

Appendix C

Data Validation

**DATA VALIDATION SUMMARY**

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

Project Name:	Orica - March Quarterly	Project/Task Number:	43217810
Analytical Laboratory:	ALS LabMark	Batch/Ref. Number(s):	ES0803112 E036610
Date Sampled:	5/03/2008	Sample Type:	Water

Sample Handling, Receipt and Holding Times	Yes/No	Comments
COC completed adequately	Yes	
Samples received intact and chilled	Yes	5.8°C - Ice present
Samples analysed within appropriate holding times per analytical methods.	Yes	

# of Primary Samples	# of QAQC Samples	# of Duplicate Samples	# of Triplicate Samples
9	2	1	1

Blanks**Method Blank (MB), Rinsate Blank (RB), Trip Blank (TB), Field Blank (FB)**

Type	Comments
	All blanks have acceptable results less than the limits of reporting

Laboratory Control Samples (LCS)

Analyte	Comments
VCHCs	Lab control samples chloroethane exhibited a recovery of 127% which exceeded the control limits of 79.5% to 119%.
	Lab control samples dibromomethane exhibited a recovery of 128% which exceeded the control limits of 80.7% to 123%.
	Lab control samples tetrachloroethene exhibited a recovery of 76.7% which is lower than the control limits of 87.5% to 123%.

Matrix Spike (MS)

Analyte	Comments
	All matrix spike recoveries are within laboratory control limits

Trip Spike /Control Trip Spike

Analyte	% R	Comments
n/a		

Duplicates

Laboratory Duplicates	Comments
	RPDs are within LOR based limits

Intra-Laboratory

Duplicates	Comments
BP 78_09.00_05/03/08 & QC100_05/03/08	RPDs are within LOR based limits

Inter-Laboratory

Duplicates	Comments
BP 78_09.00_05/03/08 & QC200_05/03/08	RPDs are within LOR based limits

Surrogate Monitoring Compound Analyses

Analyte	Comments
VOCs	Surrogate recovery of t-Bromofluorobenzene in BP41_04.00_05/03/08 (123%) exceeded the control limit of 86% to 115%

Overall Comments

Various samples required dilution due to high levels of contamination. LORs have been adjusted accordingly.

LCS recovery outliers are not expected to significantly affect the overall quality of data as only 3 out of 29 (vCHC) recoveries were outside control limits.

VOC surrogate recovery outlier for sample BP41_04.00_05/03/08 may indicate over-reporting. However, this is not expected to affect the characterisation of that sample as the majority of surrogates returned acceptable results for that sample and analytical suite.

This batch is suitable for environmental interpretive analysis

Performed By:	Martin Treloar	Reviewed By:	Luke Alexander
Date:	09-Apr-08	Date:	12-May-08

DATA VALIDATION
RPD Calculations

Location	BP 78_09.00_05/03/08	BP 78_09.00_05/03/08	BP 78_09.00_05/03/08
Sample ID	BP 78_09.00_05/03/08	QC100_05/03/08	QC200_05/03/2008
Date Sampled	3/05/2008	3/05/2008	3/05/2008
Sample Type	Primary	Secondary	Tertiary

Analyte	LOR1	LOR2	LOR3	Units				Primary vs. Duplicate	Primary vs. Triplicate
1,2-Dichloroethane	1	1	5	µg/L	4	8	5	66.67%	22.22%

**DATA VALIDATION SUMMARY**

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.

Project Name:	Orica - March Quarterly	Project/Task Number:	43217810
Analytical Laboratory:	ALS Labmark	Batch/Ref. Number(s):	ES0803205 E036625
Date Sampled:	6,7/3/08	Sample Type:	Water

Sample Handling, Receipt and Holding Times	Yes/No	Comments	
COC completed adequately	No	Additional sample volume BP58_04.00_06/03/08 received by laboratory but placed on hold under URS request. QC401 was mistakenly marked as received by laboratory but was not. This sample was not required for analysis	
Samples received intact and chilled	Yes		
Samples analysed within appropriate holding times per analytical methods.	Yes		
# of Primary Samples	# of QAQC Samples	# of Duplicate Samples	# of Triplicate Samples
20	0	3	1

Blanks	
Method Blank (MB), Rinsate Blank (RB), Trip Blank (TB), Field Blank (FB)	
Type	Comments
	All blanks have acceptable results less than the limits of reporting

Laboratory Control Samples (LCS)	
Analyte	Comments
carbon disulphide	Carbon disulphide reported a recovery of 77.2% that was below the control limits of 78.6% to 121%
vinyl chloride	Vinyl chloride reported a recovery of 71.2% that was below the control limits of 72% to 123%

Matrix Spike (MS)	
Analyte	Comments
	All matrix spike recoveries are within laboratory control limits

Trip Spike /Control Trip Spike		
Analyte	% R	Comments
n/a		

Duplicates	
Laboratory Duplicates	Comments
	All RPDs are within LOR based limits

Intra-Laboratory Duplicates	Comments
BP77_28.00_06/03/08 & QC301_06/03/08	RPD for 1,1,2,2-Tetrachloroethane (40%), 1,1,2-Trichloroethane (33%), 1,2-Dichloroethane (47%) and cis-1,2-Dichloroethene (33%) exceed LOR based limits
WG154D_06/03/08 & QC300_06/03/08	All RPDs are within LOR based limits
BP59_4.00_06/03/08 & QC302_06/03/08	All RPDs are within LOR based limits

**DATA VALIDATION SUMMARY**

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.

Project Name:	Orica - March Quarterly	Project/Task Number:	43217810
Analytical Laboratory:	ALS Labmark	Batch/Ref. Number(s):	ES0803205 E036625
Date Sampled:	6,7/3/08	Sample Type:	Water

Inter-Laboratory Duplicates	Comments
WG154D_06/03/08 & QC400_06/03/2008	RPDs for 1,1,2,2-Tetrachloroethane (33%), 1,1,2-Trichloroethane (51%), Carbon Tetrachloride (60%), trans-1,2-Dichloroethane (65%), Trichloroethene (46%), Vinyl Chloride (41%) and Carbon Disulfide (51%) exceeded the LOR based limits

Surrogate Monitoring Compound Analyses	
Analyte	Comments
1,2 dichloroethane	1,2 dichloroethane recoveries for samples BP58_9.00_06/03/08 (122%), BP77_4.00_06/03/08 (125%) exceeded the control limits of 80% to 120%.
Toluene-D8	Toluene-D8 recoveries for samples WG154S_06/03/08 (111%) and BP59_12.00_06/03/08 (110%) exceeded the control limits of 88% to 110%.

Overall Comments

Various samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly

Low LCS recoveries are not considered to affect the overall data quality as most samples had results significantly above the LOR and the exceedance from control limits is marginal (0.8% - 1.4%).

Duplicate RPDs outliers are not considered to significantly affect the overall quality of the results since the results are within the same order of magnitude. The highest concentrations will be used in the interpretation of data from this batch.

Triplicate RPD outliers are likely due to different levels of dilution of samples of the secondary laboratory. The results are in the same order of magnitude as primary samples. The highest value of primary, duplicate and triplicate results should be used for reporting purposes.

Surrogate outliers exceeded their control limits by 1% to 5% which may lead to over reporting of results. As the exceedances are marginal it is not considered likely that this will adversely affect the quality of data in this batch.

This batch is suitable for environmental interpretive analysis

Performed By:	Martin Treloar	Reviewed By:	L Alexander
Date:	09-Mar-08	Date:	12-May-08

DATA VALIDATION
RPD Calculations

Location
Sample ID
Date Sampled
Sample Type

WG154D_06/03/08	WG154D_06/03/08	WG154D_06/03/08
WG154D_06/03/08	QC_300_06/03/08	QC400_06/03/2008
3/06/2008	3/06/2008	3/06/2008
Primary	Secondary	Tertiary

Analyte	LOR1	LOR2	LOR3	Units				Primary vs. Duplicate	Primary vs. Triplicate
1,1,2,2-Tetrachloroethane	1	1	5	µg/L	2570	2300	1850	11.09%	32.58%
1,1,2-Trichloroethane	1	1	5	µg/L	9540	8790	5690	8.18%	50.56%
1,1-Dichloroethane	1	1	5	µg/L	706	654	554	7.65%	24.13%
1,1-Dichloroethene	1	1	5	µg/L	1400	1280	1120	8.96%	22.22%
1,2-Dichloroethane	1	1	5	µg/L	69200	67600	58300	2.34%	17.10%
Carbon Tetrachloride	1	1	5	µg/L	192	151	103	23.91%	60.34%
cis-1,2-Dichloroethene	1	1	5	µg/L	3350	2990	3570	11.36%	6.36%
Methylene chloride	5	5	-	µg/L	1130	1040	-	8.30%	-
Tetrachloroethene	1	1	5	µg/L	8860	7820	7130	12.47%	21.64%
trans-1,2-Dichloroethene	1	1	5	µg/L	480	444	245	7.79%	64.83%
Trichloroethene	1	1	5	µg/L	12000	9790	7530	20.29%	45.78%
Vinyl chloride	10	10	50	µg/L	4380	4110	2900	6.36%	40.66%
Carbon disulfide	1	1	5	µg/L	1600	1510	953	5.79%	50.69%
Chloroform	1	1	5	µg/L	12000	11300	9260	6.01%	25.78%

DATA VALIDATION
RPD Calculations

Location
Sample ID
Date Sampled
Sample Type

BP77_28.00_06/03/08	BP77_28.00_06/03/08
BP77_28.00_06/03/08	QC301_06/03/08
3/06/2008	3/06/2008
Primary	Secondary

Analyte	LOR1	LOR2	Units			Primary vs. Duplicate
1,1,2,2-Tetrachloroethane	1	1	µg/L	22	33	40.00%
1,1,2-Trichloroethane	1	1	µg/L	20	28	33.33%
1,1-Dichloroethane	1	1	µg/L	2	3	40.00%
1,1-Dichloroethene	1	1	µg/L	10	16	46.15%
1,2-Dichloroethane	1	1	µg/L	230	371	46.92%
cis-1,2-Dichloroethene	1	1	µg/L	20	28	33.33%
Tetrachloroethene	1	1	µg/L	19	24	23.26%
trans-1,2-Dichloroethene	1	1	µg/L	7	10	35.29%
Trichloroethene	1	1	µg/L	84	106	23.16%
Vinyl chloride	10	10	µg/L	20	20	0.00%
Chloroform	1	1	µg/L	15	20	28.57%

DATA VALIDATION
RPD Calculations

Location
Sample ID
Date Sampled
Sample Type

BP59_4.00_06/03/08	BP59_4.00_06/03/08
BP59_4.00_06/03/08	QC302_06/03/08
3/06/2008	3/06/2008
Primary	Secondary

Analyte	LOR1	LOR2	Units			Primary vs. Duplicate
1,1,2-Trichloroethane	1	1	µg/L	2	2	0.00%
1,1-Dichloroethane	1	1	µg/L	8	8	0.00%
1,1-Dichloropropylene	1	1	µg/L	< 1	2	66.67%
1,2-Dichloroethane	1	1	µg/L	313	393	22.66%
cis-1,2-Dichloroethene	1	1	µg/L	1	2	66.67%
Trichloroethene	1	1	µg/L	8	7	13.33%
Carbon disulfide	1	1	µg/L	23	21	9.09%
Chloroform	1	1	µg/L	3	3	0.00%

**DATA VALIDATION SUMMARY**

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

Project Name:	Orica - March Quarterly	Project/Task Number:	43217810
Analytical Laboratory:	ALS	Batch/Ref. Number(s):	ES0803208
Date Sampled:	6/03/2008	Sample Type:	Water

Sample Handling, Receipt and Holding Times	Yes/No	Comments
COC completed adequately	Yes	
Samples received intact and chilled	Yes	4.2°C
Samples analysed within appropriate holding times per analytical methods.	Yes	

# of Primary Samples	# of QAQC Samples	# of Duplicate Samples	# of Triplicate Samples
15	1	1	

Blanks
Method Blank (MB), Rinsate Blank (RB), Trip Blank (TB), Field Blank (FB)

Type	Comments
	All blanks have acceptable results less than the limits of reporting

Laboratory Control Samples (LCS)

Analyte	Comments
	LCS recoveries within acceptable control limits.

Matrix Spike (MS)

Analyte	Comments
	All matrix spike recoveries are within laboratory control limits

Trip Spike /Control Trip Spike

Analyte	% R	Comments
n/a		

Duplicates

Laboratory Duplicates	Comments
	RPD for Carbon disulfide (20.7%) exceeds LOR based limits

Intra-Laboratory Duplicates

Duplicates	Comments
WG771_06/03/08 & QC101	All RPDs are within LOR based limits

Inter-Laboratory Duplicates

Duplicates	Comments
n/a	

Surrogate Monitoring Compound Analyses

Analyte	Comments
1,2 Dichloroethane	Surrogate recovery of 1,2 Dichloroethane for sample BP114_08.00_06/03/08 (123%) exceeded the control limits of 80% to 120%
Toluene-D8	Surrogate recovery of Toluene-D8 for samples BP61_04.00_06/03/08 (115%) and BP114_08.00_06/03/08 (112%) exceeded the control limits of 88% to 110%.
4-Bromofluorobenzene	Surrogate recovery of 4-Bromofluorobenzene for samples WG235_06/03/08 (116%) and BP61_04.00_06/03/08 (117%) exceeded the control limits of 86% to 115%.

Overall Comments

Various samples required dilution due to high levels of contamination. LORs have been adjusted accordingly.

High VOC surrogate recovery of 4- bromofluorobenze in sample WG235_06/03/08 is not expected to affect the quality of the reported results as the all other surrogate recoveries for this sample were acceptable. High VOC surrogate recoveries for samples BP114_08.00_06/03/08 and BP61_04.00_06/03/08 may indicate slight over-reporting of VOCs in these samples. The effect on data quality is unlikely to be significant as all other laboratory QAQC tests showed acceptable results for this analytical group and the reported results are consistant with historical data.

Laboratory duplicate RPD exceedance for carbon disulfide is marginal (0.7%) and is not expected to significantly affect data quality as other laboratory QAQC tests, an additional laboratory duplicate, and Intra-laboratory duplicate RPDs have acceptable results for this analyte.

This batch is suitable for environmental interpretive analysis

Performed By: Martin Treloar Reviewed By: L Alexander
 Date: 10-Apr-08 Date: 12-May-08

DATA VALIDATION
RPD Calculations

Location
Sample ID
Date Sampled
Sample Type

WG771_06/03/08	WG771_06/03/08
WG771_06/03/08	QC101
3/06/2008	3/06/2008
Primary	Secondary

Analyte	LOR1	LOR2	Units			Primary vs. Duplicate
1,1,2,2-Tetrachloroethane	1	1	µg/L	85	84	1.18%
1,1,2-Trichloroethane	1	1	µg/L	8	10	22.22%
1,1-Dichloroethane	1	1	µg/L	8	8	0.00%
1,1-Dichloroethene	1	1	µg/L	5	5	0.00%
1,2-Dichloroethane	1	1	µg/L	9	7	25.00%
cis-1,2-Dichloroethene	1	1	µg/L	529	537	1.50%
Hexachlorobutadiene	1	1	µg/L	3	4	28.57%
Methylene chloride	5	5	µg/L	5	< 5	0.00%
Tetrachloroethene	1	1	µg/L	115	138	18.18%
trans-1,2-Dichloroethene	1	1	µg/L	81	68	17.45%
Trichloroethene	1	1	µg/L	113	131	14.75%
Vinyl chloride	10	10	µg/L	840	820	2.41%
Carbon disulfide	1	1	µg/L	47	41	13.64%
Chloroform	1	1	µg/L	32	32	0.00%



DATA VALIDATION SUMMARY

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.

Project Name:	Orica - March Quarterly	Project/Task Number:	43217810
Analytical Laboratory:	ALS Labmark	Batch/Ref. Number(s):	ES0803209 E036624
Date Sampled:	7/03/2008	Sample Type:	Water

Sample Handling, Receipt and Holding Times	Yes/No	Comments
COC completed adequately	Yes	
Samples received intact and chilled	Yes	
Samples analysed within appropriate holding times per analytical methods.	Yes	

# of Primary Samples	# of QAQC Samples	# of Duplicate Samples	# of Triplicate Samples
15	3	2	1

Blanks
Method Blank (MB), Rinsate Blank (RB), Trip Blank (TB), Field Blank (FB)

Type	Comments
	All blanks have acceptable results less than the limits of reporting

Laboratory Control Samples (LCS)

Analyte	Comments
Sulfonated compounds	Carbon disulphide exhibited a recovery of 77.4% that was below the control limits of 78.6% to 121%
Halogenated Aliphatic compounds	Chloromethane exhibited a recovery of 131% that was greater than the control limits of 69.2% to 125%
	Vinyl Chloride exhibited a recovery of 70.6% that was below the control limits of 79% to 123%
	Vinyl chloride exhibited a recovery of 128% that was greater than the control limits of 69.2% to 125%
	Chloroethane exhibited a recovery of 126% that was greater than the control limits of 79.5% to 119%
	Trichlorofluoromethane exhibited a recovery of 77.4% that was below the control limits of 79.8% to 120%
	Trichlorofluoromethane exhibited a recovery of 123% that was greater than the control limits of 79.8% to 120%

Matrix Spike (MS)

Analyte	Comments
	All matrix spike recoveries are within laboratory control limits

Trip Spike /Control Trip Spike

Analyte	% R	Comments
n/a		

Duplicates

Laboratory Duplicates	Comments
	Laboratory Duplicates (LD) have acceptable results less than the limits of reporting or RPDs within control limits

Intra-Laboratory Duplicates

	Comments
BP72_5.00_07/03/08 & QC402_07/03/2008	All RPDs within LOR based limits
BP60_14.00_07/03/08 & QC303_07/03/08	RPD for 1,1-Dichloroethene (45%) and Methylene chloride (33%) exceed the LOR based control limits

**DATA VALIDATION SUMMARY**

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.

Project Name:	Orica - March Quarterly	Project/Task Number:	43217810
Analytical Laboratory:	ALS Labmark	Batch/Ref. Number(s):	ES0803209 E036624
Date Sampled:	7/03/2008	Sample Type:	Water

Inter-Laboratory Duplicates	Comments
BP72_5.00 / QC402	All RPDs within LOR based limits

Surrogate Monitoring Compound Analyses	
Analyte	Comments
VOC Surrogates	Surrogate recovery of 1,2 Dichloroethane for samples BP62_08.00_07/03/08 (122%), BP72_3.00_07/03/08 (127%), BP60_4.00_07/03/08 (129%), MF15_1_07/03/08 (127%) exceeded the control limits of 80% to 120%
	Toluene-D8 recoveries for samples BP62_08.00_07/03/08 (118%), BP60_14.00_07/03/08 (113%), BP72_3.00_07/03/08 (115%), MF15_5_07/03/08 (116%), MF15_D_07/03/08 (110%), BP60_4.00_07/03/08 (114%), BP60_26.00_07/03/08 (122%), and MF15_1_07/03/08 (113) exceeded the control limits of 88% to 110%.
	4 Bromofluorobenzene recovery for samples BP62_08.00_07/03/08 (116%), BP72_3.00_07/03/08 (119%), MF15_S_07/03/08 (117%), BP60_4.00_07/03/08 (116%), BP60_26.00_07/03/08 (123%) exceeded the control limits of 86 to 115.

Overall Comments
Various samples required dilution due to high levels of contamination. LORs have been adjusted accordingly. LCS recovery outliers will not affect the overall quality of data as 80% of LCS recoveries fall within the laboratory limits. RPD outliers are likely due to the high levels of contaminants of the samples. The results are in the same order of magnitude. As a conservative measure the higher results will be used for reporting purposes Surrogate recovery exceedances may indicate over reporting of analytical results. However, BP62_08.00_07/03/08, BP72_03.00/07/03/08, BP60_04.00_07/03/08, MF15_S_07/03/08 and BP60_26.00_07/03/08 have concentrations below the LOR or concentrations similar to historical data. BP60_14.00_07/03/08, MF15_I_07/03/08, MF15_D_07/08/03 had majority of the surrogate recoveries within the control limits. The surrogate outliers are considered not to significantly affect the overall data quality of this batch. This batch is suitable for environmental interpretive use

Performed By:	Martin Treloar	Reviewed By:	L Alexander
Date:	09-Apr-08	Date:	12-May-08

DATA VALIDATION
RPD Calculations

Location
Sample ID
Date Sampled
Sample Type

BP72_5.00_07/03/08	BP72_5.00_07/03/08	BP72_5.00_07/03/08
BP72_5.00_07/03/08	QC304_07/03/08	QC402_07/03/2008
3/07/2008	3/07/2008	3/07/2008
Primary	Secondary	Tertiary

Analyte	LOR1	LOR2	LOR3	Units				Primary vs. Duplicate	Primary vs. Triplicate
1,1-Dichloroethane	1	1	5	µg/L	5	4	5	22.22%	0.00%
1,1-Dichloroethene	1	1	5	µg/L	2	2	< 5	0.00%	85.71%
1,2-Dichloroethane	1	1	5	µg/L	53	40	55	27.96%	3.70%
cis-1,2-Dichloroethene	1	1	5	µg/L	2	1	< 5	66.67%	85.71%
Trichloroethene	1	1	5	µg/L	8	6	< 5	28.57%	46.15%
Vinyl chloride	10	10	50	µg/L	30	20	< 50	40.00%	50.00%

DATA VALIDATION
RPD Calculations

Location
Sample ID
Date Sampled
Sample Type

BP60_14.00_07/03/08	BP60_14.00_07/03/08
BP60_14.00_07/03/08	QC303_07/03/08
3/07/2008	3/07/2008
Primary	Secondary

Analyte	LOR1	LOR2	Units			Primary vs. Duplicate
1,1,2,2-Tetrachloroethane	1	1	µg/L	118	108	8.85%
1,1,2-Trichloroethane	1	1	µg/L	2440	2460	0.82%
1,1-Dichloroethane	1	1	µg/L	789	857	8.26%
1,1-Dichloroethene	1	1	µg/L	3570	2250	45.36%
1,2-Dichloroethane	1	1	µg/L	5150	5710	10.31%
cis-1,2-Dichloroethene	1	1	µg/L	1840	1800	2.20%
Methylene chloride	5	5	µg/L	1050	1470	33.33%
Tetrachloroethene	1	1	µg/L	384	308	21.97%
trans-1,2-Dichloroethene	1	1	µg/L	293	256	13.48%
Trichloroethene	1	1	µg/L	1600	1480	7.79%
Vinyl chloride	10	10	µg/L	8360	9770	15.55%
Carbon disulfide	1	1	µg/L	199	194	2.55%
Chloroform	1	1	µg/L	2540	2810	10.09%



DATA VALIDATION SUMMARY

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.

Project Name:	Orica - March Quarterly	Project/Task Number:	43217810
Analytical Laboratory:	ALS	Batch/Ref. Number(s):	ES0803344
Date Sampled:	10/03/2008	Sample Type:	Water

Sample Handling, Receipt and Holding Times	Yes/No	Comments
COC completed adequately	Yes	
Samples received intact and chilled	No	Trip blank not received. Temp = 6.3°C - Ice present
Samples analysed within appropriate holding times per analytical methods.	Yes	

# of Primary Samples	# of QAQC Samples	# of Duplicate Samples	# of Triplicate Samples
7	0	0	0

Blanks

Method Blank (MB), Rinsate Blank (RB), Trip Blank (TB), Field Blank (FB)

Type	Comments
	All blanks have acceptable results less than the limits of reporting

Laboratory Control Samples (LCS)

Analyte	Comments
	All lab control samples have acceptable results within laboratory control limits

Matrix Spike (MS)

Analyte	Comments
	All matrix spike recoveries are within laboratory control limits

Trip Spike /Control Trip Spike

Analyte	% R	Comments
n/a		

Duplicates

Laboratory Duplicates	Comments
	Laboratory Duplicates (LD) have acceptable results less than the limits of reporting or RPDs within control limits

Intra-Laboratory Duplicates

Intra-Laboratory Duplicates	Comments
n/a	

Inter-Laboratory Duplicates

Inter-Laboratory Duplicates	Comments
n/a	

Surrogate Monitoring Compound Analyses

Analyte	Comments
VOCs	Surrogate recovery of Toluene-D8 for samples BP04_12_10/03/08 (82.3%), BP110_6.0_10/03/08 (82.8%), BP110_24.0_10/03/08 (84.6%), BP04_06.00_10/03/08 (84.9%), BP04_18.0_10/03/08 (87.1%), BP110_12.00_10/03/08 (82.8%) and BP56_12.00 (87.1%) exceeded the control limits of 88% to 110%

Overall Comments

BP110_30.0_10/03/08 required dilution due to high levels of contamination. LORs have been adjusted accordingly.
 Surrogate recovery outliers may indicate an under reporting of results. This is not considered likely as all other surrogate from the affected samples and all other laboratory control recoveries were within the acceptable limits.
 This batch is suitable for environmental interpretive analysis.

Performed By: Martin Treloar Reviewed By: Luke Alexander
 Date: 10-Apr-08 Date: 12-May-08

**DATA VALIDATION SUMMARY**

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.

Project Name:	Orica	Project/Task Number:	43217810
Analytical Laboratory:	ALS Labmark	Batch/Ref. Number(s):	ES0803500 E036716
Date Sampled:	11/12/3/08	Sample Type:	Water

Sample Handling, Receipt and Holding Times	Yes/No	Comments
COC completed adequately	Yes	
Samples received intact and chilled	Yes	4.3°C
Samples analysed within appropriate holding times per analytical methods.	Yes	

# of Primary Samples	# of QAQC Samples	# of Duplicate Samples	# of Triplicate Samples
35	1	4	2

Blanks**Method Blank (MB), Rinsate Blank (RB), Trip Blank (TB), Field Blank (FB)**

Type	Comments
	All blanks have acceptable results less than the limits of reporting

Laboratory Control Samples (LCS)

Analyte	Comments
carbon disulphide	Carbon disulphide reported a recovery of 77.1% that was below the control limits of 78.6% to 121%
carbon tetrachloride	Carbon tetrachloride reported a recovery of 78% that was below the control limits of 79.1% to 123%
bromodichloromethane	Bromodichloromethane reported a recovery of 80.5% that was below the control limits of 80.8% to 123%

Matrix Spike (MS)

Analyte	Comments
	All matrix spike recoveries are within laboratory control limits

Trip Spike /Control Trip Spike

Analyte	% R	Comments
n/a		

Duplicates

Laboratory Duplicates	Comments
	RPDs for Vinyl Chloride (24.4%), 1,1,2-Trichloroethane (24.5%) and Tetrachloroethane (33.6%) exceed LOR based limits

Intra-Laboratory Duplicates

	Comments
BP111_24.0_11/03/08 & QC305	All RPDs are within LOR based limits
BP91_24.00_11/03/08 & QC102_11/03/08	RPD for 1,1,2-Trichloroethane (35%) exceeds LOR based limits
BP07_08.00_12/03/08 & QC306_12/03/08	RPD for Tetrachloroethene (34%) exceeds LOR based limit
BP52_12.00_12/03/08 & QC103_12/03/08	All RPDs are within LOR based limits

**DATA VALIDATION SUMMARY**

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.

Project Name:	Orica	Project/Task Number:	43217810
Analytical Laboratory:	ALS Labmark	Batch/Ref. Number(s):	ES0803500 E036716
Date Sampled:	11/12/3/08	Sample Type:	Water

Inter-Laboratory Duplicates	Comments
BP111_24.0_11/03/08 & QC403_11/03/2008	RPD for Vinyl Chloride (88%) exceeds LOR based limit
BP91_24.00_11/03/08 & QC201_11/03/08	RPD for Tetrachloroethene (33%) exceeds LOR based limit

Surrogate Monitoring Compound Analyses	
Analyte	Comments
VOC surrogates	1,2 dichloroethane recoveries for samples BP53_12.00_12/03/08 (120%), BP07_06.00_12/03/08 (124%) and WG415_12/03/08 (121%) exceeded the control limits of 80% to 120%.
	Toluene-D8 recoveries for samples BP52_12.00_12/3/08 (110%) and BP111_39.0_11/3/08 (114%) exceeded the control limits of 88% to 110%.
	4 Bromofluorobenzene recovery for sample BP52_6.00_12/03/08 (115%) exceeded the control limits of 86 to 115.

Overall Comments

Various samples required dilution due to high levels of contamination. LORs have been adjusted accordingly.

Low LCS recoveries may indicate a bias towards under-reporting of results. The laboratory conducted 3 rounds of LCS analysis (only 1 in 20 samples is required) for this batch and the recoveries in two of the LCS analysis rounds were within the control limits. The LCS outliers are considered not to significantly affect the overall data quality of this batch.

Surrogate recovery exceedances may indicate an over reporting of analyte concentrations for the affected samples. However, majority of the recoveries from the samples (with surrogate outliers) fell within acceptable limits. Similarly, this is considered not to significantly affect the overall data quality of this batch.

Intra-laboratory duplicate RPD exceedances may have been due to the high concentrations of contaminants in the samples. However, the concentrations are within the same order of magnitude and the highest concentrations will be used in the interpretation of data from this batch.

Inter-laboratory duplicate RPD outliers may be due to the different dilution factors used by the laboratories. Although, in general, the concentrations recovered from both laboratories are in the same order of magnitude and the highest concentrations will be used in the interpretation of data from this batch.

This batch is suitable for use.

Performed By:	Martin Treloar	Reviewed By:	L Alexander
Date:	10-Apr-08	Date:	12-May-08

DATA VALIDATION
RPD Calculations

Location	BP111_24.0_11/03/08	BP111_24.0_11/03/08	BP111_24.0_11/03/08
Sample ID	BP111_24.0_11/03/08	QC305	QC403_11/03/2008
Date Sampled	3/11/2008	3/11/2008	3/11/2008
Sample Type	Primary	Secondary	Tertiary

Analyte	LOR1	LOR2	LOR3	Units				Primary vs. Duplicate	Primary vs. Triplicate
1,1-Dichloroethane	1	1	5	µg/L	104	106	112	2%	7%
1,1-Dichloroethene	1	1	5	µg/L	136	135	123	1%	10%
1,2-Dichloroethane	1	1	5	µg/L	21600	23600	29100	9%	30%
cis-1,2-Dichloroethene	1	1	5	µg/L	1690	1710	1840	1%	9%
trans-1,2-Dichloroethene	1	1	5	µg/L	138	127	104	8%	28%
Trichloroethene	1	1	5	µg/L	101	97	97	4%	4%
Vinyl chloride	10	10	50	µg/L	1960	2000	760	2%	88%

DATA VALIDATION
RPD Calculations

Location
Sample ID
Date Sampled
Sample Type

BP91_24.00_11/03/08	BP91_24.00_11/03/08	BP91_24.00_11/03/08
BP91_24.00_11/03/08	QC102_11/03/08	QC201_11/03/2008
3/11/2008	3/11/2008	3/11/2008
Primary	Secondary	Tertiary

Analyte	LOR1	LOR2	LOR3	Units				Primary vs. Duplicate	Primary vs. Triplicate
1,1,2,2-Tetrachloroethane	1	1	5	µg/L	119	96	120	21%	1%
1,1,2-Trichloroethane	1	1	5	µg/L	212	149	178	35%	17%
1,1-Dichloroethane	1	1	5	µg/L	901	931	996	3%	10%
1,1-Dichloroethene	50	50	5	µg/L	< 50	< 50	25	-	67%
1,2-Dichloroethane	1	1	5	µg/L	64100	62700	69400	2%	8%
cis-1,2-Dichloroethene	1	1	5	µg/L	606	600	644	1%	6%
Tetrachloroethene	1	1	5	µg/L	77	64	55	18%	33%
trans-1,2-Dichloroethene	1	1	5	µg/L	149	146	167	2%	11%
Trichloroethene	1	1	5	µg/L	874	765	904	13%	3%
Vinyl chloride	500	500	50	µg/L	< 500	< 500	610	-	20%
Chloroform	1	1	5	µg/L	1260	1290	1420	2%	12%

DATA VALIDATION
RPD Calculations

Location
Sample ID
Date Sampled
Sample Type

BP07_08.00_12/03/08	BP07_08.00_12/03/08
BP07_08.00_12/03/08	QC306_12/03/08
3/12/2008	3/12/2008
Primary	Secondary

Analyte	LOR1	LOR2	Units			Primary vs. Duplicate
1,1,2-Trichloroethane	50	1	µg/L	< 50	59	17%
1,1-Dichloroethane	1	1	µg/L	121	109	10%
1,1-Dichloroethene	1	1	µg/L	110	99	11%
1,2-Dichloroethane	1	1	µg/L	108000	120000	11%
cis-1,2-Dichloroethene	1	1	µg/L	232	216	7%
Tetrachloroethene	1	1	µg/L	82	58	34%
Trichloroethene	1	1	µg/L	847	660	25%
Vinyl chloride	10	10	µg/L	4900	6600	30%
Chloroform	1	1	µg/L	202	190	6%

DATA VALIDATION
RPD Calculations

Location
Sample ID
Date Sampled
Sample Type

BP52_12.00_12/03/08	BP52_12.00_12/03/08
BP52_12.00_12/03/08	QC103_12/03/08
3/12/2008	3/12/2008
Primary	Secondary

Analyte	LOR1	LOR2	Units			Primary vs. Duplicate
1,2-Dichloroethane	1	1	µg/L	12	13	8%
cis-1,2-Dichloroethene	1	1	µg/L	6	6	0%
Trichloroethene	1	1	µg/L	3	2	40%
Carbon disulfide	1	1	µg/L	< 1	1	0%



DATA VALIDATION SUMMARY

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.

Project Name:	Orica - March Quarterly	Project/Task Number:	43217810
Analytical Laboratory:	ALS Labmark	Batch/Ref. Number(s):	ES0803640 E036742
Date Sampled:	13/03/2008	Sample Type:	Water

Sample Handling, Receipt and Holding Times	Yes/No	Comments
COC completed adequately	No	Sample IDs incorrectly written on bottles as BPXX_L_0.1. Lab reports amended to use the IDs from COC (BPXX_0.1_L)
Samples received intact and chilled	Yes	5.1°C
Samples analysed within appropriate holding times per analytical methods.	No	(see below)

Sulfonated Compounds and Trihalomethanes - Exceeds hold time by 1 day	All samples		
Halogenated Aliphatic Compounds - Exceeds hold time by 1 day	BP42_0.1_L_13/03/08, BP43_0.1_L_13/03/08, BP44_0.1_L_13/03/08, BP64_0.1_L_13/03/08, BP65_0.1_L_13/03/08, BP66_0.1_L_13/03/08, SW028_L_13/03/08, SW048_L_13/03/08, SW029_L_13/03/08, SW031_L_13/03/08, BP01_00.75_13/03/08, BP71A_01.00_13/03/08, SW005_13/03/08, SW046_13/03/08, SW049_13/03/08, SW052_13/03/08, SW053_13/03/08, BP42_0.1_H_13/03/08, BP43_0.1_H_13/03/08, BP44_0.1_H_13/03/08, BH64_0.1_H_13/03/08, BH65_0.1_H_13/03/08, BH66_0.1_H_13/03/08, SW048_H_13/03/08, SW028_H_13/03/08, SW029_H_13/03/08, SW031_H_13/03/08, SW030_13/03/08, SW060_H_13/03/08		

# of Primary Samples	# of QAQC Samples	# of Duplicate Samples	# of Triplicate Samples
59	2	4	2

Blanks	
Method Blank (MB), Rinsate Blank (RB), Trip Blank (TB), Field Blank (FB)	
Type	Comments
	All blanks have acceptable results less than the limits of reporting

Laboratory Control Samples (LCS)	
Analyte	Comments
Halogenated Aliphatic Compounds	LCS recovery for Vinyl Chloride (124%) exceeds laboratory control limit (123%)

Matrix Spike (MS)	
Analyte	Comments
	All matrix spike recoveries are within laboratory control limits

Trip Spike /Control Trip Spike		
Analyte	% R	Comments
n/a		

Duplicates	
Laboratory Duplicates	Comments
	The RPD's for 1,2-Dichloroethane, cis-1,2-Dichloroethene, Vinyl chloride were 94.74%, 75%, and 127.27%, respectively. However the analyte concentrations were less than 10 times the detection limit, therefore the duplicate analysis is considered acceptable.

**DATA VALIDATION SUMMARY**

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.

Project Name:	Orica - March Quarterly	Project/Task Number:	43217810
Analytical Laboratory:	ALS Labmark	Batch/Ref. Number(s):	ES0803640 E036742
Date Sampled:	13/03/2008	Sample Type:	Water

Intra-Laboratory Duplicates	Comments
BP42_0.5_H_13/03/08 & QC1003_13/03/08	All RPDs within LOR based limits
BP44_0.5_L_13/03/08 & QC1000_13/03/08	All RPDs within LOR based limits
BH65_2.0_H_13/03/08 & QC1004_13/03/08	RPD for 1,2-Dichloroethane (94.74%) and cis-1,2-Dichloroethene (75%) exceeds LOR based limits
BP64_0.5_L_13/3/08 & QC1001_13/03/08	All analytical results were below the LOR
SW031_L_13/03/08 & QC1002_13/03/08	RPD for Vinyl Chloride (127%) exceeds LOR based limits

Inter-Laboratory Duplicates	Comments
BP44_0.5_L_13/03/08 & QC2000_13/03/08	All results were below LOR
BP64_0.5_L_13/03/08 & QC2001_13/03/08	All analytical results were below the LOR

Surrogate Monitoring Compound Analyses	
Analyte	Comments
VOC Surrogates	1,2 dichloroethane recoveries for samples SW048_L_13/3/08 (121%), BP43_0.1_L_13/3/08 (121%), BH65_0.5_H_13/3/08 (124%) and BH66_0.1_H (121%) exceeded the control limits of 80% to 120%.
	Toluene-D8 recoveries for samples BP43_0.5_L_13/3/08 (114%), BP65_2.0_L_13/3/08 (112%), BP66_2.0_L_13/3/08 (114%) and BP44_0.5H_13/3/08 (114%) exceeded the control limits of 88% to 110%.
	Toluene-D8 recoveries for samples BP01_00.75_13/03/08 (86.1%), BP01_02.00_13/03/08 (85.2%), SW049_13/3/08 (85.9%) and SW053_13/3/08 (82.7%) were less than the control limits of 88% to 110%.
	4 Bromofluorobenzene recovery for samples BP43_0.5L_13/03/08 (117%), BP66_2.0L_13/03/08 (118%), BP44_0.5_H_13/03/08 (124%) and SW030_13/03/08 (115%) exceeded the control limits of 86 to 115.

Overall Comments

Various samples required dilution due to high levels of contamination. LORs have been adjusted accordingly.

Most samples exceeded hold times for sulfonated compounds, halogenated aliphatic compounds and trihalomethanes by 1 day. Samples were received by the laboratory within suitable time but analysis was delayed due to high laboratory work load. This is not expected to affect the overall data quality of this batch as the samples were kept in optimal conditions at the laboratory.

High surrogate recoveries may indicate an over reporting of results. SW048_L_13/3/08, BP43_0.1_L_13/3/08, BH65_0.5_H_13/3/08, BH66_0.1_H, BP65_2.0_L_13/03/08 and SW030_13/03/08 had majority of the surrogate recoveries within the laboratory control limits. BP43_0.5L_13/03/08, BP66_2.0L_13/03/08 and BP44_0.5_H_13/03/08 have concentrations below the LOR or have similar concentrations with those recorded in previous rounds of sampling.

Low surrogate recoveries may indicate under reporting of results. However, majority of the surrogate recoveries in the affected samples were within the control limits.

Intra-laboratory duplicate RPD outlier for Vinyl Chloride may be due the different dilution factors used (SW031_L/QC1002). The highest concentration will be used in the interpretation of data.

Intra-laboratory duplicate RPD outliers for 1,2-Dichloroethane and cis-1,2-Dichloroethene are not likely to affect the overall data quality as the results are in the same order of magnitude. The higher value from primary, duplicate and triplicate results should be used for reporting purposes.

This batch is suitable for environmental interpretive analysis.

Performed By:	Martin Treloar	Reviewed By:	L Alexander
Date:	09-Apr-08	Date:	12/05/2008

DATA VALIDATION
RPD Calculations

Location	BP42_0.5_H_13/03/08	BP42_0.5_H_13/03/08
Sample ID	BP42_0.5_H_13/03/08	QC1003_13/03/08
Date Sampled	13/03/2008	13/03/2008
Sample Type	Primary	Secondary

Analyte	LOR1	LOR2	Units			Primary vs. Duplicate
1,2-Dichloroethane	1	1	µg/L	5	4	22.22%

DATA VALIDATION
RPD Calculations

Location	BP44_0.5_L_13/03/08	BP44_0.5_L_13/03/08	BP44_0.5_L_13/03/08
Sample ID	BP44_0.5_L_13/03/08	QC1000_13/03/08	QC2000_13/03/08
Date Sampled	13/03/2008	13/03/2008	13/03/2008
Sample Type	Primary	Secondary	Tertiary

Analyte	LOR1	LOR2	LOR3	Units				Primary vs. Duplicate	Primary vs. Triplicate
1,2-Dichloroethane	1	1	5	µg/L	< 1	1	<5	0.00%	133.33%

DATA VALIDATION
RPD Calculations

Location
Sample ID
Date Sampled
Sample Type

SW031_L_13/03/08	SW031_L_13/03/08
SW031_L_13/03/08	QC1002_13/03/08
13/03/2008	13/03/2008
Primary	Secondary

Analyte	LOR1	LOR2	Units			Primary vs. Duplicate
cis-1,2-Dichloroethene	1	1	µg/L	15	19	23.53%
trans-1,2-Dichloroethene	1	1	µg/L	3	5	50.00%
Trichloroethene	1	1	µg/L	2	4	66.67%
Vinyl chloride	1	10	µg/L	45	< 10	127.27%
Chloroform	1	1	µg/L	2	4	66.67%

DATA VALIDATION
RPD Calculations

Location
Sample ID
Date Sampled
Sample Type

BP65_2.0_H_13/03/08	BP65_2.0_H_13/03/08
BP65_2.0_H_13/03/08	QC1004_13/03/08
13/03/2008	13/03/2008
Primary	Secondary

Analyte	LOR1	LOR2	Units			Primary vs. Duplicate
1,1,2,2-Tetrachloroethane	1	1	µg/L	2	< 1	66.67%
1,1-Dichloroethane	1	1	µg/L	3	1	100.00%
1,1-Dichloroethene	1	1	µg/L	3	2	40.00%
1,2-Dichloroethane	1	1	µg/L	14	5	94.74%
cis-1,2-Dichloroethene	1	1	µg/L	11	5	75.00%
trans-1,2-Dichloroethene	1	1	µg/L	1	< 1	0.00%
Trichloroethene	1	1	µg/L	1	1	0.00%



DATA VALIDATION SUMMARY

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.

Project Name:	Orica - March Quarterly	Project/Task Number:	43217810
Analytical Laboratory:	ALS	Batch/Ref. Number(s):	ES0804160
Date Sampled:	27/03/2008	Sample Type:	Liquid

Sample Handling, Receipt and Holding Times	Yes/No	Comments
COC completed adequately	Yes	
Samples received intact and chilled	No	12.2°C - ice present
Samples analysed within appropriate holding times per analytical methods.	Yes	

# of Primary Samples	# of QAQC Samples	# of Duplicate Samples	# of Triplicate Samples
2	0	0	0

Blanks
Method Blank (MB), Rinsate Blank (RB), Trip Blank (TB), Field Blank (FB)

Type	Comments
MB	All blanks have acceptable results less than the limits of reporting

Laboratory Control Samples (LCS)

Analyte	Comments
	All lab control samples have acceptable results within laboratory control limits

Matrix Spike (MS)

Analyte	Comments
	All matrix spike recoveries are within laboratory control limits

Trip Spike /Control Trip Spike

Analyte	% R	Comments
n/a		

Duplicates

Laboratory Duplicates	Comments
	Laboratory Duplicates (LD) have acceptable results less than the limits of reporting or RPDs within control limits

Intra-Laboratory Duplicates

Intra-Laboratory Duplicates	Comments
n/a	

Inter-Laboratory Duplicates

Inter-Laboratory Duplicates	Comments
n/a	

Surrogate Monitoring Compound Analyses

Analyte	Comments
Touene-D8	Surrogate recovery in BP95_06.00_27/03/08 (79.8%) is lower than the control limit (88%)

Overall Comments

Particular samples required dilution due to the presence of high levels . LOR values have been adjusted accordingly.
 Low surrogate recovery are unlikely to affect overall quality of data as all other laboratory controls were within acceptable limits and results showed that the concentrations of VOCs were significantly above the LOR.
 Temperature of samples at receipt in the laboratory exceeds the desired temperature by 8.2°C which may indicate loss of volatiles compounds. This is not considered likely as the samples were received by the laboratory the same day as sampling and placed under ideal storage conditions prior to analysis.
 This batch is suitable for environmental interpretive analysis

Performed By:	Martin Treloar	Reviewed By:	L Alexander
Date:	09-Apr-08	Date:	12-May-08