOCIATES**
 Contact : **MS KARLY CHADWICK**
 Address : **PO BOX 1914**
WEST PERTH WA 6872

Laboratory : **Environmental Division Perth**
 Contact : **Scott James**
 Address : **10 Hod Way Malaga WA Australia 6090**

E-mail : **kchadwick@golder.com.au**
 Telephone : **+61 08 9213 7600**
 Facsimile : **+61 08 9427 7611**

E-mail : **perth.enviro.services@alsglobal.com**
 Telephone : **+61-8-9209 7655**
 Facsimile : **+61-8-9209 7600**

Project : **117643092**
 Order number : **----**
 C-O-C number : **Q 10119**

Page : **1 of 2**

Quote number : **EP2013GOLASSWA0326**
(EN/002/2013)

Site : **----**
 Sampler : **B.H**

QC Level : **NEPM 1999 Schedule B(3) and ALS**
QCS3 requirement

Dates

Date Samples Received : **19-JUN-2013**
 Client Requested Due Date : **26-JUN-2013**

Issue Date : **19-JUN-2013 15:15**
 Scheduled Reporting Date : **26-JUN-2013**

Delivery Details

Mode of Delivery : **Carrier**
 No. of coolers/boxes : **1 Medium**
 Security Seal : **Intact.**

Temperature : **3.5 - Ice present**
 No. of samples received : **2**
 No. of samples analysed : **2**

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Please see scanned COC for sample discrepancies: extra samples , samples not received etc.
- **Samples received in appropriately pretreated and preserved containers.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of Work Order.

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

- No sample container / preservation non-compliance exist.

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.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Laboratory sample ID	Client sampling date / time	Client sample ID
EP1304628-001	19-JUN-2013 12:00	Q10119 - 01
EP1304628-002	19-JUN-2013 12:00	Q10119 - 02

✓	✓	WATER - EP071(V - TPH-WD) TPH Volatiles
✓	✓	WATER - EP074 (water) Volatile Organic Compounds
✓	✓	WATER - EP093 - BVOC Brominated Volatile Organic Compounds

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

ACCOUNTS PAYABLE (WA)

- A4 - AU Tax Invoice (INV)

Email kaye.davies@alsglobal.com

BRITTANY HERBERT

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN
- Chain of Custody (CoC) (COC)
- EDI Format - ENMRG (ENMRG)
- EDI Format - ESDAT (ESDAT)
- EDI Format - XTab (XTab)

[illegible]

MS KARLY CHADWICK

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN
- Chain of Custody (CoC) (COC)
- EDI Format - ENMRG (ENMRG)
- EDI Format - ESDAT (ESDAT)
- EDI Format - XTab (XTAB)

[illegible]

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **EP1304628**

Client : **GOLDER ASSOCIATES**
 Contact : **MS KARLY CHADWICK**
 Address : **PO BOX 1914**
WEST PERTH WA 6872

Laboratory : **Environmental Division Perth**
 Contact : **Scott James**
 Address : **10 Hod Way Malaga WA Australia 6090**

E-mail : **kchadwick@golder.com.au**
 Telephone : **+61 08 9213 7600**
 Facsimile : **+61 08 9427 7611**

E-mail : **perth.enviro.services@alsglobal.com**
 Telephone : **+61-8-9209 7655**
 Facsimile : **+61-8-9209 7600**

Project : **117643092**
 Order number : **----**
 C-O-C number : **Q 10119**

Page : **1 of 2**

Quote number : **EP2013GOLASSWA0326**
(EN/002/2013)

Site : **----**
 Sampler : **B.H**

QC Level : **NEPM 1999 Schedule B(3) and ALS**
QCS3 requirement

Dates

Date Samples Received : **19-JUN-2013**
 Client Requested Due Date : **26-JUN-2013**

Issue Date : **19-JUN-2013 15:25**
 Scheduled Reporting Date : **26-JUN-2013**

Delivery Details

Mode of Delivery : **Carrier**
 No. of coolers/boxes : **1 Medium**
 Security Seal : **Intact.**

Temperature : **3.5 - Ice present**
 No. of samples received : **2**
 No. of samples analysed : **2**

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Please see scanned COC for sample discrepancies: extra samples , samples not received etc.
- **Samples received in appropriately pretreated and preserved containers.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of Work Order.

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

- No sample container / preservation non-compliance exist.

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.

Matrix: WATER

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER Nitrate as N	WATER Volatile Organic Compounds	WATER Brominated and Chlorinated Hydrocarbons	WATER Heavy Metals
EP1304628-001	19-JUN-2013 12:00	Q10119 - 01	✓	✓	✓	✓
EP1304628-002	19-JUN-2013 12:00	Q10119 - 02		✓	✓	

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

ACCOUNTS PAYABLE (WA)

- Email kaye.davies@alsqglobal.com

BRITTANY HERBERT

- [illegible]

MS KARLY CHADWICK

- [illegible]



1 Havelock Street
West Perth, WA 6005 Australia
Telephone +61 8 9213 7600 Fax +61 8 9213 7611

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10119 page 1 of 1

Project Number: 117643092		Laboratory Name: ALS	
		Address: 10 Hood Way Malaga	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: 9209 7655	Contact: Lauren Ackwell

Address where reports should be sent to ☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611 ☒ Other <u>mail</u> <u>Brittany Herbert</u> <u>B Herbert</u> Phone _____ Fax _____				Analyses Required									
Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers	TPH	VOCs (MAHs)	Unbranched ethers	Chlorides + benzene	Branched VOCs	TPH6-C9	RUSH	Remarks (over)		
Q10119 - 01	W	19/6/13	5	✓	✓	✓	✓	✓	✓				
Q10119 - 02	W	19/06/13	4		✓	✓	✓	✓	✓				
- 03													
- 04													
- 05													
- 06													
- 07													
- 08													
- 09													
- 10													
- 11													
- 12													

Environmental Division
Perth

Work Order

EP1304628



Telephone : + 61-8-9209 7655

Sampler's Signature: <u>[Signature]</u>	Relinquished by Signature: <u>[Signature]</u>	Company: <u>Golder</u>	Date: <u>19/06/13</u>	Time: <u>12:00pm</u>	Received by: Signature: <u>[Signature]</u>	Company: <u>Capital</u>
Sample Storage (°C): <u>Esley & Ice</u>	Relinquished by: Signature: _____	Company: _____	Date: _____	Time: _____	Received by: Signature: _____	Company: _____
Comments: <u>Bellevue Annual release see lower Ackwell re: analysis. please call Karly Chadwick for any queries.</u>	Method of Shipment: <u>Courier</u>	Waybill No: _____	Received for Lab by: <u>[Signature]</u>		Date: <u>19/6</u>	Time: <u>13.59</u>
	Shipped by: _____	Shipment Condition: Seal intact: _____	Temp (°C): <u>3.5</u>	Cooler opened by: <u>[Signature]</u>	Date: <u>11</u>	Time: <u>11</u>

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report



1 Havelock Street
West Perth, WA 6005 Australia
Telephone +61 8 9213 7600 Fax +61 8 9213 7611

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10119

page 1 of 1

Project Number: 117643092		Laboratory Name: ALS	
Golder Contact: Karly Chadwick		Golder Email Address: kchadwick@golder.com.au	
Address: 10 Hod Way Malaga		Telephone/Fax: 9209 7655	
Contact: Lauren Ackwell			

Address where reports should be sent to

☐ PO Box 1914
West Perth, WA 6872
Telephone (61 8) 9213 7600
Fax (61 8) 9213 7611

☒ Other: email

Phone: Fax:

Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Analyses Required	Remarks (over)
Q10119 - 01	W	19/06/13	TPH, VOCs (MAHs, chlorinated ethenes, benzene, brominated VOCs, TPH/C6=C9, W-2F, No3, RUSH	Change of as per k.c
Q10119 - 02	W	19/06/13		
- 03				
- 04				
- 05				
- 06				
- 07				
- 08				
- 09				
- 10				
- 11				
- 12				

Environmental Division
Perth

Work Order

EP1304628



Telephone : +61-8-9209 7655

Sampler's Signature: [Signature]	Relinquished by Signature: [Signature]	Company: Golder	Date: 19/06/13	Time: 12:00pm	Received by: Signature: [Signature]	Company: Capital
Sample Storage (°C): 15kg of ice	Relinquished by: Signature:	Company:	Date:	Time:	Received by: Signature:	Company:
Comments: Bellevue Annual release see Lauren Ackwell re: analysis. Please call Karly Chadwick for any queries.	Method of Shipment: Courier	Waybill No:	Received for Lab by: [Signature]		Date: 19/6	Time: 13.59
	Shipped by:	Shipment Condition: Seal intact:	Temp (°C): 3.5	Cooler opened by:	Date: 1/	Time: 1/

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report



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CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10119

page 1 of 1

Project Number: 117643092		Laboratory Name: ALS	
		Address: 10 Hod Way Malaga	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: 9209 7655	Contact: Lauren Ackwell

Address where reports should be sent to

☐ PO Box 1914
West Perth, WA 6872
Telephone (61 8) 9213 7600
Fax (61 8) 9213 7611

☒ Other: email

Phone: Fax:

Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers	Analyses Required										Remarks (over)	
Q10119 - 01	W	19/06/13	5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Change of as per k.c Coc 19/6
Q10119 - 02	W	19/06/13	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
- 03															
- 04															
- 05															
- 06															
- 07															
- 08															
- 09															
- 10															
- 11															
- 12															

Environmental Division
Perth

Work Order

EP1304628



Telephone : + 61-8-9209 7655

Sampler's Signature: [Signature]	Relinquished by: Signature [Signature]	Company: Golder	Date: 19/06/13	Time: 12:00pm	Received by: Signature [Signature]	Company: Capital
Sample Storage (°C): 5 deg & ice	Relinquished by: Signature	Company:	Date:	Time:	Received by: Signature	Company:
Comments: Bellevue Annual release see lower Ackwell cc. analysis. please call Karly Chadwick for any queries.	Method of Shipment: Courier	Waybill No:	Received for Lab by: Moss		Date: 19/6	Time: 13.59
	Shipped by:	Shipment Condition: Seal intact:	Temp (°C): 3.5	Cooler opened by: 11	Date: 11	Time: 11

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report



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Unit 3-5, 18 Redland Drive
Mitcham VIC 3132
Tel: +613 9874 1988
Fax: +613 9874 1933
email: AU.SampleReceipt.Mitcham@sgs.com

A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	21/06/2013
Email	kchadwick@golder.com.au	Ref:	M131362

SGS Leeder Consulting has received your samples from the project listed below.
If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131362
Date Received: 21-Jun-2013
Estimated date of report: 02-Jul-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.

All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.



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A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	20/06/2013
Email	kchadwick@golder.com.au	Ref:	M131345

SGS Leeder Consulting has received your samples from the project listed below.
If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131345
Date Received: 20-Jun-2013
Estimated date of report: 01-Jul-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.
All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.



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A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	19/06/2013
Email	kchadwick@golder.com.au	Ref:	M131335

SGS Leeder Consulting has received your samples from the project listed below.
If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131335
Date Received: 19-Jun-2013
Estimated date of report: 28-Jun-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.
All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.



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A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	18/06/2013
Email	kchadwick@golder.com.au	Ref:	M131328

SGS Leeder Consulting has received your samples from the project listed below.
If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131328
Date Received: 18-Jun-2013
Estimated date of report: 27-Jun-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.
All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.



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Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	14/06/2013
Email	kchadwick@golder.com.au	Ref:	M131281

SGS Leeder Consulting has received your samples from the project listed below.
If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131281
Date Received: 14-Jun-2013
Estimated date of report: 25-Jun-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.

All analytical work is conducted at our Melbourne office.

Sample Storage - All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.



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Fax: +613 9874 1933
email: AU.SampleReceipt.Mitcham@sgs.com

A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	13/06/2013
Email	kchadwick@golder.com.au	Ref:	M131275

SGS Leeder Consulting has received your samples from the project listed below.
If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131275
Date Received: 13-Jun-2013
Estimated date of report: 24-Jun-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.

All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.



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A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	12/06/2013
Email	kchadwick@golder.com.au	Ref:	M131268

SGS Leeder Consulting has received your samples from the project listed below.
If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131268
Date Received: 12-Jun-2013
Estimated date of report: 21-Jun-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.

All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.



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A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	11/06/2013
Email	kchadwick@golder.com.au	Ref:	M131248

SGS Leeder Consulting has received your samples from the project listed below.
If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131248
Date Received: 11-Jun-2013
Estimated date of report: 20-Jun-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.

All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.



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email: AU.SampleReceipt.Mitcham@sgs.com

A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	11/06/2013
Email	kchadwick@golder.com.au	Ref:	M131248

SGS Leeder Consulting has received your samples from the project listed below.

If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131248
Date Received: 11-Jun-2013
Estimated date of report: 20-Jun-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.

Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.

Surcharges for urgent turnaround requests may apply.

All analytical work is conducted at our Melbourne office.

Sample Storage

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- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.

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Website: www.leederconsulting.com
Email: AU.SampleReceipt.Mitcham@sgs.com



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Telephone +61 8 9213 7600 Fax +61 8 9213 7611

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10111 page 1 of 1

Project Number: 117643092		Laboratory Name: SAS-Leeder	
		Address: Unit 4-5/18 Redland Drive, VIC	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: (03) 98741988	Contact: Wanda Bobaskic

Address where reports should be sent to

☐ PO Box 1914

West Perth, WA 6872

Telephone (61 8) 9213 7600

Fax (61 8) 9213 7611

☒ Other

Email

Phone

Fax

Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Analyses Required										Remarks (over)
			Number of Containers	Suite 1	Suite 3	Organics (suite 2)	VOCs inc. BVOCs	TPH _{HC} -C ₉				RUSH	
Q10111 - 01	W	10/6/13	5	✓	✓								
Q10111 - 02	W		5	✓									
Q10111 - 03	W		5	✓									Air Blank
Q10111 - 04	W		8		✓	✓							
Q10111 - 05	W		6		✓								
Q10111 - 06	W		6		✓								
Q10111 - 07			1										
Q10111 - 08	W		1				✓	✓					
- 09													
- 10													
- 11													
- 12													

Sampler's Signature: <i>[Signature]</i>	Relinquished by: Signature: <i>[Signature]</i>	Company: GOLDER	Date:	Time:	Received by: Signature: <i>[Signature]</i>	Company: SAS Leeder Consulting
Sample Storage (°C): 4sky + ICE	Relinquished by: Signature:	Company:	Date:	Time:	Received by: Signature:	Company:
Comments: QQ 2120517WBI	Method of Shipment: AIR	Waybill No:	Received for Lab by: Lyndall Stevens	Date: 11/6/13	Time: 10:00am	
	Shipped by: Australian AIR Express	Shipment Condition: Seal intact:	Temp (°C):	Cooler opened by:	Date:	Time:

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report



A.B.N. 44 000 964 278
3 - 5, 18 Redland Drive
Mitcham, Vic, 3132
Telephone: (03) 9874 1988
Fax: (03) 9874 1933

Chartered Chemists

20-Jun-2013

REPORT NUMBER: M131248

Site/Client Ref: 117643092

Golder Associates

Level 2

1 Havelock Street

West Perth

WA 6005

Attention: Karly Chadwick

CERTIFICATE OF ANALYSIS

SAMPLES: Seven samples were received for analysis

DATE RECEIVED: **11-Jun-2013**

DATE COMMENCED: **11-Jun-2013**

METHODS: See Attached Results

RESULTS: Please refer to attached pages for results.

Note: Results are based on samples as received at SGS Leeder Consulting's laboratories

REPORTED BY:

Adam Atkinson

Laboratory Manager



NATA Accredited Laboratory Number: 2562

Accredited for compliance
with ISO/IEC 17025.

(I) RESULTS**Report N°: M131248****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013014611	2013014612	2013014613	2013014614	2013014615	2013014616	2013014617
		Client ID	Q10111-04	Q10111-05	Q10111-06	Q10111-01	Q10111-02	Q10111-03	Q10111-08
Analyte Name	PQL								
Benzene	0.001		nd	nd	nd	nd	nd	nd	nd
Bromobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.001		nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.001		nd	nd	nd	nd	nd	nd	nd
Bromomethane	0.001		nd	nd	nd	nd	nd	nd	nd
n-Butylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
s-Butylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
t-Butylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.00075		nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Chloroethane	0.001		nd	nd	nd	nd	nd	nd	nd
Chloromethane	0.001		nd	nd	nd	nd	nd	nd	nd
2-Chlorotoluene	0.001		nd	nd	nd	nd	nd	nd	nd
4-Chlorotoluene	0.001		nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane	0.001		nd	nd	nd	nd	nd	nd	nd
Dibromomethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Dichlorodifluoromethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.001		nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131248****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013014611	2013014612	2013014613	2013014614	2013014615	2013014616	2013014617
		Client ID	Q10111-04	Q10111-05	Q10111-06	Q10111-01	Q10111-02	Q10111-03	Q10111-08
Analyte Name	PQL								
1,1-Dichloroethene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.001	nd	nd	0.002	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Dichloromethane	0.01	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
2,2-Dichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloropropene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Isopropylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
p-Isopropyltoluene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Naphthalene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Propylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Styrene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.001	nd	nd	0.004	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Tribromomethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131248****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013014611	2013014612	2013014613	2013014614	2013014615	2013014616	2013014617
		Client ID	Q10111-04	Q10111-05	Q10111-06	Q10111-01	Q10111-02	Q10111-03	Q10111-08

1,1,2-Trichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.001	nd	0.25	0.55	nd	nd	nd	nd	nd
Trichlorofluoromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Trichloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl Chloride	0.001	nd	nd	nd	nd	nd	nd	nd	nd
m&p-Xylenes	0.001	nd	nd	nd	nd	nd	nd	nd	nd
o-Xylene	0.001	nd	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131248****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013014618	2013014619
Client ID	Q10111-04	Method
Analyte Name	PQL	
	Duplicate	Blank

Benzene	0.001	nd	nd
Bromobenzene	0.001	nd	nd
Bromochloromethane	0.001	nd	nd
Bromodichloromethane	0.001	nd	nd
Bromomethane	0.001	nd	nd
n-Butylbenzene	0.001	nd	nd
s-Butylbenzene	0.001	nd	nd
t-Butylbenzene	0.001	nd	nd
Carbon tetrachloride	0.00075	nd	nd
Chlorobenzene	0.001	nd	nd
Chloroethane	0.001	nd	nd
Chloromethane	0.001	nd	nd
2-Chlorotoluene	0.001	nd	nd
4-Chlorotoluene	0.001	nd	nd
Dibromochloromethane	0.001	nd	nd
1,2-Dibromo-3-chloropropane	0.001	nd	nd
1,2-Dibromoethane	0.001	nd	nd
Dibromomethane	0.001	nd	nd
1,2-Dichlorobenzene	0.001	nd	nd
1,3-Dichlorobenzene	0.001	nd	nd
1,4-Dichlorobenzene	0.001	nd	nd
Dichlorodifluoromethane	0.001	nd	nd
1,2-Dichloroethane	0.001	nd	nd
1,1-Dichloroethane	0.001	nd	nd

(I) RESULTS**Report N°: M131248****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013014618	2013014619
Client ID	Q10111-04	Method
Analyte Name	PQL	
	Duplicate	Blank

1,1-Dichloroethene	0.001	nd	nd
cis-1,2-Dichloroethene	0.001	nd	nd
trans-1,2-Dichloroethene	0.001	nd	nd
Dichloromethane	0.01	nd	nd
1,2-Dichloropropane	0.001	nd	nd
1,3-Dichloropropane	0.001	nd	nd
2,2-Dichloropropane	0.001	nd	nd
1,1-Dichloropropene	0.001	nd	nd
cis-1,3-Dichloropropene	0.001	nd	nd
trans-1,3-Dichloropropene	0.001	nd	nd
Ethylbenzene	0.001	nd	nd
Hexachloro-1,3-butadiene	0.001	nd	nd
Isopropylbenzene	0.001	nd	nd
p-Isopropyltoluene	0.001	nd	nd
Naphthalene	0.001	nd	nd
Propylbenzene	0.001	nd	nd
Styrene	0.001	nd	nd
1,1,2,2-Tetrachloroethane	0.001	nd	nd
Tetrachloroethene	0.001	nd	nd
1,1,1,2-Tetrachloroethane	0.001	nd	nd
Toluene	0.001	nd	nd
Tribromomethane	0.001	nd	nd
1,2,3-Trichlorobenzene	0.001	nd	nd
1,2,4-Trichlorobenzene	0.001	nd	nd
1,1,1-Trichloroethane	0.001	nd	nd

(I) RESULTS**Report N°: M131248****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013014618	2013014619
Client ID	Q10111-04	Method
Analyte Name	PQL	
	Duplicate	Blank

1,1,2-Trichloroethane	0.001	nd	nd
Trichloroethene	0.001	nd	nd
Trichlorofluoromethane	0.001	nd	nd
Trichloromethane	0.001	nd	nd
1,2,3-Trichloropropane	0.001	nd	nd
1,2,4-Trimethylbenzene	0.001	nd	nd
1,3,5-Trimethylbenzene	0.001	nd	nd
Vinyl Chloride	0.001	nd	nd
m&p-Xylenes	0.001	nd	nd
o-Xylene	0.001	nd	nd

(I) RESULTS**Report N°: M131248****Matrix: Water****Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Sample units are expressed in ug/L

Analyte Name	PQL	Leeder ID	2013014611	2013014612	2013014613	2013014614	2013014615	2013014616	2013014617
		Client ID	Q10111-04	Q10111-05	Q10111-06	Q10111-01	Q10111-02	Q10111-03	Q10111-08

Bromobenzene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromoethyne	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Dibromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dibromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
trans-1,2-Dibromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethene(c,t)	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Dibromomethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tetrabromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tribromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tribromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tribromomethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl bromide	0.1	nd	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131248****Matrix: Water****Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Sample units are expressed in ug/L

Leeder ID	2013014618	2013014619
Client ID	Q10111-04	Method
Analyte Name	PQL	
	Duplicate	Blank

Bromobenzene	0.1	nd	nd
Bromochloromethane	0.1	nd	nd
Bromodichloromethane	0.1	nd	nd
Bromoethane	0.1	nd	nd
Bromoethyne	0.1	nd	nd
Dibromochloromethane	0.1	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd
Dibromoethane	0.1	nd	nd
cis-1,2-Dibromoethene	0.1	nd	nd
trans-1,2-Dibromoethene	0.1	nd	nd
1,2-Dibromoethene(c,t)	0.1	nd	nd
Dibromomethane	0.1	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd
Tetrabromoethane	0.1	nd	nd
Tetrabromoethene	0.1	nd	nd
Tribromoethane	0.1	nd	nd
Tribromoethene	0.1	nd	nd
Tribromomethane	0.1	nd	nd
Vinyl bromide	0.1	nd	nd

(I) RESULTS

Report N°: M131248

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Sample units are expressed in mg/L

Leeder ID	2013014611	2013014614	2013014615	2013014616	2013014617
Client ID	Q10111-04	Q10111-01	Q10111-02	Q10111-03	Q10111-08
Analyte Name	PQL				

C6-C9 (Purge & Trap)	0.01	nd	nd	nd	nd	nd
C10-C14	0.01	nd	nd	nd	nd	
C15-C28	0.05	nd	nd	nd	nd	
C29-C36	0.05	nd	nd	nd	nd	
Total C6-C36	0.05	nd	nd	nd	nd	

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Sample units are expressed in mg/L

Leeder ID	2013014618	2013014619
Client ID	Q10111-04	Method
Analyte Name	PQL	

C6-C9 (Purge & Trap)	0.01	nd	nd
C10-C14	0.01	nd	nd
C15-C28	0.05	nd	nd
C29-C36	0.05	nd	nd
Total C6-C36	0.05	nd	nd

(I) RESULTS

Report N°: M131248

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Sample units are expressed in mg/L

Analyte Name	Leeder ID	2013014611	2013014612	2013014613
	Client ID	Q10111-04	Q10111-05	Q10111-06
	PQL			
Nitrate as N	0.01	0.02	6.3	9.0

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Sample units are expressed in mg/L

Analyte Name	Leeder ID	2013014618	2013014619
	Client ID	Q10111-04	Method
	PQL	Duplicate	Blank
Nitrate as N	0.01	0.01	nd

(I) RESULTS

Report N°: M131248

Matrix: Water

Method: MA-1400.WW.01 Metals

Sample units are expressed in mg/L

Leeder ID	2013014611	2013014612	2013014613
Client ID	Q10111-04	Q10111-05	Q10111-06
Analyte Name	PQL		

Aluminium	0.001	nd	0.028	0.24
Arsenic	0.0005	nd	nd	nd
Cadmium	0.0002	nd	nd	nd
Chromium	0.001	nd	nd	0.002
Iron	0.001	nd	0.21	0.37
Lead	0.001	nd	nd	nd
Manganese	0.001	nd	0.034	0.062
Mercury	0.00006	nd	nd	nd
Nickel	0.001	nd	0.003	0.004
Zinc	0.001	0.007	0.009	0.024

Matrix: Water

Method: MA-1400.WW.01 Metals

Sample units are expressed in mg/L

Leeder ID	2013014618	2013014619
Client ID	Q10111-04	Method
Analyte Name	PQL	

		Duplicate	Blank
Aluminium	0.001	nd	nd
Arsenic	0.0005	nd	nd
Cadmium	0.0002	nd	nd
Chromium	0.001	nd	nd
Iron	0.001	nd	nd
Lead	0.001	nd	nd
Manganese	0.001	nd	nd
Mercury	0.00006	nd	nd
Nickel	0.001	nd	nd
Zinc	0.001	0.007	nd

(I) RESULTS

Report N°: M131248

Matrix: Water

Method: VOC Surrogate Recovery

Sample units are expressed in %

Analyte Name	PQL	Leeder ID	2013014611	2013014612	2013014613	2013014614	2013014615	2013014616	2013014617
		Client ID	Q10111-04	Q10111-05	Q10111-06	Q10111-01	Q10111-02	Q10111-03	Q10111-08
		PQL							
Dibromofluoromethane			112	109	91	100	110	111	112
12-Dichloroethane-d4			124	109	100	107	108	111	123
Toluene-d8			100	102	99	98	99	99	98
p-Bromofluorobenzene			83	84	82	84	84	85	84

Matrix: Water

Method: VOC Surrogate Recovery

Sample units are expressed in %

Analyte Name	PQL	Leeder ID	2013014618	2013014619
		Client ID	Q10111-04	Method
		PQL	Duplicate	Blank
Dibromofluoromethane			103	114
12-Dichloroethane-d4			105	129
Toluene-d8			96	100
p-Bromofluorobenzene			86	85

(II) QUALITY CONTROL

Report N°: M131248

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014622	2013014623
		Client ID	Method	Method
			Spike	Spike Dup
Benzene			88	88
Bromodichloromethane			80	80
Carbon tetrachloride			92	92
Chlorobenzene			98	97
Dibromochloromethane			75	75
1,2-Dichlorobenzene			85	83
1,4-Dichlorobenzene			111	108
1,2-Dichloroethane			95	93

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014622	2013014623
		Client ID	Method	Method
			Spike	Spike Dup
trans-1,2-Dichloroethene			91	89
Dichloromethane			96	113
1,2-Dichloropropane			90	89
Ethylbenzene			91	90
Tetrachloroethene			74	74
Toluene			94	93
Tribromomethane			74	72
1,1,1-Trichloroethane			95	94

(II) QUALITY CONTROL**Report N°: M131248****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Quality Control Results are expressed in Percent Recovery of expected result

Leeder ID	2013014622	2013014623
Client ID	Method	Method
Analyte Name	PQL	
	Spike	Spike Dup

1,1,2-Trichloroethane		94	92
Trichloroethene		83	81
Trichloromethane		99	97
Vinyl Chloride		118	111

Matrix: Water**Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Quality Control Results are expressed in Percent Recovery of expected result

Leeder ID	2013014622	2013014623
Client ID	Method	Method
Analyte Name	PQL	
	Spike	Spike Dup

Bromodichloromethane		81	81
Bromoethane		91	90
Dibromochloromethane		78	79
cis-1,2-Dibromoethene		89	90
trans-1,2-Dibromoethene		95	93
1,2-Dibromoethene(c,t)		92	91
Tribromoethane		86	88
Tribromoethene		85	81
Tribromomethane		77	76
Vinyl bromide		99	100

(II) QUALITY CONTROL

Report N°: M131248

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	Leeder ID	2013014622	2013014623
	Client ID	Method	Method
	PQL	Spike	Spike Dup
C6-C9 (Purge & Trap)		109	119
Total C6-C36		95	99

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	Leeder ID	2013014620	2013014621
	Client ID	Q10111-04	Q10111-04
	PQL	Spike	Spike Dup
Nitrate as N		111	97

(II) QUALITY CONTROL

Report N°: M131248

Matrix: Water

Method: MA-1400.WW.01 Metals

Quality Control Results are expressed in Percent Recovery of expected result

Leeder ID	2013014620	2013014621
Client ID	Q10111-04	Q10111-04

Analyte Name	PQL	Spike	Spike Dup
Aluminium		108	105
Arsenic		94	94
Cadmium		95	96
Chromium		93	93
Iron		103	105
Lead		85	85
Manganese		96	96
Mercury		92	90
Nickel		92	92
Zinc		117	117

Matrix: Water

Method: VOC Surrogate Recovery

Quality Control Results are expressed in Percent Recovery of expected result

Leeder ID	2013014622	2013014623
Client ID	Method	Method

Analyte Name	PQL	Spike	Spike Dup
Dibromofluoromethane		100	100
12-Dichloroethane-d4		106	108
Toluene-d8		93	96
p-Bromofluorobenzene		91	90

QUALIFIERS / NOTES FOR REPORTED RESULTS

PQL	Practical Quantitation Limit
is	Insufficient Sample to perform this analysis.
T	Tentative identification based on computer library search of mass spectra.
ND	Not Detected – The analyte was not detected above the reported PQL.
NC	Not calculated and/or Results below PQL
nr	Not Requested for analysis.
R	Rejected Result – results for this analysis failed QC checks.
SQ	Semi-Quantitative result – quantitation based on a generic response factor for this class of analyte.
IM	Inappropriate method of analysis for this compound
U	Unable to provide Quality Control data – high levels of compounds in sample interfered with analysis of QC results.
UF	Unable to provide Quality Control data- Surrogates failed QC checks due to sample matrix effects
L	Analyte detected at a level above the linear response of calibration curve.
E	Estimated result. NATA accreditation does not cover estimated results.
C1	These compounds co-elute.
--	Parameter Not Determined
CT	Elevated concentration. Results reported from carbon tube analysis
**	Sample shows non-petroleum hydrocarbon profile



APPENDIX ONE.

CHAIN OF CUSTODY DOCUMENT



1 Havelock Street
West Perth, WA 6005 Australia
Telephone +61 8 9213 7600 Fax +61 8 9213 7611

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10111 page 1 of 1

Project Number: 117643092		Laboratory Name: SAS-Leeder	
		Address: Unit 4-5/18 Redland Drive, VIC	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: (03) 98741988	Contact: Wanda Bobaskic

Address where reports should be sent to

☐ PO Box 1914

West Perth, WA 6872

Telephone (61 8) 9213 7600

Fax (61 8) 9213 7611

☒ Other

Email

Phone

Fax

Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Analyses Required										Remarks (over)
			Number of Containers	Suite 1	Suite 3	Organics (suite 2)	VOCs inc. BVOCs	TPH _{HC} -C ₉				RUSH	
Q10111 - 01	W	10/6/13	5	✓	✓								
Q10111 - 02	W		5	✓									
Q10111 - 03	W		5	✓									Air Blank
Q10111 - 04	W		8		✓	✓							
Q10111 - 05	W		6		✓								
Q10111 - 06	W		6		✓								
Q10111 - 07			1										
Q10111 - 08	W		1				✓	✓					
- 09													
- 10													
- 11													
- 12													

Sampler's Signature: <i>[Signature]</i>	Relinquished by: Signature: <i>[Signature]</i>	Company: GOLDER	Date:	Time:	Received by: Signature: <i>[Signature]</i>	Company: SAS Leeder Consulting
Sample Storage (°C): 4°C + ICE	Relinquished by: Signature:	Company:	Date:	Time:	Received by: Signature:	Company:
Comments: QQ 2120517WBI	Method of Shipment: AIR	Waybill No:	Received for Lab by: Lyndall Stevens	Date: 11/6/13	Time: 10:00am	
	Shipped by: Australian AIR Express	Shipment Condition: Seal intact:	Temp (°C):	Cooler opened by:	Date:	Time:

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report

**Melbourne Office**

Unit 3-5, 18 Redland Drive

Mitcham VIC 3132

Tel: +613 9874 1988

Fax: +613 9874 1933

email: AU.SampleReceipt.Mitcham@sgs.com

A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	12/06/2013
Email	kchadwick@golder.com.au	Ref:	M131268

SGS Leeder Consulting has received your samples from the project listed below.

If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131268
Date Received: 12-Jun-2013
Estimated date of report: 21-Jun-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.
All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.

**SGS LEEDER
CONSULTING****Specialist Laboratory Services**

Melbourne
Tel: +613 9874 1988
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Tel: +612 9959 2351
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Tel: +618 8377 4444
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Website: www.leederconsulting.com
Email: AU.SampleReceipt.Mitcham@sgs.com



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CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10112 page 1 of 1

Project Number: 117643092		Laboratory Name: SGS-Leeder	
		Address: Unit 4-5 18 Redland Drive, Mitcham	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: (03) 98741988	Contact: Wanda Baboska

Address where reports should be sent to

☐ PO Box 1914
West Perth, WA 6872
Telephone (61 8) 9213 7600
Fax (61 8) 9213 7611

☒ Other

Email

Phone

Fax

Analyses Required

Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers	Suite 1	Dissolved metals & nitrate (Suite 3)	VOCs	TPH/Ca	BTEX	RUSH	Remarks (over)
Q10112 - 01	W	11/6/13	5	✓						
- 02	↓	↓	8	✓	✓					
- 03	↓	↓	5	✓						
- 04	↓	↓	5	✓						
- 05	↓	↓	1			✓	✓	✓		
- 06										
- 07										
- 08										
- 09										
- 10										
- 11										
- 12										

Sampler's Signature: Karly Chadwick	Relinquished by: Signature: Karly Chadwick	Company: Golder	Date: 11/6/13	Time:	Received by: Signature: J. Phillips	Company: SGS Leeder Consulting
Sample Storage (°C): esky + ice	Relinquished by: Signature:	Company:	Date:	Time:	Received by: Signature: James Phillips	Company:
Comments: QQ2120517WBI	Method of Shipment: AIR	Waybill No:	Received for Lab by:		Date: 12/6/13	Time: 19:05 AM
	Shipped by: AUSTRALIA AIR EXPRESS	Shipment Condition: Seal intact:	Temp (°C):	Cooler opened by:	Date:	Time:

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report



A.B.N. 44 000 964 278
3 - 5, 18 Redland Drive
Mitcham, Vic, 3132
Telephone: (03) 9874 1988
Fax: (03) 9874 1933

Chartered Chemists

21-Jun-2013

REPORT NUMBER: M131268

Site/Client Ref: 117643092

Golder Associates

Level 2

1 Havelock Street

West Perth

WA 6005

Attention: Karly Chadwick

CERTIFICATE OF ANALYSIS

SAMPLES: Five samples were received for analysis

DATE RECEIVED: **12-Jun-2013**

DATE COMMENCED: **12-Jun-2013**

METHODS: See Attached Results

RESULTS: Please refer to attached pages for results.

Note: Results are based on samples as received at SGS Leeder Consulting's laboratories

REPORTED BY:

Adam Atkinson

Laboratory Manager



NATA Accredited Laboratory Number: 2562

Accredited for compliance
with ISO/IEC 17025.

(I) RESULTS**Report N°: M131268****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013014833	2013014834	2013014835	2013014836	2013014837	2013014838	2013014839
		Client ID	Q10112-02	Q10112-01	Q10112-03	Q10112-04	Q10112-05	Q10112-02	Method
Analyte Name	PQL							Duplicate	Blank
Benzene	0.001		nd	nd	nd	nd	nd	nd	nd
Bromobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.001		nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.001		nd	nd	nd	nd	nd	nd	nd
Bromomethane	0.001		nd	nd	nd	nd	nd	nd	nd
n-Butylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
s-Butylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
t-Butylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.00075		nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Chloroethane	0.001		nd	nd	nd	nd	nd	nd	nd
Chloromethane	0.001		nd	nd	nd	nd	nd	nd	nd
2-Chlorotoluene	0.001		nd	nd	nd	nd	nd	nd	nd
4-Chlorotoluene	0.001		nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane	0.001		nd	nd	nd	nd	nd	nd	nd
Dibromomethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Dichlorodifluoromethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.001		nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131268****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013014833	2013014834	2013014835	2013014836	2013014837	2013014838	2013014839
		Client ID	Q10112-02	Q10112-01	Q10112-03	Q10112-04	Q10112-05	Q10112-02	Method
Analyte Name	PQL							Duplicate	Blank
1,1-Dichloroethene	0.001		nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.001		nd	nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.001		nd	nd	nd	nd	nd	nd	nd
Dichloromethane	0.01		nd	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	0.001		nd	nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	0.001		nd	nd	nd	nd	nd	nd	nd
2,2-Dichloropropane	0.001		nd	nd	nd	nd	nd	nd	nd
1,1-Dichloropropene	0.001		nd	nd	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	0.001		nd	nd	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	0.001		nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	0.001		nd	nd	nd	nd	nd	nd	nd
Isopropylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
p-Isopropyltoluene	0.001		nd	nd	nd	nd	nd	nd	nd
Naphthalene	0.001		nd	nd	nd	nd	nd	nd	nd
Propylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Styrene	0.001		nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.001		nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.001		nd	nd	0.001	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.001		nd	nd	nd	nd	nd	nd	nd
Toluene	0.001		nd	nd	nd	nd	nd	nd	nd
Tribromomethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.001		nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131268****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013014833	2013014834	2013014835	2013014836	2013014837	2013014838	2013014839
		Client ID	Q10112-02	Q10112-01	Q10112-03	Q10112-04	Q10112-05	Q10112-02	Method
								Duplicate	Blank

1,1,2-Trichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.001	nd	nd	0.092	nd	nd	nd	nd	nd
Trichlorofluoromethane	0.001	nd	nd	0.010	nd	nd	nd	nd	nd
Trichloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl Chloride	0.001	nd	nd	nd	nd	nd	nd	nd	nd
m&p-Xylenes	0.001	nd	nd	nd	nd	nd	nd	nd	nd
o-Xylene	0.001	nd	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS

Report N°: M131268

Matrix: Water

Method: MA-15.WW.09 Brominated Volatile Organic Compounds

Sample units are expressed in ug/L

Leeder ID	2013014833	2013014834	2013014835	2013014836	2013014838	2013014839
Client ID	Q10112-02	Q10112-01	Q10112-03	Q10112-04	Q10112-02	Method
Analyte Name	PQL				Duplicate	Blank

Bromobenzene	0.1	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.1	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.1	nd	nd	nd	nd	nd	nd
Bromoethane	0.1	nd	nd	nd	nd	nd	nd
Bromoethyne	0.1	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.1	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd	nd	nd	nd	nd
Dibromoethane	0.1	nd	nd	nd	nd	nd	nd
cis-1,2-Dibromoethene	0.1	nd	nd	nd	nd	nd	nd
trans-1,2-Dibromoethene	0.1	nd	nd	nd	nd	nd	nd
1,2-Dibromoethene(c,t)	0.1	nd	nd	nd	nd	nd	nd
Dibromomethane	0.1	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd
Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd
Tetrabromoethene	0.1	nd	nd	nd	nd	nd	nd
Tribromoethane	0.1	nd	nd	nd	nd	nd	nd
Tribromoethene	0.1	nd	nd	nd	nd	nd	nd
Tribromomethane	0.1	nd	nd	nd	nd	nd	nd
Vinyl bromide	0.1	nd	nd	nd	nd	nd	nd

(I) RESULTS

Report N°: M131268

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013014833	2013014834	2013014835	2013014836	2013014837	2013014838	2013014839
		Client ID	Q10112-02	Q10112-01	Q10112-03	Q10112-04	Q10112-05	Q10112-02	Method
		PQL						Duplicate	Blank

C6-C9 (Purge & Trap)	0.01	nd	nd	0.24	nd	nd	nd	nd
C10-C14	0.01	nd	nd	nd	nd		nd	nd
C15-C28	0.05	nd	nd	nd	nd		nd	nd
C29-C36	0.05	nd	nd	nd	nd		nd	nd
Total C6-C36	0.05	nd	nd	0.24	nd		nd	nd

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013014833	2013014838	2013014839
		Client ID	Q10112-02	Q10112-02	Method
		PQL		Duplicate	Blank

Nitrate as N	0.01	nd	nd	nd
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(I) RESULTS**Report N°: M131268****Matrix: Water****Method: MA-1400.WW.01 Metals**

Sample units are expressed in mg/L

Leeder ID	2013014833	2013014838	2013014839
Client ID	Q10112-02	Q10112-02	Method
Analyte Name	PQL		
		Duplicate	Blank

Aluminium	0.001	nd	nd	nd
Arsenic	0.0005	nd	nd	nd
Cadmium	0.0002	nd	nd	nd
Chromium	0.001	nd	nd	nd
Iron	0.001	nd	nd	nd
Lead	0.001	nd	nd	nd
Manganese	0.001	nd	nd	nd
Mercury	0.00006	nd	nd	nd
Nickel	0.001	nd	nd	nd
Zinc	0.001	nd	nd	nd

Matrix: Water**Method: VOC Surrogate Recovery**

Sample units are expressed in %

Leeder ID	2013014833	2013014834	2013014835	2013014836	2013014837	2013014838	2013014839
Client ID	Q10112-02	Q10112-01	Q10112-03	Q10112-04	Q10112-05	Q10112-02	Method
Analyte Name	PQL					Duplicate	Blank

Dibromofluoromethane		109	109	110	106	90	106	108
12-Dichloroethane-d4		127	113	117	113	104	116	122
Toluene-d8		103	105	102	102	103	101	103
p-Bromofluorobenzene		86	86	86	84	86	86	88

(II) QUALITY CONTROL

Report N°: M131268

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014842	2013014843
		Client ID	Method	Method
			Spike	Spike Dup
Benzene			92	88
Bromodichloromethane			93	81
Carbon tetrachloride			106	88
Chlorobenzene			98	96
Dibromochloromethane			86	76
1,2-Dichlorobenzene			94	83
1,4-Dichlorobenzene			106	108
1,2-Dichloroethane			106	95

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014842	2013014843
		Client ID	Method	Method
			Spike	Spike Dup
trans-1,2-Dichloroethene			99	89
Dichloromethane			98	93
1,2-Dichloropropane			97	90
Ethylbenzene			96	89
Tetrachloroethene			83	73
Toluene			95	93
Tribromomethane			84	72
1,1,1-Trichloroethane			102	92

(II) QUALITY CONTROL

Report N°: M131268

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014842	2013014843
		Client ID	Method	Method
			Spike	Spike Dup
1,1,2-Trichloroethane			96	92
Trichloroethene			71	80
Trichloromethane			107	97
Vinyl Chloride			118	121

Matrix: Water

Method: MA-15.WW.09 Brominated Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014842	2013014843
		Client ID	Method	Method
			Spike	Spike Dup
Bromodichloromethane			84	81
Bromoethane			96	88
Dibromochloromethane			79	79
cis-1,2-Dibromoethene			94	91
trans-1,2-Dibromoethene			95	94
1,2-Dibromoethene(c,t)			94	93
Tribromoethane			76	77
Tribromoethene			84	79
Tribromomethane			79	76
Vinyl bromide			104	94

(II) QUALITY CONTROL

Report N°: M131268

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	Leeder ID	2013014842	2013014843
	Client ID	Method	Method
	PQL	Spike	Spike Dup
C6-C9 (Purge & Trap)		83	75
Total C6-C36		95	99

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	Leeder ID	2013014840	2013014841
	Client ID	Q10112-02	Q10112-02
	PQL	Spike	Spike Dup
Nitrate as N		86	84

(II) QUALITY CONTROL

Report N°: M131268

Matrix: Water

Method: MA-1400.WW.01 Metals

Quality Control Results are expressed in Percent Recovery of expected result

Leeder ID	2013014840	2013014841
Client ID	Q10112-02	Q10112-02

Analyte Name	PQL	Spike	Spike Dup
Aluminium		100	109
Arsenic		95	96
Cadmium		99	98
Chromium		92	93
Iron		105	104
Lead		106	106
Manganese		97	99
Mercury		86	88
Nickel		95	95
Zinc		130	130

Matrix: Water

Method: VOC Surrogate Recovery

Quality Control Results are expressed in Percent Recovery of expected result

Leeder ID	2013014842	2013014843
Client ID	Method	Method

Analyte Name	PQL	Spike	Spike Dup
Dibromofluoromethane		102	98
12-Dichloroethane-d4		97	97
Toluene-d8		99	99
p-Bromofluorobenzene		93	92

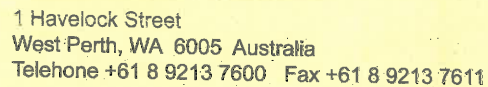
QUALIFIERS / NOTES FOR REPORTED RESULTS

PQL	Practical Quantitation Limit
<i>is</i>	Insufficient Sample to perform this analysis.
T	Tentative identification based on computer library search of mass spectra.
ND	Not Detected – The analyte was not detected above the reported PQL.
NC	Not calculated and/or Results below PQL
<i>nr</i>	Not Requested for analysis.
R	Rejected Result – results for this analysis failed QC checks.
SQ	Semi-Quantitative result – quantitation based on a generic response factor for this class of analyte.
IM	Inappropriate method of analysis for this compound
U	Unable to provide Quality Control data – high levels of compounds in sample interfered with analysis of QC results.
UF	Unable to provide Quality Control data- Surrogates failed QC checks due to sample matrix effects
L	Analyte detected at a level above the linear response of calibration curve.
E	Estimated result. NATA accreditation does not cover estimated results.
C1	These compounds co-elute.
--	Parameter Not Determined
CT	Elevated concentration. Results reported from carbon tube analysis
**	Sample shows non-petroleum hydrocarbon profile



APPENDIX ONE.

CHAIN OF CUSTODY DOCUMENT



Q 10112 page 1 of 1

Project Number: 117643092		Laboratory Name: SGS-Leeder	
		Address: Unit 4-5 18 Redland Drive, Mitcham	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: (03) 98741988	Contact: Wanda Bobasak

Address where reports should be sent to

☐ PO Box 1914
West Perth, WA 6872
Telephone (61 8) 9213 7600
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☒ Other Email

Phone _____ Fax _____

Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)
Q10112 - 01	W	11/6/13
- 02		
- 03		
- 04		
- 05		
- 06		
- 07		
- 08		
- 09		
- 10		
- 11		
- 12		

Analyses Required					
	Number of Containers				
✓	Suite 1	Dissolved metals & nitrate (^{GS III}) Suite 3)	VOCs	+PH ₁₀ -Ca	BTEX
RUSH					
Remarks (over)					

Sampler's Signature: <i>M. M. M. M. M.</i>	Relinquished by: Signature <i>M. M. M. M. M.</i>	Company <i>Golden</i>	Date <i>11/6/13</i>	Time	Received by: Signature <i>J. Phillips</i>	Company <i>SGS Leader Consulting</i>	
Sample Storage (°C) <i>Eskey + ICE</i>	Relinquished by: Signature	Company	Date	Time	Received by: Signature <i>James Phillips</i>	Company	
Comments: <i>QQ2120S17WBI</i>	Method of Shipment: <i>AIR</i>	Waybill No.:		Received for Lab by:		Date <i>12/6/13</i>	Time <i>10:05 AM</i>
	Shipped by: <i>AUSIRALIA AIR EXPRESS</i>	Shipment Condition: Seal intact:		Temp (°C)	Cooler opened by:	Date	Time

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report

**Melbourne Office**

Unit 3-5, 18 Redland Drive

Mitcham VIC 3132

Tel: +613 9874 1988

Fax: +613 9874 1933

email: AU.SampleReceipt.Mitcham@sgs.com

A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	13/06/2013
Email	kchadwick@golder.com.au	Ref:	M131275

SGS Leeder Consulting has received your samples from the project listed below.

If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131275
Date Received: 13-Jun-2013
Estimated date of report: 24-Jun-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.
All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.

**SGS LEEDER
CONSULTING****Specialist Laboratory Services**

Melbourne
Tel: +613 9874 1988
Fax: +613 9874 1933

Sydney
Tel: +612 9959 2351
Fax: +612 8212 5889

Adelaide
Tel: +618 8377 4444
Fax: +618 8377 4399

Brisbane
Tel: +617 3899 2311
Fax: +617 3899 2322

Website: www.leederconsulting.com
Email: AU.SampleReceipt.Mitcham@sgs.com



1 Havelock Street
West Perth, WA 6005 Australia
Telephone +61 8 9213 7600 Fax +61 8 9213 7611

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10113 page 1 of 1

Project Number: 117643092		Laboratory Name: SAS-Leeder	
		Address: Unit 4-5, 18 Redland Drive, Mitcham	
Golder Contact: KARLY CHADWICK	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: (03) 9874 1988	Contact: Wanda Boboskic

Address where reports should be sent to		Analyses Required	
☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611	☒ Other Email		
Phone	Fax		
Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Remarks (over)
Q10113-01	W	12/6/13	
-02			
-03			
-04			
-05			
-06			
-07			
-08			
-09			
-10			
-11			
-12			

Sampler's Signature: [Signature]	Relinquished by: Signature [Signature]	Company: GOLDER	Date: 12/6/13	Time:	Received by: Signature James Phillips	Company: SLS Leeder Consulting
Sample Storage (°C): Esky + ICE	Relinquished by: Signature	Company:	Date:	Time:	Received by: Signature J. Phillips	Company:
Comments: 002120517 WBI	Method of Shipment: AIR	Waybill No:	Received for Lab by:		Date: 13/6/13	Time: 9:30am
	Shipped by: AUSTRALIAN AIR EXPRESS	Shipment Condition: Seal Intact:	Temp (°C):	Cooler opened by:	Date:	Time:

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report



A.B.N. 44 000 964 278
3 - 5, 18 Redland Drive
Mitcham, Vic, 3132
Telephone: (03) 9874 1988
Fax: (03) 9874 1933

Chartered Chemists

25-Jun-2013

REPORT NUMBER: M131275

Site/Client Ref: 117643092

Golder Associates

Level 2

1 Havelock Street

West Perth

WA 6005

Attention: Karly Chadwick

CERTIFICATE OF ANALYSIS

SAMPLES: Six samples were received for analysis

DATE RECEIVED: 13-Jun-2013

DATE COMMENCED: 13-Jun-2013

METHODS: See Attached Results

RESULTS: Please refer to attached pages for results.

Note: Results are based on samples as received at SGS Leeder Consulting's laboratories

REPORTED BY:

Adam Atkinson

Laboratory Manager



NATA Accredited Laboratory Number: 2562

Accredited for compliance
with ISO/IEC 17025.

(I) RESULTS**Report N°: M131275****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013014894	2013014895	2013014896	2013014897	2013014898	2013014899	2013014900
		Client ID	Q10113-01	Q10113-02	Q10113-03	Q10113-04	Q10113-05	Q10113-06	Q10113-01
Analyte Name	PQL								Duplicate
Benzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Bromobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Bromomethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
n-Butylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
s-Butylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
t-Butylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.00075	nd	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Chloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Chloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
2-Chlorotoluene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
4-Chlorotoluene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Dibromomethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Dichlorodifluoromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.001	nd	0.001	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131275****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013014894	2013014895	2013014896	2013014897	2013014898	2013014899	2013014900
		Client ID	Q10113-01	Q10113-02	Q10113-03	Q10113-04	Q10113-05	Q10113-06	Q10113-01
Analyte Name	PQL								Duplicate
1,1-Dichloroethene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.001	nd	0.001	nd	nd	0.001	nd	nd	nd
trans-1,2-Dichloroethene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Dichloromethane	0.01	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
2,2-Dichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloropropene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Isopropylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
p-Isopropyltoluene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Naphthalene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Propylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Styrene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.001	nd	0.002	nd	0.001	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Tribromomethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131275****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013014894	2013014895	2013014896	2013014897	2013014898	2013014899	2013014900
		Client ID	Q10113-01	Q10113-02	Q10113-03	Q10113-04	Q10113-05	Q10113-06	Q10113-01
									Duplicate

1,1,2-Trichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.001	0.79	0.081	nd	0.004	0.003	nd	0.77	
Trichlorofluoromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Trichloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl Chloride	0.001	nd	nd	nd	nd	nd	nd	nd	nd
m&p-Xylenes	0.001	nd	nd	nd	nd	nd	nd	nd	nd
o-Xylene	0.001	nd	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131275****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Analyte Name	Leeder ID	2013014901
	Client ID	Method
	PQL	Blank
Benzene	0.001	nd
Bromobenzene	0.001	nd
Bromochloromethane	0.001	nd
Bromodichloromethane	0.001	nd
Bromomethane	0.001	nd
n-Butylbenzene	0.001	nd
s-Butylbenzene	0.001	nd
t-Butylbenzene	0.001	nd
Carbon tetrachloride	0.00075	nd
Chlorobenzene	0.001	nd
Chloroethane	0.001	nd
Chloromethane	0.001	nd
2-Chlorotoluene	0.001	nd
4-Chlorotoluene	0.001	nd
Dibromochloromethane	0.001	nd
1,2-Dibromo-3-chloropropane	0.001	nd
1,2-Dibromoethane	0.001	nd
Dibromomethane	0.001	nd
1,2-Dichlorobenzene	0.001	nd
1,3-Dichlorobenzene	0.001	nd
1,4-Dichlorobenzene	0.001	nd
Dichlorodifluoromethane	0.001	nd
1,2-Dichloroethane	0.001	nd
1,1-Dichloroethane	0.001	nd

(I) RESULTS**Report N°: M131275****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Analyte Name	Leeder ID	2013014901
	Client ID	Method
	PQL	Blank
1,1-Dichloroethene	0.001	nd
cis-1,2-Dichloroethene	0.001	nd
trans-1,2-Dichloroethene	0.001	nd
Dichloromethane	0.01	nd
1,2-Dichloropropane	0.001	nd
1,3-Dichloropropane	0.001	nd
2,2-Dichloropropane	0.001	nd
1,1-Dichloropropene	0.001	nd
cis-1,3-Dichloropropene	0.001	nd
trans-1,3-Dichloropropene	0.001	nd
Ethylbenzene	0.001	nd
Hexachloro-1,3-butadiene	0.001	nd
Isopropylbenzene	0.001	nd
p-Isopropyltoluene	0.001	nd
Naphthalene	0.001	nd
Propylbenzene	0.001	nd
Styrene	0.001	nd
1,1,2,2-Tetrachloroethane	0.001	nd
Tetrachloroethene	0.001	nd
1,1,1,2-Tetrachloroethane	0.001	nd
Toluene	0.001	nd
Tribromomethane	0.001	nd
1,2,3-Trichlorobenzene	0.001	nd
1,2,4-Trichlorobenzene	0.001	nd
1,1,1-Trichloroethane	0.001	nd

(I) RESULTS**Report N°: M131275****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013014901
Client ID	Method
Analyte Name	PQL
	Blank

1,1,2-Trichloroethane	0.001	nd
Trichloroethene	0.001	nd
Trichlorofluoromethane	0.001	nd
Trichloromethane	0.001	nd
1,2,3-Trichloropropane	0.001	nd
1,2,4-Trimethylbenzene	0.001	nd
1,3,5-Trimethylbenzene	0.001	nd
Vinyl Chloride	0.001	nd
m&p-Xylenes	0.001	nd
o-Xylene	0.001	nd

(I) RESULTS**Report N°: M131275****Matrix: Water****Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Sample units are expressed in ug/L

Leeder ID	2013014894	2013014895	2013014896	2013014897	2013014898	2013014899	2013014900
Client ID	Q10113-01	Q10113-02	Q10113-03	Q10113-04	Q10113-05	Q10113-06	Q10113-01
Analyte Name	PQL						Duplicate

Bromobenzene	0.1	nd	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.1	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.1	nd	nd	nd	nd	nd	nd	nd
Bromoethane	0.1	nd	nd	nd	nd	nd	nd	nd
Bromoethyne	0.1	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.1	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd	nd	nd	nd	nd	nd
Dibromoethane	0.1	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dibromoethene	0.1	nd	nd	nd	nd	nd	nd	nd
trans-1,2-Dibromoethene	0.1	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethene(c,t)	0.1	nd	nd	nd	nd	nd	nd	nd
Dibromomethane	0.1	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd	nd
Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd	nd
Tetrabromoethene	0.1	nd	nd	nd	nd	nd	nd	nd
Tribromoethane	0.1	nd	nd	nd	nd	nd	nd	nd
Tribromoethene	0.1	nd	nd	nd	nd	nd	nd	nd
Tribromomethane	0.1	nd	nd	nd	nd	nd	nd	nd
Vinyl bromide	0.1	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131275****Matrix: Water****Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Sample units are expressed in ug/L

Leeder ID	2013014901
Client ID	Method
PQL	Blank

Analyte Name

Bromobenzene	0.1	nd
Bromochloromethane	0.1	nd
Bromodichloromethane	0.1	nd
Bromoethane	0.1	nd
Bromoethyne	0.1	nd
Dibromochloromethane	0.1	nd
1,2-Dibromo-3-chloropropane	0.1	nd
Dibromoethane	0.1	nd
cis-1,2-Dibromoethene	0.1	nd
trans-1,2-Dibromoethene	0.1	nd
1,2-Dibromoethene(c,t)	0.1	nd
Dibromomethane	0.1	nd
1,1,2,2-Tetrabromoethane	0.1	nd
Tetrabromoethane	0.1	nd
Tetrabromoethene	0.1	nd
Tribromoethane	0.1	nd
Tribromoethene	0.1	nd
Tribromomethane	0.1	nd
Vinyl bromide	0.1	nd

(I) RESULTS**Report N°: M131275****Matrix: Water****Method: MA-30.WW.02 Total Petroleum Hydrocarbons**

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013014894	2013014895	2013014896	2013014897	2013014898	2013014899	2013014900
		Client ID	Q10113-01	Q10113-02	Q10113-03	Q10113-04	Q10113-05	Q10113-06	Q10113-01
		PQL							Duplicate

C6-C9 (Purge & Trap)	0.01	1.0	0.38	nd	nd	nd	nd	1.0
C10-C14	0.01	nd	nd	nd	nd	nd		nd
C15-C28	0.05	nd	nd	nd	nd	nd		nd
C29-C36	0.05	nd	nd	nd	nd	nd		nd
Total C6-C36	0.05	nd	0.38	nd	nd	nd		nd

Matrix: Water**Method: MA-30.WW.02 Total Petroleum Hydrocarbons**

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013014901
		Client ID	Method
		PQL	Blank

C6-C9 (Purge & Trap)	0.01	nd
C10-C14	0.01	nd
C15-C28	0.05	nd
C29-C36	0.05	nd
Total C6-C36	0.05	nd

(I) RESULTS**Report N°: M131275****Matrix: Water****Method: VOC Surrogate Recovery**

Sample units are expressed in %

Analyte Name	PQL	Leeder ID	2013014894	2013014895	2013014896	2013014897	2013014898	2013014899	2013014900
		Client ID	Q10113-01	Q10113-02	Q10113-03	Q10113-04	Q10113-05	Q10113-06	Q10113-01
									Duplicate
Dibromofluoromethane			116	111	116	96	115	114	104
12-Dichloroethane-d4			117	111	112	104	112	114	106
Toluene-d8			107	106	105	106	106	104	107
p-Bromofluorobenzene			86	88	91	91	88	90	88

Matrix: Water**Method: VOC Surrogate Recovery**

Sample units are expressed in %

Analyte Name	PQL	Leeder ID	2013014901
		Client ID	Method
			Blank
Dibromofluoromethane			112
12-Dichloroethane-d4			119
Toluene-d8			105
p-Bromofluorobenzene			90

(II) QUALITY CONTROL

Report N°: M131275

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014904	2013014905
		Client ID	Method	Method
			Spike	Spike Dup
Benzene			77	85
Bromodichloromethane			77	85
Carbon tetrachloride			86	96
Chlorobenzene			89	98
Dibromochloromethane			75	85
1,2-Dichlorobenzene			82	90
1,4-Dichlorobenzene			97	106
1,2-Dichloroethane			80	89

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014904	2013014905
		Client ID	Method	Method
			Spike	Spike Dup
1,1-Dichloroethene			79	91
trans-1,2-Dichloroethene			80	88
Dichloromethane			90	84
1,2-Dichloropropane			84	93
Ethylbenzene			85	95
Styrene			89	99
Tetrachloroethene			89	101
Toluene			85	95
Tribromomethane			78	86
1,1,1-Trichloroethane			82	91

(II) QUALITY CONTROL

Report N°: M131275

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014904	2013014905
		Client ID	Method	Method
			Spike	Spike Dup
1,1,2-Trichloroethane			82	91
Trichloroethene			80	89
Trichloromethane			85	95
m&p-Xylenes			87	97
o-Xylene			88	98

Matrix: Water

Method: MA-15.WW.09 Brominated Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014904	2013014905
		Client ID	Method	Method
			Spike	Spike Dup
Bromodichloromethane			87	83
Dibromochloromethane			83	82
cis-1,2-Dibromoethene			92	92
trans-1,2-Dibromoethene			97	95
1,2-Dibromoethene(c,t)			95	94
Tribromoethane			80	73
Tribromoethene			96	94
Tribromomethane			84	84
Vinyl bromide			88	82

(II) QUALITY CONTROL

Report N°: M131275

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Quality Control Results are expressed in Percent Recovery of expected result

	Leeder ID	2013014904	2013014905
	Client ID	Method	Method
	PQL	Spike	Spike Dup
Analyte Name			
C6-C9 (Purge & Trap)		118	119
Total C6-C36		93	88

Matrix: Water

Method: VOC Surrogate Recovery

Quality Control Results are expressed in Percent Recovery of expected result

	Leeder ID	2013014904	2013014905
	Client ID	Method	Method
	PQL	Spike	Spike Dup
Analyte Name			
Dibromofluoromethane		100	100
12-Dichloroethane-d4		97	95
Toluene-d8		96	98
p-Bromofluorobenzene		98	98

QUALIFIERS / NOTES FOR REPORTED RESULTS

PQL	Practical Quantitation Limit
<i>is</i>	Insufficient Sample to perform this analysis.
T	Tentative identification based on computer library search of mass spectra.
ND	Not Detected – The analyte was not detected above the reported PQL.
NC	Not calculated and/or Results below PQL
<i>nr</i>	Not Requested for analysis.
R	Rejected Result – results for this analysis failed QC checks.
SQ	Semi-Quantitative result – quantitation based on a generic response factor for this class of analyte.
IM	Inappropriate method of analysis for this compound
U	Unable to provide Quality Control data – high levels of compounds in sample interfered with analysis of QC results.
UF	Unable to provide Quality Control data- Surrogates failed QC checks due to sample matrix effects
L	Analyte detected at a level above the linear response of calibration curve.
E	Estimated result. NATA accreditation does not cover estimated results.
C1	These compounds co-elute.
--	Parameter Not Determined
CT	Elevated concentration. Results reported from carbon tube analysis
**	Sample shows non-petroleum hydrocarbon profile



APPENDIX ONE.

CHAIN OF CUSTODY DOCUMENT



1 Havelock Street
West Perth, WA 6005 Australia
Telephone +61 8 9213 7600 Fax +61 8 9213 7611

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10113 page 1 of 1

Project Number: 117643092		Laboratory Name: SAS-Leeder	
		Address: Unit 4-5, 18 Redland Drive, Mitcham	
Golder Contact: KARLY CHADWICK	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: (03) 9874 1988	Contact: Wanda Boboskic

Address where reports should be sent to				BRITTANN HERBERT bherbert@golder.com.au												Analyses Required					
☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611				☒ Other Email																	
Phone _____ Fax _____																					
Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers												RUSH	Remarks (over)					
Q10113-01	W	12/6/13	5	✓	Suite 1	Vols incl. BULK															
-02	↓	↓	5	✓																	
-03	↓	↓	5	✓																	
-04	↓	↓	5	✓																	
-05	↓	↓	5	✓																	
-06	↓	↓	2	✓			✓	✓	✓												
-07																					
-08																					
-09																					
-10																					
-11																					
-12																					

Sampler's Signature: [Signature]	Relinquished by: Signature [Signature]	Company: GOLDER	Date: 12/6/13	Time:	Received by: Signature James Phillips	Company: SLS Leeder Consulting
Sample Storage (°C): Esky + ICE	Relinquished by: Signature	Company:	Date:	Time:	Received by: Signature J. Phillips	Company:
Comments: 002120517 WBI	Method of Shipment: AIR	Waybill No:	Received for Lab by:		Date: 13/6/13	Time: 9:30am
	Shipped by: AUSTRALIAN AIR EXPRESS	Shipment Condition: Seal Intact:	Temp (°C):	Cooler opened by:	Date:	Time:

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report

**Melbourne Office**

Unit 3-5, 18 Redland Drive

Mitcham VIC 3132

Tel: +613 9874 1988

Fax: +613 9874 1933

email: AU.SampleReceipt.Mitcham@sgs.com

A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	14/06/2013
Email	kchadwick@golder.com.au	Ref:	M131281

SGS Leeder Consulting has received your samples from the project listed below.

If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131281
Date Received: 14-Jun-2013
Estimated date of report: 25-Jun-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.

Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.

Surcharges for urgent turnaround requests may apply.

All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.

**SGS LEEDER
CONSULTING****Specialist Laboratory Services****Melbourne**

Tel: +613 9874 1988

Fax: +613 9874 1933

Sydney

Tel: +612 9959 2351

Fax: +612 8212 5889

Adelaide

Tel: +618 8377 4444

Fax: +618 8377 4399

Brisbane

Tel: +617 3899 2311

Fax: +617 3899 2322

Website: www.leederconsulting.com**Email:** AU.SampleReceipt.Mitcham@sgs.com



1 Havelock Street
West Perth, WA 6005 Australia
Telephone +61 8 9213 7600 Fax +61 8 9213 7611

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10114 page 1 of 1

Project Number: 117643092		Laboratory Name: SAS - Leeder	
		Address: Unit 4-5, 18 Redland Drive, Mitcham	
Golder Contact: Kathy Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: 03 9374 1988	Contact: Miranda Leeder

Address where reports should be sent to

☐ PO Box 1914
West Perth, WA 6872
Telephone (61 8) 9213 7600
Fax (61 8) 9213 7611

☒ Other email

Phone 0437782585 Fax

Analyses Required

Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers	Analyses Required	Remarks (over)
Q10114 - 01	W	13/06/13	5	✓ Suite 1	
- 02			5	✓	
- 03			5	✓	
- 04			5	✓	
- 05			5	✓	
- 06			5	✓	
- 07			2	✓ VOCs incl. BTEX TPH ₁₆ - can BTEXN	
- 08					
- 09					
- 10					
- 11					
- 12					

Sampler's Signature: [Signature]	Relinquished by: Signature [Signature]	Company: Golder	Date: 13/06/13	Time:	Received by: Signature [Signature]	Company: SAS Leeder Consulting
Sample Storage (°C): esky + ice	Relinquished by: Signature	Company:	Date:	Time:	Received by: Signature	Company:
Comments: QQ 2120517 WBI	Method of Shipment: AIR	Waybill No:	Received for Lab by: Lyndall Stevens		Date: 14/6/13	Time: 11:30 am
	Shipped by: AUSTRALIAN AIR EXPRESS	Shipment Condition: Seal intact:	Temp (°C):	Cooler opened by:	Date:	Time:

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report



A.B.N. 44 000 964 278
3 - 5, 18 Redland Drive
Mitcham, Vic, 3132
Telephone: (03) 9874 1988
Fax: (03) 9874 1933

Chartered Chemists

25-Jun-2013

REPORT NUMBER: M131281

Site/Client Ref: 117643092

Golder Associates

Level 2

1 Havelock Street

West Perth

WA 6005

Attention: Karly Chadwick

CERTIFICATE OF ANALYSIS

SAMPLES: Seven samples were received for analysis

DATE RECEIVED: 14-Jun-2013

DATE COMMENCED: 14-Jun-2013

METHODS: See Attached Results

RESULTS: Please refer to attached pages for results.

Note: Results are based on samples as received at SGS Leeder Consulting's laboratories

REPORTED BY:

Adam Atkinson

Laboratory Manager



NATA Accredited Laboratory Number: 2562

Accredited for compliance
with ISO/IEC 17025.

(I) RESULTS**Report N°: M131281****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013014950	2013014951	2013014952	2013014953	2013014954	2013014955	2013014956
		Client ID	Q10114-01	Q10114-02	Q10114-03	Q10114-04	Q10114-05	Q10114-06	Q10114-07
Analyte Name	PQL								
Benzene	0.001	nd	0.013	nd	nd	nd	nd	nd	nd
Bromobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Bromomethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
n-Butylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
s-Butylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
t-Butylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.00075	nd	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Chloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Chloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
2-Chlorotoluene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
4-Chlorotoluene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Dibromomethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.001	nd	nd	nd	nd	0.002	nd	nd	nd
1,3-Dichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Dichlorodifluoromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.001	nd	nd	nd	nd	0.002	nd	nd	nd
1,1-Dichloroethane	0.001	nd	nd	nd	0.009	0.010	nd	nd	nd

(I) RESULTS**Report N°: M131281****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013014950	2013014951	2013014952	2013014953	2013014954	2013014955	2013014956
		Client ID	Q10114-01	Q10114-02	Q10114-03	Q10114-04	Q10114-05	Q10114-06	Q10114-07
Analyte Name	PQL								
1,1-Dichloroethene	0.001	nd	nd	nd	0.001	0.005	nd	nd	
cis-1,2-Dichloroethene	0.001	nd	0.006	nd	0.040	0.067	nd	nd	
trans-1,2-Dichloroethene	0.001	nd	nd	nd	nd	nd	nd	nd	
Dichloromethane	0.01	nd	nd	nd	nd	nd	nd	nd	
1,2-Dichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	
1,3-Dichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	
2,2-Dichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	
1,1-Dichloropropene	0.001	nd	nd	nd	nd	nd	nd	nd	
cis-1,3-Dichloropropene	0.001	nd	nd	nd	nd	nd	nd	nd	
trans-1,3-Dichloropropene	0.001	nd	nd	nd	nd	nd	nd	nd	
Ethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	
Hexachloro-1,3-butadiene	0.001	nd	nd	nd	nd	nd	nd	nd	
Isopropylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	
p-Isopropyltoluene	0.001	nd	nd	nd	nd	nd	nd	nd	
Naphthalene	0.001	nd	nd	nd	nd	nd	nd	nd	
Propylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	
Styrene	0.001	nd	nd	nd	nd	nd	nd	nd	
1,1,2,2-Tetrachloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	
Tetrachloroethene	0.001	nd	nd	nd	0.007	0.006	nd	nd	
1,1,1,2-Tetrachloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	
Toluene	0.001	nd	nd	nd	nd	nd	nd	nd	
Tribromomethane	0.001	nd	nd	nd	nd	nd	nd	nd	
1,2,3-Trichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	
1,2,4-Trichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	
1,1,1-Trichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	

(I) RESULTS**Report N°: M131281****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013014950	2013014951	2013014952	2013014953	2013014954	2013014955	2013014956
		Client ID	Q10114-01	Q10114-02	Q10114-03	Q10114-04	Q10114-05	Q10114-06	Q10114-07
Analyte Name	PQL								
1,1,2-Trichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.001	nd	0.001	nd	0.014	0.006	nd	nd	nd
Trichlorofluoromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Trichloromethane	0.001	nd	nd	nd	0.005	0.024	nd	nd	nd
1,2,3-Trichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl Chloride	0.001	nd	nd	nd	nd	0.001	nd	nd	nd
m&p-Xylenes	0.001	nd	nd	nd	nd	nd	nd	nd	nd
o-Xylene	0.001	nd	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS

Report N°: M131281

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013014957	2013014958
		Client ID	Q10114-01	Method
			Duplicate	Blank
Benzene	0.001		nd	nd
Bromobenzene	0.001		nd	nd
Bromochloromethane	0.001		nd	nd
Bromodichloromethane	0.001		nd	nd
Bromomethane	0.001		nd	nd
n-Butylbenzene	0.001		nd	nd
s-Butylbenzene	0.001		nd	nd
t-Butylbenzene	0.001		nd	nd
Carbon tetrachloride	0.00075		nd	nd
Chlorobenzene	0.001		nd	nd
Chloroethane	0.001		nd	nd
Chloromethane	0.001		nd	nd
2-Chlorotoluene	0.001		nd	nd
4-Chlorotoluene	0.001		nd	nd
Dibromochloromethane	0.001		nd	nd
1,2-Dibromo-3-chloropropane	0.001		nd	nd
1,2-Dibromoethane	0.001		nd	nd
Dibromomethane	0.001		nd	nd
1,2-Dichlorobenzene	0.001		nd	nd
1,3-Dichlorobenzene	0.001		nd	nd
1,4-Dichlorobenzene	0.001		nd	nd
Dichlorodifluoromethane	0.001		nd	nd
1,2-Dichloroethane	0.001		nd	nd
1,1-Dichloroethane	0.001		nd	nd

(I) RESULTS**Report N°: M131281****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013014957	2013014958
Client ID	Q10114-01	Method
Analyte Name	PQL	
	Duplicate	Blank

1,1-Dichloroethene	0.001	nd	nd
cis-1,2-Dichloroethene	0.001	nd	nd
trans-1,2-Dichloroethene	0.001	nd	nd
Dichloromethane	0.01	nd	nd
1,2-Dichloropropane	0.001	nd	nd
1,3-Dichloropropane	0.001	nd	nd
2,2-Dichloropropane	0.001	nd	nd
1,1-Dichloropropene	0.001	nd	nd
cis-1,3-Dichloropropene	0.001	nd	nd
trans-1,3-Dichloropropene	0.001	nd	nd
Ethylbenzene	0.001	nd	nd
Hexachloro-1,3-butadiene	0.001	nd	nd
Isopropylbenzene	0.001	nd	nd
p-Isopropyltoluene	0.001	nd	nd
Naphthalene	0.001	nd	nd
Propylbenzene	0.001	nd	nd
Styrene	0.001	nd	nd
1,1,2,2-Tetrachloroethane	0.001	nd	nd
Tetrachloroethene	0.001	nd	nd
1,1,1,2-Tetrachloroethane	0.001	nd	nd
Toluene	0.001	nd	nd
Tribromomethane	0.001	nd	nd
1,2,3-Trichlorobenzene	0.001	nd	nd
1,2,4-Trichlorobenzene	0.001	nd	nd
1,1,1-Trichloroethane	0.001	nd	nd

(I) RESULTS**Report N°: M131281****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013014957	2013014958
Client ID	Q10114-01	Method
Analyte Name	PQL	
	Duplicate	Blank

1,1,2-Trichloroethane	0.001	nd	nd
Trichloroethene	0.001	nd	nd
Trichlorofluoromethane	0.001	nd	nd
Trichloromethane	0.001	nd	nd
1,2,3-Trichloropropane	0.001	nd	nd
1,2,4-Trimethylbenzene	0.001	nd	nd
1,3,5-Trimethylbenzene	0.001	nd	nd
Vinyl Chloride	0.001	nd	nd
m&p-Xylenes	0.001	nd	nd
o-Xylene	0.001	nd	nd

(I) RESULTS**Report N°: M131281****Matrix: Water****Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Sample units are expressed in ug/L

Analyte Name	PQL	Leeder ID	2013014950	2013014951	2013014952	2013014953	2013014954	2013014955	2013014956
		Client ID	Q10114-01	Q10114-02	Q10114-03	Q10114-04	Q10114-05	Q10114-06	Q10114-07

Bromobenzene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromoethyne	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Dibromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dibromoethene	0.1	nd	nd	nd	1.0	17	nd	nd	nd
trans-1,2-Dibromoethene	0.1	nd	nd	nd	nd	2.3	nd	nd	nd
1,2-Dibromoethene(c,t)	0.1	nd	nd	nd	1.0	19	nd	nd	nd
Dibromomethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tetrabromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tribromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tribromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tribromomethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl bromide	0.1	nd	nd	nd	nd	40	nd	nd	nd

(I) RESULTS**Report N°: M131281****Matrix: Water****Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Sample units are expressed in ug/L

Leeder ID	2013014957	2013014958
Client ID	Q10114-01	Method
Analyte Name	PQL	
	Duplicate	Blank

Bromobenzene	0.1	nd	nd
Bromochloromethane	0.1	nd	nd
Bromodichloromethane	0.1	nd	nd
Bromoethane	0.1	nd	nd
Bromoethyne	0.1	nd	nd
Dibromochloromethane	0.1	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd
Dibromoethane	0.1	nd	nd
cis-1,2-Dibromoethene	0.1	nd	nd
trans-1,2-Dibromoethene	0.1	nd	nd
1,2-Dibromoethene(c,t)	0.1	nd	nd
Dibromomethane	0.1	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd
Tetrabromoethane	0.1	nd	nd
Tetrabromoethene	0.1	nd	nd
Tribromoethane	0.1	nd	nd
Tribromoethene	0.1	nd	nd
Tribromomethane	0.1	nd	nd
Vinyl bromide	0.1	nd	nd

(I) RESULTS

Report N°: M131281

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013014950	2013014951	2013014952	2013014953	2013014954	2013014955	2013014956
		Client ID	Q10114-01	Q10114-02	Q10114-03	Q10114-04	Q10114-05	Q10114-06	Q10114-07
		PQL							

C6-C9 (Purge & Trap)	0.01	nd	0.10	nd	0.34	0.54	nd	nd
C10-C14	0.01	nd	nd	nd	nd	nd	nd	
C15-C28	0.05	nd	nd	nd	nd	nd	nd	
C29-C36	0.05	nd	nd	nd	nd	nd	nd	
Total C6-C36	0.05	nd	0.10	nd	0.34	0.54	nd	

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013014957	2013014958
		Client ID	Q10114-01	Method
		PQL	Duplicate	Blank

C6-C9 (Purge & Trap)	0.01	nd	nd
C10-C14	0.01	nd	nd
C15-C28	0.05	nd	nd
C29-C36	0.05	nd	nd
Total C6-C36	0.05	nd	nd

(I) RESULTS**Report N°: M131281****Matrix: Water****Method: VOC Surrogate Recovery**

Sample units are expressed in %

Analyte Name	Leeder ID	2013014950	2013014951	2013014952	2013014953	2013014954	2013014955	2013014956
	Client ID	Q10114-01	Q10114-02	Q10114-03	Q10114-04	Q10114-05	Q10114-06	Q10114-07
	PQL							

Dibromofluoromethane		111	110	112	113	116	114	115
12-Dichloroethane-d4		106	107	110	108	112	111	117
Toluene-d8		103	101	104	103	103	104	106
p-Bromofluorobenzene		87	89	91	87	90	89	90

Matrix: Water**Method: VOC Surrogate Recovery**

Sample units are expressed in %

Analyte Name	Leeder ID	2013014957	2013014958
	Client ID	Q10114-01	Method
	PQL	Duplicate	Blank

Dibromofluoromethane		113	113
12-Dichloroethane-d4		109	116
Toluene-d8		104	103
p-Bromofluorobenzene		88	88

(II) QUALITY CONTROL

Report N°: M131281

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014959	2013014960
		Client ID	Method	Method
			Spike	Spike Dup
Benzene			77	85
Bromodichloromethane			77	85
Carbon tetrachloride			86	96
Chlorobenzene			89	98
Dibromochloromethane			75	85
1,2-Dichlorobenzene			82	90
1,4-Dichlorobenzene			97	106
1,2-Dichloroethane			80	89

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014959	2013014960
		Client ID	Method	Method
			Spike	Spike Dup
1,1-Dichloroethene			79	91
trans-1,2-Dichloroethene			80	88
Dichloromethane			90	84
1,2-Dichloropropane			84	93
Ethylbenzene			85	95
Styrene			89	99
Tetrachloroethene			89	101
Toluene			85	95
Tribromomethane			78	86
1,1,1-Trichloroethane			82	91

(II) QUALITY CONTROL

Report N°: M131281

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014959	2013014960
		Client ID	Method	Method
			Spike	Spike Dup
1,1,2-Trichloroethane			82	91
Trichloroethene			80	89
Trichloromethane			85	95
m&p-Xylenes			87	97
o-Xylene			88	98

Matrix: Water

Method: MA-15.WW.09 Brominated Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014959	2013014960
		Client ID	Method	Method
			Spike	Spike Dup
Bromodichloromethane			87	83
Dibromochloromethane			83	82
cis-1,2-Dibromoethene			92	92
trans-1,2-Dibromoethene			97	95
1,2-Dibromoethene(c,t)			95	94
Tribromoethane			80	73
Tribromoethene			96	94
Tribromomethane			84	84
Vinyl bromide			88	82

(II) QUALITY CONTROL

Report N°: M131281

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014959	2013014960
		Client ID	Method	Method
			Spike	Spike Dup
C6-C9 (Purge & Trap)			118	119
Total C6-C36			93	88

Matrix: Water

Method: VOC Surrogate Recovery

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013014959	2013014960
		Client ID	Method	Method
			Spike	Spike Dup
Dibromofluoromethane			100	100
12-Dichloroethane-d4			97	95
Toluene-d8			96	98
p-Bromofluorobenzene			98	98

QUALIFIERS / NOTES FOR REPORTED RESULTS

PQL	Practical Quantitation Limit
<i>is</i>	Insufficient Sample to perform this analysis.
T	Tentative identification based on computer library search of mass spectra.
ND	Not Detected – The analyte was not detected above the reported PQL.
NC	Not calculated and/or Results below PQL
<i>nr</i>	Not Requested for analysis.
R	Rejected Result – results for this analysis failed QC checks.
SQ	Semi-Quantitative result – quantitation based on a generic response factor for this class of analyte.
IM	Inappropriate method of analysis for this compound
U	Unable to provide Quality Control data – high levels of compounds in sample interfered with analysis of QC results.
UF	Unable to provide Quality Control data- Surrogates failed QC checks due to sample matrix effects
L	Analyte detected at a level above the linear response of calibration curve.
E	Estimated result. NATA accreditation does not cover estimated results.
C1	These compounds co-elute.
--	Parameter Not Determined
CT	Elevated concentration. Results reported from carbon tube analysis
**	Sample shows non-petroleum hydrocarbon profile



APPENDIX ONE.

CHAIN OF CUSTODY DOCUMENT



1 Havelock Street
West Perth, WA 6005 Australia
Telephone +61 8 9213 7600 Fax +61 8 9213 7611

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10114 page 1 of 1

Project Number: 117643092		Laboratory Name: SAS - Leeder	
		Address: Unit 4-5, 18 Redland Drive, Mitcham	
Golder Contact: Kathy Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: 03 9374 1988	Contact: Miranda Leeder

Address where reports should be sent to

☐ PO Box 1914
West Perth, WA 6872
Telephone (61 8) 9213 7600
Fax (61 8) 9213 7611

☒ Other email

Phone 0437782585 Fax

Analyses Required

Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers	Analyses Required	Remarks (over)
Q10114 - 01	W	13/06/13	5	✓	
- 02			5	✓	
- 03			5	✓	
- 04			5	✓	
- 05			5	✓	
- 06			5	✓	
- 07			2	✓	
- 08					
- 09					
- 10					
- 11					
- 12					

Sampler's Signature: [Signature]	Relinquished by: Signature [Signature]	Company: Golder	Date: 13/06/13	Time:	Received by: Signature [Signature]	Company: SAS Leeder Consulting
Sample Storage (°C): esky + ice	Relinquished by: Signature	Company:	Date:	Time:	Received by: Signature	Company:
Comments: QQ 2120517 WBI	Method of Shipment: AIR	Waybill No:	Received for Lab by: Lyndall Stevens		Date: 14/6/13	Time: 11:30 am
	Shipped by: AUSTRALIAN AIR EXPRESS	Shipment Condition: Seal intact:	Temp (°C):	Cooler opened by:	Date:	Time:

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report

**Melbourne Office**

Unit 3-5, 18 Redland Drive

Mitcham VIC 3132

Tel: +613 9874 1988

Fax: +613 9874 1933

email: AU.SampleReceipt.Mitcham@sgs.com

A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	18/06/2013
Email	kchadwick@golder.com.au	Ref:	M131328

SGS Leeder Consulting has received your samples from the project listed below.

If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131328
Date Received: 18-Jun-2013
Estimated date of report: 27-Jun-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.
All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.

**SGS LEEDER
CONSULTING****Specialist Laboratory Services**

Melbourne
Tel: +613 9874 1988
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Tel: +617 3899 2311
Fax: +617 3899 2322

Website: www.leederconsulting.com
Email: AU.SampleReceipt.Mitcham@sgs.com



A.B.N. 44 000 964 278
3 - 5, 18 Redland Drive
Mitcham, Vic, 3132
Telephone: (03) 9874 1988
Fax: (03) 9874 1933

Chartered Chemists

1-Jul-2013

REPORT NUMBER: M131328

Site/Client Ref: 117643092

Golder Associates

Level 2

1 Havelock Street

West Perth

WA 6005

Attention: Karly Chadwick

CERTIFICATE OF ANALYSIS

SAMPLES: Seven samples were received for analysis

DATE RECEIVED: 18-Jun-2013

DATE COMMENCED: 18-Jun-2013

METHODS: See Attached Results

RESULTS: Please refer to attached pages for results.

Note: Results are based on samples as received at SGS Leeder Consulting's laboratories

REPORTED BY:

Adam Atkinson

Laboratory Manager



NATA Accredited Laboratory Number: 2562

Accredited for compliance
with ISO/IEC 17025.

(I) RESULTS**Report N°: M131328****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013016602	2013016603	2013016604	2013016605	2013016606	2013016607	2013016608
		Client ID	Q10115-01	Q10115-02	Q10115-03	Q10115-04	Q10115-05	Q10115-06	Q10115-07
Analyte Name	PQL								
Benzene	0.001		nd	nd	nd	nd	nd	nd	nd
Bromobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.001		nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.001		nd	nd	nd	nd	nd	nd	nd
Bromomethane	0.001		nd	nd	nd	nd	nd	nd	nd
n-Butylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
s-Butylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
t-Butylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.00075		nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Chloroethane	0.001		nd	nd	nd	nd	nd	nd	nd
Chloromethane	0.001		nd	nd	nd	nd	nd	nd	nd
2-Chlorotoluene	0.001		nd	nd	nd	nd	nd	nd	nd
4-Chlorotoluene	0.001		nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane	0.001		nd	nd	nd	nd	nd	nd	nd
Dibromomethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Dichlorodifluoromethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.001		0.002	0.002	nd	0.004	nd	nd	nd

(I) RESULTS**Report N°: M131328****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013016602	2013016603	2013016604	2013016605	2013016606	2013016607	2013016608
		Client ID	Q10115-01	Q10115-02	Q10115-03	Q10115-04	Q10115-05	Q10115-06	Q10115-07
Analyte Name	PQL								
1,1-Dichloroethene	0.001		nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.001		0.023	0.023	nd	0.009	nd	nd	nd
trans-1,2-Dichloroethene	0.001		nd	nd	nd	nd	nd	nd	nd
Dichloromethane	0.01		nd	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	0.001		nd	nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	0.001		nd	nd	nd	nd	nd	nd	nd
2,2-Dichloropropane	0.001		nd	nd	nd	nd	nd	nd	nd
1,1-Dichloropropene	0.001		nd	nd	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	0.001		nd	nd	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	0.001		nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	0.001		nd	nd	nd	nd	nd	nd	nd
Isopropylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
p-Isopropyltoluene	0.001		nd	nd	nd	nd	nd	nd	nd
Naphthalene	0.001		nd	nd	nd	nd	nd	nd	nd
Propylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Styrene	0.001		nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.001		nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.001		0.007	0.007	nd	0.011	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.001		nd	nd	nd	nd	nd	nd	nd
Toluene	0.001		nd	nd	nd	nd	nd	nd	nd
Tribromomethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.001		nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131328****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013016602	2013016603	2013016604	2013016605	2013016606	2013016607	2013016608
		Client ID	Q10115-01	Q10115-02	Q10115-03	Q10115-04	Q10115-05	Q10115-06	Q10115-07

1,1,2-Trichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.001	0.004	0.004	nd	0.005	nd	nd	nd	nd
Trichlorofluoromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Trichloromethane	0.001	nd	nd	nd	0.002	nd	nd	nd	nd
1,2,3-Trichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl Chloride	0.001	nd	nd	nd	nd	nd	nd	nd	nd
m&p-Xylenes	0.001	nd	nd	nd	nd	nd	nd	nd	nd
o-Xylene	0.001	nd	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131328****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013016609	2013016610
Client ID	Q10115-01	Method
Analyte Name	PQL	
	Duplicate	Blank

Benzene	0.001	nd	nd
Bromobenzene	0.001	nd	nd
Bromochloromethane	0.001	nd	nd
Bromodichloromethane	0.001	nd	nd
Bromomethane	0.001	nd	nd
n-Butylbenzene	0.001	nd	nd
s-Butylbenzene	0.001	nd	nd
t-Butylbenzene	0.001	nd	nd
Carbon tetrachloride	0.00075	nd	nd
Chlorobenzene	0.001	nd	nd
Chloroethane	0.001	nd	nd
Chloromethane	0.001	nd	nd
2-Chlorotoluene	0.001	nd	nd
4-Chlorotoluene	0.001	nd	nd
Dibromochloromethane	0.001	nd	nd
1,2-Dibromo-3-chloropropane	0.001	nd	nd
1,2-Dibromoethane	0.001	nd	nd
Dibromomethane	0.001	nd	nd
1,2-Dichlorobenzene	0.001	nd	nd
1,3-Dichlorobenzene	0.001	nd	nd
1,4-Dichlorobenzene	0.001	nd	nd
Dichlorodifluoromethane	0.001	nd	nd
1,2-Dichloroethane	0.001	nd	nd
1,1-Dichloroethane	0.001	0.002	nd

(I) RESULTS**Report N°: M131328****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013016609	2013016610
Client ID	Q10115-01	Method
Analyte Name	PQL	
	Duplicate	Blank

1,1-Dichloroethene	0.001	nd	nd
cis-1,2-Dichloroethene	0.001	0.023	nd
trans-1,2-Dichloroethene	0.001	nd	nd
Dichloromethane	0.01	nd	nd
1,2-Dichloropropane	0.001	nd	nd
1,3-Dichloropropane	0.001	nd	nd
2,2-Dichloropropane	0.001	nd	nd
1,1-Dichloropropene	0.001	nd	nd
cis-1,3-Dichloropropene	0.001	nd	nd
trans-1,3-Dichloropropene	0.001	nd	nd
Ethylbenzene	0.001	nd	nd
Hexachloro-1,3-butadiene	0.001	nd	nd
Isopropylbenzene	0.001	nd	nd
p-Isopropyltoluene	0.001	nd	nd
Naphthalene	0.001	nd	nd
Propylbenzene	0.001	nd	nd
Styrene	0.001	nd	nd
1,1,2,2-Tetrachloroethane	0.001	nd	nd
Tetrachloroethene	0.001	0.007	nd
1,1,1,2-Tetrachloroethane	0.001	nd	nd
Toluene	0.001	nd	nd
Tribromomethane	0.001	nd	nd
1,2,3-Trichlorobenzene	0.001	nd	nd
1,2,4-Trichlorobenzene	0.001	nd	nd
1,1,1-Trichloroethane	0.001	nd	nd

(I) RESULTS

Report N°: M131328

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Sample units are expressed in mg/L

Leeder ID	2013016609	2013016610
Client ID	Q10115-01	Method
PQL	Duplicate	Blank

Analyte Name

1,1,2-Trichloroethane	0.001	nd	nd
Trichloroethene	0.001	0.004	nd
Trichlorofluoromethane	0.001	nd	nd
Trichloromethane	0.001	nd	nd
1,2,3-Trichloropropane	0.001	nd	nd
1,2,4-Trimethylbenzene	0.001	nd	nd
1,3,5-Trimethylbenzene	0.001	nd	nd
Vinyl Chloride	0.001	nd	nd
m&p-Xylenes	0.001	nd	nd
o-Xylene	0.001	nd	nd

(I) RESULTS**Report N°: M131328****Matrix: Water****Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Sample units are expressed in ug/L

Analyte Name	PQL	Leeder ID	2013016602	2013016603	2013016604	2013016605	2013016606	2013016607	2013016608
		Client ID	Q10115-01	Q10115-02	Q10115-03	Q10115-04	Q10115-05	Q10115-06	Q10115-07

Bromobenzene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromoethyne	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Dibromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dibromoethene	0.1	1.0	nd	nd	nd	nd	nd	nd	nd
trans-1,2-Dibromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethene(c,t)	0.1	1.0	nd	nd	nd	nd	nd	nd	nd
Dibromomethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tetrabromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tribromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tribromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tribromomethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl bromide	0.1	nd	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131328****Matrix: Water****Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Sample units are expressed in ug/L

Leeder ID	2013016609	2013016610
Client ID	Q10115-01	Method
Analyte Name	PQL	
	Duplicate	Blank

Bromobenzene	0.1	nd	nd
Bromochloromethane	0.1	nd	nd
Bromodichloromethane	0.1	nd	nd
Bromoethane	0.1	nd	nd
Bromoethyne	0.1	nd	nd
Dibromochloromethane	0.1	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd
Dibromoethane	0.1	nd	nd
cis-1,2-Dibromoethene	0.1	0.9	nd
trans-1,2-Dibromoethene	0.1	nd	nd
1,2-Dibromoethene(c,t)	0.1	0.9	nd
Dibromomethane	0.1	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd
Tetrabromoethane	0.1	nd	nd
Tetrabromoethene	0.1	nd	nd
Tribromoethane	0.1	nd	nd
Tribromoethene	0.1	nd	nd
Tribromomethane	0.1	nd	nd
Vinyl bromide	0.1	nd	nd

(I) RESULTS

Report N°: M131328

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013016602	2013016603	2013016604	2013016605	2013016606	2013016607	2013016608
		Client ID	Q10115-01	Q10115-02	Q10115-03	Q10115-04	Q10115-05	Q10115-06	Q10115-07
		PQL							
C6-C9 (Purge & Trap)	0.01		0.11	0.11	nd	0.06	nd	nd	nd
C10-C14	0.01		nd	nd	nd	nd	nd	nd	
C15-C28	0.05		nd	nd	nd	nd	nd	nd	
C29-C36	0.05		nd	nd	nd	nd	nd	nd	
Total C6-C36	0.05		0.11	0.11	nd	0.06	nd	nd	

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013016609	2013016610
		Client ID	Q10115-01	Method
		PQL	Duplicate	Blank
C6-C9 (Purge & Trap)	0.01		0.11	nd
C10-C14	0.01		nd	nd
C15-C28	0.05		nd	nd
C29-C36	0.05		nd	nd
Total C6-C36	0.05		0.11	nd

(I) RESULTS

Report N°: M131328

Matrix: Water

Method: MA-1400.WW.01 Metals

Sample units are expressed in mg/L

Leeder ID	2013016606	2013016607
Client ID	Q10115-05	Q10115-06

Analyte Name	PQL		
Aluminium	0.001	0.012	0.014
Arsenic	0.0005	nd	nd
Cadmium	0.0002	nd	nd
Chromium	0.001	nd	nd
Iron	0.001	nd	0.045
Lead	0.001	nd	nd
Manganese	0.001	nd	0.11
Mercury	0.00006	nd	nd
Nickel	0.001	nd	0.002
Zinc	0.001	0.001	0.009

Matrix: Water

Method: MA-1400.WW.01 Metals

Sample units are expressed in mg/L

Leeder ID	2013016610	2013017029
Client ID	Method	Q10115-05

Analyte Name	PQL	Blank	Duplicate
Aluminium	0.001	nd	0.014
Arsenic	0.0005	nd	nd
Cadmium	0.0002	nd	nd
Chromium	0.001	nd	nd
Iron	0.001	nd	nd
Lead	0.001	nd	nd
Manganese	0.001	nd	nd
Mercury	0.00006	nd	nd
Nickel	0.001	nd	nd
Zinc	0.001	nd	0.001

(I) RESULTS

Report N°: M131328

Matrix: Water

Method: VOC Surrogate Recovery

Sample units are expressed in %

Analyte Name	PQL	Leeder ID	2013016602	2013016603	2013016604	2013016605	2013016606	2013016607	2013016608
		Client ID	Q10115-01	Q10115-02	Q10115-03	Q10115-04	Q10115-05	Q10115-06	Q10115-07
		PQL							
Dibromofluoromethane			121	123	123	104	126	124	118
12-Dichloroethane-d4			113	126	120	114	116	123	118
Toluene-d8			108	108	108	107	107	109	105
p-Bromofluorobenzene			90	93	93	90	92	92	93

Matrix: Water

Method: VOC Surrogate Recovery

Sample units are expressed in %

Analyte Name	PQL	Leeder ID	2013016609	2013016610
		Client ID	Q10115-01	Method
		PQL	Duplicate	Blank
Dibromofluoromethane			122	117
12-Dichloroethane-d4			115	124
Toluene-d8			108	106
p-Bromofluorobenzene			91	92

(II) QUALITY CONTROL

Report N°: M131328

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017405	2013017406
		Client ID	Method	Method
			Spike	Spike Dup
Benzene			89	91
Bromodichloromethane			83	84
Carbon tetrachloride			88	96
Chlorobenzene			96	100
Dibromochloromethane			76	77
1,2-Dichlorobenzene			79	82
1,4-Dichlorobenzene			105	110
1,2-Dichloroethane			95	98

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017405	2013017406
		Client ID	Method	Method
			Spike	Spike Dup
1,1-Dichloroethene			87	93
trans-1,2-Dichloroethene			90	91
Dichloromethane			94	106
1,2-Dichloropropane			89	92
Ethylbenzene			89	93
Styrene			81	85
Toluene			94	97
Tribromomethane			71	74
1,1,1-Trichloroethane			95	99

(II) QUALITY CONTROL

Report N°: M131328

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017405	2013017406
		Client ID	Method	Method
			Spike	Spike Dup
1,1,2-Trichloroethane			92	95
Trichloroethene			90	91
Trichloromethane			101	104
Vinyl Chloride			106	119
m&p-Xylenes			88	92
o-Xylene			85	89

Matrix: Water

Method: MA-15.WW.09 Brominated Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017405	2013017406
		Client ID	Method	Method
			Spike	Spike Dup
Bromodichloromethane			87	83
Bromoethane			85	79
Dibromochloromethane			83	82
cis-1,2-Dibromoethene			92	92
trans-1,2-Dibromoethene			97	95
1,2-Dibromoethene(c,t)			95	94
Tribromoethane			80	73
Tribromoethene			96	94
Tribromomethane			84	84
Vinyl bromide			88	82

(II) QUALITY CONTROL

Report N°: M131328

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017405	2013017406
		Client ID	Method	Method
			Spike	Spike Dup
C6-C9 (Purge & Trap)			122	119
Total C6-C36			102	98

Matrix: Water

Method: MA-1400.WW.01 Metals

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017030	2013017031
		Client ID	Q10115-05	Q10115-05
			Spike	Spike Dup
Aluminium			108	108
Arsenic			99	100
Cadmium			101	102
Chromium			98	99
Iron			128	120
Lead			106	107
Manganese			103	106
Mercury			100	102
Nickel			96	98
Zinc			110	112

(II) QUALITY CONTROL

Report N°: M131328

Matrix: Water

Method: VOC Surrogate Recovery

Quality Control Results are expressed in Percent Recovery of expected result

Leeder ID	2013017405	2013017406
Client ID	Method	Method
PQL	Spike	Spike Dup

Analyte Name

Dibromofluoromethane		107	106
12-Dichloroethane-d4		104	112
Toluene-d8		103	103
p-Bromofluorobenzene		99	100

QUALIFIERS / NOTES FOR REPORTED RESULTS

PQL	Practical Quantitation Limit
<i>is</i>	Insufficient Sample to perform this analysis.
T	Tentative identification based on computer library search of mass spectra.
ND	Not Detected – The analyte was not detected above the reported PQL.
NC	Not calculated and/or Results below PQL
<i>nr</i>	Not Requested for analysis.
R	Rejected Result – results for this analysis failed QC checks.
SQ	Semi-Quantitative result – quantitation based on a generic response factor for this class of analyte.
IM	Inappropriate method of analysis for this compound
U	Unable to provide Quality Control data – high levels of compounds in sample interfered with analysis of QC results.
UF	Unable to provide Quality Control data- Surrogates failed QC checks due to sample matrix effects
L	Analyte detected at a level above the linear response of calibration curve.
E	Estimated result. NATA accreditation does not cover estimated results.
C1	These compounds co-elute.
--	Parameter Not Determined
CT	Elevated concentration. Results reported from carbon tube analysis
**	Sample shows non-petroleum hydrocarbon profile



APPENDIX ONE.

CHAIN OF CUSTODY DOCUMENT



Q 10115 page 1 of v

Project Number: 117643092		Laboratory Name: ██████████ SGS-Leeder	
		Address: ██████████ ██████████ Unit 4-5, 18 Redland Drive	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax: ██████████	Contact: ██████████

Address where reports should be sent to
☐ PO Box 1914
West Perth, WA 6872
Telephone (61 8) 9213 7600
Fax (61 8) 9213 7611

☒ Other
Brittany Herbert bherbert@golden.com.au
Email
Phone 08 9277 82585 Fax

Sample Control Number (SCN)
010115 - 01
- 02
- 03
- 04
- 05
1 - 06
- 07
- 08
- 09
- 10
- 11
- 12

Sample Matrix (over)
W

Date Sampled (D/M/Y)
17/6/12

Number of Containers
5
5
5
5
7
7
2

Suite 1
Suite 2
MH 66-09
VOC Inc. MAIL
Brominated VOCs

RUSH

Remarks (over)

Sampler's Signature: <i>Adrian Phillips</i>	Relinquished by: Signature <i>Adrian Phillips</i>	Company <i>Golder</i>	Date <i>17/06/2013</i>	Time <i>5:30pm</i>	Received by: Signature <i>James Phillips</i>	Company <i>SES Leader Consultants</i>
Sample Storage (°C) <i>ICE + Esky</i>	Relinquished by: Signature	Company	Date	Time	Received by: Signature <i>J Phillips</i>	Company
Comments: <i>Q2120617WBI</i>	Method of Shipment: <i>AIR</i>	Waybill No:	Received for Lab by:		Date <i>18/6/13</i>	Time <i>10:40 am</i>
	Shipped by: <i>AAE</i>	Shipment Condition: Seal intact:	Temp (°C)	Cooler opened by:	Date	Time

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report

From: Chadwick, Karly [mailto:kchadwick@golder.com.au]
Sent: Tuesday, 18 June 2013 4:43 PM
To: AU.SampleReceipt.Mitcham (Melbourne)
Subject: RE: RE:117643092 (M131328)

Hi Vanessa,

Thank you for checking this. We do not require nitrate analysis on the samples referred to below. Apologies for the confusion.

Karly

Karly Chadwick (BSc Environmental Science) | Environmental Scientist | **Golder Associates Pty Ltd**
Level 3, 1 Havelock Street, West Perth, Western Australia 6005, Australia (PO Box 1914, West Perth WA 6872)
T: +61 8 9213 7600 | **D:** +61 8 9213 8267 | **F:** +61 8 9213 7611 | **E:** kchadwick@golder.com.au |
www.golder.com

Winner of 22 BRW Client Choice Awards 2006-2013, including in 2013:
Best Consulting Engineering Firm (revenue greater than \$200m)

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Please consider the environment before printing this email.

From: AU.SampleReceipt.Mitcham (Melbourne) [mailto:AU.SampleReceipt.Mitcham@sgs.com]
Sent: Tuesday, 18 June 2013 2:29 PM
To: Chadwick, Karly
Subject: RE:117643092 (M131328)

Hi Karly,

As per our telephone conversation please confirm if you require Nitrate analysis on Sample ID Q10115-05 & Q10115-06 as we have received an unpreserved bottle for each sample.

Regards,

Vanessa Palamara
Environmental Services
Sample Reception

SGS Leeder Consulting
Melbourne Office
Unit 5 / 18 Redland Drive
Mitcham, VIC 3132

Phone: +61 (0)3 9874 1988
Fax: +61 (0)3 9874 1933
E-mail: vanessa.palamara@sgs.com
Web: www.au.sgs.com

**Melbourne Office**

Unit 3-5, 18 Redland Drive

Mitcham VIC 3132

Tel: +613 9874 1988

Fax: +613 9874 1933

email: AU.SampleReceipt.Mitcham@sgs.com

A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	19/06/2013
Email	kchadwick@golder.com.au	Ref:	M131335

SGS Leeder Consulting has received your samples from the project listed below.

If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131335
Date Received: 19-Jun-2013
Estimated date of report: 28-Jun-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.
All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.

**SGS LEEDER
CONSULTING****Specialist Laboratory Services**

Melbourne
Tel: +613 9874 1988
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Fax: +617 3899 2322

Website: www.leederconsulting.com
Email: AU.SampleReceipt.Mitcham@sgs.com



A.B.N. 44 000 964 278
3 - 5, 18 Redland Drive
Mitcham, Vic, 3132
Telephone: (03) 9874 1988
Fax: (03) 9874 1933

Chartered Chemists

22-Aug-2013

REPORT NUMBER: M131335R1

Site/Client Ref: 117643092

Golder Associates

Level 2

1 Havelock Street

West Perth

WA 6005

Attention: Karly Chadwick

CERTIFICATE OF ANALYSIS

This report replaces previous report dated 3-Jul-2013

SAMPLES: Seven samples were received for analysis

DATE RECEIVED: **19-Jun-2013**

DATE COMMENCED: **19-Jun-2013**

METHODS: See Attached Results

RESULTS: Please refer to attached pages for results.

Note: Results are based on samples as received at SGS Leeder Consulting's laboratories

REPORTED BY:

Adam Atkinson

Laboratory Manager



NATA Accredited Laboratory Number: 2562

**Accredited for compliance
with ISO/IEC 17025.**

(I) RESULTS**Report N°: M131335R1****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013016658	2013016659	2013016660	2013016661	2013016662	2013016663	2013016664
		Client ID	Q10117-01	Q10117-02	Q10117-03	Q10117-04	Q10117-05	Q10117-06	Q10117-07
Analyte Name	PQL								
Benzene	0.001	nd	0.001	nd	nd	0.019	0.018	nd	
Bromobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	
Bromochloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	
Bromodichloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	
Bromomethane	0.001	nd	nd	nd	nd	nd	nd	nd	
n-Butylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	
s-Butylbenzene	0.001	nd	nd	nd	nd	0.002	0.002	nd	
t-Butylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	
Carbon tetrachloride	0.00075	nd	nd	nd	nd	nd	nd	nd	
Chlorobenzene	0.001	nd	nd	nd	nd	0.010	0.010	nd	
Chloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	
Chloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	
2-Chlorotoluene	0.001	nd	nd	nd	nd	nd	nd	nd	
4-Chlorotoluene	0.001	nd	nd	nd	nd	nd	nd	nd	
Dibromochloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	
1,2-Dibromo-3-chloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	
1,2-Dibromoethane	0.001	nd	nd	nd	nd	nd	nd	nd	
Dibromomethane	0.001	nd	nd	nd	nd	nd	nd	nd	
1,2-Dichlorobenzene	0.001	0.003	nd	nd	nd	0.004	0.003	nd	
1,3-Dichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	
1,4-Dichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	
Dichlorodifluoromethane	0.001	nd	nd	nd	nd	nd	nd	nd	
1,2-Dichloroethane	0.001	nd	0.001	nd	nd	0.004	0.004	nd	
1,1-Dichloroethane	0.001	0.016	0.008	nd	nd	0.028	0.038	nd	

(I) RESULTS**Report N°: M131335R1****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013016658	2013016659	2013016660	2013016661	2013016662	2013016663	2013016664
		Client ID	Q10117-01	Q10117-02	Q10117-03	Q10117-04	Q10117-05	Q10117-06	Q10117-07
Analyte Name	PQL								
1,1-Dichloroethene	0.001	nd	0.001	nd	nd	0.002	0.004	nd	
cis-1,2-Dichloroethene	0.001	0.003	0.075	nd	nd	2.3	2.5	0.002	
trans-1,2-Dichloroethene	0.001	nd	nd	nd	nd	nd	0.001	nd	
Dichloromethane	0.01	nd	nd	nd	nd	nd	nd	nd	
1,2-Dichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	
1,3-Dichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	
2,2-Dichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	
1,1-Dichloropropene	0.001	nd	nd	nd	nd	nd	nd	nd	
cis-1,3-Dichloropropene	0.001	nd	nd	nd	nd	nd	nd	nd	
trans-1,3-Dichloropropene	0.001	nd	nd	nd	nd	nd	nd	nd	
Ethylbenzene	0.001	0.055	0.011	nd	nd	1.3	1.3	nd	
Hexachloro-1,3-butadiene	0.001	nd	nd	nd	nd	nd	nd	nd	
Isopropylbenzene	0.001	0.001	nd	nd	nd	0.018	0.017	nd	
p-Isopropyltoluene	0.001	0.003	nd	nd	nd	0.043	0.042	nd	
Naphthalene	0.001	0.004	nd	nd	nd	0.045	0.045	nd	
Propylbenzene	0.001	nd	nd	nd	nd	0.023	0.020	nd	
Styrene	0.001	nd	nd	nd	nd	nd	nd	nd	
1,1,2,2-Tetrachloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	
Tetrachloroethene	0.001	nd	0.003	nd	nd	nd	nd	nd	
1,1,1,2-Tetrachloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	
Toluene	0.001	0.037	nd	nd	nd	1.1	1.1	nd	
Tribromomethane	0.001	nd	nd	nd	nd	nd	nd	nd	
1,2,3-Trichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	
1,2,4-Trichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	
1,1,1-Trichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	

(I) RESULTS**Report N°: M131335R1****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013016658	2013016659	2013016660	2013016661	2013016662	2013016663	2013016664
Client ID	Q10117-01	Q10117-02	Q10117-03	Q10117-04	Q10117-05	Q10117-06	Q10117-07
Analyte Name	PQL						

1,1,2-Trichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.001	nd	0.003	nd	nd	nd	nd	nd
Trichlorofluoromethane	0.001	nd	nd	nd	nd	nd	nd	nd
Trichloromethane	0.001	0.002	nd	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.001	0.041	0.002	nd	nd	0.30	0.27	nd
1,3,5-Trimethylbenzene	0.001	0.048	nd	nd	nd	0.078	0.072	nd
Vinyl Chloride	0.001	0.15	nd	nd	nd	0.008	0.006	nd
m&p-Xylenes	0.001	0.049	nd	nd	nd	2.4	2.4	nd
o-Xylene	0.001	0.15	nd	nd	nd	0.29	0.29	nd

(I) RESULTS**Report N°: M131335R1****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013016665	2013016666
Client ID	Q10117-01	Method
Analyte Name	PQL	
	Duplicate	Blank

Benzene	0.001	nd	nd
Bromobenzene	0.001	nd	nd
Bromochloromethane	0.001	nd	nd
Bromodichloromethane	0.001	nd	nd
Bromomethane	0.001	nd	nd
n-Butylbenzene	0.001	nd	nd
s-Butylbenzene	0.001	nd	nd
t-Butylbenzene	0.001	nd	nd
Carbon tetrachloride	0.00075	nd	nd
Chlorobenzene	0.001	nd	nd
Chloroethane	0.001	nd	nd
Chloromethane	0.001	nd	nd
2-Chlorotoluene	0.001	nd	nd
4-Chlorotoluene	0.001	nd	nd
Dibromochloromethane	0.001	nd	nd
1,2-Dibromo-3-chloropropane	0.001	nd	nd
1,2-Dibromoethane	0.001	nd	nd
Dibromomethane	0.001	nd	nd
1,2-Dichlorobenzene	0.001	0.003	nd
1,3-Dichlorobenzene	0.001	nd	nd
1,4-Dichlorobenzene	0.001	nd	nd
Dichlorodifluoromethane	0.001	nd	nd
1,2-Dichloroethane	0.001	nd	nd
1,1-Dichloroethane	0.001	0.016	nd

(I) RESULTS**Report N°: M131335R1****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013016665	2013016666
Client ID	Q10117-01	Method
Analyte Name	PQL	
	Duplicate	Blank

1,1-Dichloroethene	0.001	nd	nd
cis-1,2-Dichloroethene	0.001	0.003	nd
trans-1,2-Dichloroethene	0.001	nd	nd
Dichloromethane	0.01	nd	nd
1,2-Dichloropropane	0.001	nd	nd
1,3-Dichloropropane	0.001	nd	nd
2,2-Dichloropropane	0.001	nd	nd
1,1-Dichloropropene	0.001	nd	nd
cis-1,3-Dichloropropene	0.001	nd	nd
trans-1,3-Dichloropropene	0.001	nd	nd
Ethylbenzene	0.001	0.057	nd
Hexachloro-1,3-butadiene	0.001	nd	nd
Isopropylbenzene	0.001	0.001	nd
p-Isopropyltoluene	0.001	0.004	nd
Naphthalene	0.001	0.005	nd
Propylbenzene	0.001	nd	nd
Styrene	0.001	nd	nd
1,1,2,2-Tetrachloroethane	0.001	nd	nd
Tetrachloroethene	0.001	nd	nd
1,1,1,2-Tetrachloroethane	0.001	nd	nd
Toluene	0.001	0.039	nd
Tribromomethane	0.001	nd	nd
1,2,3-Trichlorobenzene	0.001	nd	nd
1,2,4-Trichlorobenzene	0.001	nd	nd
1,1,1-Trichloroethane	0.001	nd	nd

(I) RESULTS**Report N°: M131335R1****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013016665	2013016666
Client ID	Q10117-01	Method
Analyte Name	PQL	
	Duplicate	Blank

1,1,2-Trichloroethane	0.001	nd	nd
Trichloroethene	0.001	nd	nd
Trichlorofluoromethane	0.001	nd	nd
Trichloromethane	0.001	0.002	nd
1,2,3-Trichloropropane	0.001	nd	nd
1,2,4-Trimethylbenzene	0.001	0.041	nd
1,3,5-Trimethylbenzene	0.001	0.047	nd
Vinyl Chloride	0.001	0.17	nd
m&p-Xylenes	0.001	0.051	nd
o-Xylene	0.001	0.14	nd

(I) RESULTS

Report N°: M131335R1

Matrix: Water

Method: MA-15.WW.09 Brominated Volatile Organic Compounds

Sample units are expressed in ug/L

Leeder ID	2013016658	2013016659	2013016660	2013016661	2013016662	2013016663	2013016664
Client ID	Q10117-01	Q10117-02	Q10117-03	Q10117-04	Q10117-05	Q10117-06	Q10117-07
Analyte Name	PQL						

Bromobenzene	0.1	nd	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.1	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.1	nd	nd	nd	nd	nd	nd	nd
Bromoethane	0.1	nd	nd	nd	nd	nd	nd	nd
Bromoethyne	0.1	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.1	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd	nd	nd	nd	nd	nd
Dibromoethane	0.1	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dibromoethene	0.1	nd	nd	nd	nd	nd	nd	nd
trans-1,2-Dibromoethene	0.1	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethene(c,t)	0.1	nd	nd	nd	nd	nd	nd	nd
Dibromomethane	0.1	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd	nd
Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd	nd
Tetrabromoethene	0.1	nd	nd	nd	nd	nd	nd	nd
Tribromoethane	0.1	nd	nd	nd	nd	nd	nd	nd
Tribromoethene	0.1	nd	nd	nd	nd	nd	nd	nd
Tribromomethane	0.1	nd	nd	nd	nd	nd	nd	nd
Vinyl bromide	0.1	22	1.4	nd	nd	nd	1.1	nd

(I) RESULTS**Report N°: M131335R1****Matrix: Water****Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Sample units are expressed in ug/L

Leeder ID	2013016665	2013016666
Client ID	Q10117-01	Method
Analyte Name	PQL	
	Duplicate	Blank

Bromobenzene	0.1	nd	nd
Bromochloromethane	0.1	nd	nd
Bromodichloromethane	0.1	nd	nd
Bromoethane	0.1	nd	nd
Bromoethyne	0.1	nd	nd
Dibromochloromethane	0.1	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd
Dibromoethane	0.1	nd	nd
cis-1,2-Dibromoethene	0.1	nd	nd
trans-1,2-Dibromoethene	0.1	nd	nd
1,2-Dibromoethene(c,t)	0.1	nd	nd
Dibromomethane	0.1	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd
Tetrabromoethane	0.1	nd	nd
Tetrabromoethene	0.1	nd	nd
Tribromoethane	0.1	nd	nd
Tribromoethene	0.1	nd	nd
Tribromomethane	0.1	nd	nd
Vinyl bromide	0.1	23	nd

(I) RESULTS

Report N°: M131335R1

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013016658	2013016659	2013016660	2013016661	2013016662	2013016663	2013016664
		Client ID	Q10117-01	Q10117-02	Q10117-03	Q10117-04	Q10117-05	Q10117-06	Q10117-07
		PQL							
C6-C9 (Purge & Trap)	0.01		1.1	0.31	nd	nd	53	45	nd
C10-C14	0.01		2.7	0.15	nd	nd	4.4	4.6	
C15-C28	0.05		0.40	nd	nd	nd	0.38	0.40	
C29-C36	0.05		nd	nd	nd	nd	nd	nd	
Total C6-C36	0.05		4.2	0.47	nd	nd	58	50	

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013016665	2013016666
		Client ID	Q10117-01	Method
		PQL	Duplicate	Blank
C6-C9 (Purge & Trap)	0.01		1.1	nd
C10-C14	0.01		2.9	nd
C15-C28	0.05		0.42	nd
C29-C36	0.05		nd	nd
Total C6-C36	0.05		4.4	nd

(I) RESULTS

Report N°: M131335R1

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Sample units are expressed in mg/L

Leeder ID	2013016661
Client ID	Q10117-04
Analyte Name	PQL
Nitrate as N	0.01
	nd

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Sample units are expressed in mg/L

Leeder ID	2013016666
Client ID	Method
Analyte Name	PQL
	Blank
Nitrate as N	0.01
	nd

(I) RESULTS

Report N°: M131335R1

Matrix: Water

Method: MA-1400.WW.01 Metals

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013016658	2013016659	2013016660	2013016662	2013016663
		Client ID	Q10117-01	Q10117-02	Q10117-03	Q10117-05	Q10117-06
Aluminium	0.001		0.003	0.003	0.025	0.011	0.006
Arsenic	0.0005		0.0013	0.014	nd	0.0017	0.0018
Cadmium	0.0002		nd	nd	nd	nd	nd
Chromium	0.001		nd	nd	nd	0.001	0.001
Iron	0.001		8.0	19	nd	9.3	9.0
Lead	0.001		nd	nd	nd	nd	nd
Manganese	0.001		0.024	0.017	0.001	0.085	0.082
Mercury	0.00006		nd	nd	nd	nd	nd
Nickel	0.001		0.009	0.008	0.001	0.006	0.006
Zinc	0.001		0.015	0.008	0.027	0.010	0.007

Matrix: Water

Method: MA-1400.WW.01 Metals

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013016665	2013016666
		Client ID	Q10117-01	Method
			Duplicate	Blank
Aluminium	0.001		0.004	nd
Arsenic	0.0005		0.0014	nd
Cadmium	0.0002		nd	nd
Chromium	0.001		nd	nd
Iron	0.001		9.4	nd
Lead	0.001		nd	nd
Manganese	0.001		0.025	nd
Mercury	0.00006		nd	nd
Nickel	0.001		0.010	nd
Zinc	0.001		0.018	nd

(I) RESULTS**Report N°: M131335R1****Matrix: Water****Method: VOC Surrogate Recovery**

Sample units are expressed in %

Analyte Name	Leeder ID	2013016658	2013016659	2013016660	2013016661	2013016662	2013016663	2013016664
	Client ID	Q10117-01	Q10117-02	Q10117-03	Q10117-04	Q10117-05	Q10117-06	Q10117-07
	PQL							

Dibromofluoromethane		113	104	108	108	86	100	81
12-Dichloroethane-d4		108	105	117	111	97	100	93
Toluene-d8		109	98	101	101	100	99	99
p-Bromofluorobenzene		102	86	84	85	91	87	88

Matrix: Water**Method: VOC Surrogate Recovery**

Sample units are expressed in %

Analyte Name	Leeder ID	2013016665	2013016666
	Client ID	Q10117-01	Method
	PQL	Duplicate	Blank

Dibromofluoromethane		106	112
12-Dichloroethane-d4		104	123
Toluene-d8		104	104
p-Bromofluorobenzene		95	86

(II) QUALITY CONTROL

Report N°: M131335R1

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017409	2013017410
		Client ID	Method	Method
			Spike	Spike Dup
Benzene			89	91
Bromodichloromethane			83	84
Carbon tetrachloride			88	96
Chlorobenzene			96	100
Dibromochloromethane			76	77
1,2-Dichlorobenzene			79	82
1,4-Dichlorobenzene			105	110
1,2-Dichloroethane			95	98

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017409	2013017410
		Client ID	Method	Method
			Spike	Spike Dup
1,1-Dichloroethene			87	93
trans-1,2-Dichloroethene			90	91
Dichloromethane			94	106
1,2-Dichloropropane			89	92
Ethylbenzene			89	93
Styrene			81	85
Toluene			94	97
Tribromomethane			71	74
1,1,1-Trichloroethane			95	99

(II) QUALITY CONTROL**Report N°: M131335R1****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017409	2013017410
		Client ID	Method	Method
			Spike	Spike Dup
1,1,2-Trichloroethane			92	95
Trichloroethene			90	91
Trichloromethane			101	104
Vinyl Chloride			106	119
m&p-Xylenes			88	92
o-Xylene			85	89

Matrix: Water**Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017409	2013017410
		Client ID	Method	Method
			Spike	Spike Dup
Bromodichloromethane			87	83
Bromoethane			85	79
Dibromochloromethane			83	82
cis-1,2-Dibromoethene			92	92
trans-1,2-Dibromoethene			97	95
1,2-Dibromoethene(c,t)			95	94
Tribromoethane			80	73
Tribromoethene			96	94
Tribromomethane			84	84
Vinyl bromide			88	82

(II) QUALITY CONTROL

Report N°: M131335R1

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017409	2013017410
		Client ID	Method	Method
			Spike	Spike Dup
C6-C9 (Purge & Trap)			105	112
Total C6-C36			97	91

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017409	2013017410
		Client ID	Method	Method
			Spike	Spike Dup
Nitrate as N			117	127

(II) QUALITY CONTROL

Report N°: M131335R1

Matrix: Water

Method: MA-1400.WW.01 Metals

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	Leeder ID	2013016667	2013016668
	Client ID	Q10117-01	Q10117-01
	PQL	Spike	Spike Dup
Aluminium		119	111
Arsenic		102	104
Cadmium		100	102
Chromium		100	102
Iron		U	U
Lead		104	105
Manganese		99	100
Mercury		92	97
Nickel		98	99
Zinc		105	106

Matrix: Water

Method: VOC Surrogate Recovery

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	Leeder ID	2013017409	2013017410
	Client ID	Method	Method
	PQL	Spike	Spike Dup
Dibromofluoromethane		102	102
12-Dichloroethane-d4		99	96
Toluene-d8		99	99
p-Bromofluorobenzene		98	100

QUALIFIERS / NOTES FOR REPORTED RESULTS

PQL	Practical Quantitation Limit
<i>is</i>	Insufficient Sample to perform this analysis.
T	Tentative identification based on computer library search of mass spectra.
ND	Not Detected – The analyte was not detected above the reported PQL.
NC	Not calculated and/or Results below PQL
<i>nr</i>	Not Requested for analysis.
R	Rejected Result – results for this analysis failed QC checks.
SQ	Semi-Quantitative result – quantitation based on a generic response factor for this class of analyte.
IM	Inappropriate method of analysis for this compound
U	Unable to provide Quality Control data – high levels of compounds in sample interfered with analysis of QC results.
UF	Unable to provide Quality Control data- Surrogates failed QC checks due to sample matrix effects
L	Analyte detected at a level above the linear response of calibration curve.
E	Estimated result. NATA accreditation does not cover estimated results.
C1	These compounds co-elute.
--	Parameter Not Determined
CT	Elevated concentration. Results reported from carbon tube analysis
**	Sample shows non-petroleum hydrocarbon profile



APPENDIX ONE.

CHAIN OF CUSTODY DOCUMENT



1 Havelock Street
West Perth, WA 6005 Australia
Telephone +61 8 9213 7600 Fax +61 8 9213 7611

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10117 page 1 of 1

Project Number: 11764-3092		Laboratory Name: SGS - Leeder	
		Address: Unit 4-5, 18 Redland Drive	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax:	Contact:

Address where reports should be sent to

☐ PO Box 1914
West Perth, WA 6872
Telephone (61 8) 9213 7600
Fax (61 8) 9213 7611

☒ Other

Brittany Herbert bherbert@golder.com.au
email

Phone 0450 244266 Fax

Analyses Required

Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers	Analyses Required	Remarks (over)
Q10117-01	W	18/6/13	7	✓	
Q10117-02	W	" "	7	✓	
Q10117-03	W	" "	7	✓	
Q10117-04	W	" "	6	✓	
Q10117-05	W	" "	7	✓	
Q10117-06	W	" "	7	✓	
Q10117-07	W	18/6/13	7	✓	
-08					
-09					
-10					
-11					
-12					

Sampler's Signature: [Signature]	Relinquished by: Signature: [Signature]	Company: Golder	Date: 18/06/13	Time: 4:05pm	Received by: Signature: [Signature]	Company: SGS Leeder Consulting
Sample Storage (°C): 15°C & ICE	Relinquished by: Signature:	Company:	Date:	Time:	Received by: Signature:	Company:
Comments: 202120617MBI	Method of Shipment: Airc	Waybill No:	Received for Lab by: Lyndall Stevens		Date: 19/6/13	Time: 8:35am
	Shipped by: AAE	Shipment Condition: Seal intact:	Temp (°C):	Cooler opened by:	Date:	Time:

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report

From: Chadwick, Karly [mailto:kchadwick@golder.com.au]
Sent: Wednesday, 19 June 2013 3:44 PM
To: AU.SampleReceipt.Mitcham (Melbourne)
Subject: RE: RE:117643092 (M131335)

Great, then amber will be the missing one for -01. Also, I confirm that we definitely want nitrate analysis on Q10117-04.

Karly

Karly Chadwick (BSc Environmental Science) | Environmental Scientist | Golder Associates Pty Ltd

Level 3, 1 Havelock Street, West Perth, Western Australia 6005, Australia (PO Box 1914, West Perth WA 6872)

T: +61 8 9213 7600 | **D:** +61 8 9213 8267 | **F:** +61 8 9213 7611 | **E:** kchadwick@golder.com.au | www.golder.com

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Work Safe, Home Safe

**Melbourne Office**

Unit 3-5, 18 Redland Drive

Mitcham VIC 3132

Tel: +613 9874 1988

Fax: +613 9874 1933

email: AU.SampleReceipt.Mitcham@sgs.com

A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	20/06/2013
Email	kchadwick@golder.com.au	Ref:	M131345

SGS Leeder Consulting has received your samples from the project listed below.
If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131345
Date Received: 20-Jun-2013
Estimated date of report: 01-Jul-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.
All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.

**SGS LEEDER
CONSULTING****Specialist Laboratory Services**

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Email: AU.SampleReceipt.Mitcham@sgs.com



A.B.N. 44 000 964 278
3 - 5, 18 Redland Drive
Mitcham, Vic, 3132
Telephone: (03) 9874 1988
Fax: (03) 9874 1933

Chartered Chemists

4-Jul-2013

REPORT NUMBER: M131345

Site/Client Ref: 117643092

Golder Associates

Level 2

1 Havelock Street

West Perth

WA 6005

Attention: Karly Chadwick

CERTIFICATE OF ANALYSIS

SAMPLES: Seven samples were received for analysis

DATE RECEIVED: 20-Jun-2013

DATE COMMENCED: 20-Jun-2013

METHODS: See Attached Results

RESULTS: Please refer to attached pages for results.

Note: Results are based on samples as received at SGS Leeder Consulting's laboratories

REPORTED BY:

Adam Atkinson

Laboratory Manager



NATA Accredited Laboratory Number: 2562

Accredited for compliance
with ISO/IEC 17025.

(I) RESULTS**Report N°: M131345****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013016741	2013016742	2013016743	2013016744	2013016745	2013016746	2013016747
		Client ID	Q10118-01	Q10118-02	Q10118-03	Q10118-04	Q10118-05	Q10118-06	Q10118-07

Benzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Bromobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Bromomethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
n-Butylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
s-Butylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
t-Butylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.00075	nd	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Chloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Chloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
2-Chlorotoluene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
4-Chlorotoluene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Dibromomethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Dichlorodifluoromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131345****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013016741	2013016742	2013016743	2013016744	2013016745	2013016746	2013016747
		Client ID	Q10118-01	Q10118-02	Q10118-03	Q10118-04	Q10118-05	Q10118-06	Q10118-07
Analyte Name	PQL								
1,1-Dichloroethene	0.001		nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.001		nd	nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.001		nd	nd	nd	nd	nd	nd	nd
Dichloromethane	0.01		nd	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	0.001		nd	nd	nd	nd	nd	nd	nd
1,3-Dichloropropane	0.001		nd	nd	nd	nd	nd	nd	nd
2,2-Dichloropropane	0.001		nd	nd	nd	nd	nd	nd	nd
1,1-Dichloropropene	0.001		nd	nd	nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	0.001		nd	nd	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	0.001		nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	0.001		nd	nd	nd	nd	nd	nd	nd
Isopropylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
p-Isopropyltoluene	0.001		nd	nd	nd	nd	nd	nd	nd
Naphthalene	0.001		nd	nd	nd	nd	nd	nd	nd
Propylbenzene	0.001		nd	nd	nd	nd	nd	nd	nd
Styrene	0.001		nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.001		nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	0.001		nd	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.001		nd	nd	nd	nd	nd	nd	nd
Toluene	0.001		nd	nd	nd	nd	nd	nd	nd
Tribromomethane	0.001		nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	0.001		nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.001		nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131345****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013016741	2013016742	2013016743	2013016744	2013016745	2013016746	2013016747
		Client ID	Q10118-01	Q10118-02	Q10118-03	Q10118-04	Q10118-05	Q10118-06	Q10118-07

1,1,2-Trichloroethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	0.001	nd	nd	nd	nd	nd	0.002	nd	nd
Trichlorofluoromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Trichloromethane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.001	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl Chloride	0.001	nd	nd	nd	nd	nd	nd	nd	nd
m&p-Xylenes	0.001	nd	nd	nd	nd	nd	nd	nd	nd
o-Xylene	0.001	nd	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131345****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013016748	2013016749
		Client ID	Q10118-01	Method
			Duplicate	Blank
Benzene	0.001		nd	nd
Bromobenzene	0.001		nd	nd
Bromochloromethane	0.001		nd	nd
Bromodichloromethane	0.001		nd	nd
Bromomethane	0.001		nd	nd
n-Butylbenzene	0.001		nd	nd
s-Butylbenzene	0.001		nd	nd
t-Butylbenzene	0.001		nd	nd
Carbon tetrachloride	0.00075		nd	nd
Chlorobenzene	0.001		nd	nd
Chloroethane	0.001		nd	nd
Chloromethane	0.001		nd	nd
2-Chlorotoluene	0.001		nd	nd
4-Chlorotoluene	0.001		nd	nd
Dibromochloromethane	0.001		nd	nd
1,2-Dibromo-3-chloropropane	0.001		nd	nd
1,2-Dibromoethane	0.001		nd	nd
Dibromomethane	0.001		nd	nd
1,2-Dichlorobenzene	0.001		nd	nd
1,3-Dichlorobenzene	0.001		nd	nd
1,4-Dichlorobenzene	0.001		nd	nd
Dichlorodifluoromethane	0.001		nd	nd
1,2-Dichloroethane	0.001		nd	nd
1,1-Dichloroethane	0.001		nd	nd

(I) RESULTS**Report N°: M131345****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013016748	2013016749
Client ID	Q10118-01	Method
Analyte Name	PQL	
	Duplicate	Blank

1,1-Dichloroethene	0.001	nd	nd
cis-1,2-Dichloroethene	0.001	nd	nd
trans-1,2-Dichloroethene	0.001	nd	nd
Dichloromethane	0.01	nd	nd
1,2-Dichloropropane	0.001	nd	nd
1,3-Dichloropropane	0.001	nd	nd
2,2-Dichloropropane	0.001	nd	nd
1,1-Dichloropropene	0.001	nd	nd
cis-1,3-Dichloropropene	0.001	nd	nd
trans-1,3-Dichloropropene	0.001	nd	nd
Ethylbenzene	0.001	nd	nd
Hexachloro-1,3-butadiene	0.001	nd	nd
Isopropylbenzene	0.001	nd	nd
p-Isopropyltoluene	0.001	nd	nd
Naphthalene	0.001	nd	nd
Propylbenzene	0.001	nd	nd
Styrene	0.001	nd	nd
1,1,2,2-Tetrachloroethane	0.001	nd	nd
Tetrachloroethene	0.001	nd	nd
1,1,1,2-Tetrachloroethane	0.001	nd	nd
Toluene	0.001	nd	nd
Tribromomethane	0.001	nd	nd
1,2,3-Trichlorobenzene	0.001	nd	nd
1,2,4-Trichlorobenzene	0.001	nd	nd
1,1,1-Trichloroethane	0.001	nd	nd

(I) RESULTS**Report N°: M131345****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013016748	2013016749
Client ID	Q10118-01	Method
Analyte Name	PQL	
	Duplicate	Blank

1,1,2-Trichloroethane	0.001	nd	nd
Trichloroethene	0.001	nd	nd
Trichlorofluoromethane	0.001	nd	nd
Trichloromethane	0.001	nd	nd
1,2,3-Trichloropropane	0.001	nd	nd
1,2,4-Trimethylbenzene	0.001	nd	nd
1,3,5-Trimethylbenzene	0.001	nd	nd
Vinyl Chloride	0.001	nd	nd
m&p-Xylenes	0.001	nd	nd
o-Xylene	0.001	nd	nd

(I) RESULTS**Report N°: M131345****Matrix: Water****Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Sample units are expressed in ug/L

Analyte Name	PQL	Leeder ID	2013016741	2013016742	2013016743	2013016744	2013016745	2013016746	2013016747
		Client ID	Q10118-01	Q10118-02	Q10118-03	Q10118-04	Q10118-05	Q10118-06	Q10118-07

Bromobenzene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromochloromethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Bromoethyne	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Dibromochloromethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Dibromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dibromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
trans-1,2-Dibromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dibromoethene(c,t)	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Dibromomethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tetrabromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tetrabromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tribromoethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tribromoethene	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Tribromomethane	0.1	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl bromide	0.1	nd	nd	nd	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131345****Matrix: Water****Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Sample units are expressed in ug/L

Leeder ID	2013016748	2013016749
Client ID	Q10118-01	Method
Analyte Name	PQL	
	Duplicate	Blank

Bromobenzene	0.1	nd	nd
Bromochloromethane	0.1	nd	nd
Bromodichloromethane	0.1	nd	nd
Bromoethane	0.1	nd	nd
Bromoethyne	0.1	nd	nd
Dibromochloromethane	0.1	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd
Dibromoethane	0.1	nd	nd
cis-1,2-Dibromoethene	0.1	nd	nd
trans-1,2-Dibromoethene	0.1	nd	nd
1,2-Dibromoethene(c,t)	0.1	nd	nd
Dibromomethane	0.1	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd
Tetrabromoethane	0.1	nd	nd
Tetrabromoethene	0.1	nd	nd
Tribromoethane	0.1	nd	nd
Tribromoethene	0.1	nd	nd
Tribromomethane	0.1	nd	nd
Vinyl bromide	0.1	nd	nd

(I) RESULTS

Report N°: M131345

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Sample units are expressed in mg/L

Leeder ID	2013016741	2013016742	2013016747
Client ID	Q10118-01	Q10118-02	Q10118-07
Analyte Name	PQL		

C6-C9 (Purge & Trap)	0.01	nd	nd	nd
C10-C14	0.01	nd	nd	
C15-C28	0.05	nd	nd	
C29-C36	0.05	nd	nd	
Total C6-C36	0.05	nd	nd	

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Sample units are expressed in mg/L

Leeder ID	2013016748	2013016749
Client ID	Q10118-01	Method
Analyte Name	PQL	

C6-C9 (Purge & Trap)	0.01	nd	nd
C10-C14	0.01	nd	nd
C15-C28	0.05	nd	nd
C29-C36	0.05	nd	nd
Total C6-C36	0.05	nd	nd

(I) RESULTS

Report N°: M131345

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Sample units are expressed in mg/L

Analyte Name	Leeder ID	2013016743	2013016744	2013016745	2013016746
	Client ID	Q10118-03	Q10118-04	Q10118-05	Q10118-06
	PQL				
Nitrate as N	0.01	nd	nd	nd	nd

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Sample units are expressed in mg/L

Analyte Name	Leeder ID	2013016749
	Client ID	Method
	PQL	Blank
Nitrate as N	0.01	nd

(I) RESULTS**Report N°: M131345****Matrix: Water****Method: MA-1400.WW.01 Metals**

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013016741	2013016742	2013016743	2013016744	2013016745	2013016746
		Client ID	Q10118-01	Q10118-02	Q10118-03	Q10118-04	Q10118-05	Q10118-06

Aluminium	0.001	0.047	0.049	nd	0.042	nd	0.045
Arsenic	0.0005	nd	nd	nd	nd	nd	nd
Cadmium	0.0002	nd	nd	nd	nd	nd	nd
Chromium	0.001	0.001	nd	nd	nd	nd	nd
Iron	0.001	0.025	0.028	15	13	nd	0.52
Lead	0.001	nd	nd	nd	nd	nd	nd
Manganese	0.001	0.083	nd	0.25	0.22	nd	0.12
Mercury	0.00006	nd	nd	nd	nd	nd	nd
Nickel	0.001	0.002	nd	0.002	nd	nd	0.001
Zinc	0.001	0.007	0.001	0.022	0.007	0.001	0.022

Matrix: Water**Method: MA-1400.WW.01 Metals**

Sample units are expressed in mg/L

Analyte Name	PQL	Leeder ID	2013016748	2013016749
		Client ID	Q10118-01	Method
			Duplicate	Blank

Aluminium	0.001	0.047	nd
Arsenic	0.0005	nd	nd
Cadmium	0.0002	nd	nd
Chromium	0.001	0.001	nd
Iron	0.001	0.023	nd
Lead	0.001	nd	nd
Manganese	0.001	0.081	nd
Mercury	0.00006	nd	nd
Nickel	0.001	0.002	nd
Zinc	0.001	0.007	nd

(I) RESULTS

Report N°: M131345

Matrix: Water

Method: VOC Surrogate Recovery

Sample units are expressed in %

Analyte Name	PQL	Leeder ID	2013016741	2013016742	2013016743	2013016744	2013016745	2013016746	2013016747
		Client ID	Q10118-01	Q10118-02	Q10118-03	Q10118-04	Q10118-05	Q10118-06	Q10118-07
Dibromofluoromethane			109	109	112	95	112	107	89
12-Dichloroethane-d4			104	107	116	109	119	103	101
Toluene-d8			103	104	104	103	104	103	102
p-Bromofluorobenzene			85	88	86	84	84	84	85

Matrix: Water

Method: VOC Surrogate Recovery

Sample units are expressed in %

Analyte Name	PQL	Leeder ID	2013016748	2013016749
		Client ID	Q10118-01	Method
			Duplicate	Blank
Dibromofluoromethane			110	89
12-Dichloroethane-d4			111	101
Toluene-d8			103	102
p-Bromofluorobenzene			85	85

(II) QUALITY CONTROL

Report N°: M131345

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017407	2013017408
		Client ID	Method	Method
			Spike	Spike Dup
Benzene			83	87
Bromodichloromethane			83	85
Carbon tetrachloride			88	92
Chlorobenzene			88	92
Dibromochloromethane			79	85
1,2-Dichlorobenzene			89	90
1,4-Dichlorobenzene			105	108
1,2-Dichloroethane			84	88

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017407	2013017408
		Client ID	Method	Method
			Spike	Spike Dup
1,1-Dichloroethene			85	88
trans-1,2-Dichloroethene			90	92
Dichloromethane			92	104
1,2-Dichloropropane			91	95
Ethylbenzene			83	86
Styrene			84	88
Toluene			90	92
Tribromomethane			77	83
1,1,1-Trichloroethane			87	90

(II) QUALITY CONTROL

Report N°: M131345

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017407	2013017408
		Client ID	Method	Method
			Spike	Spike Dup
1,1,2-Trichloroethane			86	90
Trichloroethene			78	80
Trichloromethane			91	93
Vinyl Chloride			85	92
m&p-Xylenes			82	86
o-Xylene			84	88

Matrix: Water

Method: MA-15.WW.09 Brominated Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017407	2013017408
		Client ID	Method	Method
			Spike	Spike Dup
Bromodichloromethane			81	83
Bromoethane			85	79
Dibromochloromethane			71	76
cis-1,2-Dibromoethene			80	84
trans-1,2-Dibromoethene			80	77
1,2-Dibromoethene(c,t)			80	81
Tribromoethane			80	73
Tribromoethene			96	94
Tribromomethane			84	84
Vinyl bromide			101	107

(II) QUALITY CONTROL

Report N°: M131345

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017407	2013017408
		Client ID	Method	Method
			Spike	Spike Dup
C6-C9 (Purge & Trap)			105	112
Total C6-C36			97	91

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017407	2013017408
		Client ID	Method	Method
			Spike	Spike Dup
Nitrate as N			125	115

(II) QUALITY CONTROL

Report N°: M131345

Matrix: Water

Method: MA-1400.WW.01 Metals

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	Leeder ID	2013016750	2013016751
	Client ID	Q10118-01	Q10118-01
	PQL	Spike	Spike Dup
Aluminium		90	89
Arsenic		99	101
Cadmium		101	101
Chromium		98	100
Iron		102	100
Lead		105	105
Manganese		98	97
Mercury		91	93
Nickel		99	100
Zinc		107	110

Matrix: Water

Method: VOC Surrogate Recovery

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	Leeder ID	2013017407	2013017408
	Client ID	Method	Method
	PQL	Spike	Spike Dup
Dibromofluoromethane		100	100
12-Dichloroethane-d4		90	102
Toluene-d8		99	99
p-Bromofluorobenzene		91	95

QUALIFIERS / NOTES FOR REPORTED RESULTS

PQL	Practical Quantitation Limit
<i>is</i>	Insufficient Sample to perform this analysis.
T	Tentative identification based on computer library search of mass spectra.
ND	Not Detected – The analyte was not detected above the reported PQL.
NC	Not calculated and/or Results below PQL
<i>nr</i>	Not Requested for analysis.
R	Rejected Result – results for this analysis failed QC checks.
SQ	Semi-Quantitative result – quantitation based on a generic response factor for this class of analyte.
IM	Inappropriate method of analysis for this compound
U	Unable to provide Quality Control data – high levels of compounds in sample interfered with analysis of QC results.
UF	Unable to provide Quality Control data- Surrogates failed QC checks due to sample matrix effects
L	Analyte detected at a level above the linear response of calibration curve.
E	Estimated result. NATA accreditation does not cover estimated results.
C1	These compounds co-elute.
--	Parameter Not Determined
CT	Elevated concentration. Results reported from carbon tube analysis
**	Sample shows non-petroleum hydrocarbon profile



APPENDIX ONE.

CHAIN OF CUSTODY DOCUMENT



1 Havelock Street
West Perth, WA 6005 Australia
Telephone +61 8 9213 7600 Fax +61 8 9213 7611

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10118

page 1 of 1

Project Number: 117643012		Laboratory Name: SGS-Leeder	
		Address: Unit 4-5, 18 Keelwood Drive	
Golder Contact: Karly Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax:	Contact:

Address where reports should be sent to ☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611 ☒ Other <u>email</u> Phone <u>0450244266</u> Fax				Analyses Required														
Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers	Swile 2	Swile 3	TPH CG-C9	VOC inc MAIL	benzinated VOCs										Remarks (over)
Q1018 - 01	W	19/06/13	7	✓														
- 02			7	✓														
- 03			6		✓													
- 04			6		✓													
- 05			6		✓													
- 06			6		✓													
- 07			2			✓	✓	✓										
- 08																		
- 09																		
- 10																		
- 11																		
- 12																		

Sampler's Signature: <u>[Signature]</u>	Relinquished by: Signature <u>[Signature]</u>	Company: <u>Golder</u>	Date: <u>19/06/13</u>	Time: <u>3:30pm</u>	Received by: Signature <u>J. Phillips</u>	Company: <u>SGS Leeder</u>
Sample Storage (°C): <u>on ICE</u>	Relinquished by: Signature	Company	Date	Time	Received by: Signature <u>James Phillips</u>	Company
Comments: <u>Q221 20617MB1</u>	Method of Shipment: <u>AIR</u>	Waybill No:	Received for Lab by:		Date: <u>20/6/13</u>	Time: <u>9:00 am</u>
	Shipped by: <u>AAE</u>	Shipment Condition: Seal intact:	Temp (°C)	Cooler opened by:	Date	Time

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report

From: Chadwick, Karly [mailto:kchadwick@golder.com.au]
Sent: Thursday, 20 June 2013 11:52 AM
To: Palamara, Vanessa (Melbourne)
Subject: RE: RE:117643092 (M131345)

Hi Vanessa,

The HNO₃ and HCl preserved bottles with time 12:45 are for Q10118-06.

Again, apologies for the confusion. I have asked field staff to double check the CoC and labeling.

Thanks,

Karly

Karly Chadwick (BSc Environmental Science) | Environmental Scientist | **Golder Associates Pty Ltd**
Level 3, 1 Havelock Street, West Perth, Western Australia 6005, Australia (PO Box 1914, West Perth WA 6872)
T: +61 8 9213 7600 | **D:** +61 8 9213 8267 | **F:** +61 8 9213 7611 | **E:** kchadwick@golder.com.au | www.golder.com

Winner of 22 BRW Client Choice Awards 2006-2013, including in 2013:
Best Consulting Engineering Firm (revenue greater than \$200m)

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Please consider the environment before printing this email.

From: Palamara, Vanessa (Melbourne) [mailto:Vanessa.Palamara@sgs.com]
Sent: Thursday, 20 June 2013 9:30 AM
To: Chadwick, Karly
Subject: RE:117643092 (M131345)

Hi Karly,

We have received samples for project 117643092, however we have received 2 sets of HNO₃ and HCl preserved bottles labelled as Q10118-05 and no metals bottles for Q10118-06.

There is a sampling time difference of 1.30 and 12.45. Please confirm which time is for each sample.

Please see attached COC.

Regards,

Vanessa Palamara
Environmental Services
Sample Reception

SGS Leeder Consulting
Melbourne Office
Unit 5 / 18 Redland Drive
Mitcham, VIC 3132

Phone: +61 (0)3 9874 1988
Fax: +61 (0)3 9874 1933
E-mail: vanessa.palamara@sgs.com
Web: www.au.sgs.com

**Melbourne Office**

Unit 3-5, 18 Redland Drive

Mitcham VIC 3132

Tel: +613 9874 1988

Fax: +613 9874 1933

email: AU.SampleReceipt.Mitcham@sgs.com

A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	Karly Chadwick	From:	Evan Jones
Fax:	08 9213 7611	Pages:	(1) including this page
Co:	Golder Associates	Date:	21/06/2013
Email	kchadwick@golder.com.au	Ref:	M131362

SGS Leeder Consulting has received your samples from the project listed below.

If you have any enquiries please contact us quoting our reference number.

Project/Reference No.: 117643092
Our Reference Number: M131362
Date Received: 21-Jun-2013
Estimated date of report: 02-Jul-2013

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.
All analytical work is conducted at our Melbourne office.

Sample Storage

- All aqueous samples are stored for two weeks after reporting.
- All soils and other samples are stored for three months after reporting.
- All food samples are stored for one month after reporting.

Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.

**SGS LEEDER
CONSULTING****Specialist Laboratory Services**

Melbourne
Tel: +613 9874 1988
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Website: www.leederconsulting.com
Email: AU.SampleReceipt.Mitcham@sgs.com



A.B.N. 44 000 964 278
3 - 5, 18 Redland Drive
Mitcham, Vic, 3132
Telephone: (03) 9874 1988
Fax: (03) 9874 1933

Chartered Chemists

4-Jul-2013

REPORT NUMBER: M131362

Site/Client Ref: 117643092

Golder Associates

Level 2

1 Havelock Street

West Perth

WA 6005

Attention: Karly Chadwick

CERTIFICATE OF ANALYSIS

SAMPLES: Three samples were received for analysis

DATE RECEIVED: 21-Jun-2013

DATE COMMENCED: 21-Jun-2013

METHODS: See Attached Results

RESULTS: Please refer to attached pages for results.

Note: Results are based on samples as received at SGS Leeder Consulting's laboratories

REPORTED BY:

Adam Atkinson

Laboratory Manager



NATA Accredited Laboratory Number: 2562

Accredited for compliance
with ISO/IEC 17025.

(I) RESULTS**Report N°: M131362****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013016896	2013016897	2013016898	2013016899	2013016900
		Client ID	Q10120-01	Q10120-02	Q10120-03	Q10120-01	Method
Analyte Name	PQL					Duplicate	Blank
Benzene	0.001		0.003	nd	nd	0.003	nd
Bromobenzene	0.001		nd	nd	nd	nd	nd
Bromochloromethane	0.001		nd	nd	nd	nd	nd
Bromodichloromethane	0.001		nd	nd	nd	nd	nd
Bromomethane	0.001		nd	nd	nd	nd	nd
n-Butylbenzene	0.001		nd	nd	nd	nd	nd
s-Butylbenzene	0.001		nd	nd	nd	nd	nd
t-Butylbenzene	0.001		nd	nd	nd	nd	nd
Carbon tetrachloride	0.001		nd	nd	nd	nd	nd
Chlorobenzene	0.001		nd	nd	nd	nd	nd
Chloroethane	0.001		nd	nd	nd	nd	nd
Chloromethane	0.001		nd	nd	nd	nd	nd
2-Chlorotoluene	0.001		nd	nd	nd	nd	nd
4-Chlorotoluene	0.001		nd	nd	nd	nd	nd
Dibromochloromethane	0.001		nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.001		nd	nd	nd	nd	nd
1,2-Dibromoethane	0.001		nd	nd	nd	nd	nd
Dibromomethane	0.001		nd	nd	nd	nd	nd
1,2-Dichlorobenzene	0.001		nd	nd	nd	nd	nd
1,3-Dichlorobenzene	0.001		nd	nd	nd	nd	nd
1,4-Dichlorobenzene	0.001		nd	nd	nd	nd	nd
Dichlorodifluoromethane	0.001		nd	nd	nd	nd	nd
1,2-Dichloroethane	0.001		nd	nd	nd	nd	nd
1,1-Dichloroethane	0.001		0.005	nd	nd	0.005	nd

(I) RESULTS**Report N°: M131362****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

		Leeder ID	2013016896	2013016897	2013016898	2013016899	2013016900
		Client ID	Q10120-01	Q10120-02	Q10120-03	Q10120-01	Method
Analyte Name	PQL					Duplicate	Blank
1,1-Dichloroethene	0.001		0.001	nd	nd	0.001	nd
cis-1,2-Dichloroethene	0.001		0.008	0.002	nd	0.008	nd
trans-1,2-Dichloroethene	0.001		nd	nd	nd	nd	nd
Dichloromethane	0.01		nd	nd	nd	nd	nd
1,2-Dichloropropane	0.001		nd	nd	nd	nd	nd
1,3-Dichloropropane	0.001		nd	nd	nd	nd	nd
2,2-Dichloropropane	0.001		nd	nd	nd	nd	nd
1,1-Dichloropropene	0.001		nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	0.001		nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	0.001		nd	nd	nd	nd	nd
Ethylbenzene	0.001		nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	0.001		nd	nd	nd	nd	nd
Isopropylbenzene	0.001		nd	nd	nd	nd	nd
p-Isopropyltoluene	0.001		nd	nd	nd	nd	nd
Naphthalene	0.001		nd	nd	nd	nd	nd
Propylbenzene	0.001		nd	nd	nd	nd	nd
Styrene	0.001		nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.001		nd	nd	nd	nd	nd
Tetrachloroethene	0.001		nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.001		nd	nd	nd	nd	nd
Toluene	0.001		nd	nd	nd	nd	nd
Tribromomethane	0.001		nd	nd	nd	nd	nd
1,2,3-Trichlorobenzene	0.001		nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	0.001		nd	nd	nd	nd	nd
1,1,1-Trichloroethane	0.001		nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131362****Matrix: Water****Method: MA-15.WW.01 Volatile Organic Compounds**

Sample units are expressed in mg/L

Leeder ID	2013016896	2013016897	2013016898	2013016899	2013016900
Client ID	Q10120-01	Q10120-02	Q10120-03	Q10120-01	Method
Analyte Name	PQL			Duplicate	Blank

1,1,2-Trichloroethane	0.001	nd	nd	nd	nd	nd
Trichloroethene	0.001	0.074	nd	nd	0.075	nd
Trichlorofluoromethane	0.001	nd	nd	nd	nd	nd
Trichloromethane	0.001	nd	nd	nd	nd	nd
1,2,3-Trichloropropane	0.001	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	0.001	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	0.001	nd	nd	nd	nd	nd
Vinyl Chloride	0.001	0.015	nd	nd	0.015	nd
m&p-Xylenes	0.001	nd	nd	nd	nd	nd
o-Xylene	0.001	nd	nd	nd	nd	nd

(I) RESULTS**Report N°: M131362****Matrix: Water****Method: MA-15.WW.09 Brominated Volatile Organic Compounds**

Sample units are expressed in ug/L

Analyte Name	PQL	Leeder ID	2013016896	2013016897	2013016898	2013016899	2013016900
		Client ID	Q10120-01	Q10120-02	Q10120-03	Q10120-01	Method
						Duplicate	Blank

Bromobenzene	0.1	nd	nd	nd	nd	nd
Bromochloromethane	0.1	nd	nd	nd	nd	nd
Bromodichloromethane	0.1	nd	nd	nd	nd	nd
Bromoethane	0.1	nd	nd	nd	nd	nd
Bromoethyne	0.1	nd	nd	nd	nd	nd
Dibromochloromethane	0.1	nd	nd	nd	nd	nd
1,2-Dibromo-3-chloropropane	0.1	nd	nd	nd	nd	nd
Dibromoethane	0.1	nd	nd	nd	nd	nd
cis-1,2-Dibromoethene	0.1	0.7	nd	nd	0.8	nd
trans-1,2-Dibromoethene	0.1	nd	nd	nd	nd	nd
1,2-Dibromoethene(c,t)	0.1	nd	nd	nd	nd	nd
Dibromomethane	0.1	nd	nd	nd	nd	nd
1,1,2,2-Tetrabromoethane	0.1	nd	nd	nd	nd	nd
Tetrabromoethane	0.1	nd	nd	nd	nd	nd
Tetrabromoethene	0.1	nd	nd	nd	nd	nd
Tribromoethane	0.1	nd	nd	nd	nd	nd
Tribromoethene	0.1	nd	nd	nd	nd	nd
Tribromomethane	0.1	nd	nd	nd	nd	nd
Vinyl bromide	0.1	nd	nd	nd	nd	nd

(I) RESULTS

Report N°: M131362

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Sample units are expressed in mg/L

Analyte Name	Leeder ID	2013016898	2013016900
	Client ID	Q10120-03	Method
	PQL		Blank
C6-C9 (Purge & Trap)	0.01	nd	nd

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Sample units are expressed in mg/L

Analyte Name	Leeder ID	2013016896	2013016897	2013016899	2013016900
	Client ID	Q10120-01	Q10120-02	Q10120-01	Method
	PQL			Duplicate	Blank
Nitrate as N	0.01	nd	nd	nd	nd

(I) RESULTS**Report N°: M131362****Matrix: Water****Method: MA-1400.WW.01 Metals**

Sample units are expressed in mg/L

Leeder ID	2013016896	2013016897	2013016899	2013016900
Client ID	Q10120-01	Q10120-02	Q10120-01	Method
Analyte Name	PQL		Duplicate	Blank

Aluminium	0.001	0.046	0.004	0.057	nd
Arsenic	0.0005	nd	nd	nd	nd
Cadmium	0.0002	nd	nd	nd	nd
Chromium	0.001	nd	nd	nd	nd
Iron	0.001	2.2	2.2	2.2	nd
Lead	0.001	nd	nd	nd	nd
Manganese	0.001	0.050	0.12	0.051	nd
Mercury	0.00006	nd	nd	nd	nd
Nickel	0.001	0.001	0.002	0.001	nd
Zinc	0.001	0.005	0.009	0.005	nd

Matrix: Water**Method: VOC Surrogate Recovery**

Sample units are expressed in %

Leeder ID	2013016896	2013016897	2013016898	2013016899	2013016900
Client ID	Q10120-01	Q10120-02	Q10120-03	Q10120-01	Method
Analyte Name	PQL			Duplicate	Blank

Dibromofluoromethane		104	107	111	108	100
12-Dichloroethane-d4		99	105	99	95	112
Toluene-d8		103	104	105	103	100
p-Bromofluorobenzene		87	88	89	85	77

(II) QUALITY CONTROL

Report N°: M131362

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017411	2013017412
		Client ID	Method	Method
			Spike	Spike Dup
Benzene			81	79
Bromodichloromethane			79	71
Carbon tetrachloride			86	96
Chlorobenzene			84	80
Dibromochloromethane			74	65
1,2-Dichlorobenzene			83	80
1,4-Dichlorobenzene			98	95
1,2-Dichloroethane			81	76

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017411	2013017412
		Client ID	Method	Method
			Spike	Spike Dup
1,1-Dichloroethene			85	88
trans-1,2-Dichloroethene			90	92
Dichloromethane			92	104
1,2-Dichloropropane			90	87
Ethylbenzene			79	74
Styrene			81	74
Toluene			88	84
Tribromomethane			70	74
1,1,1-Trichloroethane			86	77

(II) QUALITY CONTROL

Report N°: M131362

Matrix: Water

Method: MA-15.WW.01 Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017411	2013017412
		Client ID	Method	Method
			Spike	Spike Dup
1,1,2-Trichloroethane			82	76
Trichloroethene			76	75
Trichloromethane			88	83
Vinyl Chloride			83	66
m&p-Xylenes			79	73
o-Xylene			81	75

Matrix: Water

Method: MA-15.WW.09 Brominated Volatile Organic Compounds

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	PQL	Leeder ID	2013017411	2013017412
		Client ID	Method	Method
			Spike	Spike Dup
Bromodichloromethane			87	83
Bromoethane			85	79
Dibromochloromethane			83	82
cis-1,2-Dibromoethene			92	92
trans-1,2-Dibromoethene			97	95
1,2-Dibromoethene(c,t)			95	94
Tribromoethane			80	73
Tribromoethene			96	94
Tribromomethane			84	84
Vinyl bromide			88	82

(II) QUALITY CONTROL

Report N°: M131362

Matrix: Water

Method: MA-30.WW.02 Total Petroleum Hydrocarbons

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	Leeder ID	2013017411	2013017412
	Client ID	Method	Method
	PQL	Spike	Spike Dup
C6-C9 (Purge & Trap)		94	85

Matrix: Water

Method: MA-1146.WW.01 Nitrogens

Quality Control Results are expressed in Percent Recovery of expected result

Analyte Name	Leeder ID	2013016901	2013016902
	Client ID	Q10120-01	Q10120-01
	PQL	Spike	Spike Dup
Nitrate as N		125	119

(II) QUALITY CONTROL

Report N°: M131362

Matrix: Water

Method: MA-1400.WW.01 Metals

Quality Control Results are expressed in Percent Recovery of expected result

Leeder ID	2013016901	2013016902
Client ID	Q10120-01	Q10120-01

Analyte Name	PQL	Spike	Spike Dup
Aluminium		70	75
Arsenic		119	116
Cadmium		117	116
Chromium		118	117
Iron		U	U
Lead		122	120
Manganese		129	128
Mercury		96	98
Nickel		117	117
Zinc		126	125

Matrix: Water

Method: VOC Surrogate Recovery

Quality Control Results are expressed in Percent Recovery of expected result

Leeder ID	2013017411	2013017412
Client ID	Method	Method

Analyte Name	PQL	Spike	Spike Dup
Dibromofluoromethane		98	89
12-Dichloroethane-d4		92	91
Toluene-d8		100	100
p-Bromofluorobenzene		95	92

QUALIFIERS / NOTES FOR REPORTED RESULTS

PQL	Practical Quantitation Limit
<i>is</i>	Insufficient Sample to perform this analysis.
T	Tentative identification based on computer library search of mass spectra.
ND	Not Detected – The analyte was not detected above the reported PQL.
NC	Not calculated and/or Results below PQL
<i>nr</i>	Not Requested for analysis.
R	Rejected Result – results for this analysis failed QC checks.
SQ	Semi-Quantitative result – quantitation based on a generic response factor for this class of analyte.
IM	Inappropriate method of analysis for this compound
U	Unable to provide Quality Control data – high levels of compounds in sample interfered with analysis of QC results.
UF	Unable to provide Quality Control data- Surrogates failed QC checks due to sample matrix effects
L	Analyte detected at a level above the linear response of calibration curve.
E	Estimated result. NATA accreditation does not cover estimated results.
C1	These compounds co-elute.
--	Parameter Not Determined
CT	Elevated concentration. Results reported from carbon tube analysis
**	Sample shows non-petroleum hydrocarbon profile



APPENDIX ONE.

CHAIN OF CUSTODY DOCUMENT



1 Havelock Street
West Perth, WA 6005 Australia
Telephone +61 8 9213 7600 Fax +61 8 9213 7611

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

Q 10120 page 1 of 1

Project Number: 117643092		Laboratory Name: SGS - Leeder	
		Address: Unit 4-5, 18 Redland Drive	
Golder Contact: Kathy Chadwick	Golder Email Address: kchadwick@golder.com.au	Telephone/Fax:	Contact:

Address where reports should be sent to ☐ PO Box 1914 West Perth, WA 6872 Telephone (61 8) 9213 7600 Fax (61 8) 9213 7611 ☒ Other mail Phone 0450244266 Fax				Analyses Required												
Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers	Substrate	THC	CG	VOC inc MAH	Brominated VOCs							RUSH	Remarks (over)
Q10120 - 01	W	20/06/13	6	✓	✓											
- 02	W	20/06/13	6	✓												
- 03	W	20/06/13	2		✓	✓	✓									
- 04																
- 05																
- 06																
- 07																
- 08																
- 09																
- 10																
- 11																
- 12																

Sampler's Signature: [Signature]	Relinquished by: Signature: [Signature]	Company: Golder	Date: 11/06/13	Time: 11:30	Received by: Signature: James Phillips	Company: SGS Leeder Consulting
Sample Storage (°C): Eskey ICE	Relinquished by: Signature:	Company:	Date:	Time:	Received by: Signature:	Company:
Comments: Q2220617WB1	Method of Shipment: AIR	Waybill No:	Received for Lab by:		Date: 20/6/13	Time: 8:30 am
	Shipped by: AAE	Shipment Condition: Seal intact:	Temp (°C):	Cooler opened by:	Date:	Time:



APPENDIX C

Field Sampling Sheets



PF067: GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING DATA SHEET

☐ DEVELOPMENT

☒ PURGE/SAMPLE

WELL NO.: MW062

JOB NO.: 117643012

LOCATION: Bellevue

COMPLETED BY: BH/KC

DATE: 10/06/13

TIME: 2:05

WEATHER: WARM

TEMPERATURE: 20°C

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A 7.870 (metres)

One well volume:

Depth to Bottom of Well Below Top of Casing: B (metres)

(B-A)*2.0 = litres

-for a 51 mm (2.0 inch) diameter well

Diameter Standpipe: C (mm)

(B-A)*1.1 = litres

-for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH and Temp. Meter: Model 90-FMU

Serial No. V4865

Conductivity Meter: Model

Serial No.

Dissolved Oxygen Meter: Model

Serial No.

Eh Meter: Model

Serial No.

Calibration Buffers: ☒ 4 ☒ 7 ☐ 10

Calibration Solutions: Conductivity and

Type

Pump: ☐ none

☐ Waterra

☐ Peristaltic

☒ Submersible

Ball: ☐ none

☐ Stainless Steel

☐ Teflon

☐ PVC

Filter: ☐ Yes

☐ No

WELL DEVELOPMENT/PURGING

Purge volume: Well vol X = litres

Method:

Flow Rate: 300 mL/min

Volume

Start:

Finish:

TIME	VOLUME REMOVED (L)	Eh (mV)	TEMP (°C)	pH (UNITS)	COND. (uS/cm)	DIS.O ₂ (mg/L) or %	REMARKS
14:12		155	20.7	5.02	554/5	2.36 ppm	downward set at 7.970 m b10C
14:17		152	20.8	5.06	549	2.08	water slightly silty
14:22		144	21.2	5.12	539	2.22	14:21 water stopped flowing
14:27		146	20.8	5.10	534	1.85	metres altered to find problem
14:32		150	20.8	5.06	527	1.70	Air compressor died
14:37		164	20.7	5.01	516	1.76	Party called Oramaw problem
14:42		178	20.7	4.97	512	1.87	Fixed at 2:34 pm
14:47		185	20.7	4.95	509	1.80	Flow reading inches
14:52		195	20.7	4.93	507	1.79	again - 300 mL/min
14:57							
15:02							
15:07							
							WL 7.88 m b10C

Comments:

Odour: ☒ no ☐ yes

If yes

Sheen: ☒ no ☐ yes

If yes

Turbidity Start: Clear

|||||*|||||

Very Silty

Turbidity End: Clear

|||||*|||||

Very Silty

Other:

Bottle containing H₂O₂ leaked into field data sheets & gloves & bottle & gloves as well as field notes disposed of immediately.

BOTTLE

Type

Size:

40mL

100mL

250mL

500mL

1L

2L

4L

Filtered

Preservatives

1 ☒ Plastic ☐ Glass

2 ☒ Plastic ☐ Glass

3 ☒ Plastic ☐ Glass

4 ☐ Plastic ☒ Glass

5 ☐ Plastic ☐ Glass

6 ☐ Plastic ☐ Glass

7 ☐ Plastic ☐ Glass

8 ☐ Plastic ☐ Glass

☐ Yes ☒ No

☒ Yes ☐ No

☒ Yes ☐ No

☐ Yes ☒ No

☐ Yes ☐ No

☐ Yes ☐ No

☐ Yes ☐ No

☐ Yes ☐ No

☐ Yes ☐ No

CPM4

ID 104

Version: RL1

March 2011

Q1011-05

1/1



Golden Associates



PF067: GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING DATA SHEET

☐ DEVELOPMENT

☒ PURGE/SAMPLE

WELL NO.: MWG 70

JOB NO.: 117643092

LOCATION: Belleme

COMPLETED BY: BH/KC

DATE: 11/06/13

TIME: 10:00am

WEATHER: COLD

TEMPERATURE: 9°C

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A 12-379 (metres)

One well volume:

Depth to Bottom of Well Below Top of Casing: B (metres)

(B-A)*2.0 = litres

-for a 51 mm (2.0 inch) diameter well

Diameter Standpipe: C (mm)

(B-A)*1.1 = litres

-for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH and Temp. Meter: Model 90-FUMV

Serial No. 4865

Conductivity Meter: Model ↓

Serial No. ↓

Dissolved Oxygen Meter: Model ↓

Serial No. ↓

Eh Meter: Model ↓

Serial No. ↓

Calibration Buffers: ☒ 4 ☒ 7 ☐ 10

Calibration Solutions: conductivity and

Type

Pump: ☐ none

☐ Waterra

☐ Peristaltic

☒ Submersible

Bailer: ☐ none

☐ Stainless Steel

☐ Teflon

☐ PVC

Filter: ☐ Yes

☐ No

WELL DEVELOPMENT/PURGING

Purge volume: Well vol X = litres

Flow Rate: 280mL/min

Method:

Volume

Start:

Finish:

TIME	VOLUME REMOVED (L)	Eh (mV)	TEMP (°C)	pH (UNITS)	COND. (uS/cm)	DIS.O ₂ (mg/L) or %	REMARKS
11:39		190	17.9	5.44	712	3.93	
11:44		193	19.6	5.45	719	2.94	slightly silty. Murky brown.
11:58		210	19.9	5.44	714	2.43	Opague. No odour
12:03		218	20.6	5.42	714	2.18	drawdown set at
12:08		225	20.9	5.40	707	2.08	11:45 - redipped at 12-720.
12:13		229	20.9	5.40	705	2.16	stopped pump and waited for
12:18		231	21.0	5.39	702	2.04	recharge.
12:23		235	21.0	5.39	701	2.03	redipped - 12-360.
							drawdown set at 12-460
							WL on finish 12.

Comments:

Odour: ☒ no

☐ yes

if yes

Sheen: ☐ no

☒ yes

if yes slight oil sheen

Turbidity Start: Clear

Clear

if yes

Turbidity End: Clear

Clear

Very Silty

Other: Q192-3

CM 4-10 105

Very Silty

BOTTLE

Type

Size:

40mL

100mL

250mL

500mL

1L

2L

4L

Filtered

Preservatives

1 ☐ Plastic ☒ Glass

3

☐ Yes ☒ No

2 ☐ Plastic ☒ Glass

2

☐ Yes ☒ No

3 ☐ Plastic ☐ Glass

☐ Yes ☐ No

4 ☐ Plastic ☐ Glass

☐ Yes ☐ No

5 ☐ Plastic ☐ Glass

☐ Yes ☐ No

6 ☐ Plastic ☐ Glass

☐ Yes ☐ No

7 ☐ Plastic ☐ Glass

☐ Yes ☐ No

8 ☐ Plastic ☐ Glass

☐ Yes ☐ No



APPENDIX D

Calibration Certificates



ENVIRONMENTAL FIELD EQUIPMENT CHECK (Prior and After Use)

Job Number: 117643092
 Date: 10/6/13
 Field Person: KC / BH
 Instrument Supplier and Instrument ID: 90 FLMV V 4865

Mandatory checks before you leave for the field and when you get back to the office (only for those instruments used and parameters measured): 5:18 PM
8:30 AM 18.6°C

Parameter (and potential units)	Standard Solution	Acceptable Range	Out Reading	In Reading
Electrical Conductivity ($\mu\text{S/cm}$, mS/cm) Temp: <u>13.8°C 8:30 AM</u>	7,000 $\mu\text{S/cm}$ KCl 12.88 mS/cm KCl	6,300 – 7,700 $\mu\text{S/cm}$ or 6.3 – 7.7 mS/cm 11.70 – 14.00 mS/cm	2382 μS	2.59 mS
TDS (mg/L , ppM , ppK)	7,000 $\mu\text{S/cm}$ KCl	3,600 – 4,400 mg/L or ppM or 3.6 – 4.4 ppK		
Dissolved Oxygen (DO) (ppM Sal, %)	Clean air	10 – 11 ppm or 19 – 25%	10.89	10.04
Redox (mV)	240 mV for platinum and gold probes	200 mV – 280 mV		
pH (no units)	pH 4.0 red <u>or</u> pH 7.0 green	pH 3.7 – 4.3 pH 6.7 – 7.3	4.68 7.11	4.38 7.36
PID (ppm)	Clean air 100 ppm	0 – 0.5 ppm 90 – 110 ppm		
			Out 3or X	In 3or X
Interface probe	Diesel/water in glass jar	Intermittent/continuous beep		
			In field 1 to 5	
Whale pump strength	In field			
Methane, oxygen and carbon dioxide	Complete sheet specific to gas meter			



ENVIRONMENTAL FIELD EQUIPMENT CHECK (Prior and After Use)

Job Number: 117643072

Date: 11/06/13

Field Person: BH/KC

Instrument Supplier and Instrument ID : 90-FLMV V4865

Mandatory checks before you leave for the field and when you get back to the office (only for those instruments used and parameters measured):

Parameter (and potential units)	Standard Solution	Acceptable Range	Out Reading	In Reading
Electrical Conductivity ($\mu\text{S/cm}$, mS/cm)	7,000 $\mu\text{S/cm}$ KCl	6,300 – 7,700 $\mu\text{S/cm}$ or 6.3 – 7.7 mS/cm	2.72 mS 2.64 mS	2.64 mS
Temp: _____	12.88 mS/cm KCl	11.70 – 14.00 mS/cm		
TDS (mg/L , ppM , ppK)	7,000 $\mu\text{S/cm}$ KCl	3,600 – 4,400 mg/L or ppM or 3.6 – 4.4 ppK		
Dissolved Oxygen (DO) (ppM Sal, %)	Clean air	10 – 11 ppm or 19 – 25%	2.14 (air)	3.35
Redox (mV)	240 mV for platinum and gold probes	200 mV – 280 mV		
pH (no units)	pH 4.0 red or pH 7.0 green	pH 3.7 – 4.3 pH 6.7 – 7.3	4.12 7.13	7.04
PID (ppm)	Clean air	0 – 0.5 ppm		
	100 ppm	90 – 110 ppm		
			Out 3 or X	In 3 or X
Interface probe	Diesel/water in glass jar	Intermittent/continuous beep		
			In field 1 to 5	
Whale pump strength	In field			
Methane, oxygen and carbon dioxide	Complete sheet specific to gas meter			



ENVIRONMENTAL FIELD EQUIPMENT CHECK (Prior and After Use)

Job Number: 117643092

Date: 12/06/13

Field Person: BH/kc

Instrument Supplier and Instrument ID: 90 - FLMV U4865

Mandatory checks before you leave for the field and when you get back to the office (only for those instruments used and parameters measured):

Parameter (and potential units)	Standard Solution	Acceptable Range	Out Reading	In Reading
Electrical Conductivity ($\mu\text{S}/\text{cm}$, mS/cm)	7,000 $\mu\text{S}/\text{cm}$ KCl	6,300 – 7,700 $\mu\text{S}/\text{cm}$ or 6.3 – 7.7 mS/cm	27.7	27.6
Temp: _____	12.88 mS/cm KCl	11.70 – 14.00 mS/cm		
TDS (mg/L , ppM , ppK)	7,000 $\mu\text{S}/\text{cm}$ KCl	3,600 – 4,400 mg/L or ppM or 3.6 – 4.4 ppK	—	—
Dissolved Oxygen (DO) (ppM Sal, %)	Clean air	10 – 11 ppm or 19 – 25%	11.3 (air)	10.80 (air)
Redox (mV)	240 mV for platinum and gold probes	200 mV – 280 mV	—	—
pH (no units)	pH 4.0 red <u>or</u> pH 7.0 green	pH 3.7 – 4.3 pH 6.7 – 7.3	4.14 7.16	4.19 7.17
PID (ppm)	Clean air	0 – 0.5 ppm	—	—
	100 ppm	90 – 110 ppm	—	—
			Out 3or X	In 3or X
Interface probe	Diesel/water in glass jar	Intermittent/continuous beep	+	+
			In field 1 to 5	
Whale pump strength	In field		—	—
Methane, oxygen and carbon dioxide	Complete sheet specific to gas meter		—	—

Cond Reading 2.68 mS/cm @ 12.5°C (9:20am)



ENVIRONMENTAL FIELD EQUIPMENT CHECK (Prior and After Use)

Job Number: 11764 3092

Date: 13/06/13

Field Person: BH/KC

Instrument Supplier and Instrument ID: ^{no.} FLMV V4865

Mandatory checks before you leave for the field and when you get back to the office (only for those instruments used and parameters measured):

07:55

10:7°C

4:30 PM

21.5°C

Parameter (and potential units)	Standard Solution	Acceptable Range	Out Reading	In Reading
Electrical Conductivity (μ S/cm, mS/cm)	7,000 μ S/cm KCl	6,300 – 7,700 μ S/cm or 6.3 – 7.7 mS/cm	2.71 uS	2.75
Temp: _____	12.88 mS/cm KCl	11.70 – 14.00 mS/cm		21.5°C
TDS (mg/L, ppM, ppK)	7,000 μ S/cm KCl	3,600 – 4,400 mg/L or ppM or 3.6 – 4.4 ppK		
Dissolved Oxygen (DO) (ppM Sal, %)	Clean air	10 – 11 ppm or 19 – 25%	12-0 ppm	9.74
Redox (mV)	240 mV for platinum and gold probes	200 mV – 280 mV		
pH (no units)	pH 4.0 red or pH 7.0 green	pH 3.7 – 4.3 pH 6.7 – 7.3	3.80C	4.26
PID (ppm)	Clean air	0 – 0.5 ppm		
	100 ppm	90 – 110 ppm		
			Out 3or X	In 3or X
Interface probe	Diesel/water in glass jar	Intermittent/continuous beep		
			In field 1 to 5	
Whale pump strength	In field			
Methane, oxygen and carbon dioxide	Complete sheet specific to gas meter			

4.00

7.04

* changed pH
solution



ENVIRONMENTAL FIELD EQUIPMENT CHECK (Prior and After Use)

Job Number: 117643092

Date: 17/06/2013

Field Person: BH/KC/MT

Instrument Supplier and Instrument ID: 90 FLMV 4865

Mandatory checks before you leave for the field and when you get back to the office (only for those instruments used and parameters measured):

Parameter (and potential units)	Standard Solution	Acceptable Range	Out Reading	In Reading
Electrical Conductivity ($\mu\text{S}/\text{cm}$, mS/cm)	7,000 $\mu\text{S}/\text{cm}$ KCl	6,300 – 7,700 $\mu\text{S}/\text{cm}$ or 6.3 – 7.7 mS/cm	2.51 mS	2.51 mS
Temp: _____	12.88 mS/cm KCl	11.70 – 14.00 mS/cm		
TDS (mg/L , ppM , ppK)	7,000 $\mu\text{S}/\text{cm}$ KCl	3,600 – 4,400 mg/L or ppM or 3.6 – 4.4 ppK		
Dissolved Oxygen (DO) (ppM Sal, %)	Clean air	10 – 11 ppM or 19 – 25%	10.73 mV	10.06
Redox (mV)	240 mV for platinum and gold probes	200 mV – 280 mV		
pH (no units)	pH 4.0 red <u>or</u> pH 7.0 green	pH 3.7 – 4.3 pH 6.7 – 7.3	3.94 6.97	4.20 7.25
PID (ppm)	Clean air	0 – 0.5 ppm		
	100 ppm	90 – 110 ppm		
			Out 3or X	In 3or X
Interface probe	Diesel/water in glass jar	Intermittent/continuous beep		
			In field 1 to 5	
Whale pump strength	In field			
Methane, oxygen and carbon dioxide	Complete sheet specific to gas meter			

12°C 7:52 18.8° 15:18

*
changed sol.
reading of
4.20
changed pH 7
solution to
well.

*pH 4 & 7 quite high. Thoroughly check pH in the morning, possibly calibrate.



ENVIRONMENTAL FIELD EQUIPMENT CHECK (Prior and After Use)

Job Number: 117643092

Date: 12/06/2013

Field Person: BH / MT

Instrument Supplier and Instrument ID : 90 FLMV 145°C.5

Mandatory checks before you leave for the field and when you get back to the office (only for those instruments used and parameters measured):

Parameter (and potential units)	Standard Solution	Acceptable Range	Out Reading	In Reading
Electrical Conductivity (μ S/cm, mS/cm) Temp: _____	7,000 μ S/cm KCl 12.88 mS/cm KCl	6,300 – 7,700 μ S/cm or 6.3 – 7.7 mS/cm 11.70 – 14.00 mS/cm	2.75 mS ^{14.9° 8.05 m}	2.66 mS ^{19.8° 16.11}
TDS (mg/L, ppM, ppK)	7,000 μ S/cm KCl	3,600 – 4,400 mg/L or ppM or 3.6 – 4.4 ppK		
Dissolved Oxygen (DO) (ppM Sal, %)	Clean air	10 – 11 ppm or 19 – 25%	10.61 ppm (air)	10.77
Redox (mV)	240 mV for platinum and gold probes	200 mV – 280 mV		
pH (no units)	pH 4.0 red <u>or</u> pH 7.0 green	pH 3.7 – 4.3 pH 6.7 – 7.3	3.92 6.99	4.35 7.34
PID (ppm)	Clean air 100 ppm	0 – 0.5 ppm 90 – 110 ppm		
			Out 3 or X	In 3 or X
Interface probe	Diesel/water in glass jar	Intermittent/continuous beep		
			In field 1 to 5	
Whale pump strength	In field			
Methane, oxygen and carbon dioxide	Complete sheet specific to gas meter			

* Calibrate in morning



ENVIRONMENTAL FIELD EQUIPMENT CHECK (Prior and After Use)

Job Number: 117643092

Date: 19/06/2013

Field Person: BH / MT

Instrument Supplier and Instrument ID : 90 FL MV V4865

Mandatory checks before you leave for the field and when you get back to the office (only for those instruments used and parameters measured):

Parameter (and potential units)	Standard Solution	Acceptable Range	Out Reading	In Reading
Electrical Conductivity ($\mu\text{S}/\text{cm}$, mS/cm)	7,000 $\mu\text{S}/\text{cm}$ KCl	6,300 – 7,700 $\mu\text{S}/\text{cm}$ or 6.3 – 7.7 mS/cm	284 μS	2.72
Temp: _____	12.88 mS/cm KCl	11.70 – 14.00 mS/cm		
TDS (mg/L , ppM , ppK)	7,000 $\mu\text{S}/\text{cm}$ KCl	3,600 – 4,400 mg/L or ppM or 3.6 – 4.4 ppK		
Dissolved Oxygen (DO) (ppM Sal, %)	Clean air	10 – 11 ppm or 19 – 25%	10.81	
Redox (mV)	240 mV for platinum and gold probes	200 mV – 280 mV		
pH (no units)	pH 4.0 red or pH 7.0 green	pH 3.7 – 4.3 pH 6.7 – 7.3	3.90 C-X (4.00) AC 6.98 H	3.98 7.28
PID (ppm)	Clean air	0 – 0.5 ppm	7.00 AC	
	100 ppm	90 – 110 ppm		
			Out 3or X	In 3or X
Interface probe	Diesel/water in glass jar	Intermittent/continuous beep		
			In field 1 to 5	
Whale pump strength	In field			
Methane, oxygen and carbon dioxide	Complete sheet specific to gas meter			

*Even though the pH solution is within calibration, by the end of the day yesterday & also the day before, the calibration was slightly out.

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GAP-A-FM13

** Same as above comment, pH 7 was been slightly out by the afternoon.

RL 3



ENVIRONMENTAL FIELD EQUIPMENT CHECK (Prior and After Use)

Job Number: 117643092

Date: 20/06/13

Field Person: BH/MT

Instrument Supplier and Instrument ID : 90 FL-T V0425

Mandatory checks before you leave for the field and when you get back to the office (only for those instruments used and parameters measured):

Parameter (and potential units)	Standard Solution	Acceptable Range	Out Reading	In Reading
Electrical Conductivity ($\mu\text{S/cm}$, mS/cm)	7,000 $\mu\text{S/cm}$ KCl <u>2760</u>	6,300 – 7,700 $\mu\text{S/cm}$ or 6.3 – 7.7 mS/cm	<u>2.70 mS</u>	<u>2.94</u>
Temp: _____	12.88 mS/cm KCl	11.70 – 14.00 mS/cm		
TDS (mg/L , ppM , ppK)	7,000 $\mu\text{S/cm}$ KCl	3,600 – 4,400 mg/L or ppM or 3.6 – 4.4 ppK		
Dissolved Oxygen (DO) (ppM Sal, %)	Clean air	10 – 11 ppm or 19 – 25%		
Redox (mV)	240 mV for platinum and gold probes	200 mV – 280 mV		
pH (no units)	pH 4.0 red <u>or</u> pH 7.0 green	pH 3.7 – 4.3 pH 6.7 – 7.3	<u>3.93</u> <u>6.96</u>	<u>4.01</u> <u>6.96</u>
PID (ppm)	Clean air 100 ppm	0 – 0.5 ppm 90 – 110 ppm		
			Out 3or X	In 3or X
Interface probe	Diesel/water in glass jar	Intermittent/continuous beep		
			In field 1 to 5	
Whale pump strength	In field			
Methane, oxygen and carbon dioxide	Complete sheet specific to gas meter			

**AES****ACTIVE ENVIRONMENTAL SOLUTIONS
(HIRE) PTY LTD**

Equipment Check

Oil/Water Interface Meter - Solinst 122 Interface Meter

Customer:
Contact:Golder Associates Pty Ltd
Julie Goh**Manufacturer:** Solinst
Instrument: Interface Meter Model 122
Serial #: 210444
Cable length: 50m

Item	Test	Pass	Comments
Battery	Voltage (2 x 9v battery)	✓	Voltage above 7.9v
	Fuses	✓	
	Capacity	✓	
Prot	Decontaminated	✓	
	Condition	✓	
	Operation	✓	
Connectors	Condition	✓	
Tape Check	Condition	✓	Good, no tears
	Decontaminated	✓	
Instrument Test	At surface level	✓	Tap water and Citronella oil
Speaker	Operation	✓	

Comments

Unit calibrated

This is to certify that the above instrument has been checked and is in good working order.

Calibrated by:

Daizee Wiles

Calibration Date:
Next due:30-May-2013
29-June-2013**Melbourne- Head Office:** Unit 3 266 Bolton Street
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hire@aesolutions.com.au**Active Environmental Solutions
(Hire) Pty Ltd****ABN 77 102 010 140**

**AES****ACTIVE ENVIRONMENTAL SOLUTIONS
(HIRE) PTY LTD****Equipment Check****Water Level/Drawdown Meter - QED MP30**

Customer:	Golder	Manufacturer:	QED
Contact:	Karly Chadwick	Instrument:	MP30 Drawdown Meter
		Serial #:	1673
		Cable length:	45m

Item	Test	Pass	Comments
Battery	Voltage (9v battery)	✓	Voltage above 7.9v
	Fuses, circuit board	✓	
Probe	Decontaminated	✓	
	Condition	✓	Good, clean
	Operation	✓	Responding
Connectors	Condition	✓	
Tape Check	Decontaminated	✓	
	Checked for cuts	✓	Good condition
Speaker	Operation	✓	
Light	Operation	✓	
Instrument Test	Water level mode	✓	Surface level using tap water
	Drawdown mode	✓	Surface level using tap water

This is to certify that the above instrument has been checked and is in good working order.

Calibrated by:

Gaurav Kanwar

Calibration Date:

11-June-2013

Next due:

11-July-2013

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**AES****ACTIVE ENVIRONMENTAL SOLUTIONS
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Equipment Check

Water Level/Drawdown Meter - QED MP30

Customer:	Golder Associates Pty Ltd	Manufacturer:	QED
Contact:	Julie Goh	Instrument:	MP30 Drawdown Meter
		Serial #:	1677
		Cable length:	100m

Item	Test	Pass	Comments
Battery	Voltage (9v battery)	✓	Voltage above 7.9v
	Fuses, circuit board	✓	
Probe	Decontaminated	✓	
	Condition	✓	Good, clean
	Operation	✓	Responding
Connectors	Condition	✓	
Tape Check	Decontaminated	✓	
	Checked for cuts	✓	Good condition
Speaker	Operation	✓	
Light	Operation	✓	
Instrument Test	Water level mode	✓	Surface level using tap water
	Drawdown mode	✓	Surface level using tap water

This is to certify that the above instrument has been checked and is in good working order.

Calibrated by:

Daizee Wiles

Calibration Date:

06-June-2013

Next due:

06-July-2013

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**AES**

ACTIVE ENVIRONMENTAL SOLUTIONS

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Calibration Report**Multi-Parameter Water Quality Instrument - TPS 90FLMV****Customer:**
Contact:Golder Associates Pty Ltd
Julie Goh**Manufacturer:** TPS
Instrument: 90FLMV
Serial #: V4865
Cable length: 5m

Item	Test	Pass	Comments
Battery	NiCad battery	✓	Voltage above 7.5v
	Fuses	✓	
	Capacity	✓	
	Battery Saver	✓	
Charger	Power supply	✓	Turn off automatically after 1 hour if not used
Connections	Condition	✓	
Cable	Condition	✓	Clean, no tears
Display	Operation	✓	
Firmware	Version	✓	
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
Condition		✓	Good, clean
Asymmetry range between -1.00 to +1.00 pH		✓	
Slope range between 85.0 to 105.0 %		✓	
Calibrated and conforms to manufacturer's specifications		✓	
ORP (Factory calibrated, no user-calibration facility)			
Condition		✓	Good, clean
Quick response time and reading correctly		✓	
mV reading +/- 50mV from value as a function of temperature		✓	mV
Conductivity			
Condition		✓	Good, clean
Temperature		✓	
K factor range is +/- 25% of nominal		✓	°C, offset range between -10.0 to +10.0 °C
Calibrated and conforms to manufacturer's specifications		✓	k=10.0
			µs/cm, k=10 sensor
Dissolved Oxygen			
Condition		✓	Good, clean
DO sensor in use		✓	
Air/span calibration span range over 85%		✓	Galvanic
Calibrated and conforms to manufacturer's specifications		✓	ppm

This is to certify that the above instrument has been calibrated to the following specifications:

Parameter	Standards	Reference	Calibration points	Instrument Reading
Temperature	Thermometer		Temperature (°C)	21.2°C
pH	pH 4.00	KE1235	pH 4.00	pH 4.00
pH	pH 7.00	KE1236	pH 7.00	pH 7.00
Conductivity	2760 µs/cm at 25°C	KG1417	2760 µs/cm	2760 µs/cm
ORP (Reference check only)	Zobell A and Zobell B	KH1162/KH1163	235mV at 21.2°C	235mV
Zero Dissolved Oxygen	Sodium Sulphite Zero standard	(10) 263007	Dissolved Oxygen 0.0ppm	0.0 ppm
100% Dissolved Oxygen	100% air saturation	Air	Dissolved Oxygen 100%	100%

Calibrated by:

Daizee Wiles

Calibration Date:
Next due:06-June-2013
06-July-2013

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**AES****ACTIVE ENVIRONMENTAL SOLUTIONS
(HIRE) PTY LTD****Calibration Report****Multi-Parameter Water Quality Instrument - TPS 90FLMV****Customer:** Golder Associates Pty Ltd
Contact: Brittany**Manufacturer:** TPS
Instrument: 90FLMV
Serial #: V0425
Cable length: 1m

Item	Test	Pass	Comments
Battery	NiCad battery	✓	Voltage above 7.5v
	Fuses	✓	
	Capacity	✓	Holding charge
	Battery Saver	✓	Turn off automatically after 1 hour if not used
Charger	Power supply	✓	
Connections	Condition	✓	
Cable	Condition	✓	Clean, no tears
Display	Operation	✓	
Firmware	Version	✓	
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
	Condition	✓	Good, clean
	Asymmetry range between -1.00 to +1.00 pH	✓	
	Slope range between 85.0 to 105.0 %	✓	
	Calibrated and conforms to manufacturer's specifications	✓	
ORP (Factory calibrated, no user-calibration facility)			
	Condition	✓	Good, clean
	Quick response time and reading correctly	✓	mV
	mV reading +/- 50mV from value as a function of temperature	✓	
Conductivity			
	Condition	✓	Good, clean
	Temperature	✓	°C, offset range between -10.0 to +10.0 °C
	K factor range is +/- 25% of nominal	✓	k=10.0
	Calibrated and conforms to manufacturer's specifications	✓	µs/cm, k=10 sensor
Dissolved Oxygen			
	Condition	✓	Good, clean
	DO sensor in use	✓	Galvanic
	Air/span calibration span range over 85%	✓	
	Calibrated and conforms to manufacturer's specifications	✓	ppm

This is to certify that the above instrument has been calibrated to the following specifications:

Parameter	Standards	Reference	Calibration points	Instrument Reading
Temperature	Thermometer		Temperature (°C)	19.9 °C
pH	pH 4.00	KE1235	pH 4.00	pH 4.00
pH	pH 7.00	KE1236	pH 7.00	pH 7.00
Conductivity	2760 µs/cm at 25°C	KG1417	2760 µs/cm	2760 µs/cm
ORP (Reference check only)	Zobell A and Zobell B	KH1162/KH1163	241mV at 19.9°C	227mV
Zero Dissolved Oxygen	Sodium Sulphite Zero standard	(10) 263007	Dissolved Oxygen 0.0ppm	0.0 ppm
100% Dissolved Oxygen	100% air saturation	Air	Dissolved Oxygen 100%	100%

Calibrated by:

Gaurav Kanwar

Calibration Date:

19-June-2013

Next due:

19-July-2013

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APPENDIX E

Limitations



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