

APPENDIX C

Data Validation Summary Reports

Project Name:	Orica Botany	Project Number:	20359032
Primary Laboratory:	ALS Sydney	Work Order Number:	ES2031653
Secondary Laboratory:	Envirolab Sydney	Work Order Number:	250045
Date Sampled:	07/09/20 - 08/09/20	Sample Medium:	Water
Sample Information			
Number of Primary Samples:	26	Number of Triplicate Samples:	1
Number of Duplicate Samples:	2	Number of Other QAQC Samples:	1
Documentation and Sample Handling Information			
	Y/N	Comments	
COC completed properly?	Y	Signed by field staff and laboratory personnel.	
All requested analysis completed?	Y	All requested analyses on the COC performed by ALS & Envirolab.	
Samples received intact and chilled?	Y	ALS: 3.8°C, ice present. Samples dropped off. Envirolab: 1.2°C, ice present. Samples received in appropriate condition.	
Samples analysed within appropriate holding times?	Y	All samples were analysed within appropriate holding times (ALS & Envirolab).	
Sample volumes sufficient for QC analysis?	Y	Sufficient sample volume was provided for all laboratory tests (ALS & Envirolab).	
Are there non-NATA accredited methods used?	Y	ALS and Envirolab are NATA accredited for all methods used in this batch.	
Chromatograms supplied as appropriate?	N/A	N/A.	
Laboratory reports signed by authorised personnel?	Y	All reports signed.	
QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)			
Type	Sample ID	Comments	
MB	Method Blank	All results were below the LOR (ALS & Envirolab).	
TB	TB01_080920	All results were below the LOR (ALS).	
Trip Spike Information			
Analyte	Control Spike Concentrations	Trip Spike Concentration	% Recovery
Sample ID: TS not required as per the QAQC requirements of the GMP.			
Laboratory Control Spike (LCS) Analyses			
Analyte Group			Comments
All			All LCS recoveries are within the laboratory based DQOs (ALS & Envirolab).
Matrix Spike (MS) Analyses			
Analyte Group			Comments
All			All MS recoveries are within the laboratory based DQOs (ALS & Envirolab).
Laboratory Duplicates (LD) Analyses			
Analyte Group	Sample ID	Comments	
All	-	All LD RPDs are within the laboratory based DQOs (ALS & Envirolab).	
Field Duplicates (FD) Analyses			
Analyte Group	Primary ID	Duplicate ID	Comments
VOCs	BP58_18.00_070920	QC100_070920	FD RPDs for 1,1,2,2-tetrachloroethane (58%), 1,2-dichloroethane (48%), 1,1-dichloroethene (63%), carbon disulfide (40%) and dichloromethane (50%) are outside of DQOs. <i>Refer to overall comments.</i>
All	BP110_03.00_080920	QC101_080920	All FD RPDs are within DQOs.
Field Triplicates (FT) Analyses			
Analyte Group	Primary ID	Triplicate ID	Comments
Heavy Metals	BP110_03.00_080920	QC201-080920	All FT RPDs are within DQOs.
Surrogate Compound Monitoring Analyses			
Analyte Group	Analyte(s)	Comments	
All	-	All surrogate recoveries are within acceptable DQOs (ALS & Envirolab).	
Overall Comments			
FD RPDs for 1,1,2,2-tetrachloroethane (58%), 1,2-dichloroethane (48%), 1,1-dichloroethene (63%), carbon disulfide (40%) and dichloromethane (50%) are outside of field based DQOs. As a conservative measure the highest concentrations will be adopted for interpretative purposes.			
This batch has been validated and is considered suitable for environmental interpretive use.			
Note: Data validation assesses each analyte in terms of all the data validation variables and only the exceedances and outliers are reported in this form.			
*When concentrations are less than the LOR for both primary and duplicate/triplicate results, no RPDs are calculated			
Performed By:	Kate Robinson	Checked By:	Tegen Anning
Date:	14/10/2020	Date:	25/11/2020

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2031653 / 250045

Sample ID	BP58_18.00_070920	QC100_070920
Sample Type	Primary	Field Duplicate
Date Sampled	7/09/2020	7/09/2020

Analyte Group	Unit	LOR			RPDs
					Primary vs Duplicate
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	1	<20	<10	ND
1,1,2,2-Tetrachloroethane	µg/L	1	<20	11	58%
1,1,1-Trichloroethane	µg/L	1	<20	<10	ND
1,1,2-Trichloroethane	µg/L	1	221	206	7%
1,2,3-Trichloropropane	µg/L	1	<20	<10	ND
1,2-Dibromo-3-chloropropane	µg/L	1	<20	<10	ND
1,2-Dibromoethane	µg/L	1	<20	<10	ND
1,1-Dichloroethane	µg/L	1	200	180	11%
1,2-Dichloroethane	µg/L	1	16,200	9,980	48%
1,1-Dichloroethene	µg/L	1	73	38	63%
cis-1,2-Dichloroethene	µg/L	1	245	220	11%
trans-1,2-dichloroethene	µg/L	1	36	28	25%
1,3-Dichloropropane	µg/L	1	<20	<10	ND
1,1-Dichloropropene	µg/L	1	<20	<10	ND
cis-1,4-Dichloro-2-butene	µg/L	1	<20	<10	ND
trans-1,4-Dichloro-2-butene	µg/L	1	<20	<10	ND
Bromodichloromethane	µg/L	1	<20	<10	ND
Bromoform	µg/L	1	<20	<10	ND
Bromomethane	µg/L	10	<200	<100	ND
Carbon disulfide	µg/L	1	36	24	40%
Carbon tetrachloride	µg/L	1	<20	<10	ND
Chlorodibromomethane	µg/L	1	<20	<10	ND
Chloroethane	µg/L	10	<200	<100	ND
Chloroform	µg/L	1	183	192	5%
Chloromethane	µg/L	10	<200	<100	ND
Dibromomethane	µg/L	1	<20	<10	ND
Dichlorodifluoromethane	µg/L	10	<200	<100	ND
Dichloromethane	µg/L	5	230	138	50%
Hexachlorobutadiene	µg/L	1	<20	<10	ND
Iodomethane	µg/L	1	<20	<10	ND
Pentachloroethane	µg/L	1	<20	<10	ND
Trichloroethene	µg/L	1	63	56	12%
Tetrachloroethene	µg/L	1	<20	<10	ND
Trichlorofluoromethane	µg/L	10	<200	<100	ND
Vinyl chloride	µg/L	1	692	537	25%

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)
 - = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:

Analysis result < 10 times LOR: any RPD
 Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%
 Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2031653 / 250045

Sample ID	BP110_03.00_080920	QC101_080920	QC201-080920
Sample Type	Primary	Field Duplicate	Field Triplicate
Date Sampled	8/09/2020	8/09/2020	8/09/2020

Analyte Group	Unit	LOR						RPDs	
			Primary	Duplicate	Triplicate	Primary vs Duplicate	Primary vs Triplicate		
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1,2,2-Tetrachloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1,1-Trichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1,2-Trichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,2,3-Trichloropropane	µg/L	1	<1	<1	<1	-	ND	-	
1,2-Dibromo-3-chloropropane	µg/L	1	<1	<1	<1	-	ND	-	
1,2-Dibromoethane	µg/L	1	<1	<1	<1	-	ND	-	
1,1-Dichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,2-Dichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1-Dichloroethene	µg/L	1	<1	<1	<1	-	ND	-	
cis-1,2-Dichloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
trans-1,2-dichloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
1,3-Dichloropropane	µg/L	1	<1	<1	<1	-	ND	-	
1,1-Dichloropropene	µg/L	1	<1	<1	<1	-	ND	-	
cis-1,4-Dichloro-2-butene	µg/L	1	<1	<1	<1	-	ND	-	
trans-1,4-Dichloro-2-butene	µg/L	1	<1	<1	<1	-	ND	-	
Bromodichloromethane	µg/L	1	<1	<1	<1	-	ND	-	
Bromoform	µg/L	1	<1	<1	<1	-	ND	-	
Bromomethane	µg/L	10	<10	<10	<10	-	ND	-	
Carbon disulfide	µg/L	1	<1	<1	<1	-	ND	-	
Carbon tetrachloride	µg/L	1	<1	<1	<1	<1	ND	ND	
Chlorodibromomethane	µg/L	1	<1	<1	<1	-	ND	-	
Chloroethane	µg/L	10	<10	<10	<10	<10	ND	ND	
Chloroform	µg/L	1	<1	<1	<1	<1	ND	ND	
Chloromethane	µg/L	10	<10	<10	<10	<10	ND	ND	
Dibromomethane	µg/L	1	<1	<1	<1	-	ND	-	
Dichlorodifluoromethane	µg/L	10	<10	<10	<10	-	ND	-	
Dichloromethane	µg/L	5	<5	<5	<5	<10	ND	ND	
Hexachlorobutadiene	µg/L	1	<1	<1	<1	-	ND	-	
Iodomethane	µg/L	1	<1	<1	<1	-	ND	-	
Pentachloroethane	µg/L	1	<1	<1	<1	-	ND	-	
Trichloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
Tetrachloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
Trichlorofluoromethane	µg/L	10	<10	<10	<10	-	ND	-	
Vinyl chloride	µg/L	1	<1	<10	<10	<10	ND	ND	

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)
 - = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:
 Analysis result < 10 times LOR: any RPD
 Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%
 Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project Name:	Orica Botany	Project Number:	20359032
Primary Laboratory:	ALS Sydney	Work Order Number:	ES2032230 & ES2032259
Secondary Laboratory:	EnviroLab Sydney	Work Order Number:	251155
Date Sampled:	10 & 11-09-2020	Sample Medium:	Water

Sample Information

Number of Primary Samples:	90	Number of Triplicate Samples:	4
Number of Duplicate Samples:	8	Number of Other QAQC Samples:	1

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	Signed by field staff and laboratory personnel.
All requested analysis completed?	Y	All requested analyses on the COC performed by (ALS & EnviroLab).
Samples received intact and chilled?	Y	ALS: 1.2°C, ice present. Security seal intact. EnviroLab: 13.3°C, ice present. <i>Refer to overall comments.</i>
Samples analysed within appropriate holding times?	Y	All samples were analysed within appropriate holding times (ALS & EnviroLab).
Sample volumes sufficient for QC analysis?	Y	Sufficient sample volume was provided for all laboratory tests (ALS & EnviroLab).
Are there non-NATA accredited methods used?	N	ALS & EnviroLab: is NATA accredited for all methods used in this batch.
Chromatograms supplied as appropriate?	N/A	N/A.
Laboratory reports signed by authorised personnel?	Y	All reports signed.

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
MB	Method Blank	All results were below the LOR (ALS & EnviroLab).
TB	TB02_110920	All results were below the LOR (ALS).

Trip Spike Information

Analyte	Control Spike Concentrations	Trip Spike Concentration	% Recovery	Comments
Sample ID: TS not required as per the QAQC requirements of the GMP.				

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
All	All LCS recoveries are within the laboratory based DQOs (ALS & EnviroLab).

Matrix Spike (MS) Analyses

Analyte Group	Comments
All	All MS recoveries are within the laboratory based DQOs (ALS & EnviroLab).

Laboratory Duplicates (LD) Analyses

Analyte Group	Sample ID	Comments
All	-	All LD RPDs are within the laboratory based DQOs (ALS & EnviroLab).

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
vCHCs	EWD28S_090920	QC102_090920	All FD RPDs are within DQOs.
	EWB09_100920	QC103_100920	All FD RPDs are within DQOs.
	EWB07_100920	QC104_100920	All FD RPDs are within DQOs.
	SW005_100920	QC105_100920	All FD RPDs are within DQOs.
	EWB15_100920	QC106_100920	All FD RPDs are within DQOs.
	MWB06I_100920	QC107_100920	The FD RPD for 1,1,2,2-tetrachloroethane (33%) is outside of DQOs. <i>Refer to overall comments.</i>
	MWD9S_110920	QC108_110920	The FD RPDs for cis-1,2-dichloroethene (59%) and vinyl chloride (119%) are outside of DQOs. <i>Refer to overall comments.</i>
	MWD02S_110920	QC109_110920	All FD RPDs are within DQOs.

Field Triplicates (FT) Analyses

Analyte Group	Primary ID	Triplicate ID	Comments
vCHCs	EWB09_100920	QC203_100920	The FT RPDs for trans-1,2-dichloroethene (169%) and vinyl chloride (48%) are outside of DQOs. <i>Refer to overall comments.</i>
	SW005_100920	QC205_100920	All FT RPDs are within DQOs.
	MWB06I_100920	QC207_100920	The FT RPD for vinyl chloride (35%) is outside of DQOs. <i>Refer to overall comments.</i>
	MWD02S_110920	QC209_110920	All FT RPDs are within DQOs.

Surrogate Compound Monitoring Analyses

Analyte Group	Analyte(s)	Comments
All	-	All surrogate recoveries are within acceptable DQOs (ALS & EnviroLab).

Overall Comments

The FD RPD for 1,1,2,2-tetrachloroethane (33%) is outside of field based DQOs for sample MWB06I_100920. The FD RPDs for cis-1,2-dichloroethene (59%) and vinyl chloride (119%) for sample MWD9S_110920 are outside of DQOs. As a conservative measure, the highest concentration will be adopted for interpretative purposes.

The FT RPDs for trans-1,2-dichloroethene (169%) and vinyl chloride (48%) for sample EWB09_100920 are outside of field based DQOs. The primary and duplicate results are consistent with long term historical results for trans-1,2-dichloroethene and vinyl chloride at this location. The triplicate concentrations are potentially an anomaly and as such, reported concentrations will be closely scrutinised during future sampling events.

The FT RPD for vinyl chloride (35%) for sample MWB06I_100920 is outside of field based DQOs. As a conservative measure, the highest concentration will be adopted for interpretative purposes.

EnviroLab: The sample receipt temperature reported for EnviroLab was 13.3°C. The soil samples were collected and placed directly on ice prior to delivery to the primary laboratory ALS. The triplicate sample was then sent to EnviroLab (secondary laboratory) in a cool condition. The elevated temperature is not expected to affect the overall validity of the data as samples were placed directly on ice immediately following collection and there is generally good correlation between field duplicate and triplicate RPDs.

Note: Additional analysis was conducted and included in this batch, but is not considered as part of this data validation. Only the annual monitoring locations as per the GSMP are considered for this investigation.

This batch has been validated and is considered suitable for environmental interpretive use.

Note: Data validation assesses each analyte in terms of all the data validation variables and only the exceedances and outliers are reported in this form.

*When concentrations are less than the LOR for both primary and duplicate/triplicate results, no RPDs are calculated

Performed By: Kate Robinson **Checked By:** Tegen Anning
Date: 14/10/2020 **Date:** 26/11/2020

Project : Orica Botany

Project Number: 20359032

Duplicate Analysis RPDs

Batch/es: ES2032230 & ES2032259 / 251155

Sample ID	EWD28S_090920	QC102_090920
Sample Type	Primary	Field Duplicate
Date Sampled	9/09/2020	10/09/2020

Analyte Group	Unit	LOR			RPDs
					Primary vs Duplicate
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	1	<1	<1	ND
1,1,2,2-Tetrachloroethane	µg/L	1	<1	<1	ND
1,1,1-Trichloroethane	µg/L	1	<1	<1	ND
1,1,2-Trichloroethane	µg/L	1	<1	<1	ND
1,2,3-Trichloropropane	µg/L	1	<1	<1	ND
1,2-Dibromo-3-chloropropane	µg/L	1	<1	<1	ND
1,2-Dibromoethane	µg/L	1	<1	<1	ND
1,1-Dichloroethane	µg/L	1	<1	<1	ND
1,2-Dichloroethane	µg/L	1	3	4	29%
1,1-Dichloroethene	µg/L	1	<1	<1	ND
cis-1,2-Dichloroethene	µg/L	1	9	10	11%
trans-1,2-dichloroethene	µg/L	1	<1	<1	ND
1,3-Dichloropropane	µg/L	1	<1	<1	ND
1,1-Dichloropropene	µg/L	1	<1	<1	ND
cis-1,4-Dichloro-2-butene	µg/L	1	<1	<1	ND
trans-1,4-Dichloro-2-butene	µg/L	1	<1	<1	ND
Bromodichloromethane	µg/L	1	<1	<1	ND
Bromoform	µg/L	1	<1	<1	ND
Bromomethane	µg/L	10	<10	<10	ND
Carbon disulfide	µg/L	1	<1	<1	ND
Carbon tetrachloride	µg/L	1	<1	<1	ND
Chlorodibromomethane	µg/L	1	<1	<1	ND
Chloroethane	µg/L	10	<10	<10	ND
Chloroform	µg/L	1	<1	<1	ND
Chloromethane	µg/L	10	<10	<10	ND
Dibromomethane	µg/L	1	<1	<1	ND
Dichlorodifluoromethane	µg/L	10	<10	<10	ND
Dichloromethane	µg/L	5	<5	<5	ND
Hexachlorobutadiene	µg/L	1	<1	<1	ND
Iodomethane	µg/L	1	<1	<1	ND
Pentachloroethane	µg/L	1	<1	<1	ND
Trichloroethene	µg/L	1	2	2	0%
Tetrachloroethene	µg/L	1	<1	<1	ND
Trichlorofluoromethane	µg/L	10	<10	<10	ND
Vinyl chloride	µg/L	1	<10	<10	ND

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:

Analysis result < 10 times LOR: any RPD

Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%

Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2032230 & ES2032259 / 251155

Sample ID	EWB09_100920	QC103_100920	QC203_100920
Sample Type	Primary	Field Duplicate	Field Triplicate
Date Sampled	10/09/2020	10/09/2020	10/09/2020

Analyte Group	Unit	LOR	RPDs				
			Primary vs Duplicate	Primary vs Triplicate			
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	1	<5	<5	<1	ND	ND
1,1,2,2-Tetrachloroethane	µg/L	1	<5	<5	3	ND	50%
1,1,1-Trichloroethane	µg/L	1	<5	<5	1	ND	133%
1,1,2-Trichloroethane	µg/L	1	8	8	10	0%	22%
1,2,3-Trichloropropane	µg/L	1	<5	<5	-	ND	-
1,2-Dibromo-3-chloropropane	µg/L	1	<5	<5	-	ND	-
1,2-Dibromoethane	µg/L	1	<5	<5	-	ND	-
1,1-Dichloroethane	µg/L	1	41	36	43	13%	5%
1,2-Dichloroethane	µg/L	1	50	46	59	8%	17%
1,1-Dichloroethene	µg/L	1	40	33	-	19%	-
cis-1,2-Dichloroethene	µg/L	1	3120	3,220	3,800	3%	20%
trans-1,2-dichloroethene	µg/L	1	533	542	6,400	2%	169%
1,3-Dichloropropane	µg/L	1	<5	<5	-	ND	-
1,1-Dichloropropene	µg/L	1	<5	<5	-	ND	-
cis-1,4-Dichloro-2-butene	µg/L	1	<5	<5	-	ND	-
trans-1,4-Dichloro-2-butene	µg/L	1	<5	<5	-	ND	-
Bromodichloromethane	µg/L	1	<5	<5	-	ND	-
Bromoform	µg/L	1	<5	<5	-	ND	-
Bromomethane	µg/L	10	<50	<50	-	ND	-
Carbon disulfide	µg/L	1	<5	5	-	0%	-
Carbon tetrachloride	µg/L	1	<5	<5	<1	ND	ND
Chlorodibromomethane	µg/L	1	<5	<5	-	ND	-
Chloroethane	µg/L	10	<50	<50	<10	ND	ND
Chloroform	µg/L	1	14	13	15	7%	7%
Chloromethane	µg/L	10	<50	<50	<10	ND	ND
Dibromomethane	µg/L	1	<5	<5	-	ND	-
Dichlorodifluoromethane	µg/L	10	<50	<50	-	ND	-
Dichloromethane	µg/L	5	<5	<5	<10	ND	ND
Hexachlorobutadiene	µg/L	1	11.7	9.3	-	23%	-
Iodomethane	µg/L	1	<5	<5	-	ND	-
Pentachloroethane	µg/L	1	<5	<5	-	ND	-
Trichloroethene	µg/L	1	21	20	27	5%	25%
Tetrachloroethene	µg/L	1	5	7	9	33%	57%
Trichlorofluoromethane	µg/L	10	<50	<50	-	ND	-
Vinyl chloride	µg/L	1	1660	1,350	2,700	21%	48%

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)
 - = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: Analysis result < 10 times LOR: any RPD
 Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%
 Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany

Project Number: 20359032

Duplicate Analysis RPDs

Batch/es: ES2032230 & ES2032259 / 251155

Sample ID	EWB07_100920	QC104_100920
Sample Type	Primary	Field Duplicate
Date Sampled	10/09/2020	10/09/2020

Analyte Group	Unit	LOR	RPDs		
			Primary	Duplicate	Primary vs Duplicate
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	1	<5	<5	ND
1,1,2,2-Tetrachloroethane	µg/L	1	327	285	14%
1,1,1-Trichloroethane	µg/L	1	7	7	0%
1,1,2-Trichloroethane	µg/L	1	15	15	0%
1,2,3-Trichloropropane	µg/L	1	<5	<5	ND
1,2-Dibromo-3-chloropropane	µg/L	1	<5	<5	ND
1,2-Dibromoethane	µg/L	1	<5	<5	ND
1,1-Dichloroethane	µg/L	1	62	62	0%
1,2-Dichloroethane	µg/L	1	78	76	3%
1,1-Dichloroethene	µg/L	1	55	50	10%
cis-1,2-Dichloroethene	µg/L	1	4300	3,430	23%
trans-1,2-dichloroethene	µg/L	1	864	851	2%
1,3-Dichloropropane	µg/L	1	<5	<5	ND
1,1-Dichloropropene	µg/L	1	<5	<5	ND
cis-1,4-Dichloro-2-butene	µg/L	1	<5	<5	ND
trans-1,4-Dichloro-2-butene	µg/L	1	<5	<5	ND
Bromodichloromethane	µg/L	1	<5	<5	ND
Bromoform	µg/L	1	<5	<5	ND
Bromomethane	µg/L	10	<50	<50	ND
Carbon disulfide	µg/L	1	<5	6	18%
Carbon tetrachloride	µg/L	1	<5	<5	ND
Chlorodibromomethane	µg/L	1	<5	<5	ND
Chloroethane	µg/L	10	<50	<50	ND
Chloroform	µg/L	1	36	34	6%
Chloromethane	µg/L	10	<50	<50	ND
Dibromomethane	µg/L	1	<5	<5	ND
Dichlorodifluoromethane	µg/L	10	<50	<50	ND
Dichloromethane	µg/L	5	<5	<5	ND
Hexachlorobutadiene	µg/L	1	<5	5.4	8%
Iodomethane	µg/L	1	<5	<5	ND
Pentachloroethane	µg/L	1	<5	<5	ND
Trichloroethene	µg/L	1	233	215	8%
Tetrachloroethene	µg/L	1	27	25	8%
Trichlorofluoromethane	µg/L	10	<50	<50	ND
Vinyl chloride	µg/L	1	1820	1,820	0%

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:

Analysis result < 10 times LOR: any RPD

Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%

Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2032230 & ES2032259 / 251155

Sample ID	SW005_100920	QC105_100920	QC205_100920
Sample Type	Primary	Field Duplicate	Field Triplicate
Date Sampled	10/09/2020	10/09/2020	10/09/2020

Analyte Group	Unit	LOR						RPDs	
			Primary	Duplicate	Triplicate	Primary vs Duplicate	Primary vs Triplicate		
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	µg/L	1	<1	<1	<1		ND	ND	
1,1,2,2-Tetrachloroethane	µg/L	1	<1	<1	<1		ND	ND	
1,1,1-Trichloroethane	µg/L	1	<1	<1	<1		ND	ND	
1,1,2-Trichloroethane	µg/L	1	<1	<1	<1		ND	ND	
1,2,3-Trichloropropane	µg/L	1	<1	<1	-		ND	-	
1,2-Dibromo-3-chloropropane	µg/L	1	<1	<1	-		ND	-	
1,2-Dibromoethane	µg/L	1	<1	<1	-		ND	-	
1,1-Dichloroethane	µg/L	1	<1	<1	<1		ND	ND	
1,2-Dichloroethane	µg/L	1	<1	<1	<1		ND	ND	
1,1-Dichloroethene	µg/L	1	<1	<1	-		ND	-	
cis-1,2-Dichloroethene	µg/L	1	1	2	2		67%	67%	
trans-1,2-dichloroethene	µg/L	1	<1	<1	<1		ND	ND	
1,3-Dichloropropane	µg/L	1	<1	<1	-		ND	-	
1,1-Dichloropropene	µg/L	1	<1	<1	-		ND	-	
cis-1,4-Dichloro-2-butene	µg/L	1	<1	<1	-		ND	-	
trans-1,4-Dichloro-2-butene	µg/L	1	<1	<1	-		ND	-	
Bromodichloromethane	µg/L	1	<1	<1	-		ND	-	
Bromoform	µg/L	1	<1	<1	-		ND	-	
Bromomethane	µg/L	10	<10	<10	-		ND	-	
Carbon disulfide	µg/L	1	<1	<1	-		ND	-	
Carbon tetrachloride	µg/L	1	<1	<1	<1		ND	ND	
Chlorodibromomethane	µg/L	1	<1	<1	-		ND	-	
Chloroethane	µg/L	10	<10	<10	<10		ND	ND	
Chloroform	µg/L	1	2	2	2		0%	0%	
Chloromethane	µg/L	10	<10	<10	<10		ND	ND	
Dibromomethane	µg/L	1	<1	<1	-		ND	-	
Dichlorodifluoromethane	µg/L	10	<10	<10	-		ND	-	
Dichloromethane	µg/L	5	<5	<5	<10		ND	ND	
Hexachlorobutadiene	µg/L	1	<1	<1	-		ND	-	
Iodomethane	µg/L	1	<1	<1	-		ND	-	
Pentachloroethane	µg/L	1	<1	<1	-		ND	-	
Trichloroethene	µg/L	1	<1	<1	<1		ND	ND	
Tetrachloroethene	µg/L	1	<1	<1	<1		ND	ND	
Trichlorofluoromethane	µg/L	10	<10	<10	-		ND	-	
Vinyl chloride	µg/L	1	<1	<10	<10		ND	ND	

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)
 - = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:
 Analysis result < 10 times LOR: any RPD
 Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%
 Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany

Project Number: 20359032

Duplicate Analysis RPDs

Batch/es: ES2032230 & ES2032259 / 251155

Sample ID	EWB15_100920	QC106_100920
Sample Type	Primary	Field Duplicate
Date Sampled	10/09/2020	10/09/2020

Analyte Group	Unit	LOR	RPDs		
			Primary	Duplicate	Primary vs Duplicate
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	1	<20	<20	ND
1,1,2,2-Tetrachloroethane	µg/L	1	355	296	18%
1,1,1-Trichloroethane	µg/L	1	<20	<20	ND
1,1,2-Trichloroethane	µg/L	1	493	446	10%
1,2,3-Trichloropropane	µg/L	1	<20	<20	ND
1,2-Dibromo-3-chloropropane	µg/L	1	<20	<20	ND
1,2-Dibromoethane	µg/L	1	<20	<20	ND
1,1-Dichloroethane	µg/L	1	134	148	10%
1,2-Dichloroethane	µg/L	1	29,600	26,400	11%
1,1-Dichloroethene	µg/L	1	275	288	5%
cis-1,2-Dichloroethene	µg/L	1	4010	4,090	2%
trans-1,2-dichloroethene	µg/L	1	759	803	6%
1,3-Dichloropropane	µg/L	1	<20	<20	ND
1,1-Dichloropropene	µg/L	1	<20	<20	ND
cis-1,4-Dichloro-2-butene	µg/L	1	<20	<20	ND
trans-1,4-Dichloro-2-butene	µg/L	1	<20	<20	ND
Bromodichloromethane	µg/L	1	<20	<20	ND
Bromoform	µg/L	1	<20	<20	ND
Bromomethane	µg/L	10	<200	<200	ND
Carbon disulfide	µg/L	1	44	43	2%
Carbon tetrachloride	µg/L	1	<20	<20	ND
Chlorodibromomethane	µg/L	1	<20	<20	ND
Chloroethane	µg/L	10	<200	<200	ND
Chloroform	µg/L	1	137	139	1%
Chloromethane	µg/L	10	<200	<200	ND
Dibromomethane	µg/L	1	<20	<20	ND
Dichlorodifluoromethane	µg/L	10	<200	<200	ND
Dichloromethane	µg/L	5	69	76	10%
Hexachlorobutadiene	µg/L	1	<20	<20	ND
Iodomethane	µg/L	1	<20	<20	ND
Pentachloroethane	µg/L	1	<20	<20	ND
Trichloroethene	µg/L	1	2640	2,630	0%
Tetrachloroethene	µg/L	1	287	296	3%
Trichlorofluoromethane	µg/L	10	<200	<200	ND
Vinyl chloride	µg/L	1	1270	1,660	27%

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:

Analysis result < 10 times LOR: any RPD

Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%

Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2032230 & ES2032259 / 251155

Sample ID	MWB061_100920	QC107_100920	QC207_100920
Sample Type	Primary	Field Duplicate	Field Triplicate
Date Sampled	10/09/2020	10/09/2020	10/09/2020

Analyte Group	Unit	LOR						RPDs	
			Primary	Duplicate	Triplicate	Primary vs Duplicate	Primary vs Triplicate		
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	µg/L	1	<5	<5	<1	ND	ND		
1,1,2,2-Tetrachloroethane	µg/L	1	21	15	24	33%	13%		
1,1,1-Trichloroethane	µg/L	1	<5	<5	<1	ND	ND		
1,1,2-Trichloroethane	µg/L	1	24	19	25	23%	4%		
1,2,3-Trichloropropane	µg/L	1	<5	<5	-	ND	-		
1,2-Dibromo-3-chloropropane	µg/L	1	<5	<5	-	ND	-		
1,2-Dibromoethane	µg/L	1	<5	<5	-	ND	-		
1,1-Dichloroethane	µg/L	1	16	15	18	6%	12%		
1,2-Dichloroethane	µg/L	1	107	94	120	13%	11%		
1,1-Dichloroethene	µg/L	1	14	10	-	33%	-		
cis-1,2-Dichloroethene	µg/L	1	1850	1,710	2,100	8%	13%		
trans-1,2-dichloroethene	µg/L	1	18	23	17	24%	6%		
1,3-Dichloropropane	µg/L	1	<5	<5	-	ND	-		
1,1-Dichloropropene	µg/L	1	<5	<5	-	ND	-		
cis-1,4-Dichloro-2-butene	µg/L	1	<5	<5	-	ND	-		
trans-1,4-Dichloro-2-butene	µg/L	1	<5	<5	-	ND	-		
Bromodichloromethane	µg/L	1	<5	<5	-	ND	-		
Bromoform	µg/L	1	<5	<5	-	ND	-		
Bromomethane	µg/L	10	<50	<50	-	ND	-		
Carbon disulfide	µg/L	1	7	<5	-	33%	-		
Carbon tetrachloride	µg/L	1	<5	<5	<1	ND	ND		
Chlorodibromomethane	µg/L	1	<5	<5	-	ND	-		
Chloroethane	µg/L	10	<50	<50	<10	ND	ND		
Chloroform	µg/L	1	85	78	86	9%	1%		
Chloromethane	µg/L	10	<50	<50	<10	ND	ND		
Dibromomethane	µg/L	1	<5	<5	-	ND	-		
Dichlorodifluoromethane	µg/L	10	<50	<50	-	ND	-		
Dichloromethane	µg/L	5	<5	<5	<10	ND	ND		
Hexachlorobutadiene	µg/L	1	8.4	12.2	-	37%	-		
Iodomethane	µg/L	1	<5	<5	-	ND	-		
Pentachloroethane	µg/L	1	<5	<5	-	ND	-		
Trichloroethene	µg/L	1	17	15	18	13%	6%		
Tetrachloroethene	µg/L	1	16	12	17	29%	6%		
Trichlorofluoromethane	µg/L	10	<50	<50	-	ND	-		
Vinyl chloride	µg/L	1	261	244	370	7%	35%		

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)
 - = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:
 Analysis result < 10 times LOR: any RPD
 Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%
 Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany

Project Number: 20359032

Duplicate Analysis RPDs

Batch/es: ES2032230 & ES2032259 / 251155

Sample ID	MWD9S_110920	QC108_110920
Sample Type	Primary	Field Duplicate
Date Sampled	11/09/2020	11/09/2020

Analyte Group	Unit	LOR			RPDs
					Primary vs Duplicate
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	1	<1	<1	ND
1,1,2,2-Tetrachloroethane	µg/L	1	<1	<1	ND
1,1,1-Trichloroethane	µg/L	1	<1	<1	ND
1,1,2-Trichloroethane	µg/L	1	<1	2	67%
1,2,3-Trichloropropane	µg/L	1	<1	<1	ND
1,2-Dibromo-3-chloropropane	µg/L	1	<1	<1	ND
1,2-Dibromoethane	µg/L	1	<1	<1	ND
1,1-Dichloroethane	µg/L	1	6	<1	143%
1,2-Dichloroethane	µg/L	1	<1	<1	ND
1,1-Dichloroethene	µg/L	1	<1	<1	ND
cis-1,2-Dichloroethene	µg/L	1	11	6	59%
trans-1,2-dichloroethene	µg/L	1	<1	3	100%
1,3-Dichloropropane	µg/L	1	<1	<1	ND
1,1-Dichloropropene	µg/L	1	<1	<1	ND
cis-1,4-Dichloro-2-butene	µg/L	1	<1	<1	ND
trans-1,4-Dichloro-2-butene	µg/L	1	<1	<1	ND
Bromodichloromethane	µg/L	1	<1	<1	ND
Bromoform	µg/L	1	<1	<1	ND
Bromomethane	µg/L	10	<10	<10	ND
Carbon disulfide	µg/L	1	<1	<1	ND
Carbon tetrachloride	µg/L	1	<1	<1	ND
Chlorodibromomethane	µg/L	1	<1	<1	ND
Chloroethane	µg/L	10	<10	<10	ND
Chloroform	µg/L	1	<1	<1	ND
Chloromethane	µg/L	10	<10	<10	ND
Dibromomethane	µg/L	1	<1	<1	ND
Dichlorodifluoromethane	µg/L	10	<10	<10	ND
Dichloromethane	µg/L	5	<5	<5	ND
Hexachlorobutadiene	µg/L	1	<1	5.9	142%
Iodomethane	µg/L	1	<1	<1	ND
Pentachloroethane	µg/L	1	<1	<1	ND
Trichloroethene	µg/L	1	<1	4	120%
Tetrachloroethene	µg/L	1	1	6	143%
Trichlorofluoromethane	µg/L	10	<10	<10	ND
Vinyl chloride	µg/L	1	39.3	<10	119%

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:

Analysis result < 10 times LOR: any RPD

Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%

Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2032230 & ES2032259 / 251155

Sample ID	MWD025_110920	QC109_110920	QC209_110920
Sample Type	Primary	Field Duplicate	Field Triplicate
Date Sampled	11/09/2020	11/09/2020	11/09/2020

Analyte Group	Unit	LOR						RPDs	
			Primary	Duplicate	Triplicate	Primary vs Duplicate	Primary vs Triplicate		
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	µg/L	1	<1	<1	<1		ND	ND	
1,1,2,2-Tetrachloroethane	µg/L	1	<1	<1	<1		ND	ND	
1,1,1-Trichloroethane	µg/L	1	<1	<1	<1		ND	ND	
1,1,2-Trichloroethane	µg/L	1	<1	<1	<1		ND	ND	
1,2,3-Trichloropropane	µg/L	1	<1	<1	-		ND	-	
1,2-Dibromo-3-chloropropane	µg/L	1	<1	<1	-		ND	-	
1,2-Dibromoethane	µg/L	1	<1	<1	-		ND	-	
1,1-Dichloroethane	µg/L	1	2	1	2		67%	0%	
1,2-Dichloroethane	µg/L	1	1	<1	1		0%	0%	
1,1-Dichloroethene	µg/L	1	<1	<1	-		ND	-	
cis-1,2-Dichloroethene	µg/L	1	<1	<1	<1		ND	ND	
trans-1,2-dichloroethene	µg/L	1	<1	<1	<1		ND	ND	
1,3-Dichloropropane	µg/L	1	<1	<1	-		ND	-	
1,1-Dichloropropene	µg/L	1	<1	<1	-		ND	-	
cis-1,4-Dichloro-2-butene	µg/L	1	<1	<1	-		ND	-	
trans-1,4-Dichloro-2-butene	µg/L	1	<1	<1	-		ND	-	
Bromodichloromethane	µg/L	1	<1	<1	-		ND	-	
Bromoform	µg/L	1	<1	<1	-		ND	-	
Bromomethane	µg/L	10	<10	<10	-		ND	-	
Carbon disulfide	µg/L	1	<1	<1	-		ND	-	
Carbon tetrachloride	µg/L	1	<1	<1	<1		ND	ND	
Chlorodibromomethane	µg/L	1	<1	<1	-		ND	-	
Chloroethane	µg/L	10	<10	<10	<10		ND	ND	
Chloroform	µg/L	1	<1	<1	<1		ND	ND	
Chloromethane	µg/L	10	<10	<10	<10		ND	ND	
Dibromomethane	µg/L	1	<1	<1	-		ND	-	
Dichlorodifluoromethane	µg/L	10	<10	<10	-		ND	-	
Dichloromethane	µg/L	5	<5	<5	<10		ND	ND	
Hexachlorobutadiene	µg/L	1	<1	<1	-		ND	-	
Iodomethane	µg/L	1	<1	<1	-		ND	-	
Pentachloroethane	µg/L	1	<1	<1	-		ND	-	
Trichloroethene	µg/L	1	<1	<1	<1		ND	ND	
Tetrachloroethene	µg/L	1	<1	<1	<1		ND	ND	
Trichlorofluoromethane	µg/L	10	<10	<10	-		ND	-	
Vinyl chloride	µg/L	1	<10	<10	<10		ND	ND	

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:

Analysis result < 10 times LOR: any RPD

Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%

Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project Name:	Orica Botany	Project Number:	20359032
Primary Laboratory:	ALS Sydney	Work Order Number:	ES2032653
Secondary Laboratory:	EnviroLab Sydney	Work Order Number:	251509
Date Sampled:	14/09/20 - 15/09/20	Sample Medium:	Water

Sample Information

Number of Primary Samples:	72	Number of Triplicate Samples:	3
Number of Duplicate Samples:	7	Number of Other QAQC Samples:	0

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	Signed by field staff and laboratory personnel.
All requested analysis completed?	Y	All requested analyses on the COC performed by ALS & EnviroLab.
Samples received intact and chilled?	N	ALS: 4.1°C, ice present. Samples dropped off. EnviroLab: 9.1°C, ice present. Samples received in appropriate condition. <i>Refer to overall comments.</i>
Samples analysed within appropriate holding times?	Y	All samples were analysed within appropriate holding times (ALS & EnviroLab).
Sample volumes sufficient for QC analysis?	Y	Sufficient sample volume was provided for all laboratory tests (ALS & EnviroLab).
Are there non-NATA accredited methods used?	N	ALS and EnviroLab are NATA accredited for all methods used in this batch.
Chromatograms supplied as appropriate?	N/A	N/A.
Laboratory reports signed by authorised personnel?	Y	All reports signed.

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
MB	Method Blank	All results were below the LOR (ALS & EnviroLab).

Trip Spike Information

Analyte	Control Spike Concentrations	Trip Spike Concentration	% Recovery	Comments
Sample ID: TS not required as per the QAQC requirements of the GMP.				

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
All	All LCS recoveries are within the laboratory based DQOs (ALS & EnviroLab).

Matrix Spike (MS) Analyses

Analyte Group	Comments
All	All MS recoveries are within the laboratory based DQOs (ALS & EnviroLab).

Laboratory Duplicates (LD) Analyses

Analyte Group	Sample ID	Comments
All	-	All LD RPDs are within the laboratory based DQOs (ALS & EnviroLab).

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
All	BP01_08.00_140920	QC110_140920	All FD RPDs are within DQOs.
All	BP42_02.00_140920	QC111_140920	All FD RPDs are within DQOs.
All	SW052_140920	QC112_140920	All FD RPDs are within DQOs.
All	SW053_140920	QC113_140920	All FD RPDs are within DQOs.
All	WG229S_150920	QC114_150920	All FD RPDs are within DQOs.
All	WG230S_150920	QC115_150920	All FD RPDs are within DQOs.
All	SW062_160920	QC116_160920	All FD RPDs are within DQOs.

Field Triplicates (FT) Analyses

Analyte Group	Primary ID	Triplicate ID	Comments
All	BP42_02.00_140920	QC211_140920	All FT RPDs are within DQOs.
All	SW053_140920	QC213_140920	All FT RPDs are within DQOs.
All	WG230S_150920	QC215_150920	All FT RPDs are within DQOs.

Surrogate Compound Monitoring Analyses

Analyte Group	Analyte(s)	Comments
All	-	All surrogate recoveries are within acceptable DQOs (ALS & EnviroLab).

Overall Comments

EnviroLab: The sample receipt temperature reported by EnviroLab was 9.1°C. The groundwater samples were collected and placed directly on ice prior to delivery to the primary laboratory (ALS) where they were received at an appropriate temperature of 4.1°C. The triplicate samples were then sent to EnviroLab (secondary laboratory) with ice. The elevated temperature is not expected to significantly impact the overall quality of the data as samples were placed on ice immediately following collection and RPDs are within acceptable DQOs.

Note: Additional analysis was conducted and included in this batch, but is not considered as part of this data validation. Only the annual monitoring locations as per the GSMP are considered for this investigation.

This batch has been validated and is considered suitable for environmental interpretive use.

Note: Data validation assesses each analyte in terms of all the data validation variables and only the exceedances and outliers are reported in this form.

*When concentrations are less than the LOR for both primary and duplicate/triplicate results, no RPDs are calculated

Performed By: Kate Robinson
Date: 14/10/2020
Checked By: Tegen Anning
Date: 25/11/2020

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2032653 / 251509

Sample ID	BP01_08.00_140920	QC110_140920
Sample Type	Primary	Field Duplicate
Date Sampled	14/09/2020	14/09/2020

Analyte Group	Unit	LOR			RPDs
					Primary vs Duplicate
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	1	<5	<5	ND
1,1,2,2-Tetrachloroethane	µg/L	1	899	865	4%
1,1,1-Trichloroethane	µg/L	1	<5	<5	ND
1,1,2-Trichloroethane	µg/L	1	171	177	3%
1,2,3-Trichloropropane	µg/L	1	<5	<5	ND
1,2-Dibromo-3-chloropropane	µg/L	1	<5	<5	ND
1,2-Dibromoethane	µg/L	1	<5	<5	ND
1,1-Dichloroethane	µg/L	1	40	38	5%
1,2-Dichloroethane	µg/L	1	1320	1,360	3%
1,1-Dichloroethene	µg/L	1	98	89	10%
cis-1,2-Dichloroethene	µg/L	1	1370	1,280	7%
trans-1,2-dichloroethene	µg/L	1	440	418	5%
1,3-Dichloropropane	µg/L	1	<5	<5	ND
1,1-Dichloropropene	µg/L	1	<5	<5	ND
cis-1,4-Dichloro-2-butene	µg/L	1	<5	<5	ND
trans-1,4-Dichloro-2-butene	µg/L	1	<5	<5	ND
Bromodichloromethane	µg/L	1	<5	<5	ND
Bromoform	µg/L	1	<5	<5	ND
Bromomethane	µg/L	10	<50	<50	ND
Carbon disulfide	µg/L	1	11	13	17%
Carbon tetrachloride	µg/L	1	<5	<5	ND
Chlorodibromomethane	µg/L	1	<5	<5	ND
Chloroethane	µg/L	10	<50	<50	ND
Chloroform	µg/L	1	198	195	2%
Chloromethane	µg/L	10	<50	<50	ND
Dibromomethane	µg/L	1	<5	<5	ND
Dichlorodifluoromethane	µg/L	10	<50	<50	ND
Dichloromethane	µg/L	5	72	62	15%
Hexachlorobutadiene	µg/L	1	<5	<5	ND
Iodomethane	µg/L	1	<5	<5	ND
Pentachloroethane	µg/L	1	<5	<5	ND
Trichloroethene	µg/L	1	6150	5,960	3%
Tetrachloroethene	µg/L	1	568	602	6%
Trichlorofluoromethane	µg/L	10	<50	<50	ND
Vinyl chloride	µg/L	1	200	165	19%

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)
 - = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:

Analysis result < 10 times LOR: any RPD
 Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%
 Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2032653 / 251509

Sample ID	BP42_02.00_140920	QC111_140920	QC211_140920
Sample Type	Primary	Field Duplicate	Field Triplicate
Date Sampled	14/09/2020	14/09/2020	14/09/2020

Analyte Group	Unit	LOR						RPDs	
								Primary vs Duplicate	Primary vs Triplicate
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	µg/L	1	<5	<1	<1	<1	ND	ND	
1,1,2,2-Tetrachloroethane	µg/L	1	<5	<1	<1	<1	ND	ND	
1,1,1-Trichloroethane	µg/L	1	<5	<1	<1	2	ND	86%	
1,1,2-Trichloroethane	µg/L	1	6	5	5	6	18%	0%	
1,2,3-Trichloropropane	µg/L	1	<5	<1	<1	-	ND	-	
1,2-Dibromo-3-chloropropane	µg/L	1	<5	<1	<1	-	ND	-	
1,2-Dibromoethane	µg/L	1	<5	<1	<1	-	ND	-	
1,1-Dichloroethane	µg/L	1	51	52	52	54	2%	6%	
1,2-Dichloroethane	µg/L	1	429	449	449	500	5%	15%	
1,1-Dichloroethene	µg/L	1	46	45	45	-	2%	-	
cis-1,2-Dichloroethene	µg/L	1	1040	996	996	1,200	4%	14%	
trans-1,2-dichloroethene	µg/L	1	217	197	197	240	10%	10%	
1,3-Dichloropropane	µg/L	1	<5	<1	<1	-	ND	-	
1,1-Dichloropropene	µg/L	1	<5	<1	<1	-	ND	-	
cis-1,4-Dichloro-2-butene	µg/L	1	<5	<1	<1	-	ND	-	
trans-1,4-Dichloro-2-butene	µg/L	1	<5	<1	<1	-	ND	-	
Bromodichloromethane	µg/L	1	<5	<1	<1	-	ND	-	
Bromoform	µg/L	1	<5	<1	<1	-	ND	-	
Bromomethane	µg/L	10	<50	<10	<10	-	ND	-	
Carbon disulfide	µg/L	1	<5	2	2	-	86%	-	
Carbon tetrachloride	µg/L	1	<5	<1	<1	<1	ND	ND	
Chlorodibromomethane	µg/L	1	<5	<1	<1	-	ND	-	
Chloroethane	µg/L	10	<50	<10	<10	<10	ND	ND	
Chloroform	µg/L	1	12	11	11	12	9%	0%	
Chloromethane	µg/L	10	<50	<10	<10	<10	ND	ND	
Dibromomethane	µg/L	1	<5	<1	<1	-	ND	-	
Dichlorodifluoromethane	µg/L	10	<50	<10	<10	-	ND	-	
Dichloromethane	µg/L	5	<5	<5	<5	<10	ND	ND	
Hexachlorobutadiene	µg/L	1	<5	<1	<1	-	ND	-	
Iodomethane	µg/L	1	<5	<1	<1	-	ND	-	
Pentachloroethane	µg/L	1	<5	<1	<1	-	ND	-	
Trichloroethene	µg/L	1	434	413	413	500	5%	14%	
Tetrachloroethene	µg/L	1	8	9	9	10	12%	22%	
Trichlorofluoromethane	µg/L	10	<50	<10	<10	-	ND	-	
Vinyl chloride	µg/L	1	1370	1,230	1,230	1,700	11%	21%	

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:

Analysis result < 10 times LOR: any RPD

Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%

Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2032653 / 251509

Sample ID	SW052_150920	QC112_150920
Sample Type	Primary	Field Duplicate
Date Sampled	15/09/2020	15/09/2020

Analyte Group	Unit	LOR			RPDs
					Primary vs Duplicate
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	1	<1	<1	ND
1,1,2,2-Tetrachloroethane	µg/L	1	<1	<1	ND
1,1,1-Trichloroethane	µg/L	1	<1	<1	ND
1,1,2-Trichloroethane	µg/L	1	<1	<1	ND
1,2,3-Trichloropropane	µg/L	1	<1	<1	ND
1,2-Dibromo-3-chloropropane	µg/L	1	<1	<1	ND
1,2-Dibromoethane	µg/L	1	<1	<1	ND
1,1-Dichloroethane	µg/L	1	<1	<1	ND
1,2-Dichloroethane	µg/L	1	<1	<1	ND
1,1-Dichloroethene	µg/L	1	<1	<1	ND
cis-1,2-Dichloroethene	µg/L	1	<1	<1	ND
trans-1,2-dichloroethene	µg/L	1	<1	<1	ND
1,3-Dichloropropane	µg/L	1	<1	<1	ND
1,1-Dichloropropene	µg/L	1	<1	<1	ND
cis-1,4-Dichloro-2-butene	µg/L	1	<1	<1	ND
trans-1,4-Dichloro-2-butene	µg/L	1	<1	<1	ND
Bromodichloromethane	µg/L	1	<1	<1	ND
Bromoform	µg/L	1	<1	<1	ND
Bromomethane	µg/L	10	<10	<10	ND
Carbon disulfide	µg/L	1	<1	<1	ND
Carbon tetrachloride	µg/L	1	<1	<1	ND
Chlorodibromomethane	µg/L	1	<1	<1	ND
Chloroethane	µg/L	10	<10	<10	ND
Chloroform	µg/L	1	<1	<1	ND
Chloromethane	µg/L	10	<10	<10	ND
Dibromomethane	µg/L	1	<1	<1	ND
Dichlorodifluoromethane	µg/L	10	<10	<10	ND
Dichloromethane	µg/L	5	<5	<5	ND
Hexachlorobutadiene	µg/L	1	<1	<1	ND
Iodomethane	µg/L	1	<1	<1	ND
Pentachloroethane	µg/L	1	<1	<1	ND
Trichloroethene	µg/L	1	<1	<1	ND
Tetrachloroethene	µg/L	1	<1	<1	ND
Trichlorofluoromethane	µg/L	10	<10	<10	ND
Vinyl chloride	µg/L	1	<1	<10	ND

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)
 - = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: Analysis result < 10 times LOR: any RPD
 Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%
 Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2032653 / 251509

Sample ID	SW053_150920	QC113_150920	QC213_150920
Sample Type	Primary	Field Duplicate	Field Triplicate
Date Sampled	15/09/2020	15/09/2020	15/09/2020

Analyte Group	Unit	LOR						RPDs	
								Primary vs Duplicate	Primary vs Triplicate
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1,2,2-Tetrachloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1,1-Trichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1,2-Trichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,2,3-Trichloropropane	µg/L	1	<1	<1	<1	-	ND	-	
1,2-Dibromo-3-chloropropane	µg/L	1	<1	<1	<1	-	ND	-	
1,2-Dibromoethane	µg/L	1	<1	<1	<1	-	ND	-	
1,1-Dichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,2-Dichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1-Dichloroethene	µg/L	1	<1	<1	<1	-	ND	-	
cis-1,2-Dichloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
trans-1,2-dichloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
1,3-Dichloropropane	µg/L	1	2	<1	<1	-	67%	-	
1,1-Dichloropropene	µg/L	1	<1	<1	<1	-	ND	-	
cis-1,4-Dichloro-2-butene	µg/L	1	<1	<1	<1	-	ND	-	
trans-1,4-Dichloro-2-butene	µg/L	1	<1	<1	<1	-	ND	-	
Bromodichloromethane	µg/L	1	<1	<1	<1	-	ND	-	
Bromoform	µg/L	1	<1	<1	<1	-	ND	-	
Bromomethane	µg/L	10	<10	<10	<10	-	ND	-	
Carbon disulfide	µg/L	1	<1	<1	<1	-	ND	-	
Carbon tetrachloride	µg/L	1	<1	<1	<1	<1	ND	ND	
Chlorodibromomethane	µg/L	1	<1	<1	<1	-	ND	-	
Chloroethane	µg/L	10	<10	<10	<10	<10	ND	ND	
Chloroform	µg/L	1	<1	<1	<1	<1	ND	ND	
Chloromethane	µg/L	10	<10	<10	<10	<10	ND	ND	
Dibromomethane	µg/L	1	<1	<1	<1	-	ND	-	
Dichlorodifluoromethane	µg/L	10	<10	<10	<10	-	ND	-	
Dichloromethane	µg/L	5	<5	<5	<5	<10	ND	ND	
Hexachlorobutadiene	µg/L	1	<1	<1	<1	-	ND	-	
Iodomethane	µg/L	1	<1	<1	<1	-	ND	-	
Pentachloroethane	µg/L	1	<1	<1	<1	-	ND	-	
Trichloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
Tetrachloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
Trichlorofluoromethane	µg/L	10	<10	<10	<10	-	ND	-	
Vinyl chloride	µg/L	1	<1	<1	<10	<10	ND	ND	

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:

Analysis result < 10 times LOR: any RPD

Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%

Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2032653 / 251509

Sample ID	WG229S_150920	QC114_150920
Sample Type	Primary	Field Duplicate
Date Sampled	15/09/2020	15/09/2020

Analyte Group	Unit	LOR			RPDs
					Primary vs Duplicate
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	1	<1	<1	ND
1,1,2,2-Tetrachloroethane	µg/L	1	<1	<1	ND
1,1,1-Trichloroethane	µg/L	1	<1	<1	ND
1,1,2-Trichloroethane	µg/L	1	<1	<1	ND
1,2,3-Trichloropropane	µg/L	1	<1	<1	ND
1,2-Dibromo-3-chloropropane	µg/L	1	<1	<1	ND
1,2-Dibromoethane	µg/L	1	<1	<1	ND
1,1-Dichloroethane	µg/L	1	<1	<1	ND
1,2-Dichloroethane	µg/L	1	<1	<1	ND
1,1-Dichloroethene	µg/L	1	<1	<1	ND
cis-1,2-Dichloroethene	µg/L	1	<1	<1	ND
trans-1,2-dichloroethene	µg/L	1	<1	<1	ND
1,3-Dichloropropane	µg/L	1	<1	<1	ND
1,1-Dichloropropene	µg/L	1	<1	<1	ND
cis-1,4-Dichloro-2-butene	µg/L	1	<1	<1	ND
trans-1,4-Dichloro-2-butene	µg/L	1	<1	<1	ND
Bromodichloromethane	µg/L	1	<1	<1	ND
Bromoform	µg/L	1	<1	<1	ND
Bromomethane	µg/L	10	<10	<10	ND
Carbon disulfide	µg/L	1	<1	1	0%
Carbon tetrachloride	µg/L	1	<1	<1	ND
Chlorodibromomethane	µg/L	1	<1	<1	ND
Chloroethane	µg/L	10	<10	<10	ND
Chloroform	µg/L	1	<1	<1	ND
Chloromethane	µg/L	10	<10	<10	ND
Dibromomethane	µg/L	1	<1	<1	ND
Dichlorodifluoromethane	µg/L	10	<10	<10	ND
Dichloromethane	µg/L	5	<5	<5	ND
Hexachlorobutadiene	µg/L	1	<1	<1	ND
Iodomethane	µg/L	1	<1	<1	ND
Pentachloroethane	µg/L	1	<1	<1	ND
Trichloroethene	µg/L	1	<1	<1	ND
Tetrachloroethene	µg/L	1	<1	<1	ND
Trichlorofluoromethane	µg/L	10	<10	<10	ND
Vinyl chloride	µg/L	1	<1	<10	ND

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)
 - = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: Analysis result < 10 times LOR: any RPD
 Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%
 Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2032653 / 251509

Sample ID	WG2305_150920	QC115_150920	QC215_150920
Sample Type	Primary	Field Duplicate	Field Triplicate
Date Sampled	15/09/2020	15/09/2020	15/09/2020

Analyte Group	Unit	LOR						RPDs	
								Primary vs Duplicate	Primary vs Triplicate
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1,2,2-Tetrachloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1,1-Trichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1,2-Trichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,2,3-Trichloropropane	µg/L	1	<1	<1	<1	-	ND	-	
1,2-Dibromo-3-chloropropane	µg/L	1	<1	<1	<1	-	ND	-	
1,2-Dibromoethane	µg/L	1	<1	<1	<1	-	ND	-	
1,1-Dichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,2-Dichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1-Dichloroethene	µg/L	1	<1	<1	<1	-	ND	-	
cis-1,2-Dichloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
trans-1,2-dichloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
1,3-Dichloropropane	µg/L	1	<1	<1	<1	-	ND	-	
1,1-Dichloropropene	µg/L	1	<1	<1	<1	-	ND	-	
cis-1,4-Dichloro-2-butene	µg/L	1	<1	<1	<1	-	ND	-	
trans-1,4-Dichloro-2-butene	µg/L	1	<1	<1	<1	-	ND	-	
Bromodichloromethane	µg/L	1	<1	<1	<1	-	ND	-	
Bromoform	µg/L	1	<1	<1	<1	-	ND	-	
Bromomethane	µg/L	10	<10	<10	<10	-	ND	-	
Carbon disulfide	µg/L	1	<1	<1	<1	-	ND	-	
Carbon tetrachloride	µg/L	1	<1	<1	<1	<1	ND	ND	
Chlorodibromomethane	µg/L	1	<1	<1	<1	-	ND	-	
Chloroethane	µg/L	10	<10	<10	<10	<10	ND	ND	
Chloroform	µg/L	1	<1	<1	<1	<1	ND	ND	
Chloromethane	µg/L	10	<10	<10	<10	<10	ND	ND	
Dibromomethane	µg/L	1	<1	<1	<1	-	ND	-	
Dichlorodifluoromethane	µg/L	10	<10	<10	<10	-	ND	-	
Dichloromethane	µg/L	5	<5	<5	<5	<10	ND	ND	
Hexachlorobutadiene	µg/L	1	<1	<1	<1	-	ND	-	
Iodomethane	µg/L	1	<1	<1	<1	-	ND	-	
Pentachloroethane	µg/L	1	<1	<1	<1	-	ND	-	
Trichloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
Tetrachloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
Trichlorofluoromethane	µg/L	10	<10	<10	<10	-	ND	-	
Vinyl chloride	µg/L	1	<10	<10	<10	<10	ND	ND	

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:

Analysis result < 10 times LOR: any RPD

Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%

Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2032653 / 251509

Sample ID	SW062_160920	QC116_160920
Sample Type	Primary	Field Duplicate
Date Sampled	16/09/2020	16/09/2020

Analyte Group	Unit	LOR			RPDs
					Primary vs Duplicate
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	1	<1	<1	ND
1,1,2,2-Tetrachloroethane	µg/L	1	<1	<1	ND
1,1,1-Trichloroethane	µg/L	1	<1	<1	ND
1,1,2-Trichloroethane	µg/L	1	<1	<1	ND
1,2,3-Trichloropropane	µg/L	1	<1	<1	ND
1,2-Dibromo-3-chloropropane	µg/L	1	<1	<1	ND
1,2-Dibromoethane	µg/L	1	<1	<1	ND
1,1-Dichloroethane	µg/L	1	<1	<1	ND
1,2-Dichloroethane	µg/L	1	<1	<1	ND
1,1-Dichloroethene	µg/L	1	<1	<1	ND
cis-1,2-Dichloroethene	µg/L	1	2	3	40%
trans-1,2-dichloroethene	µg/L	1	<1	<1	ND
1,3-Dichloropropane	µg/L	1	<1	<1	ND
1,1-Dichloropropene	µg/L	1	<1	<1	ND
cis-1,4-Dichloro-2-butene	µg/L	1	<1	<1	ND
trans-1,4-Dichloro-2-butene	µg/L	1	<1	<1	ND
Bromodichloromethane	µg/L	1	<1	<1	ND
Bromoform	µg/L	1	<1	<1	ND
Bromomethane	µg/L	10	<10	<10	ND
Carbon disulfide	µg/L	1	<1	<1	ND
Carbon tetrachloride	µg/L	1	<1	<1	ND
Chlorodibromomethane	µg/L	1	<1	<1	ND
Chloroethane	µg/L	10	<10	<10	ND
Chloroform	µg/L	1	4	4	0%
Chloromethane	µg/L	10	<10	<10	ND
Dibromomethane	µg/L	1	<1	<1	ND
Dichlorodifluoromethane	µg/L	10	<10	<10	ND
Dichloromethane	µg/L	5	<5	<5	ND
Hexachlorobutadiene	µg/L	1	<1	<1	ND
Iodomethane	µg/L	1	<1	<1	ND
Pentachloroethane	µg/L	1	<1	<1	ND
Trichloroethene	µg/L	1	<1	<1	ND
Tetrachloroethene	µg/L	1	<1	<1	ND
Trichlorofluoromethane	µg/L	10	<10	<10	ND
Vinyl chloride	µg/L	1	<1	<10	ND

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)
 - = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: Analysis result < 10 times LOR: any RPD
 Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%
 Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project Name:	Orica Botany	Project Number:	20359032
Primary Laboratory:	ALS Sydney	Work Order Number:	ES2034257
Secondary Laboratory:	EnviroLab Sydney	Work Order Number:	252492
Date Sampled:	28/09/20 - 29/09/20	Sample Medium:	Water

Sample Information

Number of Primary Samples:	44	Number of Triplicate Samples:	2
Number of Duplicate Samples:	3	Number of Other QAQC Samples:	1

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Y	Signed by field staff and laboratory personnel.
All requested analysis completed?	Y	All requested analyses on the COC performed by ALS & EnviroLab.
Samples received intact and chilled?	Y	ALS: 3.8°C, ice present. Samples dropped off by client. EnviroLab: 4.2°C, ice present.
Samples analysed within appropriate holding times?	Y	All samples were analysed within appropriate holding times (ALS & EnviroLab).
Sample volumes sufficient for QC analysis?	Y	Sufficient sample volume was provided for all laboratory tests (ALS).
Are there non-NATA accredited methods used?	N	ALS is NATA accredited for all methods used in this batch.
Chromatograms supplied as appropriate?	N/A	N/A.
Laboratory reports signed by authorised personnel?	Y	All reports signed.

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
MB	Method Blank	All results were below the LOR (ALS & EnviroLab).
TB	TB04_280920	All results were below the LOR (ALS).

Trip Spike Information

Analyte	Control Spike Concentrations	Trip Spike Concentration	% Recovery	Comments
Sample ID: TS not required as per the QAQC requirements of the GMP.				

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
All	All LCS recoveries are within the laboratory based DQOs (ALS & EnviroLab).

Matrix Spike (MS) Analyses

Analyte Group	Comments
Halogenated aliphatic compounds	ALS: The MS recoveries for trichloroethene in samples ES2034257-024 (BP48_14.00_280920) and ES2034257-043 (EWD221_290920) were not determined. <i>Refer to overall comments.</i>
-	All other MS recoveries are within the laboratory based DQOs (ALS & EnviroLab).

Laboratory Duplicates (LD) Analyses

Analyte Group	Sample ID	Comments
All	-	All LD RPDs are within the laboratory based DQOs (ALS & EnviroLab).

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
cVHCs	BP46_12.00_280920	QC125_280920	All FD RPDs are within acceptable DQOs.
	BP48_14.00_280920	QC126_280920	The FD RPD for carbon tetrachloride (32%) is outside of DQOs. <i>Refer to overall comments.</i>
	BP06_18.00_290920	QC127_290920	All FD RPDs are within acceptable DQOs.

Field Triplicates (FT) Analyses

Analyte Group	Primary ID	Triplicate ID	Comments
cVHCs	BP46_12.00_280920	QC225_280920	The FT RPDs for 1,1,2,2-tetrachloroethane (100%) and 1,1-dichloroethane (30%) are outside of DQOs. <i>Refer to overall comments.</i>
	BP06_18.00_290920	QC227_290920	All FT RPDs are within acceptable DQOs.

Surrogate Compound Monitoring Analyses

Analyte Group	Analyte(s)	Comments
All	-	All surrogate recoveries are within acceptable DQOs (ALS & EnviroLab).

Overall Comments

ALS: The MS recoveries for trichloroethene in samples ES2034257-024 (BP48_14.00_280920) and ES2034257-043 (EWD221_290920) were not determined. As stated by ALS, "MS recovery not determined, background level greater than or equal to 4x spike level."

The FD RPD for carbon tetrachloride (32%) for sample BP48_14.00_280920 is outside of field based DQOs. As a conservative measure the highest concentration will be adopted for interpretative purposes.

The FT RPDs for 1,1,2,2-tetrachloroethane (100%) and 1,1-dichloroethane (30%) for sample BP46_12.00_280920 are outside of field based DQOs. As a conservative measure the highest concentration will be adopted for interpretative purposes.

This batch has been validated and is considered suitable for environmental interpretive use.

Note: Data validation assesses each analyte in terms of all the data validation variables and only the exceedances and outliers are reported in this form.

*When concentrations are less than the LOR for both primary and duplicate/triplicate results, no RPDs are calculated

Performed By: Kate Robinson
Date: 22/10/2020
Checked By: Tegen Anning
Date: 26/11/2020

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2034257 / 252492

Sample ID	BP46_12.00_280920	QC125_280920	QC225_280920
Sample Type	Primary	Field Duplicate	Field Triplicate
Date Sampled	28/09/2020	28/09/2020	28/09/2020

Analyte Group	Unit	LOR						RPDs	
								Primary vs Duplicate	Primary vs Triplicate
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	µg/L	1	<1	<5	<1		ND	ND	
1,1,2,2-Tetrachloroethane	µg/L	1	4	<5	12		22%	100%	
1,1,1-Trichloroethane	µg/L	1	<1	<5	<1		ND	ND	
1,1,2-Trichloroethane	µg/L	1	6	7	8		15%	29%	
1,2,3-Trichloropropane	µg/L	1	<1	<5	-		ND	-	
1,2-Dibromo-3-chloropropane	µg/L	1	<1	<5	-		ND	-	
1,2-Dibromoethane	µg/L	1	<1	<5	-		ND	-	
1,1-Dichloroethane	µg/L	1	17	17	23		0%	30%	
1,2-Dichloroethane	µg/L	1	97	103	100		6%	3%	
1,1-Dichloroethene	µg/L	1	4	<5	-		22%	-	
cis-1,2-Dichloroethene	µg/L	1	959	1,090	1,000		13%	4%	
trans-1,2-dichloroethene	µg/L	1	21	19	23		10%	9%	
1,3-Dichloropropane	µg/L	1	<1	<5	-		ND	-	
1,1-Dichloropropene	µg/L	1	2	<5	-		86%	-	
cis-1,4-Dichloro-2-butene	µg/L	1	<1	<5	-		ND	-	
trans-1,4-Dichloro-2-butene	µg/L	1	<1	<5	-		ND	-	
Bromodichloromethane	µg/L	1	<1	<5	-		ND	-	
Bromoform	µg/L	1	<1	<5	-		ND	-	
Bromomethane	µg/L	10	<10	<50	-		ND	-	
Carbon disulfide	µg/L	1	7	8	-		13%	-	
Carbon tetrachloride	µg/L	1	<1	<5	<1		ND	ND	
Chlorodibromomethane	µg/L	1	<1	<5	-		ND	-	
Chloroethane	µg/L	10	<10	<50	<10		ND	ND	
Chloroform	µg/L	1	41	45	49		9%	18%	
Chloromethane	µg/L	10	<10	<50	<10		ND	ND	
Dibromomethane	µg/L	1	<1	<5	-		ND	-	
Dichlorodifluoromethane	µg/L	10	<10	<50	-		ND	-	
Dichloromethane	µg/L	5	<5	<5	<10		ND	ND	
Hexachlorobutadiene	µg/L	1	95.1	124	-		26%	-	
Iodomethane	µg/L	1	<1	<5	-		ND	-	
Pentachloroethane	µg/L	1	<1	<5	-		ND	-	
Trichloroethene	µg/L	1	102	120	97		16%	5%	
Tetrachloroethene	µg/L	1	76	83	87		9%	13%	
Trichlorofluoromethane	µg/L	10	<10	<50	-		ND	-	
Vinyl chloride	µg/L	1	114	110	95		4%	18%	

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:

Analysis result < 10 times LOR: any RPD

Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%

Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2034257 / 252492

Sample ID	BP48_14.00_280920	QC126_280920
Sample Type	Primary	Field Duplicate
Date Sampled	28/09/2020	28/09/2020

Analyte Group	Unit	LOR	RPDs		
			Primary	Duplicate	Primary vs Duplicate
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	µg/L	1	<20	<20	ND
1,1,2,2-Tetrachloroethane	µg/L	1	1850	1,890	2%
1,1,1-Trichloroethane	µg/L	1	<20	<20	ND
1,1,2-Trichloroethane	µg/L	1	3090	3,780	20%
1,2,3-Trichloropropane	µg/L	1	<20	<20	ND
1,2-Dibromo-3-chloropropane	µg/L	1	<20	<20	ND
1,2-Dibromoethane	µg/L	1	<20	<20	ND
1,1-Dichloroethane	µg/L	1	85	83	2%
1,2-Dichloroethane	µg/L	1	933	903	3%
1,1-Dichloroethene	µg/L	1	90	90	0%
cis-1,2-Dichloroethene	µg/L	1	2680	2,790	4%
trans-1,2-dichloroethene	µg/L	1	100	101	1%
1,3-Dichloropropane	µg/L	1	<20	<20	ND
1,1-Dichloropropene	µg/L	1	<20	<20	ND
cis-1,4-Dichloro-2-butene	µg/L	1	<20	<20	ND
trans-1,4-Dichloro-2-butene	µg/L	1	<20	<20	ND
Bromodichloromethane	µg/L	1	<20	<20	ND
Bromoform	µg/L	1	<20	<20	ND
Bromomethane	µg/L	10	<200	<200	ND
Carbon disulfide	µg/L	1	1230	1,250	2%
Carbon tetrachloride	µg/L	1	4220	5,850	32%
Chlorodibromomethane	µg/L	1	<20	<20	ND
Chloroethane	µg/L	10	<200	<200	ND
Chloroform	µg/L	1	8460	10,900	25%
Chloromethane	µg/L	10	<200	<200	ND
Dibromomethane	µg/L	1	<20	<20	ND
Dichlorodifluoromethane	µg/L	10	<200	<200	ND
Dichloromethane	µg/L	5	156	154	1%
Hexachlorobutadiene	µg/L	1	529	574	8%
Iodomethane	µg/L	1	<20	<20	ND
Pentachloroethane	µg/L	1	56	56	0%
Trichloroethene	µg/L	1	6480	8,530	27%
Tetrachloroethene	µg/L	1	33,500	38,800	15%
Trichlorofluoromethane	µg/L	10	<200	<200	ND
Vinyl chloride	µg/L	1	1070	1,060	1%

Legend

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- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs:

Analysis result < 10 times LOR: any RPD

Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%

Analysis result ≥ 20 times LOR: RPD ≤ 30%

Project : Orica Botany
 Project Number: 20359032
 Duplicate Analysis RPDs
 Batch/es: ES2034257 / 252492

Sample ID	BP06_18.00_290920	QC127_290920	QC227_290920
Sample Type	Primary	Field Duplicate	Field Triplicate
Date Sampled	29/09/2020	29/09/2020	29/09/2020

Analyte Group	Unit	LOR						RPDs	
								Primary vs Duplicate	Primary vs Triplicate
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1,2,2-Tetrachloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1,1-Trichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,1,2-Trichloroethane	µg/L	1	<1	<1	<1	<1	ND	ND	
1,2,3-Trichloropropane	µg/L	1	<1	<1	<1	-	ND	-	
1,2-Dibromo-3-chloropropane	µg/L	1	<1	<1	<1	-	ND	-	
1,2-Dibromoethane	µg/L	1	<1	<1	<1	-	ND	-	
1,1-Dichloroethane	µg/L	1	<1	<1	<1	1	ND	0%	
1,2-Dichloroethane	µg/L	1	<1	1	1	1	0%	0%	
1,1-Dichloroethene	µg/L	1	<1	<1	<1	-	ND	-	
cis-1,2-Dichloroethene	µg/L	1	<1	1	1	3	0%	100%	
trans-1,2-dichloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
1,3-Dichloropropane	µg/L	1	<1	<1	<1	-	ND	-	
1,1-Dichloropropene	µg/L	1	<1	<1	<1	-	ND	-	
cis-1,4-Dichloro-2-butene	µg/L	1	<1	<1	<1	-	ND	-	
trans-1,4-Dichloro-2-butene	µg/L	1	<1	<1	<1	-	ND	-	
Bromodichloromethane	µg/L	1	<1	<1	<1	-	ND	-	
Bromoform	µg/L	1	<1	<1	<1	-	ND	-	
Bromomethane	µg/L	10	<10	<10	<10	-	ND	-	
Carbon disulfide	µg/L	1	<1	<1	<1	-	ND	-	
Carbon tetrachloride	µg/L	1	<1	<1	<1	<1	ND	ND	
Chlorodibromomethane	µg/L	1	<1	<1	<1	-	ND	-	
Chloroethane	µg/L	10	<10	<10	<10	<10	ND	ND	
Chloroform	µg/L	1	<1	<1	<1	<1	ND	ND	
Chloromethane	µg/L	10	<10	<10	<10	<10	ND	ND	
Dibromomethane	µg/L	1	<1	<1	<1	-	ND	-	
Dichlorodifluoromethane	µg/L	10	<10	<10	<10	-	ND	-	
Dichloromethane	µg/L	5	<5	<5	<5	<10	ND	ND	
Hexachlorobutadiene	µg/L	1	<1	<1	<1	-	ND	-	
Iodomethane	µg/L	1	<1	<1	<1	-	ND	-	
Pentachloroethane	µg/L	1	<1	<1	<1	-	ND	-	
Trichloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
Tetrachloroethene	µg/L	1	<1	<1	<1	<1	ND	ND	
Trichlorofluoromethane	µg/L	10	<10	<10	<10	-	ND	-	
Vinyl chloride	µg/L	1	<10	<10	<10	<10	ND	ND	

Legend

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- = Not analysed/calculated

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Acceptable RPDs:

Analysis result < 10 times LOR: any RPD

Analysis result ≥ 10 times LOR and < 20 times LOR: RPD ≤ 50%

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