













Sampler Verification Report

Sampler No:

106

Specified Purpose: LORs Required:

USEPA TO15 (Extended Suite)

Ambient Air

Sampler Type: Soil Gas - Compact Verification Date: Valid To (At least): Verification File:

22-Sep-2017 20-Oct-2017 170922_04.D

Gauge Pressure on Dispatch:*

-28Hz Analyst:

Dale Semple

(1Hg = 3.39 kPa)Checked by:

Approved for Dispatch by:

26/9/12

Gauge pressure is indicative only - Pressure varies with Atmospheric Pressure and may change in transit.

Sampler Verification P<u>rotocol</u>

Samplers are generally verified 'fit for purpose' for the requested analyses and applications. For most applications, samplers are verified clean according to the requirements of USEPA method TO15.

Each verification involves a check for contamination, leaks and damage to fittings.

Target Compound	Alt. Name	Verified to	Result
		ppbv	ppbv
1,1,1-Trichloroethane	1,1,1-TCA / Methyl chloroform	0.2	< 0.2
1,1,2,2-Tetrachloroethane	R-130 / Acetylene tetrachloride	0.2	< 0.2
1,1,2-Trichloroethane	Vinyl trichloride	0.2	< 0.2
1,1-Dichloroethane	Ethylidene chloride	0.2	<0.2
1,1-Dichloroethene	1,1-DCE / Vinylidene chloride	0.2	<0.2
1,2-Dichloroethane	Ethylene chloride	0.2	<0.2
1,2,4-Trimethylbenzene	Pseudocumene	0.2	< 0.2
1,2-Dibromoethane	EDB / Ethylene dibromide	0.2	< 0.2
1,2-Dichlorobenzene	o-Dichlorobenzene	0.2	<0.2
1,2-Dichloropropane	Propylene dichloride	0.2	< 0.2
1,3,5-Trimethylbenzene	Mesitylene	0.2	<0.2
1,3-Dichlorobenzene	m-Dichlorobenzene	0.2	< 0.2
1,4-Dichlorobenzene	p-Dichlorobenzene	0.2	<0.2
Benzene	Cyclohexatriene	0.2	<0.2
Bromomethane	Methyl bromide	0.2	< 0.2
Tetrachloromethane	Carbon tetrachloride	0.2	< 0.2
Chlorobenzene	Phenyl chloride	0.2	< 0.2
Chloroethane	Ethyl chloride	0.2	< 0.2
Chloroform	Trichloromethane	0.2	< 0.2
Chloromethane	Methyl chloride	0.2	< 0.2
cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene	0.2	< 0.2
cis-1,3-Dichloropropene	cis-1,3-Dichloropropylene	0.2	<0.2
Ethylbenzene	Phenyl ethane	0.2	< 0.2
Freon 12	Dichlorodifluoromethane	0.2	< 0.2
Freon 11	Trichlorofluoromethane	0.2	< 0.2
Freon 113	1,1,2-Trichloro-1,1,2-trifluoroethane	0.2	< 0.2
Freon 114	1,2-Dichlorotetrafluoroethane	0.2	< 0.2
Hexachlorobutadiene	Hexachloro-1,3-Butadiene	0.2	<0.2

RIGHT SOLUTIONS RIGHT PARTNER















Target Compound	Alt. Name	Verified to	Result
5: 11		ppbv	ppbv
Dichloromethane	Methylene chloride	0.2	<0.2
m -& p-Xylene	1,3 & 1,4 -Dimethylbenzene	0.4	<0.4
o-Xylene	1,2-Dimethylbenzene	0.2	<0.2
Styrene	Vinyl benzene	0.2	<0.2
Tetrachloroethene	PCE / Perchlorethylene	0.2	<0.2
Toluene	Methyl Benzene	0.2	<0.2
trans-1,3-Dichloropropene	trans-1,3-Dichloropropylene	0.2	<0.2
Trichloroethene	TCE / Trichloroethylene	0.2	<0.2
Vinyl chloride	Chloroethene	0.2	<0.2
1,2,4-Trichlorobenzene		0.2	<0.2
1,3-Butadiene	Biethylene	0.2	<0.2
1,4-Dioxane	p-Dioxane	0.2	<0.2
2,2,4-Trimethylpentane	Isooctane	0.2	<0.2
4-Ethyltoluene	p-Ethyltoluene	0.2	<0.2
Acetone	2-Propanone	0.2	<0.2
Allyl chloride	3-Chloropropene	0.2	<0.2
Bromodichloromethane	Dichlorobromomethane	0.2	<0.2
Bromoform	Tribromomethane	0.2	<0.2
Carbon disulfide	CS2	0.2	< 0.2
Cyclohexane		0.2	< 0.2
Dibromochloromethane	Chlorodibromoethane	0.2	< 0.2
Ethyl acetate	Acetic ester	0.2	< 0.2
Isopropyl alcohol	Isopropanol / 2-Propanol	0.2	< 0.2
Methyl butyl ketone	MBK / 2-Hexanone	0.2	< 0.2
Methyl ethyl ketone	MEK / 2-Butanone	0.2	< 0.2
Methyl isobutyl ketone	MIBK / 4-Methyl-2-pentanone	0.2	< 0.2
Methyl tert-butyl ether	MTBE	0.2	< 0.2
n-Heptane		0.2	< 0.2
n-Hexane		0.2	< 0.2
Propene	Propylene	0.2	< 0.2
Tetrahydrofuran	THF	0.2	< 0.2
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	0.2	< 0.2
Vinyl acetate	Acetic acid vinyl ester	0.2	< 0.2
Bromoethene	Vinyl bromide	0.2	< 0.2
Benzyl chloride	a-Chlorotoluene	0.2	< 0.2
Ethanol	Ethyl alcohol	0.2	<0.2
Acetonitrile	Methyl cyanide	0.2	<0.2
Acrolein	2-Propenal	0.2	<0.2
Acrylonitrile	2-Propenenitrile	0.2	<0.2
tert-Butyl alcohol	TBA	0.2	<0.2
2-Chloroprene	2-Chloro-1,3-butadiene	0.2	<0.2
Diisopropyl Ether	DIPE	0.2	<0.2
Ethyl tert-butyl ether	ETBE	0.2	<0.2
tert-Amyl methyl ether	TAME	0.2	<0.2
Methyl methacrylate	MMA	0.2	<0.2
1,1,1,2-Tetrachloroethane	R-130a / Acetylene trichloride	0.2	<0.2
Isopropylbenzene	Cumene	0.2	<0.2
2-Chlorotoluene	o-Chlorotoluene	0.2	<0.2
n-Propylbenzene	Phenyl propane	0.2	<0.2
tert-Butylbenzene	1,1-Dimethylethylbenzene	0.2	
sec-Butylbenzene			<0.2
•	1-Methylpropylbenzene	0.2	<0.2
2-Isopropyltoluene	o-Cymene	0.2	<0.2
n-Butylbenzene	Phenyl butane	0.2	<0.2



RENTALS

Equipment Report - MiniRAE 3000 PID

This Gas Meter has been performance checked and calibrated as follows:

Lamp	Compound	Concentration	Zero	Span	Traceability Lot#	Pass?
10.6 eV	Isobutylene	100 ppm	o ppm	(00 ppm	•	
Marm Limits		Bu	mp Test	name of the same o		
High	100 ppm		Date	Target Gas	Reading	D
Low	50 ppm	2	7/09/2017	/00 ppm		Pass?
Z Electrical Safety Tag No: _ Valid to: _	complete tatus (Min 5.5 volts) y Tag attached (AS) 000946 19/12/2017	/NZS 3760)		Data clear	ice check (pump, lam ed cked	o, senso
Sent R	replacement cost. eturned Item Minif Lamp Prote Inlet Spare Chan Crad Instr. Quick Spare Inline Calib Data Carry Chec	RAE 2000 PID / Oper policitive yellow rubber to probe (attached to Pie water trap filter(s) (ager 240V to 12V1250) le and Travel Charge uction Manual behind & Guide Sheet behinde Alkaline Battery Coe Moisture trap Filter (aration regulator & tub cable and Software (accepted to confirm electrical)	rational Check / und Set to: poot DD) Oty Oma If foam on the lid If foam	Battery Status sobutylene Co	Intaminated before red items. Items not ret	tum. A urned wi
Sent R	replacement cost. eturned Item Minif Lamp Prote Spare Chan Cradi Instr. Quick Spare Calib Data Carry Check Carry Check Carry Creace Carry Carry Check Carry Creace Carry Carry Check Carry Creace Carry Carry Check Carry Check Carry Creace Carry Carry Check Carry Carry Creace Carry Carry Carry Check Carry Carry Carry Check Carry C	RAE 2000 PID / Oper policitive yellow rubber to probe (attached to Pie water trap filter(s) (or ger 240V to 12V1250) le and Travel Charge uction Manual behind & Guide Sheet behinde Alkaline Battery Coe Moisture trap Filter (or ration regulator & tub cable and Software (or Case & to confirm electrical)	rational Check / und Set to: boot ID) Oty OmA or foam on the lid foam on the lid mpartment with Guide Laminate sing (optional) CD (optional) I safety (tag mu	Battery Status sobutylene Co	items. Items not ret	tum. A urned wi
Sent R	replacement cost. eturned	RAE 2000 PID / Oper p 6 6 eV, Composective yellow rubber in probe (attached to P) e water trap filter(s) (ger 240V to 12V1250) le and Travel Charge uction Manual behind & Guide Sheet behind & Alkaline Battery Co e Moisture trap Filter (ration regulator & tub cable and Software (rase & to confirm electrical) Return Return	rational Check / und Set to: poot DD Qty DmA or foam on the lid foam on the lid mpartment with Guide Laminate ling (optional) DD (optional)	Battery Status sobutylene Code ase batteries d	items. Items not ret	turn. A urned wi

Phone: (Free	Call) 1300 735 295	n give you great equipment We gi Fax: (Free Call) 1800 675 123		
5 Caribbean Drive, Scoresby 3179	Sydney Branch Level 1, 4 Taiavera Road, North Ryde 2113	Adelaide Branch 27 Beutah Road, Norwood, South Australia 5067	Brisbane Branch Unit 2/5 Ross St Newstand 4006	Email: RentalsAU@Thermofisher.com Perth Branch 121 Beringarra Ave
		Nov 12	Newstand 4006	Malaga WA 6090 G0555

Appendix D – Laboratory Documentation



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EN1704092

Client : COFFEY ENVIRONMENTS PTY LTD Laboratory : Environmental Division Newcastle

Contact : MR ALEX RUCTTINGER Contact : Hayley Withers

Address : LEVEL 19, 799 PACIFIC HIGHWAY Address : 5/585 Maitland Road Mayfield West

NSW Australia 2304

CHATSWOOD NSW, AUSTRALIA 2067

Tower B - Citadel Tower

Telephone : +61 02 9406 1000 Telephone : +612 4014 2500 Facsimile : ---- Facsimile : +61 2 4967 7382

Project : SYDEN199382 Page : 1 of 2

 Order number
 : --- Quote number
 : EN2017COFENV0002 (NE/072/17)

 C-O-C number
 : --- QC Level
 : NEPM 2013 B3 & ALS QC Standard

Sampler : ALEX RUCTTINGER

Dates

Date Samples Received : 03-Oct-2017 17:30 Issue Date : 04-Oct-2017

Client Requested Due : 11-Oct-2017 Scheduled Reporting Date : 11-Oct-2017

Date

Delivery Details

 Mode of Delivery
 : Carrier
 Security Seal
 : Intact.

 No. of coolers/boxes
 : 1
 Temperature
 : ---

 Receipt Detail
 : No. of samples received / analysed
 : 8 / 8

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

Issue Date : 04-Oct-2017

Page : 2 of 2

Work Order EN1704092 Amendment 0

Client : COFFEY ENVIRONMENTS PTY LTD



Sample Container(s)/Preservation Non-Compliances

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

• No sample container / preservation non-compliance exists.

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 AIR - EP101-DSG Dry Cleaning Solvents in Soil Vapour by USEPA AIR - EP101-15XSG /OCs in Soil Vapour - USEPA Extended TO15 as the determination of moisture content and preparation tasks, that are included in the package. Gas Field Data If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the Sanister Sampling - Soil laboratory and displayed in brackets without a time component IR - CAN-SG1 Matrix: AIR Client sample ID Laboratory sample Client sampling ID date / time EN1704092-001 28-Sep-2017 00:00 SS1 C3017 S100 1 EN1704092-002 28-Sep-2017 00:00 DUP01 C1079 S100 EN1704092-003 28-Sep-2017 00:00 SS2 C1289 S041 ✓ EN1704092-004 28-Sep-2017 00:00 SS3 C1095 S011 EN1704092-005 28-Sep-2017 00:00 SS4 C869 S047 1 EN1704092-006 28-Sep-2017 00:00 SS5 C1302 S054 EN1704092-007 28-Sep-2017 00:00 SS6 C5050 S004 EN1704092-008 28-Sep-2017 00:00 SS7 C1301 S044

Proactive Holding Time Report

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

Requested Deliverables

- A4 - AU Tax Invoice (INV)

ALEX RUCTTINGER

ALEX ROOT THOLK		
- *AU Certificate of Analysis - NATA (COA)	Email	alexander.ructtinger@coffey.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	alexander.ructtinger@coffey.com
- *AU QC Report - DEFAULT (Anon QC Rep) - USEPA (QC-USEPA)	Email	alexander.ructtinger@coffey.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	alexander.ructtinger@coffey.com
- A4 - AU Tax Invoice (INV)	Email	alexander.ructtinger@coffey.com
- Chain of Custody (CoC) (COC)	Email	alexander.ructtinger@coffey.com
- EDI Format - ENMRG (ENMRG)	Email	alexander.ructtinger@coffey.com
- EDI Format - ESDAT (ESDAT)	Email	alexander.ructtinger@coffey.com
INVOICES CHAT-GeneralAdmin		

Fmail

CHAT-GeneralAdmin@coffey.com



CERTIFICATE OF ANALYSIS

Telephone

Accreditation No. 825 ted for compliance with ISO/IEC 17025 - Testing

Work Order : EN1704092 Page : 1 of 12

Amendment : 2

Client : COFFEY ENVIRONMENTS PTY LTD Laboratory : Environmental Division Newcastle

Contact Contact : MR ALEX RUCTTINGER : Hayley Withers

: LEVEL 19, 799 PACIFIC HIGHWAY Tower B - Citadel Tower : 5/585 Maitland Road Mayfield West NSW Australia 2304

CHATSWOOD NSW, AUSTRALIA 2067 Telephone +61 02 9406 1000

: +612 4014 2500 Date Samples Received Project SYDEN199382 : 03-Oct-2017 17:30 Order number Date Analysis Commenced : 04-Oct-2017

C-O-C number Issue Date : 12-Oct-2017 16:42

Sampler : ALEX RUCTTINGER Site

No. of samples analysed : 8 This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

: NE/072/17

General Comments

 Analytical Results Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Quote number

No. of samples received

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

Signatories Accreditation Category

Dale Semple Newcastle - Organics, Mayfield West, NSW Analyst Dale Semple Newcastle, Mayfield West, NSW Analyst Daniel Junek Senior Air Analyst Newcastle - Organics, Mayfield West, NSW Page 2 of 12

Work Order EN1704092 Amendment 2

COFFEY ENVIRONMENTS PTY LTD Client

Project SYDEN199382

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

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

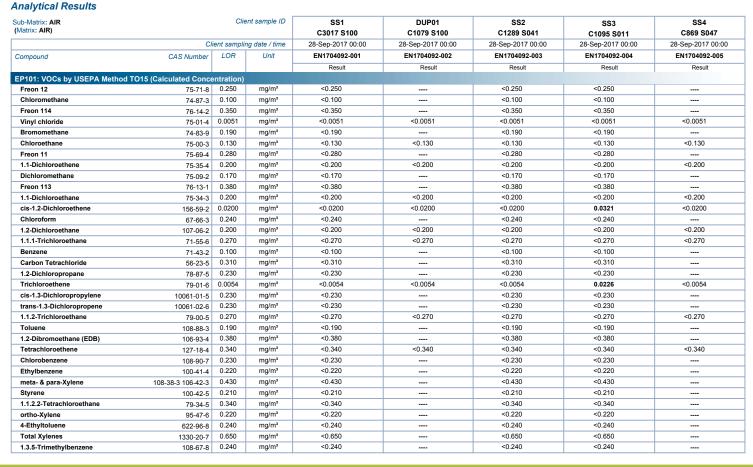
- * = This result is computed from individual analyte detections at or above the level of reporting
- ø = ALS is not NATA accredited for these tests.
- ~ = Indicates an estimated value.
- Amendment (09/10/2017): This report has been amended and re-released to allow the reporting of additional analytical data.
 - Amendment (12/10/2017): This report has been amended and re-released to allow the reporting of additional analytical data.
- EP104: Canister for sample DUP01 leaked due to an instrument stoppage. Insufficient sample volume remaining to perform analysis.
- EP101: ALS quality procedures (QWI-EN/38) permit, for organic trace analysis, that the recoveries of 20% of target compounds may lie outside of established control limits as long as these remain within
- acceptable ranges defined within referenced USEPA methods.
 EP101, EP103: Results reported in mg/m³ are calculated from PPMV results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa.
- CAN-001: Results for Pressure As Received are measured under controlled conditions using calibrated laboratory gauges. These results are expressed as an Absolute Pressure. Equivalent gauge pressures may be calculated by subtracting the Pressure - Laboratory Atmosphere taken at the time of measurement.
- CAN-001: Results for Pressure Gauge as Received are obtained from uncalibrated field gauges and are indicative only. These results may not precisely match calibrated gauge readings and may vary from field measurements due to changes in temperature and pressure
- EP104: Results reported in mg/m³ are calculated from Mol% results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa
- EP104: Sample canisters were received at sub-ambient pressures and required dilution in the laboratory prior to analysis. LOR values have been adjusted accordingly

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Work Order EN1704092 Amendment 2

COFFEY ENVIRONMENTS PTY LTD Client

Project SYDEN199382



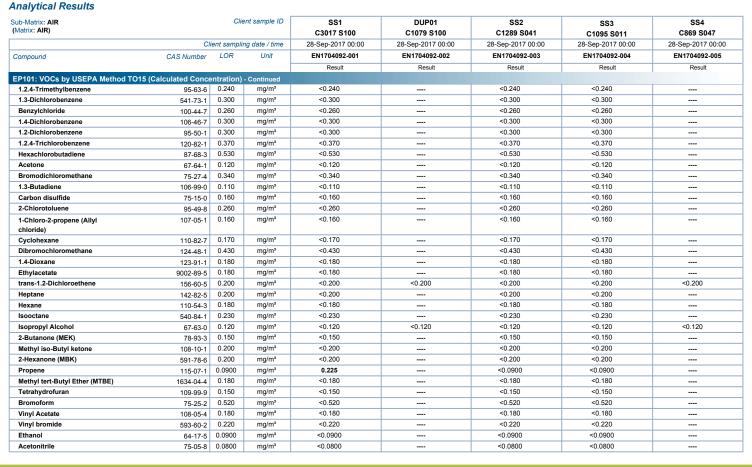


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Work Order EN1704092 Amendment 2

COFFEY ENVIRONMENTS PTY LTD Client

Project SYDEN199382





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ub-Matrix: AIR Matrix: AIR)		Clie	ent sample ID	SS1 C3017 S100	DUP01 C1079 S100	SS2 C1289 S041	SS3 C1095 S011	SS4 C869 S047
	Cl	ient samplir	ng date / time	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	EN1704092-001	EN1704092-002	EN1704092-003	EN1704092-004	EN1704092-005
				Result	Result	Result	Result	Result
P101: VOCs by USEPA Method TO1	5 (Calculated Conce	entration)	- Continued					
Acrolein	107-02-8	0.110	mg/m³	<0.110		<0.110	<0.110	
Acrylonitrile	107-13-1	0.110	mg/m³	<0.110		<0.110	<0.110	
tert-Butyl alcohol	75-65-0	0.150	mg/m³	<0.150		<0.150	<0.150	
2-Chloro-1.3-butadiene	126-99-8	0.180	mg/m³	<0.180		<0.180	<0.180	
Di-isopropyl Ether	108-20-3	0.210	mg/m³	<0.210		<0.210	<0.210	
Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.210	mg/m³	<0.210		<0.210	<0.210	
tert-Amyl Methyl Ether (TAME)	994-05-8	0.210	mg/m³	<0.210		<0.210	<0.210	
Methyl Methacrylate	80-62-6	0.210	mg/m³	<0.210		<0.210	<0.210	
1.1.1.2-Tetrachloroethane	630-20-6	0.340	mg/m³	<0.340		<0.340	<0.340	
Isopropylbenzene	98-82-8	0.250	mg/m³	<0.250		<0.250	<0.250	
n-Propylbenzene	103-65-1	0.250	mg/m³	<0.250		<0.250	<0.250	
tert-Butylbenzene	98-06-6	0.270	mg/m³	<0.270		<0.270	<0.270	
sec-Butylbenzene	135-98-8	0.270	mg/m³	<0.270		<0.270	<0.270	
2-isopropyltoluene	527-84-4	0.270	mg/m³	<0.270		<0.270	<0.270	
n-Butylbenzene	104-51-8	0.270	mg/m³	<0.270		<0.270	<0.270	
Naphthalene	91-20-3	0.100	mg/m³	<0.100		<0.100	<0.100	
P101: VOCs by USEPA Method TO1	5r							
Vinyl chloride	75-01-4	0.0020	ppmv		<0.0020			<0.0020
Chloroethane	75-00-3	0.0500	ppmv		<0.0500			<0.0500
1.1-Dichloroethene	75-35-4	0.0500	ppmv		<0.0500			<0.0500
1.1-Dichloroethane	75-34-3	0.0500	ppmv		<0.0500			<0.0500
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv		<0.0050			<0.0050
1.2-Dichloroethane	107-06-2	0.0500	ppmv		<0.0500			<0.0500
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv		<0.0500			<0.0500
Trichloroethene	79-01-6	0.0010	ppmv		<0.0010			<0.0010
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv		<0.0500			<0.0500
Tetrachloroethene	127-18-4	0.0500	ppmv		<0.0500			<0.0500
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv		<0.0500			<0.0500
Isopropyl Alcohol	67-63-0	0.0500	ppmv		<0.0500			<0.0500
P103: Petroleum Hydrocarbons in C	Saseous Sampl <u>es</u>							
C6 - C9 Fraction		5.00	ppmv	<5.00		<5.00	<5.00	
C10 - C14 Fraction		5.00	ppmv	<5.00		<5.00	<5.00	
P103: Petroleum Hydrocarbons in C	aseous Samples (C	alc Conc)						
C6 - C9 Fraction		20.0	mg/m³	<20.0		<20.0	<20.0	

: 6 of 12 : EN1704092 Amendment 2 : COFFEY ENVIRONMENTS PTY LTD : SYDEN199382



Sub-Matrix: AIR (Matrix: AIR)		Clie	ent sample ID	SS1 C3017 S100	DUP01 C1079 S100	SS2 C1289 S041	SS3 C1095 S011	SS4 C869 S047
	C	lient samplii	ng date / time	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	EN1704092-001	EN1704092-002	EN1704092-003	EN1704092-004	EN1704092-005
				Result	Result	Result	Result	Result
P103: Petroleum Hydrocarbons in Gas	eous Samples (C	alc Conc)	- Continued					
C10 - C14 Fraction		35.0	mg/m³	<35.0		<35.0	<35.0	
P103: Total Recoverable Hydrocarbons	s - NEPM 2013							
C6 - C10 Fraction	C6_C10	5.00	ppmv	<5.00		<5.00	<5.00	
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	5.00	ppmv	<5.00		<5.00	<5.00	
>C10 - C16 Fraction		5.00	ppmv	<5.00		<5.00	<5.00	
>C10 - C16 Fraction minus Naphthalene (F2)		5.00	ppmv	<5.00		<5.00	<5.00	
P103: Total Recoverable Hydrocarbon	s - NEPM 2013 (C	alc Conc)						
C6 - C10 Fraction	C6_C10	20.0	mg/m³	<20.0		<20.0	<20.0	
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20.0	mg/m³	<20.0		<20.0	<20.0	
>C10 - C16 Fraction		40.0	mg/m³	<40.0		<40.0	<40.0	
>C10 - C16 Fraction minus Naphthalene (F2)		40.0	mg/m³	<40.0		<40.0	<40.0	
P104: Light Hydrocarbons								
Methane	74-82-8	0.05	Mol %	<0.10		<0.10	<0.10	<0.10
P104: Light Hydrocarbons (Calc Conc)								
Methane	74-82-8	330	mg/m³	<660		<660	<660	<660
P104: Permanent Gases								
Carbon Dioxide	124-38-9	0.005	Mol %	13.9		0.048	15.0	16.5
Carbon Monoxide	630-08-0	0.0005	Mol %	<0.0010		<0.0010	<0.0010	<0.0010
Hydrogen	1333-74-0	0.005	Mol %	<0.010		<0.010	0.018	<0.010
Helium	7440-59-7	0.005	Mol %	0.034		<0.010	<0.010	<0.010
Oxygen	7782-44-7	0.10	Mol %	1.86		20.8	0.58	1.66
P104: Permanent Gases (Calc Conc)								
Carbon Dioxide	124-38-9	90	mg/m³	250000		870	269000	296000
Carbon Monoxide	630-08-0	5	mg/m³	<10		<10	<10	<10
Hydrogen	1333-74-0	4	mg/m³	<8		<8	15	<8
Oxygen	7782-44-7	1310	mg/m³	24400		272000	7640	21700
Helium	7440-59-7	8	mg/m³	56		<16	<16	<16
Sampling Quality Assurance								
Pressure - As received	PRESSURE	0.1	kPaa	71.8	72.0	89.1	77.6	82.6
Pressure - Laboratory Atmosphere		0.1	kPaa	102	102	102	102	102

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Sub-Matrix: AIR (Matrix: AIR)		Clie	ent sample ID	SS1 C3017 S100	DUP01 C1079 S100	SS2 C1289 S041	SS3 C1095 S011	SS4 C869 S047
	Ci	lient samplii	ng date / time	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	EN1704092-001	EN1704092-002	EN1704092-003	EN1704092-004	EN1704092-005
				Result	Result	Result	Result	Result
Sampling Quality Assurance - Continu	ued							
Temperature as Received		0.1	°C	21.0	21.0	21.0	21.0	21.0
Vacuum - As received		0.03	"Hg	8.95	8.89	3.84	7.23	5.76
JSEPA Air Toxics Method TO15r								
Freon 12	75-71-8	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Chloromethane	74-87-3	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Freon 114	76-14-2	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Vinyl chloride	75-01-4	0.0020	ppmv	<0.0020		<0.0020	<0.0020	
Bromomethane	74-83-9	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Chloroethane	75-00-3	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Freon 11	75-69-4	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.1-Dichloroethene	75-35-4	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Dichloromethane	75-09-2	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Freon 113	76-13-1	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.1-Dichloroethane	75-34-3	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv	<0.0050		<0.0050	0.0081	
Chloroform	67-66-3	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.2-Dichloroethane	107-06-2	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Benzene	71-43-2	0.0300	ppmv	<0.0300		<0.0300	<0.0300	
Carbon Tetrachloride	56-23-5	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.2-Dichloropropane	78-87-5	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Trichloroethene	79-01-6	0.0010	ppmv	<0.0010		<0.0010	0.0042	
cis-1.3-Dichloropropylene	10061-01-5	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
trans-1.3-Dichloropropene	10061-02-6	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Toluene	108-88-3	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.2-Dibromoethane (EDB)	106-93-4	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Tetrachloroethene	127-18-4	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Chlorobenzene	108-90-7	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Ethylbenzene	100-41-4	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
meta- & para-Xylene	108-38-3 106-42-3	0.100	ppmv	<0.100		<0.100	<0.100	
Styrene	100-42-5	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.1.2.2-Tetrachloroethane	79-34-5	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
ortho-Xylene	95-47-6	0.0500	ppmv	<0.0500		<0.0500	<0.0500	

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Sub-Matrix: AIR (Matrix: AIR)		Client sample ID			DUP01 C1079 S100	SS2 C1289 S041	SS3 C1095 S011	SS4 C869 S047
	CI	Client sampling date / time			28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	EN1704092-001	EN1704092-002	EN1704092-003	EN1704092-004	EN1704092-005
				Result	Result	Result	Result	Result
USEPA Air Toxics Method TO15r - Co	ontinued							
4-Ethyltoluene	622-96-8	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.3.5-Trimethylbenzene	108-67-8	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.2.4-Trimethylbenzene	95-63-6	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.3-Dichlorobenzene	541-73-1	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Benzylchloride	100-44-7	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.4-Dichlorobenzene	106-46-7	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.2-Dichlorobenzene	95-50-1	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.2.4-Trichlorobenzene	120-82-1	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Hexachlorobutadiene	87-68-3	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Acetone	67-64-1	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Bromodichloromethane	75-27-4	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.3-Butadiene	106-99-0	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Carbon disulfide	75-15-0	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
2-Chlorotoluene	95-49-8	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1-Chloro-2-propene (Allyl	107-05-1	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
chloride)								
Cyclohexane	110-82-7	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Dibromochloromethane	124-48-1	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.4-Dioxane	123-91-1	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Ethylacetate	9002-89-5	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Heptane	142-82-5	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Hexane	110-54-3	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Isooctane	540-84-1	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Isopropyl Alcohol	67-63-0	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
2-Butanone (MEK)	78-93-3	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Methyl iso-Butyl ketone	108-10-1	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
2-Hexanone (MBK)	591-78-6	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Propene	115-07-1	0.0500	ppmv	0.131		<0.0500	<0.0500	
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Tetrahydrofuran	109-99-9	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Bromoform	75-25-2	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Vinyl Acetate	108-05-4	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Vinyl bromide	593-60-2	0.0500	ppmv	<0.0500		<0.0500	<0.0500	

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iub-Matrix: AIR Matrix: AIR)		Client sample ID			DUP01 C1079 S100	SS2 C1289 S041	SS3 C1095 S011	SS4 C869 S047
	CI	lient samplii	ng date / time	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	EN1704092-001	EN1704092-002	EN1704092-003	EN1704092-004	EN1704092-005
				Result	Result	Result	Result	Result
JSEPA Air Toxics Method TO15r - Cor	ntinued							
Ethanol	64-17-5	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Acetonitrile	75-05-8	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Acrolein	107-02-8	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Acrylonitrile	107-13-1	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
tert-Butyl alcohol	75-65-0	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
2-Chloro-1.3-butadiene	126-99-8	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Di-isopropyl Ether	108-20-3	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
tert-Amyl Methyl Ether (TAME)	994-05-8	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Methyl Methacrylate	80-62-6	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
1.1.1.2-Tetrachloroethane	630-20-6	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Isopropylbenzene	98-82-8	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
n-Propylbenzene	103-65-1	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
tert-Butylbenzene	98-06-6	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
sec-Butylbenzene	135-98-8	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
2-isopropyltoluene	527-84-4	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
n-Butylbenzene	104-51-8	0.0500	ppmv	<0.0500		<0.0500	<0.0500	
Naphthalene	91-20-3	0.0190	ppmv	<0.0190		<0.0190	<0.0190	
JSEPA Air Toxics Method TO15r Surr	rogates							
4-Bromofluorobenzene	460-00-4	0.5	%	96.2	91.4	95.8	96.5	96.2

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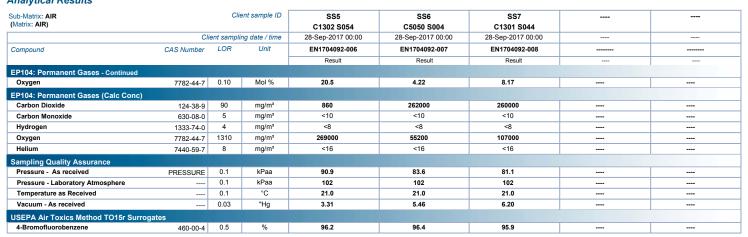
Sub-Matrix: AIR		Clie	ent sample ID	SS5	SS6	SS7	
(Matrix: AIR)				C1302 S054	C5050 S004	C1301 S044	
	CI	ient sampli	ng date / time	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	
Compound	CAS Number	LOR	Unit	EN1704092-006	EN1704092-007	EN1704092-008	
				Result	Result	Result	
EP101: VOCs by USEPA Method TO	D15 (Calculated Conce	entration)					
Vinyl chloride	75-01-4	0.0051	mg/m³	<0.0051	<0.0051	<0.0051	
Chloroethane	75-00-3	0.130	mg/m³	<0.130	<0.130	<0.130	
1.1-Dichloroethene	75-35-4	0.200	mg/m³	<0.200	<0.200	<0.200	
1.1-Dichloroethane	75-34-3	0.200	mg/m³	<0.200	<0.200	<0.200	
cis-1.2-Dichloroethene	156-59-2	0.0200	mg/m³	<0.0200	<0.0200	<0.0200	
1.2-Dichloroethane	107-06-2	0.200	mg/m³	<0.200	<0.200	<0.200	
1.1.1-Trichloroethane	71-55-6	0.270	mg/m³	<0.270	<0.270	<0.270	
Trichloroethene	79-01-6	0.0054	mg/m³	<0.0054	0.0086	0.0827	
1.1.2-Trichloroethane	79-00-5	0.270	mg/m³	<0.270	<0.270	<0.270	
Tetrachloroethene	127-18-4	0.340	mg/m³	<0.340	<0.340	<0.340	
trans-1.2-Dichloroethene	156-60-5	0.200	mg/m³	<0.200	<0.200	<0.200	
Isopropyl Alcohol	67-63-0	0.120	mg/m³	<0.120	<0.120	<0.120	
EP101: VOCs by USEPA Method TO	015r						
Vinyl chloride	75-01-4	0.0020	ppmv	<0.0020	<0.0020	<0.0020	
Chloroethane	75-00-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	
1.1-Dichloroethene	75-35-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	
1.1-Dichloroethane	75-34-3	0.0500	ppmv	<0.0500	<0.0500	<0.0500	
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv	<0.0050	<0.0050	<0.0050	
1.2-Dichloroethane	107-06-2	0.0500	ppmv	<0.0500	<0.0500	<0.0500	
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv	<0.0500	<0.0500	<0.0500	
Trichloroethene	79-01-6	0.0010	ppmv	<0.0010	0.0016	0.0154	
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	
Tetrachloroethene	127-18-4	0.0500	ppmv	<0.0500	<0.0500	<0.0500	
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv	<0.0500	<0.0500	<0.0500	
Isopropyl Alcohol	67-63-0	0.0500	ppmv	<0.0500	<0.0500	<0.0500	
EP104: Light Hydrocarbons							
Methane	74-82-8	0.05	Mol %	<0.10	<0.10	<0.10	
EP104: Light Hydrocarbons (Calc C	Conc)						
Methane	74-82-8	330	mg/m³	<660	<660	<660	
EP104: Permanent Gases							
Carbon Dioxide	124-38-9	0.005	Mol %	0.048	14.6	14.5	
Carbon Monoxide	630-08-0	0.0005	Mol %	<0.0010	<0.0010	<0.0010	
Hydrogen	1333-74-0	0.005	Mol %	<0.010	<0.010	<0.010	
<u> </u>							
Helium	7440-59-7	0.005	Mol %	<0.010	<0.010	<0.010	

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Surrogate Control Limits

Sub-Matrix: AIR	Recovery Limits (%)			
Compound	CAS Number	Low	High	
USEPA Air Toxics Method TO15r Surrogates				
4-Bromofluorobenzene	460-00-4	60	140	





QA/QC Compliance Assessment to assist with Quality Review

:EN1704092 Page Work Order : 1 of 5 : 2 Amendment

: COFFEY ENVIRONMENTS PTY LTD Client

Contact MR ALEX RUCTTINGER Project SYDEN199382 Site

: ALEX RUCTTINGER Sampler Order number

: Environmental Division Newcastle

Telephone : +612 4014 2500 Date Samples Received 03-Oct-2017 Issue Date : 12-Oct-2017 No. of samples received : 8

No. of samples analysed : 8

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers: Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- NO Duplicate outliers occur.
- NO Matrix Spike outliers occur.
- Laboratory Control outliers exist please see following pages for full details.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers: Analysis Holding Time Compliance

<u>NO</u> Analysis Holding Time Outliers exist.

Outliers: Frequency of Quality Control Samples

NO Quality Control Sample Frequency Outliers exist.

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Project

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes



Mudik. Air							
Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP101: VOCs by USEPA Method TO15r	QC-1152331-002		Carbon disulfide	75-15-0	75.5 %	79-126%	Recovery less than lower control limit
EP101: VOCs by USEPA Method TO15r	QC-1152331-002		Vinyl bromide	593-60-2	81.5 %	82-126%	Recovery less than lower control limit

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing 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 <u>VOC in soils</u> 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 <u>or</u> Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: AIR					Evaluation	: × = Holding time	breach ; ✓ = Withi	n holding time
Method		Sample Date	Ex	traction / Preparation			Analysis	
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP101: VOCs by USEPA Method TO15r								
Gas Canister - ALS Stainless Steel Silonite (EP101-15X) DUP01 - C1079 S100, SS5 - C1302 S054, SS7 - C1301 S044	SS4 - C869 S047, SS6 - C5050 S004,	28-Sep-2017				04-Oct-2017	28-Oct-2017	✓
EP103: Petroleum Hydrocarbons in Gaseous Samples								
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) SS1 - C3017 S100, SS3 - C1095 S011	SS2 - C1289 S041,	28-Sep-2017				09-Oct-2017	28-Oct-2017	✓
EP103: Total Recoverable Hydrocarbons - NEPM 2013								
Gas Canister - ALS Stainless Steel Silonite (EP103-PC) SS1 - C3017 S100, SS3 - C1095 S011	SS2 - C1289 S041,	28-Sep-2017				09-Oct-2017	28-Oct-2017	✓
EP104: Light Hydrocarbons								
Gas Canister - ALS Stainless Steel Silonite (EP104) SS1 - C3017 S100, SS3 - C1095 S011, SS5 - C1302 S054, SS7 - C1301 S044	SS2 - C1289 S041, SS4 - C869 S047, SS6 - C5050 S004,	28-Sep-2017				10-Oct-2017	28-Oct-2017	✓
EP104: Permanent Gases								
Gas Canister - ALS Stainless Steel Silonite (EP104) SS1 - C3017 S100, SS3 - C1095 S011, SS5 - C1302 S054, SS7 - C1301 S044	SS2 - C1289 S041, SS4 - C869 S047, SS6 - C5050 S004,	28-Sep-2017				10-Oct-2017	28-Oct-2017	✓



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Matrix: AIR					Evaluation	: × = Holding time	breach ; ✓ = With	in holding tim
Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
Sampling Quality Assurance								
Gas Canister - ALS Stainless Steel Silonite (CAN-001)								
SS1 - C3017 S100,	DUP01 - C1079 S100,	28-Sep-2017				04-Oct-2017	28-Sep-2018	✓
SS2 - C1289 S041,	SS3 - C1095 S011,							
SS4 - C869 S047,	SS5 - C1302 S054,							
SS6 - C5050 S004,	SS7 - C1301 S044							
USEPA Air Toxics Method TO15r								
Gas Canister - ALS Stainless Steel Silonite (EP101-15X)								
SS1 - C3017 S100,	SS2 - C1289 S041,	28-Sep-2017				04-Oct-2017	28-Oct-2017	✓
SS3 - C1095 S011								

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Project



Quality Control Parameter Frequency Compliance

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

Matrix: AIR				Evaluation	n: × = Quality Co	ontrol frequency	not within specification; ✓ = Quality Control frequency within specification.
Quality Control Sample Type		С	Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
Duplicate Control Samples (DCS)							
Permanent Gases and Light Hydrocarbons	EP104	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	3	33.33	5.00	1	NEPM 2013 B3 & ALS QC Standard
Laboratory Duplicates (DUP)							
Permanent Gases and Light Hydrocarbons	EP104	1	7	14.29	10.00	1	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	2	19	10.53	10.00	1	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Permanent Gases and Light Hydrocarbons	EP104	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	19	5.26	5.00	1	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	3	33.33	5.00	1	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Permanent Gases and Light Hydrocarbons	EP104	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	19	5.26	5.00	1	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard

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Project



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
Canister Sampling - Field Data	CAN-001	AIR	In house: Referenced to USEPA TO14 / TO15
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite
VOCs in Air by USEPA TO15r - Extended	EP101-15X-MV	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite
Suite (mass/volume)			(Calculated Concentration)
Volatile TPH/TRH in Gaseous Samples	EP103-PC	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection
			Based on USEPA TO15, MassDEP APH (Rev1 2009) and TPH/NEPM Fractions (2013)
Volatile TPH/TRH in Gaseous Samples	EP103-PC-MV	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection
(Calc Conc)			Based on USEPA TO15, MassDEP APH (Rev1 2009) and TPH/NEPM Fractions (2013)
			Calculated from ppbv results based on given Temperature and Atmospheric Pressure and mid-range molecular weights
Permanent Gases and Light	EP104	AIR	Hydrocarbons, Carbon Dioxide and Carbon Monoxide by GC-FID-TCD. Gases by GC-TCD
Hydrocarbons			In house: Referenced to ASTM D1945 applied to Gases and Light Hydrocarbons (C1-C4) using capillary GC
Permanent Gases and Light	EP104-MV	AIR	Permanent Gases and Light Hydrocarbons - Calculated as mass/volume concentration from percentage
Hydrocarbons (mass/volume)			composition and given termperature and pressure.



QUALITY CONTROL REPORT

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COFFEY ENVIRONMENTS PTY LTD

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Project SYDEN199382 Order number

C-O-C number : ALEX RUCTTINGER Sampler

Site

Quote number : NE/072/17 No. of samples received 8 No. of samples analysed : 8

Environmental Division Newcastle

Hayley Withers

5/585 Maitland Road Mayfield West NSW Australia 2304

: +612 4014 2500 Telephone Date Samples Received : 03-Oct-2017 Date Analysis Commenced : 04-Oct-2017

: 12-Oct-2017 Issue Date





Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

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

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

Signatories Position Accreditation Category

Newcastle - Organics, Mayfield West, NSW Dale Semple Analyst Dale Semple Newcastle, Mayfield West, NSW Analyst Daniel Junek Senior Air Analyst Newcastle - Organics, Mayfield West, NSW

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Project SYDEN199382

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

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: AIR									
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP101: VOCs by US	EPA Method TO15r (QC	Lot: 1152331)							
EN1704084-001	Anonymous	EP101-15X: Freon 12	75-71-8	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Freon 114	76-14-2	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<2.0	<2.0	0.00	No Limit
		EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Freon 11	75-69-4	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Freon 113	76-13-1	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<5.0	<5.0	0.00	No Limit
		EP101-15X: Chloroform	67-66-3	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Benzene	71-43-2	0.5	ppbv	<30.0	<30.0	0.00	No Limit
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<1.0	<1.0	0.00	No Limit
		EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Toluene	108-88-3	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<50.0	<50.0	0.00	No Limit



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ıb-Matrix: AIR									
aboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%
101: VOCs by US	EPA Method TO15r (C	QC Lot: 1152331) - continued							
11704084-001	Anonymous	EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Styrene	100-42-5	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	54.4	52.7	3.29	No Limit
		EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Acetone	67-64-1	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Heptane	142-82-5	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Hexane	110-54-3	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Isooctane	540-84-1	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Isopropyr Alconol EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Z-Butarione (MEX)	108-10-1	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Methyr Iso-Butyr Retorie EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: 2-nexatione (WBK)	115-07-1	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		·	1634-04-4	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		EP101-15X: Methyl tert-Butyl Ether (MTBE) EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<50.0	<50.0	0.00	No Limit
		·	75-25-2	0.5	ppbv	<50.0 <50.0	<50.0 <50.0	0.00	No Limit
		EP101-15X: Bromoform	108-05-4	0.5	ppbv	<50.0 <50.0	<50.0 <50.0	0.00	No Limit
		EP101-15X: Vinyl Acetate	593-60-2	0.5		<50.0 <50.0	<50.0 <50.0	0.00	No Limit
		EP101-15X: Vinyl bromide	593-60-2 64-17-5	0.5	ppbv		<50.0 <50.0	0.00	No Limit No Limit
		EP101-15X: Ethanol			ppbv	<0.0500 ppmv			
		EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit

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Sub-Matrix: AIR				Laboratory Duplicate (DUP) Report CAS Number LOR Unit Original Result Duplicate Result RPD (%) Recove								
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%			
P101: VOCs by US	EPA Method TO15r (QC	Lot: 1152331) - continued										
N1704084-001	Anonymous	EP101-15X: Acrolein	107-02-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: 2-Chloro-1.3-butadiene	126-99-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Di-isopropyl Ether	108-20-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: 2-isopropyltoluene	527-84-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.0190 ppmv	<19.0	0.00	No Limit			
		EP101-15X: meta- & para-Xylene	108-38-3	1	ppbv	<100	<100	0.00	No Limit			
			106-42-3									
I1704092-001 SS1 C3017 S100	EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit				
		EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.0020 ppmv	<2.0	0.00	No Limit			
		EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.0050 ppmv	<5.0	0.00	No Limit			
		EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.0300 ppmv	<30.0	0.00	No Limit			
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.0010 ppmv	<1.0	0.00	No Limit			
		EP101-15X: ritchloroethere	10061-01-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit			

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b-Matrix: AIR						Laboratory I	Duplicate (DUP) Report		
aboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%
101: VOCs by US	SEPA Method TO15r (QC	Lot: 1152331) - continued							
N1704092-001	SS1 C3017 S100	EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Styrene	100-42-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Heptane	142-82-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Hexane	110-54-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Isooctane	540-84-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Propene	115-07-1	0.5	ppbv	0.131 ppmv	130	1.36	No Limit
		EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit

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Sub-Matrix: AIR						Laboratory	Duplicate (DUP) Report		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP101: VOCs by U	SEPA Method TO15r (Q0	C Lot: 1152331) - continued							
EN1704092-001	SS1 C3017 S100	EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethanol	64-17-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acrolein	107-02-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Chloro-1.3-butadiene	126-99-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Di-isopropyl Ether	108-20-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-isopropyltoluene	527-84-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.0190 ppmv	<19.0	0.00	No Limit
		EP101-15X: meta- & para-Xylene	108-38-3	1	ppbv	<0.100 ppmv	<100	0.00	No Limit
			106-42-3						
P103: Petroleum	Hydrocarbons in Gaseou	is Samples (QC Lot: 1160408)							
EN1704092-001	SS1 C3017 S100	EP103-PC: C6 - C9 Fraction		50	ppbv	<5.00 ppmv	<5000	0.00	No Limit
		EP103-PC: C10 - C14 Fraction		50	ppbv	<5.00 ppmv	<5000	0.00	No Limit
P103: Total Reco	verable Hydrocarbons - N	NEPM 2013 (QC Lot: 1160408)							
EN1704092-001	SS1 C3017 S100	EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	<5.00 ppmv	<5000	0.00	No Limit
		EP103-PC: >C10 - C16 Fraction		50	ppbv	<5.00 ppmv	<5000	0.00	No Limit
P104: Light Hydro	ocarbons (QC Lot: 11643	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
EN1704092-001	SS1 C3017 S100	EP104: Methane	74-82-8	0.05	Mol %	<0.10	<0.10	0.00	0% - 20%
	Gases (QC Lot: 1164320				11121 /1				177 = 177
N1704092-001	SS1 C3017 S100		630-08-0	0.0005	Mol %	<0.0010	<0.0010	0.00	0% - 20%
_141704032-001	331 33017 3100	EP104: Carbon Monoxide EP104: Carbon Dioxide	124-38-9	0.0005	Mol %	13.9	13.7	1.45	0% - 20%
			1333-74-0	0.005	Mol %	<0.010	<0.010	0.00	0% - 20%
		EP104: Hydrogen	7440-59-7	0.005	Mol %	0.034	0.034	0.00	0% - 20%
		EP104: Helium	7440-59-7	0.005	Mol %	1.86	1.95	4.33	0% - 20%
		EP104: Oxygen	1102-44-1	U. I	IVIOI %	1.00	1.95	4.33	0% - 20%

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Project



Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) 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 terms Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (DCS) refers to certified reference materials, or known interference free matrices spiked with target analytes. The purpose of these QC parameters are to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS and DCS.

Sub-Matrix: AIR			Method Blank (ME	3) Report	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Re	covery (%)	Recovery	Limits (%)	RF	PDs (%)
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EP101: VOCs by USEPA Method TO15r (C	(CLot: 1152331)										
EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.5	10 ppbv	96.3	101	70	130	25	25
EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.5	10 ppbv	94.8	100	70	130	25	25
EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.5	10 ppbv	95.4	101	77	130	25	25
EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.5	10 ppbv	95.4	101	76	130	25	25
EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.5	10 ppbv	97.9	105	76	130	25	25
EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.5	10 ppbv	101	106	70	130	25	25
EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.5	10 ppbv	82.8	86.9	82	122	25	25
EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.5	10 ppbv	82.7	87.0	77	121	25	25
EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.5	10 ppbv	78.9	82.4	70	130	25	25
EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.5	10 ppbv	84.4	88.8	78	118	25	25
EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.5	10 ppbv	98.6	103	80	120	25	25
EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.5	10 ppbv	96.5	101	80	114	25	25
EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.5	10 ppbv	96.5	101	83	118	25	25
EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.5	10 ppbv	97.5	102	76	124	25	25
EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.5	10 ppbv	99.5	104	84	117	25	25
EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.5	10 ppbv	97.1	101	81	113	25	25
EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.5	10 ppbv	98.0	102	83	121	25	25
EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.5	10 ppbv	98.5	103	80	120	25	25
EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.5	10 ppbv	96.5	101	84	116	25	25
EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.5	10 ppbv	97.1	101	77	116	25	25
EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.5	10 ppbv	93.6	98.3	70	119	25	25
EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.5	10 ppbv	100	104	84	123	25	25
EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.5	10 ppbv	94.0	99.2	79	120	25	25
EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.5	10 ppbv	99.8	105	81	124	25	25
EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.5	10 ppbv	101	105	77	124	25	25
EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.5	10 ppbv	101	106	81	122	25	25
EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.5	10 ppbv	98.6	104	81	120	25	25
EP101-15X: meta- & para-Xylene	108-38-3	1	ppbv	<1.0	20 ppbv	103	108	80	125	25	25
	106-42-3										
EP101-15X: Styrene	100-42-5	0.5	ppbv	<0.5	10 ppbv	98.6	104	70	126	25	25
EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.5	10 ppbv	118	122	83	130	25	25
EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.5	10 ppbv	106	111	82	122	25	25
EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<0.5	10 ppbv	85.6	89.7	70	128	25	25

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Sub-Matrix: AIR			Method Blank (ME	B) Report	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
					Spike	Spike Re	covery (%)	Recovery	Limits (%)	RP	Ds (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit	
EP101: VOCs by USEPA Method TO15r (QCL	.ot: 1152331) - co	ontinued										
EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<0.5	10 ppbv	117	123	72	126	25	25	
EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<0.5	10 ppbv	111	117	70	130	25	25	
EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.5	10 ppbv	104	110	70	130	25	25	
EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.5	10 ppbv	74.1	77.6	70	130	25	25	
EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.5	10 ppbv	102	107	70	130	25	25	
EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.5	10 ppbv	111	116	70	130	25	25	
EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.5	10 ppbv	85.8	90.3	70	130	25	25	
EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.5	10 ppbv	88.7	92.3	70	130	25	25	
EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.5	10 ppbv	74.4	78.3	70	130	25	25	
EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.5	10 ppbv	99.8	104	84	121	25	25	
EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.5	10 ppbv	96.9	104	73	130	25	25	
EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.5	10 ppbv	# 75.5	79.6	79	126	25	25	
EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<0.5	10 ppbv	75.0	78.7	72	130	25	25	
EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.5	10 ppbv	75.4	80.8	71	128	25	25	
EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<0.5	10 ppbv	94.9	98.6	79	114	25	25	
EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.5	10 ppbv	97.0	101	82	130	25	25	
EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.5	10 ppbv	106	111	70	122	25	25	
EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.5	10 ppbv	97.3	102	70	130	25	25	
EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.5	10 ppbv	95.7	101	77	123	25	25	
EP101-15X: Heptane	142-82-5	0.5	ppbv	<0.5	10 ppbv	96.8	101	80	115	25	25	
EP101-15X: Hexane	110-54-3	0.5	ppbv	<0.5	10 ppbv	95.6	98.8	77	120	25	25	
EP101-15X: Isooctane	540-84-1	0.5	ppbv	<0.5	10 ppbv	97.9	102	72	127	25	25	
EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.5	10 ppbv	74.0	74.9	70	129	25	25	
EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.5	10 ppbv	92.8	97.8	72	126	25	25	
EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.5	10 ppbv	105	109	74	130	25	25	
EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.5	10 ppbv	101	106	70	130	25	25	
EP101-15X: Propene	115-07-1	0.5	ppbv	<0.5	10 ppbv	97.6	103	70	130	25	25	
EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.5	10 ppbv	94.8	100	76	118	25	25	
EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.5	10 ppbv	100	105	71	127	25	25	
EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.5	10 ppbv	95.1	99.4	74	130	25	25	
EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.5	10 ppbv	90.7	94.6	70	122	25	25	
EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.5	10 ppbv	# 81.5	86.4	82	126	25	25	
EP101-15X: Ethanol	64-17-5	0.5	ppbv	<0.5	10 ppbv	83.4	88.9	70	130	25	25	
EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<0.5	10 ppbv	77.1	80.1	70	130	25	25	
EP101-15X: Acrolein	107-02-8	0.5	ppbv	<0.5	10 ppbv	73.7	77.6	70	130	25	25	
EP101-15X: Acrolem EP101-15X: Acrolem	107-13-1	0.5	ppbv	<0.5	10 ppbv	78.7	82.6	70	130	25	25	
EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<0.5	10 ppbv	84.1	89.4	74	127	25	25	
EP101-15X: 2-Chloro-1.3-butadiene	126-99-8	0.5	ppbv	<0.5	10 ppbv	94.7	99.4	77	120	25	25	
EP101-15X: Di-isopropyl Ether	108-20-3	0.5	ppbv	<0.5	10 ppbv	96.0	100	74	130	25	25	
EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<0.5	10 ppbv	93.2	98.1	78	123	25	25	
EF 101-10A. Ethyl tert-butyl Ether (ETBE)	001-02-0	0.0	pppv	₹0.5	10 ppuv	33.2	30.1	70	120	23		

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Sub-Matrix: AIR			Method Blank (MI	B) Report	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
					Spike	Spike Red	overy (%)	Recovery	Limits (%)	RPI	Os (%)		
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit		
EP101: VOCs by USEPA Method TO15r (QC	Lot: 1152331) - c	ontinued											
EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<0.5	10 ppbv	90.4	95.2	77	121	25	25		
EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<0.5	10 ppbv	90.2	94.0	70	126	25	25		
EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<0.5	10 ppbv	88.4	92.3	80	130	25	25		
EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<0.5	10 ppbv	81.2	84.9	74	130	25	25		
EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<0.5	10 ppbv	75.2	79.1	70	128	25	25		
EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<0.5	10 ppbv	76.7	80.3	71	130	25	25		
EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<0.5	10 ppbv	102	106	73	130	25	25		
EP101-15X: 2-isopropyltoluene	527-84-4	0.5	ppbv	<0.5	10 ppbv	80.0	83.9	70	130	25	25		
EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<0.5	10 ppbv	78.0	82.6	70	130	25	25		
EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.5	10 ppbv	71.8	76.3	70	130	25	25		
EP103: Petroleum Hydrocarbons in Gaseou	s Samples (QCLo	t: 1160408)										
EP103-PC: C6 - C9 Fraction		50	ppbv	<50	2800 ppbv	106	99.9	70	130	25	25		
EP103-PC: C10 - C14 Fraction		50	ppbv	<50	1200 ppbv	119	109	70	130	25	25		
EP103: Total Recoverable Hydrocarbons - N	IEPM 2013 (QCLo	t: 1160408)											
EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	<50	3000 ppbv	112	103	70	130	25	25		
EP103-PC: >C10 - C16 Fraction		50	ppbv	<50	500 ppbv	119	105	70	130	25	25		
EP104: Light Hydrocarbons (QCLot: 116432	20)												
EP104: Methane	74-82-8	0.05	Mol %	<0.05	0.097 Mol %	95.1	95.0	90	110	25	25		
EP104: Permanent Gases (QCLot: 1164320))												
EP104: Carbon Dioxide	124-38-9	0.005	Mol %	<0.005	5.098 Mol %	102	102	90	110	25	25		
EP104: Carbon Monoxide	630-08-0	0.0005	Mol %	<0.0005									
EP104: Hydrogen	1333-74-0	0.005	Mol %	<0.005	0.105 Mol %	99.2	99.7	90	110	25	25		
EP104: Helium	7440-59-7	0.005	Mol %	<0.005	0.105 Mol %	101	101	90	110	25	25		
EP104: Oxygen	7782-44-7	0.1	Mol %	<0.10	9.338 Mol %	96.8	96.6	90	110	25	25		

No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

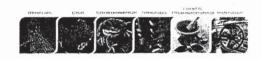
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Inquiries: Client Services - Newcastle Phone: +61 (02) 4014 2500

E-mail: samples.newcastle@alsenviro.com

Dispatch to:				
Client / Office:	Coffey	ALS Use ONL	Y	
Contact:	Alex Ructtinger	Request Received By:	HW 20/	9
Telephone:	0427 235 873	Deliver By:	Asap	
ALS Quotation:		Dispatched By:	asap	
Delivery Address:	Level 19, Tower B - Citadel Tower	Workorder:	-500	
	799 Pacific Hwy Chatswood NSW 2067	Agreed Rent Free Period:	14	days

AIR SAMPLING EQUIPMENT DISPATCH RECORD

SPECIAL INSTRUCTIONS:.

Air Sampling Equipment Request

CAL	VISTERS	War.		233.7			建設的	A CHARLES	
No	CanisterType	Size	Gauge	Valvo	Cap	Rental	tin Resourced	Leak Checked	Certified OK
13	Minican TM	1,41.	No	QT	Yes	\$120 ea		4	26/9/

CONNECTORS AND FLOW CONTROL DEVICES

No	Equipment Types	Duration	Flow	Piece	Gauge	Certified	Sealed / Vacuum	Connection O Gold Connect S Swagelok	So. Retained	Rental
11	Soil Gas Sampling Train		60ml	No	Yes	Yes	Yes / Yes	Q		Incl Above
1	Duplicate Soil Gas Sampler		60ml	Yes	Yes	Yes	Yes/Yes	Q		Incl Above
12	Female QT Connectors							a		5120 ea. Proforment
1	Male QT Connector							Q ·		\$120 ea. Registered
1	Pressure Gauge - QT					-	Yes/Yes	Q		\$250 ea. Replacement
	Sampling Kit Case - Soll Gas						Yes	NA		\$200 Replacement
	Tripod							NA NA		\$80 ea.
	%" Swagelok connectors and femules (spares)									\$5 ea. Replacement

Other (specify)

ALS use only

Sampling Guida Included (Y / N)

Packed by:

Consignment Note Number of Boxes:

Consignment Note Number Chicago 39 4-276

Consignment Note Number Chicago 39 4-276

ENFMCOR1.1 11-05-11

PROBLES SOLUTIONS

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ALS SUPPLIED EQUIPMENT

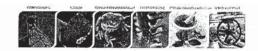
Item	Quantity	Item Description	Serial Nos
	13	1.4 L Silonite Mini-Can with QT Valve	723 1301 736 1302 840 1304 869 3017 1079 5050 1095 5053
? —	11	Soil Gas Sampling Train (Compact) with QT Connections – 60ml/min	004 / 078 011 / 104 044 / 106 044 / 106 054 /
	1	Soil Gas Duplicate Sampling Train with QT Connections - 60ml/min	100 /

ENFMCCR1.1 11-06-1)

RIGHT SQLUTIONS

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ltem	Quantity	Item Description	Serial Nos
0	1	Vacuum Gauge with female QT Connection (-30 44)	070
¥.	12	Female QT to ¾" tube connector	Rec. 723ho.
4 1 2 2	1	Male QT to ¾" tube connector	
		Tripod	

AIR SAMPLING ROUPMENT





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Actobrance and use of the accompanying ALS Alt Sampling Equipment constitutes at certain self-the following terms:

I but equipment veriains the property of ALS Laboratory Group.

Subject to the continuous below and pilless stated interview in the refer an "god accomply of all sides of this equipment is an effect by a self-the following the property of the property of a region of the property of

EQUIPMENT SUPPLY AND LOGISTICS

Additional air sampling equipment can be ordered through any ALS Environmental Laboratory and supplied direct to your site or office by courier. For the fastest turnaround, equipment should be returned direct to Newcastle Laboratory.

ALS Environmental, Newcastle 5/585 Maitland Road Mayfield West, NSW 2304

Note that Dangerous Goods Transport Regulations may apply after sampling if the air cylinders are pressurised or contain hazardous materials.

PIGHT SOLUTIONS

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PRISET SOLLANDES

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LABID	CANISTER SERIAL NO.	FLOW CONTROLLER SERIAL NO.	CLIENT SAMPLE ID	DATE / TIME SAMPLED	MATRIX (rg Air, Soil Gas)	Pre- Sampling	Post Sampling	LORs Ambient Sell Gas Other Indoor Indoor	Units	Dry	Spent	7015	Numer		allas	Comments on LORs required, pote hazards, likely contaminant levels, or a requiring specific QC analysis etc. (LOR for after datase)	amples
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Job Spe	cific Instructi	ions:															

Hayley Withers

Sent: From:

Ructtinger, Alex <Alex.Ructtinger@coffey.com> Friday, 6 October 2017 1:58 PM

Hayley Withers

RE: RESULTS & EDD & INVOICE for ALS Workorder : EN1704092 | Your Reference:

SYDEN199382

Please have the analysis done for samples SS1 to SS3 only,

Thanks,

Kind Regards,

Alex Ructtinger Senior Environmental Consultant

799 Pacific Highway, Chatswood, NSW 2067 Level 19, Tower B - Citadel Tower,

t: +61 2 9406 1052 f: +61 2 9406 1002 m: +61 427 235 873

coffey ?

in⊌f

>>> Ingenuity@coffey - it's the ideas that count

From: Ructtinger, Alex Sent: Friday, 6 October 2017 1:57 PM

To: 'Hayley Withers' <Hayley.Withers@alsglobal.com>

Subject: FW: RESULTS & EDD & INVOICE for ALS Workorder: EN1704092 | Your Reference: SYDEN199382

Hi Hayley,

TRHC34-C40). I thought perhaps these were already in the TO15? Could I also please have the hydrocarbon fractions in the analysis (F1, F2, TRH C6-C10, TRH C10-C16, TRH C16-C34,

If not could I please get the analysis?

Thanks,

Kind Regards,

Alex Ructtinger

Senior Environmental Consultant

Level 19, Tower B - Citadel Tower, 799 Pacific Highway, Chatswood, NSW 2067

t: +61 2 9406 1052



>>> Ingenuity@coffey - it's the ideas that count

Sent: Friday, 6 October 2017 12:57 PM From: angel-no-reply@alsglobal.com [mailto:angel-no-reply@alsglobal.com]

To: Ructtinger, Alex < Alex.Ructtinger@coffey.com >

Subject: RESULTS & EDD & INVOICE for ALS Workorder: EN1704092 | Your Reference: SYDEN199382



Deliverables for ALS Workorder EN1704092

Project: SYDEN199382

Dear ALEX RUCTTINGER,

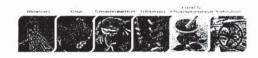
Please find enclosed the following deliverables for EN1704092:

- EN1704092_0_COA.pdf EN1704092_0_ENMRG.CSV
- SYDEN199382.ESDAT_EN1704092_0.Chemistry2e.CSV SYDEN199382.ESDAT_EN1704092_0.Header.XML
- SYDEN199382.ESDAT_EN1704092_0.Sample2e.CSV
- EN1704092_0_QCI.pdf L562407_INV.pdf
- EN1704092_0_QC-USEPA.pdf EN1704092_COC.pdf

Report Recipients

- INVOICES CHAT-GeneralAdmin
- L562407_INV.pdf (Email)
- ALEX RUCTTINGER o EN1704092_COC.pdf (Email)
- 0 EN1704092_0_COA.pdf (Email) EN1704092_0_ENMRG.CSV (Email)
- SYDEN199382.ESDAT_EN1704092_0.Chemistry2e.CSV (Email)
- SYDEN199382.ESDAT_EN1704092_0.Header.XML (Email)





Inquiries: Client Services - Newcastle Phone: +61 (02) 4014 2500 E-mail: samples.newcastle@alsenviro.com

Dispatch to:			
Client / Office:	Coffey	ALS Use ONL	Y
Contact:	Alex Ructtinger	Request Received By:	HW 20/9
Telephone:	0427 235 873	Deliver By:	Asap
ALS Quotation:		Dispatched By:	asap
Delivery Address:	Level 19, Tower B - Citadel Tower	Workorder:	
**************************************	799 Pacific Hwy Chatswood NSW 2067	Agreed Rent Free Period:	14 days

AIR SAMPLING EQUIPMENT DISPATCH RECORD

SPECIAL INSTRUCTIONS:..

Air Sampling Equipment Request

CA	VISTERS	W. F	STEW.	Mr. A		经过电影	189 75		
No	Canister Type	Size	Gauge	Valve	Cap)	Rental!	to incornel	Leak Checked	Certified OK
13	Minican ³⁹⁶	1.4L	No	QT	Yes	\$120 ea		5	26/9// >

CONNECTORS AND FLOW CONTROL DEVICES

No.	Equipment Type () in	Duration (Flow (allede)	Piece	Gauge	Certified	Sealed I	Connection O Guick Connect S Suggetor	En. Retemen	Rental
11	Soil Gas Sampling Train		60ml	No	Yes	Yes	Yes / Yes	Q		Incl Above
1	Duplicate Soil Gas Sampler		60ml	Yes	Yes	Yes	Yes / Yes	Q		Incl Above
12	Female QT Connectors							Q	La ana	\$120 ea. Recomment
1	Male QT Connector						-	Q		\$120 ea.
1	Pressure Gauge - QT						Yes / Yes	Q		\$250 en. Replacement
	Sampling Kit Case - Soll Gas			-		•.	Yes	NA		\$200 Replacement
	Tripod							NA		\$80 ea.
	%" Swagelok connectors and ferrules (spares)				-					\$5 ea. Replacement

Other (specify)

ALS use only						
Sampling Guide Included (Y / N)	Packed by:	*	Dispatch Time / Date	y	26	9
Number of Boxes:	2	Consignment Note Number:	E9100939	742	76	
Courier / Dispatcher:	TAIT	Consignment Dispatched by:	11	m	100	

BIGHT SOLUTIONS





AIRSAMPLING EQUIPMENT DISPATCH RECORD

ALS SUPPLIED EQUIPMENT

Item	Quantity	Item Description	Serial Nos
	13	1.4 L Silonite Mini-Can with QT Valve	723 (301 736 (302 840 (304 869 / 3017 (079 / 5050 (095 / 505) 1289 /
	11	Soil Gas Sampling Train (Compact) with QT Connections - 60ml/min	004 / 078 011 / 104 041 / 105 044 / 106 054 /
	1.	Soil Gas Duplicate Sampling Train with QT Connections - 60ml/min	100 /

BIGHT SOLUTIONS





Item	Quantity	Item Description	Serial Nos
	1	Vacuum Gauge with female QT Connection	020
9.5	12	Female QT to ¼" tube connector	Rac. 723/10
Å	1	Male QT to ¼" tube connector	
		Tripod	

AIR SAMBLING FOUR PLIENT





ZOROSAMPUNCIÓRI IRMENTO

Acceptance and use of the accompanying ALS rate Simpling Equipment constitutes acceptance of the following term.

This equipment remains the property of ALS babotator, Cropp.

Subject to the conditions below and others stated streams as in the reward and its of influe supply and use out in sequipment is included the piece of additys.

Will be troubbility an experted by ALS for equipment between the later as which sequipment is included the piece of additys.

Subject to the conditions below and other interfacing of the sequipment with a trains ampling disponents. Tructures is solely the clean interfacing of the sequipment with a trains ampling disponents. Tructures is solely the clean interfacing of the sequipment with a training the sequipment is continued and sloppleed based on other solely the department in the sequipment and training the sequipment and training of all training to the sequipment and training of all training training the support of a sequipment and training of all training training as a simpling equipment and electronic cone, as a wall to some sequipment of the sequipment and electronic cone, as a wall to some sequipment in a sequipment and sequipment are electronic cone, as a wall to some sequipment as a simpling equipment is a provided to deliver on the sequipment of the sequipment is returned with the administed films are sequipment with the administed films are sequipment with the administed films are sequipment as returned unused, the cleaning fees quoted will apply of weeks rental charge). If equipment is returned unused, the cleaning fees quoted will apply of weeks rental charge), if equipment is returned unused, the cleaning fees quoted will apply of weeks rental charge). If sampling equipment return is delayed please contact the laboratory prior to expiry of the rent free period after dispatch, the quoted rental fees above will apply of weeks rental charge). If these conditions are not acceptable please return all equipment to ALS Newcastle immediately.

QUIPMENT SUPPLY AND LOGISTICS

EQUIPMENT SUPPLY AND LOGISTICS

Additional air sampling equipment can be ordered through any ALS Environmental Laboratory and supplied direct to your site or office by courier. For the fastest turnaround, equipment should be returned direct to Newcastle Laboratory.

ALS Environmental, Newcastle 5/585 Maitland Road Mayfield West, NSW 2304

Note that Dangerous Goods Transport Regulations may apply after sampling if the air cylinders are pressurised or contain hazardous materials.

MIGHT SOLUTIONS.

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PRINTY MOLESTICHS

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Appendix E – BESST SimulProbe Fact Sheet

The In Situ Headspace Test

Achieve faster and far more accurate soil gas field data using Simulprobe soil and soil-gas technology

BESST's simultaneous soil and soil-gas probes (Mini Probe, Maxi Probe, Crust Buster) offer the ability to perform the In Situ Headspace Test while drilling wells or exploratory boreholes, enhancing data quality while saving time and money. The In Situ Headspace Test uses BESST's probe technology to take the soil-gas sample from soil that is still "in place" downhole, as contrasted with the conventional ex situ headspace test which must first transport the soil to the surface and then allow it to off gas. Because conventional headspace tests must take the time to transport the material, as well as allow the sample to be exposed to surface temperatures and other environmental factors, sample integrity for VOCs is severely degraded. The immediacy of the In Situ test reduces sample collection time and cost, while also dramatically improving field data quality, often by a scale of 1-2 orders of magnitude.

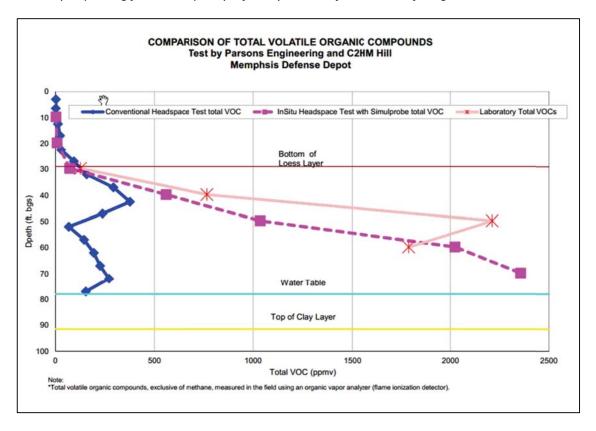


Figure 1 - Graph comparing the levels of VOC detected at SBLCA-SB-2. Note that the conventional test resistered a small fraction of the VOCs detected by laboratory and InSitu testing.







The Test:

- 1. Deploy BESST Simulprobe technology downhole to desired sample depth with an air-line running to the surface. Hammer the probe into the ground and retract the top, opening the intake.
- 2. A vacuum pump is used to purge the air-line until parameters are stabilized.
- 3. Connect a vacuum box is connected to the air-line and a sample is collected in a Tedlar bag marked "SAMPLE". This gas sample comes directly from the formation.
- 4. A field meter such as a PID or OVA meter is inserted through the bag's valve to take a concentration field reading.



Figure 2 - Connecting the vacuum pump to the air-line of the Simulprobe.



Figure 3 - A sample in a Tedlar bag is retrieved and ready to take a reading from using a PID meter (lower left).





