DATA VALIDATION REPORT_GME March 2013

URS Project number:	42213719	**Data verified by:**	Bek Aagaard	Date:	13/09/2013
Client:	Darwin Waterfront Corporation				
Site:	Waterfront Precinct	Signed:	Bek Aagaard		
URS Project Manager:	Jacques van Rensburg				
		Validation by:	Mitchell Bacon	Date:	11/11/2013
Matrix type:	Water	Signed:			
No Primary samples:	5				
Laboratory:	ALS / Envirolab				
Lab reference:	ES1304969 / 86813				

Data quality objectives

Field data comparison

Hydrocarbon odours were noted for MW125_04032013 and slight hydrocarbon odour for MW128_04032013; however, no Total Petroleum Hydrocarbons (TPHs), or benzene, toluene, ethylbenzene and xylenes (BTEX) were reported for MW125_04032013 and MW128_04032013. As TPH and BTEX has not been reported historically in MW125_04032013 and TPH has not been reported since December 2011 (low concentrations), this is not considered to affect the interpretation of the results.

Frequency of field QC

Field QC samples were collected to project specifications with the following exceptions:

		Discrepancy	Frequency	Required Frequency
Intra-laboratory Duplicates Taken	1	None noted	1	1
Inter-laboratory Duplicates Taken	1	None noted	1	1
Intra-laboratory Duplicates Analysed	1	None noted	1	1
Inter-laboratory Duplicates Analysed	1	None noted	1	1
		Total Frequency	**1**	**1**

- Intra- and inter-laboratory duplicates were not reported for PAH and VOCs. The precision of VOC results has been considered acceptable based on the presence of laboratory duplicates were available and acceptable. The precision of PAH cannot be assessed as no laboratory duplicates were available and care should be taken when using PAH results for quantitative purposes.

Frequency of laboratory QC

The laboratory reported a sufficient frequency of QC to assess whether the results have been reported to an acceptable accuracy and precision, with the following exceptions:

- Laboratory duplicates were not reported for PAH. The precision of PAH cannot be assessed as no intra- and inter-laboratory duplicates were available and care should be taken when using PAH results for quantitative purposes.

Tests requested/reported

Samples were analysed and reported as requested on the COC for all Batches.

Limits of reporting

LORs were sufficiently low to enable assessment against adopted guideline criteria with the following limitations:

- Protocol LOR for benzo(a)pyrene (0.5 µg/L) above the adopted ILs (0.2 µg/L)

The limits of reporting was above the adopted investigation levels for benzo(a)pyrene. As a result, potential exists for samples to contain concentrations of benzo(a)pyrene above the adopted investigation levels, but below detection limits. This lack of definitive data should be taken into consideration when interpreting analytical results below LOR for this analyte.

Data transcription

A random 10% check of the laboratory results identified no anomalies within the electronic data, the laboratory reports, and tables generated by URS.

Sample management

Chain of Custody

Samples were analysed and reported as requested on the COC with the following exception:

According to the SRN field filtered metals bottle for MW103 was not supplied to the laboratory; consequently, the 'Clear Plastic Bottle – Natural' was subsampled, laboratory filtered and analysed for dissolved metals and mercury. Hence, due to not being acidified or field filtered, reported metal

concentrations may not accurately represent field concentrations and this should be taken into consideration when interpreting metals results for these samples. The reported metals concentrations are consistent with historical results for the affected monitoring wells and the results for these analytes are assessed as acceptable for interpretation.

Handling and preservation

Samples were transported with ice bricks and were received at the laboratory at 1.6°C.

Holding time compliance

Samples were extracted and analysed within recommended holding times.

Data precision

Field duplicate RPDs

Field duplicate RPDs were within control limits.

Field triplicate RPDs

Field triplicate RPDs were within control limits for batch ES1304969.

Laboratory duplicate RPDs

Laboratory duplicate RPDs were within control limits for batch ES1304969.

Data accuracy

Laboratory control spike recovery

Laboratory control spike recoveries were within control limits.

Matrix spike recovery

The following recoveries were outside control limits and may affect data interpretation:

Sample	Analyte	Recovery (%)	LCL (%)	UCL (%)	Comment
Anonymous	Manganese	Not determined	-	-	MS recovery not determined, background level greater than or equal to 4x spike level.
Anonymous	Zinc	Not determined	-	-	MS recovery not determined, background level greater than or equal to 4x spike level.
MW128_040313	Ferrous Iron	Not determined	-	-	MS recovery not determined, background level greater than or equal to 4x spike level.
MW128_040313	Methane	Not determined	-	-	MS recovery not determined, background level greater than or equal to 4x spike level.

The matrix spikes for manganese, zinc, ferrous iron and methane were not determined due to background levels being greater than the spike level. This does not reflect method bias and the accuracy of the results for these analytes are assessed as acceptable due to the presence of other laboratory quality control data including method blanks, LCS recoveries and surrogate recoveries for analytes analysed under the same analytical method.

Matrix spike recoveries were not reported for sulphur as S, pyrene and acenaphthene. The accuracy of the data for these compound groups is considered acceptable based on the presence of other quality control data, such as method blanks, LCS recoveries and surrogate recoveries (where applicable).

Surrogate spike recovery

Surrogate recoveries were within control limits for batch ES1304969.

Blank monitoring

Rinsate blank

Concentrations were not detected above the LOR for all analytes tested, with the following exception:

- Concentrations of nickel (0.001 mg/L) were detected above the LOR in the rinsate sample collected on 4th of March 2013 (QCCF01 040313) in batch ES1304969. The nickel concentration (0.001 mg/L) in the rinsate blank was reported at equal or below concentrations as in the primary samples. As the nickel concentrations in samples collected on this sampling day were either below the GAC by more than the concentration reported in the rinsate, or well above, and as no other metals analytes were reported above LOR cross-contamination from inadequate decontamination is not considered to affect the interpretation of the results.

Field blank

Concentrations of all analytes were reported below the LOR.

Trip blank

Concentrations of volatile TPH and TRH were reported below the LOR.

Method blank

Concentrations of all analytes were reported below the LOR.

Other observations

Batch ES1304969

- EA015 TDS may bias high for sample ID MW122 and QAQC01 due to the presence of fine particulate matter, which have passed through the prescribed GF/C paper.

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Client:	Darwin Waterfront Corporation				
Site:	Waterfront Precinct	Signed:	Obeke Aagaard		
URS Project Manager:	Jacques van Rensburg				
		Validation by:	Mitchell Bacon	Date:	11/11/2013
Matrix type:	Water	Signed:			
No Primary samples:	8				
Laboratory:	ALS Envirolab				
Lab reference:	ES1305174 / 86859				

Data quality objectives

Field data comparison

No apparent anomalies were observed between laboratory results and field observations.

Frequency of field QC

Field QC samples were collected to project specifications with the following exceptions:

		Discrepancy	Frequency	Required Frequency
Intra-laboratory Duplicates Taken	1	None noted	1	1
Inter-laboratory Duplicates Taken	1	None noted	1	1
Intra-laboratory Duplicates Analysed	1	None noted	1	1
Inter-laboratory Duplicates Analysed	1	None noted	1	1
		Total Frequency	**2**	**2**

Intra- and inter-laboratory duplicates were not reported for PAH and VOCs. The precision of VOC results has been considered acceptable based on the presence of laboratory duplicates were available and acceptable. The precision of PAH cannot be assessed as no laboratory duplicates were available and care should be taken when using PAH results for quantitative purposes.

Frequency of laboratory QC

The laboratory reported a sufficient frequency of QC to assess whether the results have been reported to an acceptable accuracy and precision, with the following exceptions:

- Laboratory duplicate were not reported for PAH, TPH C_{10}-C_{36} and TRH >C_{10}-C_{40}. The precision of TPH C_{10}-C_{36} and TRH >C_{10}-C_{40} results has been considered acceptable based on the presence intra- and inter-laboratory duplicates were available and acceptable. The precision of PAH cannot be assessed as no intra- and inter-laboratory duplicates were available and care should be taken when using PAH results for quantitative purposes.
- Laboratory QC analysis was reported to project specifications, except for the frequency of laboratory duplicates for dissolved mercury (9.7% actual and 10% required). The precision of dissolved mercury results has been considered acceptable based on the presence intra- and inter-laboratory duplicates were available and acceptable, which reported RPDs within acceptable levels.

Tests requested/reported

Samples were analysed and reported as requested on the COC.

Limits of reporting

LORs were sufficiently low to enable assessment against adopted guideline criteria with the following limitations:

- Protocol LOR for benzo(a)pyrene (0.5 µg/L) above the adopted ILs (0.2 µg/L)

The limits of reporting was above the adopted investigation levels for benzo(a)pyrene. As a result, potential exists for samples to contain concentrations of benzo(a)pyrene above the adopted investigation levels, but below detection limits. This lack of definitive data should be taken into consideration when interpreting analytical results below LOR for this analyte.

- Elevated LOR (after dilution) exceeds the GAC for cadmium (0.0002 mg/L)
- Elevated LOR (after dilution) exceeds the GAC for chromium (0.0044 mg/L)
- Elevated LOR (after dilution) exceeds the GAC for copper (0.0013 mg/L)
- Elevated LOR (after dilution) exceeds the GAC for lead (0.0034 mg/L)
- Elevated LOR (after dilution) exceeds the GAC for zinc (0.008 mg/L)

The limits of reporting (after dilution) exceeded the GAC for cadmium, chromium, copper, lead and zinc. As

a result, potential exists for samples to contain concentrations of these analytes above the adopted investigation levels, but below detection limits. This lack of definitive data should be taken into consideration when interpreting analytical results for these metals.

Data transcription

A random 10% check of the laboratory results identified no anomalies within the electronic data, the laboratory reports, and tables generated by URS.

Sample management

Chain of Custody

Samples were analysed and reported as requested on the COC, with the following exception:

- The field filtered metals bottles for MW108, MW116, MW129 and MW136 were received as "unspecified" - that is, the filtered box on the bottle was not ticked. Consequently, the 'Clear Plastic Bottle – Natural' was subsampled, laboratory filtered and analysed for dissolved metals and mercury.

Handling and preservation

Samples were transported with ice bricks and were received at the laboratory at 17.3°C. Samples were received above the recommended temperature range for water samples on receipt (4°C, ± 2°C); therefore, some losses through volatilisation may have occurred and sample concentrations for BTEXN and TPH $C_6 - C_9$ (and other volatiles) may be may be biased low.

It should be noted that the ambient temperature across the site throughout the year and at the time of sampling is above 30°C. Samples are chilled in the field on ice and transported to the laboratory with appropriate cooling medium. Samples remain chilled while cooling medium is present; however, over the 24 h transit period to the laboratory cooling medium will melt and samples may warm. Due to the initial sample temperature and subsequent appropriate cooling of samples, losses due to volatilisation and sample degradation are considered to be limited.

Sample containers for dissolved metals and dissolved mercury did not comply with preservation standards for MW108, MW116, MW129, MW136 and QAQC03. SRN states, "A 'Clear Plastic Bottle – Natural' was provided, and the preferred sample container was 'Clear Plastic Bottle – Nitric Acid; Filtered' ". The correct sample bottles were provided to the lab, however, the "field filtered" box was not ticked, and the laboratory did not confirm the status of the sample. Consequently, the 'Clear Plastic Bottle – Natural' was subsampled, laboratory filtered and analysed for dissolved metals and mercury. Hence, due to not being acidified or field filtered, reported metal concentrations may not accurately represent field concentrations and this should be taken into consideration when interpreting metals results for these samples. The reported metals concentrations are consistent with historical results for the affected monitoring wells and the results for these analytes are assessed as acceptable for interpretation.

Holding time compliance

Samples were extracted and analysed within recommended holding times.

Data precision

Field duplicate RPDs

Field duplicate RPDs were within control limits.

Field triplicate RPDs

RPDs exceeded control limits for the following sample analysis in batch ES1305174 (Samples with higher reported concentrations are in bold):

- MW129_050313 **and QAQC04_050313** for zinc (82%).

The potential imprecision in zinc concentrations should be taken into consideration when interpreting results close to the ILs; hence, care should be taken when using the data for zinc for any quantitative purposes.

Laboratory duplicate RPDs

Laboratory duplicate RPDs were within control limits.

Data accuracy

Laboratory control spike recovery

Laboratory control spike recoveries were within control limits.

Matrix spike recovery

The following recoveries were outside control limits and may affect data interpretation:

Sample	Analyte	Recovery (%)	LCL (%)	UCL (%)	Comment
MW115_060312	Chloride	Not determined	-	-	MS recovery not determined, background level greater than or equal to 4x spike level.
Anonymous	Ferrous Iron	Not determined	-	-	MS recovery not determined, background level greater than or equal to 4x spike level.

The matrix spike for chloride and ferrous iron were not determined due to background levels being greater than the spike level. This does not reflect method bias and the accuracy of the results for these analytes are assessed as acceptable due to the presence of other laboratory quality control data including method blanks, LCS recoveries and surrogate recoveries for analytes analysed under the same analytical method.

Matrix spike (MS) recovery was reported on an anonymous sample for ferrous iron. Where MS were conducted on an anonymous sample, the reported MS recovery may not be considered representative of

	the URS field sample. Matrix spike recoveries were not reported for sulphur as S, pyrene, acenaphthene and TPH C_{10}-C_{36} and TRH >C_{10}-C_{40}. The accuracy of the data for these compound groups is considered acceptable based on the presence of other quality control data, such as method blanks, LCS recoveries and surrogate recoveries (where applicable).
Surrogate spike recovery	The following recoveries were outside control limits and may affect data interpretation:

Sample	Analyte	Recovery (%)	LCL (%)	UCL (%)	Comment
MW134_050313	4-Bromofluorobenzene	79.9	80.8	123.7	Recovery less than lower data quality objective

Surrogate recoveries were reported lower than the lower data quality objective for 4-Bromofluorobenzene; hence, there is the potential for the volatile TPH C6-C10, benzene, toluene, ethylbenzene and xylenes (BTEX) and volatile organic carbon (VOC) results to be biased low. This is not considered to affect the interpretation of the results, as volatile TPH C6-C10, BTEX and VOCs were not reported above the laboratory LOR in this sample, and the magnitude of methane reported is assessed as acceptable for interpretation.

Blank monitoring	
Rinsate blank	Concentrations of all analytes were reported below the LOR.
Field blank	Concentrations of all analytes were reported below the LOR.
Trip blank	Concentrations of volatile TPH and TRH were reported below the LOR.
Method blank	Concentrations of all analytes were reported below the LOR.
Other observations	**Batch ES1305179** • EA015 TDS may bias high for sample ID MW122 and QAQC01 due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper. • EG020: Some samples were diluted and rerun due to matrix interference and LORs have been raised accordingly (High salinity).

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Client:	Darwin Waterfront Corporation				
Site:	Waterfront Precinct	Signed:	Obeke Aagaard		
URS Project Manager:	Jacques van Rensburg				
		Validation by:	Mitchell Bacon	Date:	11/11/2013
Matrix type:	Water	Signed:			
No Primary samples:	5				
Laboratory:	ALS				
Lab reference:	ES1305223				

Data quality objectives

Field data comparison

No apparent anomalies were observed between laboratory results and field observations.

Frequency of field QC

Field QC samples were collected to project specifications with the following exceptions:

- It was not specified on the COC to send the inter-laboratory sample QAQC_06032013 to a secondary lab. Consequently, this sample was analysed at the primary laboratory as an intra-laboratory duplicate. Field QC samples were analysed to project specifications with a total frequency of four intra-laboratory duplicates and two inter-laboratory duplicates for the total of eighteen primary samples for batches ES1304969, ES1305174 and ES1305223.
- Intra- and inter-laboratory duplicates were not reported for PAH and VOCs. The precision of VOC results has been considered acceptable based on the presence of laboratory duplicates were available and acceptable. The precision of PAH cannot be assessed as no laboratory duplicates were available and care should be taken when using PAH results for quantitative purposes.

		Discrepancy	Frequency	Required Frequency
Intra-laboratory Duplicates Taken	1	None noted	1	1
Inter-laboratory Duplicates Taken	1	None noted	1	1
Intra-laboratory Duplicates Analysed	2	None noted	2	1
Inter-laboratory Duplicates Analysed	0	No inter-laboratory duplicate analysed	0	1
		Total Frequency	**2**	**2**

Frequency of laboratory QC

The laboratory reported a sufficient frequency of QC to assess whether the results have been reported to an acceptable accuracy and precision, with the following exceptions:

- Laboratory duplicate were not reported for PAH, TPH C_{10}-C_{36} and TRH >C_{10}-C_{40}. The precision of TPH C_{10}-C_{36} and TRH >C_{10}-C_{40} results has been considered acceptable based on the presence intra- and inter-laboratory duplicates were available and acceptable. The precision of PAH cannot be assessed as no intra- and inter-laboratory duplicates were available and care should be taken when using PAH results for quantitative purposes.
- Laboratory QC analysis was reported to project specifications, except for the frequency of laboratory duplicates for dissolved major ions (9.1% actual and 10% required). The precision of major ions results has been considered acceptable based on the presence intra- and inter-laboratory duplicates were available and acceptable, which reported RPDs within acceptable levels.

Tests requested/reported

Samples were analysed and reported as requested on the COC.

Limits of reporting

LORs were sufficiently low to enable assessment against adopted guideline criteria with the following limitations:

- Protocol LOR for benzo(a)pyrene (0.5 µg/L) above the adopted ILs (0.2 µg/L)

The limits of reporting was above the adopted investigation levels for benzo(a)pyrene. As a result, potential exists for samples to contain concentrations of benzo(a)pyrene above the adopted investigation levels, but below detection limits. This lack of definitive data should be taken into consideration when interpreting analytical results below LOR for this analyte.

- Elevated LOR (after dilution) exceeds the GAC for cadmium (0.0002 mg/L)

	• Elevated LOR (after dilution) exceeds the GAC for chromium (0.0044 mg/L) • Elevated LOR (after dilution) exceeds the GAC for copper (0.0013 mg/L) • Elevated LOR (after dilution) exceeds the GAC for lead (0.0034 mg/L) • Elevated LOR (after dilution) exceeds the GAC for zinc (0.008 mg/L) The limits of reporting (after dilution) exceeded the GAC for cadmium, chromium, copper, lead and zinc in MW10. As a result, potential exists for samples to contain concentrations of these analytes above the adopted investigation levels, but below detection limits. This lack of definitive data should be taken into consideration when interpreting analytical results for these metals.
Data transcription	A random 10% check of the laboratory results identified no anomalies within the electronic data, the laboratory reports, and tables generated by URS.
Sample management	
Chain of Custody	Samples were analysed and reported as requested on the COC. It was not specified on the COC to send the inter-laboratory sample QAQC_06032013 to a secondary lab; consequently, this sample was analysed at the primary laboratory as an intra-laboratory duplicate. Field QC samples were analysed to project specifications with a total frequency of four intra-laboratory duplicates and two inter-laboratory duplicates for the total of eighteen primary samples for batches ES1304969, ES1305174 and ES1305223.
Handling and preservation	Samples were transported with ice bricks and were received at the laboratory at 6.6°C. Samples were received slightly above the recommended temperature range for water samples on receipt (4°C, ± 2°C); therefore, some losses through volatilisation may have occurred and sample concentrations for BTEXN and TPH $C_6 - C_9$ (and other volatiles) may be may be biased low. It should be noted that the ambient temperature across the site throughout the year and at the time of sampling is above 30°C. Samples are chilled in the field on ice and transported to the laboratory with appropriate cooling medium. Samples remain chilled while cooling medium is present; however, over the 24 h transit period to the laboratory cooling medium will melt and samples may warm. Due to the initial sample temperature and subsequent appropriate cooling of samples, losses due to volatilisation and sample degradation are considered to be limited.
Holding time compliance	Samples were extracted and analysed within recommended holding times, with the following exceptions: • Nitrate as N and sulphite as SO_3^{2-} analysis was exceeded by 4 days for all samples. These analytes are used as indicators of natural attenuation and as such will not affect the overall interpretation of results; however this should be taken into consideration if the results are used for quantitative purposes.
Data precision	
Field duplicate RPDs	Field duplicate RPDs were within control limits.
Field triplicate RPDs	Field Triplicate RPDs were within control limits.
Laboratory duplicate RPDs	Laboratory duplicate RPDs were within control limits.
Data accuracy	
Laboratory control spike recovery	Laboratory control spike recoveries were within control limits.
Matrix spike recovery	Matrix spike recoveries were within control limits. Matrix spike recoveries were not reported for sulphur as S, pyrene, acenaphthene and TPH C_{10}-C_{36} and TRH >C_{10}-C_{40}. The accuracy of the data for these compound groups is considered acceptable based on the presence of other quality control data, such as method blanks, LCS recoveries and surrogate recoveries (where applicable).
Surrogate spike recovery	Surrogate recoveries were within control limits.
Blank monitoring	
Rinsate blank	Concentrations of all analytes were reported below the LOR.
Field blank	Concentrations of all analytes were reported below the LOR.
Trip blank	Concentrations of volatile TPH and TRH were reported below the LOR.
Method blank	Concentrations of all analytes were reported below the LOR.
Other observations	**Batch ES1305223** • EG020: Some samples (MW10_060313) were diluted and re-run due to matrix interference and LORs have been raised accordingly (High Total Dissolved Solids).

Site Name - Waterfront Precinct
Project No - 42213719
Project Manager - Tim Smith
Matrix - Water
Laboratory - ALS Labmark
Batch File Number - ES1304969 / 86813

Analytical Method	Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Number of Primary Samples	Holding Times (a)	Limits of Reporting (b)	Field Blank (1 per day)		Rinsate Blank (1 per day)		Trip Blank (1 per esky with VOCs)		Method Blank (1 per batch)		Intra-Laboratory Duplicate Sample (1 in 20)		Inter-Laboratory Duplicate Sample (1 in 20)		Lab Duplicate (1 in 10)		Matrix Spike (1 in 20)		LCS (1 per batch)		Surrogates (GC-MS organics)	
							Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Reported	OK
METALS ANALYSIS/ALS/EG020F	Arsenic	9	9	5	✓	✗	1	1	1	1	0	0	1	3	1	1	1	1	1	5	1	3	1	3	-	-
	Cadmium	9	9	5	✓	✗	1	1	1	1	0	0	1	3	1	1	1	1	1	5	1	3	1	3	-	-
	Chromium	9	9	5	✓	✓	1	1	1	1	0	0	1	3	1	1	1	1	1	5	1	3	1	3	-	-
	Copper	9	9	5	✓	✗	1	1	1	1	0	0	1	3	1	1	1	1	1	5	1	3	1	3	-	-
	Lead	9	9	5	✓	✗	1	1	1	1	0	0	1	3	1	1	1	1	1	5	1	3	1	3	-	-
	Manganese	9	9	5	✓	✓	1	1	1	1	0	0	1	3	1	1	1	1	1	5	1	3	1	3	-	-
	Nickel	9	9	5	✓	✓	1	1	1	1	0	0	1	3	1	1	1	1	1	5	1	3	1	3	-	-
	Vanadium	9	9	5	✓	✗	1	1	1	1	0	0	1	2	1	1	1	1	1	5	1	3	1	3	-	-
	Zinc	9	9	5	✓	✗	1	1	1	1	0	0	1	3	1	1	1	1	1	5	1	3	1	3	-	-
VOLATILES ANALYSIS/ALS/EP080	Benzene	9	9	5	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	✓	✓
	Ethylbenzene	9	9	5	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	✓	✓
	meta- & para-Xylene	9	9	5	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	✓	✓
	Naphthalene	9	9	5	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	✓	✓
	ortho-Xylene	9	9	5	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	✓	✓
	Toluene	9	9	5	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	✓	✓
VOLATILES ANALYSIS/ALS/EP080/071	C6 - C10 Fraction	9	9	5	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	✓	✓
	C6 - C9 Fraction	10	10	5	✓	✓	1	1	1	1	1	1	1	2	1	1	1	1	1	3	1	2	1	2	✓	✓
SEMIVOLATILES ANALYSIS/ALS/EP075(SIM)B	Acenaphthene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	1	0	1	1	✓	✓
	Acenaphthylene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Anthracene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benz(a)anthracene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benzo(a)pyrene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benzo(b)fluoranthene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benzo(g,h,i)perylene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benzo(k)fluoranthene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Chrysene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Dibenz(a,h)anthracene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Fluoranthene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Fluorene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Indeno(1,2,3-cd)pyrene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Naphthalene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Phenanthrene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Pyrene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	1	0	1	1	✓	✓
SEMIVOLATILES ANALYSIS/ALS/EP080/071	>C10 - C16 Fraction	8	8	4	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	-	-
	>C16 - C34 Fraction	8	8	4	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	-	-
	>C34 - C40 Fraction	8	8	4	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	-	-
	C10 - C14 Fraction	8	8	4	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	-	-
	C15 - C28 Fraction	8	8	4	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	-	-
	C29 - C36 Fraction	8	8	4	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	-	-
VOLATILES ANALYSIS/ALS/EP033	Methane	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
METALS ANALYSIS/ALS/ED093F	Calcium	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	0	0	1	1	-	-
	Magnesium	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	0	0	1	1	-	-
	Potassium	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	0	0	1	1	-	-
	Sodium	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	0	0	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/EK057G	Nitrite as N	7	7	4	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/EG051G	Ferrous Iron	6	6	4	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/EK059G	Nitrite + Nitrate as N	6	6	4	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED041G	Sulfate as SO4 - Turbidimetric	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
VOLATILES ANALYSIS/ALS/EP074G	Bromodichloromethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Bromoform	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Chloroform	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Dibromochloromethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074B	2-Butanone (MEK)	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	2-Hexanone (MBK)	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	4-Methyl-2-pentanone (MIBK)	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Vinyl Acetate	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074A	1,2,4-Trimethylbenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,3,5-Trimethylbenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Isopropylbenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	n-Butylbenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	n-Propylbenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	p-Isopropyltoluene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	sec-Butylbenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Styrene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	tert-Butylbenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓

Site Name - Waterfront Precinct
Project No - 42213719
Project Manager - Tim Smith
Matrix - Water
Laboratory - ALS Labmark
Batch File Number - ES1304969 / 86813

Analytical Method	Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Number of Primary Samples	Holding Times (a)	Limits of Reporting (b)	Field Blank (1 per day)		Rinsate Blank (1 per day)		Trip Blank (1 per esky with VOCs)		Method Blank (1 per batch)		Intra-Laboratory Duplicate Sample (1 in 20)		Inter-Laboratory Duplicate Sample (1 in 20)		Lab Duplicate (1 in 10)		Matrix Spike (1 in 20)		LCS (1 per batch)		Surrogates (GC-MS organics)	
							Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Reported	OK
VOLATILES ANALYSIS/ALS/EP074E	1,1,1,2-Tetrachloroethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,1,1-Trichloroethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,1,2,2-Tetrachloroethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,1,2-Trichloroethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,1-Dichloroethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,1-Dichloroethene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	1	1	1	1	✓	✓
	1,1-Dichloropropylene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,2,3-Trichloropropane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,2-Dibromo-3-chloropropane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,2-Dichloroethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,3-Dichloropropane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Bromomethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Carbon Tetrachloride	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Chloroethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Chloromethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	cis-1,2-Dichloroethene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	cis-1,4-Dichloro-2-butene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Dibromomethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Dichlorodifluoromethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Hexachlorobutadiene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Iodomethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Pentachloroethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Tetrachloroethene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	trans-1,2-Dichloroethene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	trans-1,4-Dichloro-2-butene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Trichloroethene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	1	1	1	1	✓	✓
	Trichlorofluoromethane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Vinyl chloride	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074F	1,2,3-Trichlorobenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,2,4-Trichlorobenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,2-Dichlorobenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,3-Dichlorobenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,4-Dichlorobenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	2-Chlorotoluene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	4-Chlorotoluene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Bromobenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Chlorobenzene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	1	1	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074C	Carbon disulfide	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	-
VOLATILES ANALYSIS/ALS/EP074D	1,2-Dibromoethane (EDB)	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1,2-Dichloropropane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	2,2-Dichloropropane	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	cis-1,3-Dichloropropylene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	trans-1,3-Dichloropropylene	2	2	2	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED037P	Bicarbonate Alkalinity as CaCO3	7	7	5	✓	✓	0	0	0	0	0	0	0	0	1	1	1	1	1	2	0	0	0	0	-	-
	Carbonate Alkalinity as CaCO3	7	7	5	✓	✓	0	0	0	0	0	0	0	0	1	1	1	1	1	2	0	0	0	0	-	-
	Hydroxide Alkalinity as CaCO3	7	7	5	✓	✓	0	0	0	0	0	0	0	0	1	1	1	1	1	2	0	0	0	0	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED045G	Chloride	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	2	-	-
METALS ANALYSIS/ALS/EG035F	Mercury	9	9	5	✓	✓	1	1	1	1	0	0	1	3	1	1	1	1	1	5	1	3	1	3	-	-
METALS ANALYSIS/ALS/ED040F	Sulfur as S	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	0	1	1	-	-
WET CHEMISTRY AND PREPARATION/ALS/EA015	Total Dissolved Solids @ 180°C	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	0	0	1	2	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/EP005	Total Organic Carbon	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	-	-
WET CHEMISTRY AND PREPARATION/ALS/EK085M	Sulfide as S2-	6	6	4	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	-	-
WET CHEMISTRY AND PREPARATION/ALS/EK086	Sulfite as SO3 2-	6	6	4	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	1	1	-	-

NOTES:

(a) ✓ holding times are within project guideline limits.
× holding times exceed project guideline limits.

(b) ✓ Limits of reporting (LORs) comply with project specifications.
× LORs do not comply with project specifications.

Site Name - Waterfront Precinct
Project No - 42213719
Project Manager - Tim Smith
Matrix - Water
Laboratory - ALS / Labmark
Batch File Number - ES1305174 / 86859

Analytical Method	Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Number of Primary Samples	Holding Times (a)	Limits of Reporting (b)	Field Blank (1 per day)		Rinsate Blank (1 per day)		Trip Blank (1 per esky with VOCs)		Method Blank (1 per batch)		Intra-Laboratory Duplicate Sample (1 in 20)		Inter-Laboratory Duplicate Sample (1 in 20)		Lab Duplicate (1 in 10)		Matrix Spike (1 in 20)		LCS (1 per batch)		Surrogates (GC-MS organics)	
							Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Reported	OK
METALS ANALYSIS/ALS/EG020F	Arsenic	12	12	8	✓	×	1	1	1	1	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
	Cadmium	12	12	8	✓	×	1	1	1	1	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
	Chromium	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
	Copper	12	12	8	✓	×	1	1	1	1	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
	Lead	12	12	8	✓	×	1	1	1	1	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
	Manganese	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
	Nickel	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	4	1	1	1	1	-	-
	Vanadium	12	12	8	✓	×	1	1	1	1	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
	Zinc	12	12	8	✓	×	1	1	1	1	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
VOLATILES ANALYSIS/ALS/EP080	Benzene	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	2	2	1	1	1	1	✓	✓
	Ethylbenzene	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	2	2	1	1	1	1	✓	✓
	meta- & para-Xylene	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	2	2	1	1	1	1	✓	✓
	Naphthalene	12	12	8	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	2	2	1	1	1	2	✓	✓
	ortho-Xylene	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	2	2	1	1	1	1	✓	✓
	Toluene	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	2	2	1	1	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP080/071	C6 - C10 Fraction	13	13	8	✓	✓	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	✓	✓
	C6 - C9 Fraction	13	13	8	✓	✓	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	✓	✓
SEMIVOLATILES ANALYSIS/ALS/EP075(SIM)B	Acenaphthene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	1	0	1	1	✓	✓
	Acenaphthylene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Anthracene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benz(a)anthracene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benzo(a)pyrene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benzo(b)fluoranthene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benzo(g,h,i)perylene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benzo(k)fluoranthene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Chrysene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Dibenz(a,h)anthracene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Fluoranthene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Fluorene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Indeno(1,2,3,cd)pyrene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Naphthalene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Phenanthrene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Pyrene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	1	0	1	1	✓	✓
SEMIVOLATILES ANALYSIS/ALS/EP080/071	>C10 - C16 Fraction	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	-	-
	>C16 - C34 Fraction	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	-	-
	>C34 - C40 Fraction	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	-	-
	C10 - C14 Fraction	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	-	-
	C15 - C28 Fraction	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	-	-
	C29 - C36 Fraction	12	12	8	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	-	-
VOLATILES ANALYSIS/ALS/EP033	Methane	10	10	8	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
METALS ANALYSIS/ALS/ED093F	Calcium	10	10	8	✓	✓	0	0	0	0	0	0	1	2	1	1	1	1	1	3	0	0	1	2	-	-
	Magnesium	10	10	8	✓	✓	0	0	0	0	0	0	1	2	1	1	1	1	1	3	0	0	1	2	-	-
	Potassium	10	10	8	✓	✓	0	0	0	0	0	0	1	2	1	1	1	1	1	3	0	0	1	2	-	-
	Sodium	10	10	8	✓	✓	0	0	0	0	0	0	1	2	1	1	1	1	1	3	0	0	1	2	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/EK057G	Nitrite as N	10	10	8	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
METALS ANALYSIS/ALS/EG053FG-MS	Ferric Iron	9	9	8	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/EK059G	Nitrite + Nitrate as N	9	9	8	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED041G	Sulfate as SO4 - Turbidimetric	10	10	8	✓	✓	0	0	0	0	0	0	1	2	1	1	1	1	1	3	1	2	1	2	-	-
VOLATILES ANALYSIS/ALS/EP074G	Bromodichloromethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	Bromoform	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	Chloroform	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	Dibromochloromethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074B	2-Butanone (MEK)	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	2-Hexanone (MBK)	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	4-Methyl-2-pentanone (MIBK)	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	Vinyl Acetate	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074A	1,2,4-Trimethylbenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	1,3,5-Trimethylbenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	Isopropylbenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	n-Butylbenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	n-Propylbenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	p-Isopropyltoluene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	sec-Butylbenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	Styrene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	tert-Butylbenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓

Site Name - Waterfront Precinct
Project No - 42213719
Project Manager - Tim Smith
Matrix - Water
Laboratory - ALS / Labmark
Batch File Number - ES1305174 / 86859

Analytical Method	Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Number of Primary Samples	Holding Times (a)	Limits of Reporting (b)	Field Blank (1 per day)		Rinsate Blank (1 per day)		Trip Blank (1 per esky with VOCs)		Method Blank (1 per batch)		Intra-Laboratory Duplicate Sample (1 in 20)		Inter-Laboratory Duplicate Sample (1 in 20)		Lab Duplicate (1 in 10)		Matrix Spike (1 in 20)		LCS (1 per batch)		Surrogates (GC-MS organics)	
							Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Reported	OK
VOLATILES ANALYSIS/ALS/EP074E	1,1,1,2-Tetrachloroethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,1,1-Trichloroethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,1,2,2-Tetrachloroethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,1,2-Trichloroethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,1-Dichloroethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,1-Dichloroethene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	1	1	1	✓	✓
	1,1-Dichloropropylene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,2,3-Trichloropropane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,2-Dibromo-3-chloropropane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,2-Dichloroethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,3-Dichloropropane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Bromomethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Carbon Tetrachloride	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Chloroethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Chloromethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	cis-1,2-Dichloroethene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	cis-1,4-Dichloro-2-butene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Dibromomethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Dichlorodifluoromethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Hexachlorobutadiene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Iodomethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Pentachloroethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Tetrachloroethene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	trans-1,2-Dichloroethene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	trans-1,4-Dichloro-2-butene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Trichloroethene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	1	1	1	✓	✓
	Trichlorofluoromethane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Vinyl chloride	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074F	1,2,3-Trichlorobenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,2,4-Trichlorobenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,2-Dichlorobenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,3-Dichlorobenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	1,4-Dichlorobenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	2-Chlorotoluene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	4-Chlorotoluene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Bromobenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	0	1	1	✓	✓
	Chlorobenzene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	1	1	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074C	Carbon disulfide	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074D	1,2-Dibromoethane (EDB)	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	1,2-Dichloropropane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	2,2-Dichloropropane	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	cis-1,3-Dichloropropylene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
	trans-1,3-Dichloropropylene	5	5	5	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	2	0	0	1	1	✓	✓
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED037P	Bicarbonate Alkalinity as CaCO3	10	10	8	✓	✓	0	0	0	0	0	0	0	0	1	1	1	1	1	2	0	0	0	0	-	-
	Carbonate Alkalinity as CaCO3	10	10	8	✓	✓	0	0	0	0	0	0	0	0	1	1	1	1	1	2	0	0	0	0	-	-
	Hydroxide Alkalinity as CaCO3	10	10	8	✓	✓	0	0	0	0	0	0	0	0	1	1	1	1	1	2	0	0	0	0	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED045G	Chloride	10	10	8	✓	✓	0	0	0	0	0	0	1	2	1	1	1	1	1	3	1	2	1	4	-	-
WET CHEMISTRY AND PREPARATION/ALS/EK085M	Sulfide as S2-	10	10	8	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
METALS ANALYSIS/ALS/ED040F	Sulfur as S	10	10	8	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	0	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/EG051G	Ferrous Iron	10	10	8	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-
WET CHEMISTRY AND PREPARATION/ALS/EA015	Total Dissolved Solids @180°C	10	10	8	✓	✓	0	0	0	0	0	0	1	2	1	1	1	1	1	4	0	0	1	4	-	-
METALS ANALYSIS/ALS/EG035F	Mercury	12	12	6	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	-	-
WET CHEMISTRY AND PREPARATION/ALS/EK086	Sulfite as SO3 2-	10	10	8	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	0	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/EP005	Total Organic Carbon	10	10	8	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	1	-	-

NOTES:

(a) ✓ holding times are within project guideline limits.
× holding times exceed project guideline limits.

(b) ✓ Limits of reporting (LORs) comply with project specifications.
× LORs do not comply with project specifications.

Site Name - Waterfront Precinct
Project No - 42213719
Project Manager - Tim Smith
Matrix - Water
Laboratory - ALS
Batch File Number - ES1305223

Analytical Method	Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Number of Primary Samples	Holding Times (a)	Limits of Reporting (b)	Field Blank (1 per day)		Rinsate Blank (1 per day)		Trip Blank (1 per esky with VOCs)		Method Blank (1 per batch)		Intra-Laboratory Duplicate Sample (1 in 20)		Inter-Laboratory Duplicate Sample (1 in 20)		Lab Duplicate (1 in 10)		Matrix Spike (1 in 20)		LCS (1 per batch)		Surrogates (GC-MS organics)	
							Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Reported	OK
METALS ANALYSIS/ALS/EG020F	Arsenic	7	7	5	✓	×	1	1	1	1	0	0	1	2	1	1	1	0	1	2	1	1	1	1	-	-
	Cadmium	7	7	5	✓	×	1	1	1	1	0	0	1	2	1	1	1	0	1	2	1	1	1	1	-	-
	Chromium	7	7	5	✓	✓	1	1	1	1	0	0	1	2	1	1	1	0	1	2	1	1	1	1	-	-
	Copper	7	7	5	✓	×	1	1	1	1	0	0	1	2	1	1	1	0	1	2	1	1	1	1	-	-
	Lead	7	7	5	✓	×	1	1	1	1	0	0	1	2	1	1	1	0	1	2	1	1	1	1	-	-
	Manganese	7	7	5	✓	✓	1	1	1	1	0	0	1	2	1	1	1	0	1	2	1	1	1	1	-	-
	Nickel	7	7	5	✓	✓	1	1	1	1	0	0	1	2	1	1	1	0	1	2	1	1	1	1	-	-
	Vanadium	7	7	5	✓	×	1	1	1	1	0	0	1	2	1	1	1	0	1	2	1	1	1	1	-	-
	Zinc	7	7	5	✓	×	1	1	1	1	0	0	1	2	1	1	1	0	1	2	1	1	1	1	-	-
VOLATILES ANALYSIS/ALS/EP080	Benzene	9	9	5	✓	✓	1	1	1	1	0	0	1	3	1	1	1	0	1	2	1	2	1	2	✓	✓
	Ethylbenzene	9	9	5	✓	✓	1	1	1	1	0	0	1	3	1	1	1	0	1	2	1	2	1	2	✓	✓
	meta- & para-Xylene	9	9	5	✓	✓	1	1	1	1	0	0	1	3	1	1	1	0	1	2	1	2	1	2	✓	✓
	Naphthalene	9	9	5	✓	✓	1	1	1	1	0	0	1	4	1	1	1	0	1	2	1	2	1	2	✓	✓
	ortho-Xylene	9	9	5	✓	✓	1	1	1	1	0	0	1	3	1	1	1	0	1	2	1	2	1	2	✓	✓
	Toluene	9	9	5	✓	✓	1	1	1	1	0	0	1	3	1	1	1	0	1	2	1	2	1	2	✓	✓
VOLATILES ANALYSIS/ALS/EP080/071	C6 - C10 Fraction	10	10	5	✓	✓	1	1	1	1	1	1	1	2	1	1	1	0	1	3	1	2	1	2	✓	✓
	C6 - C9 Fraction	10	10	5	✓	✓	1	1	1	1	1	1	1	2	1	1	1	0	1	3	1	2	1	2	✓	✓
SEMIVOLATILES ANALYSIS/ALS/EP075(SIM)B	Acenaphthene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	1	0	1	1	✓	✓
	Acenaphthylene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Anthracene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benz(a)anthracene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benzo(a)pyrene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benzo(b)fluoranthene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benzo(g,h,i)perylene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Benzo(k)fluoranthene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Chrysene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Dibenz(a,h)anthracene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Fluoranthene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Fluorene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Indeno(1,2,3,cd)pyrene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Naphthalene	1	1	1	✓	✓	0	0	0	0	0	0	1	4	1	0	1	0	1	0	0	0	1	1	✓	✓
	Phenanthrene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	1	1	✓	✓
	Pyrene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	0	1	0	1	1	✓	✓
SEMIVOLATILES ANALYSIS/ALS/EP080/071	>C10 - C16 Fraction	9	9	5	✓	✓	1	1	1	1	0	0	1	1	1	1	1	0	1	0	1	0	1	1	-	-
	>C16 - C34 Fraction	9	9	5	✓	✓	1	1	1	1	0	0	1	1	1	1	1	0	1	0	1	0	1	1	-	-
	>C34 - C40 Fraction	9	9	5	✓	✓	1	1	1	1	0	0	1	1	1	1	1	0	1	0	1	0	1	1	-	-
	C10 - C14 Fraction	9	9	5	✓	✓	1	1	1	1	0	0	1	1	1	1	1	0	1	0	1	0	1	1	-	-
	C15 - C28 Fraction	9	9	5	✓	✓	1	1	1	1	0	0	1	1	1	1	1	0	1	0	1	0	1	1	-	-
	C29 - C36 Fraction	9	9	5	✓	✓	1	1	1	1	0	0	1	1	1	1	1	0	1	0	1	0	1	1	-	-
VOLATILES ANALYSIS/ALS/EP033	Methane	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	2	1	1	1	1	-	-
METALS ANALYSIS/ALS/ED093F	Calcium	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	2	0	0	1	1	-	-
	Magnesium	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	2	0	0	1	1	-	-
	Potassium	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	2	0	0	1	1	-	-
	Sodium	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	2	0	0	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/EK057G	Nitrite as N	7	7	5	×	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	2	1	1	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED041G	Sulfate as SO4 - Turbidimetric	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	2	1	1	1	1	-	-

Site Name - Waterfront Precinct
Project No - 42213719
Project Manager - Tim Smith
Matrix - Water
Laboratory - ALS
Batch File Number - ES1305223

Analytical Method	Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Number of Primary Samples	Holding Times (a)	Limits of Reporting (b)	Field Blank (1 per day)		Rinsate Blank (1 per day)		Trip Blank (1 per esky with VOCs)		Method Blank (1 per batch)		Intra-Laboratory Duplicate Sample (1 in 20)		Inter-Laboratory Duplicate Sample (1 in 20)		Lab Duplicate (1 in 10)		Matrix Spike (1 in 20)		LCS (1 per batch)		Surrogates (GC-MS organics)	
							Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Reported	OK
VOLATILES ANALYSIS/ALS/EP074G	Bromodichloromethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Bromoform	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Chloroform	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Dibromochloromethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074B	2-Butanone (MEK)	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	2-Hexanone (MBK)	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	4-Methyl-2-pentanone (MIBK)	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Vinyl Acetate	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074A	1.2.4-Trimethylbenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.3.5-Trimethylbenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Isopropylbenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	n-Butylbenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	n-Propylbenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	p-Isopropyltoluene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	sec-Butylbenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Styrene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	tert-Butylbenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074E	1.1.1.2-Tetrachloroethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.1.1-Trichloroethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.1.2.2-Tetrachloroethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.1.2-Trichloroethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.1-Dichloroethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.1-Dichloroethene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	1	1	1	1	✓	✓
	1.1-Dichloropropylene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.2.3-Trichloropropane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.2-Dibromo-3-chloropropane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.2-Dichloroethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.3-Dichloropropane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Bromomethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Carbon Tetrachloride	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Chloroethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Chloromethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	cis-1.2-Dichloroethene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	cis-1.4-Dichloro-2-butene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Dibromomethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Dichlorodifluoromethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Hexachlorobutadiene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Iodomethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Pentachloroethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Tetrachloroethene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	trans-1.2-Dichloroethene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	trans-1.4-Dichloro-2-butene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Trichloroethene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	1	1	1	1	✓	✓
	Trichlorofluoromethane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Vinyl chloride	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074F	1.2.3-Trichlorobenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.2.4-Trichlorobenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.2-Dichlorobenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.3-Dichlorobenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.4-Dichlorobenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	2-Chlorotoluene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	4-Chlorotoluene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Bromobenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	Chlorobenzene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	1	1	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074C	Carbon disulfide	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP074D	1.2-Dibromoethane (EDB)	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	1.2-Dichloropropane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	2.2-Dichloropropane	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	cis-1.3-Dichloropropylene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
	trans-1.3-Dichloropropylene	1	1	1	✓	✓	0	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	1	✓	✓
METALS ANALYSIS/ALS/EG035F	Mercury	7	7	5	✓	✓	1	1	1	1	0	0	1	2	1	1	1	0	1	2	1	1	1	2	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED037P	Bicarbonate Alkalinity as CaCO3	7	7	5	✓	✓	0	0	0	0	0	0	0	0	1	1	1	0	1	2	0	0	0	0	-	-
	Carbonate Alkalinity as CaCO3	7	7	5	✓	✓	0	0	0	0	0	0	0	0	1	1	1	0	1	2	0	0	0	0	-	-
	Hydroxide Alkalinity as CaCO3	7	7	5	✓	✓	0	0	0	0	0	0	0	0	1	1	1	0	1	2	0	0	0	0	-	-
WET CHEMISTRY AND PREPARATION/ALS/EK086	Sulfite as SO3 2-	7	7	5	✗	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	0	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED045G	Chloride	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	2	1	1	1	2	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/EG051G	Ferrous Iron	5	5	5	✓	✓	0	0	0	0	0	0	1	1	0	0	1	0	1	2	1	1	1	1	-	-
WET CHEMISTRY AND PREPARATION/ALS/EA015	Total Dissolved Solids @180°C	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	2	0	0	1	2	-	-
WET CHEMISTRY AND PREPARATION/ALS/EK085M	Sulfide as S2-	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	2	1	1	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/EP005	Total Organic Carbon	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	2	1	1	1	1	-	-
METALS ANALYSIS/ALS/ED040F	*Sulfur as S*	7	7	5	✓	✓	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	0	1	1	-	-

DATA VALIDATION REPORT_GME June 2013

URS Project number:	42213719	**Data verified by:**	Bek Aagaard	Date: 13/09/2013
Client:	Darwin Waterfront Corporation			
Site:	Waterfront Precinct	Signed:	Ubeke Aagaard	
URS Project Manager:	Jacques van Rensburg			
		Validation by:	Mitchell Bacon	Date: 11/11/2013
Matrix type:	Water	Signed:		
No Primary samples:	10			
Laboratory:	ALS / Labmark			
Lab reference:	ES1314375 /384097 ES1314611	**Project Manager:**	Jacques van Rensburg	

Data quality objectives

Field data comparison

No apparent anomalies were observed between laboratory results and field observations (batches ES1314375 and ES1314611).

Frequency of field QC

Field QC samples were collected at a higher frequency than specified in project specifications.

		Discrepancy	Frequency	Required Frequency
Intra-laboratory Duplicates Taken	2	None noted	2	1
Inter-laboratory Duplicates Taken	2	None noted	1	1
Intra-laboratory Duplicates Analysed	2	None noted	2	1
Inter-laboratory Duplicates Analysed	2	None noted	1	1
		Total Frequency	**3**	**2**

Frequency of laboratory QC

The laboratory reported a sufficient frequency of QC to assess whether the results have been reported to an acceptable accuracy and precision, with the exception of the following:

- Inter-laboratory duplicates were not analysed at the required frequency for bicarbonate alkalinity as $CaCO_3$ and carbonate alkalinity as $CaCO_3$. However, the presence of intra-laboratory duplicates and laboratory duplicates for these analytes at the required frequency, with acceptable RPDs, and appropriate laboratory QC. The precision of data is considered sufficient for interpretation of the results except for bicarbonate alkalinity as $CaCO_3$ and carbonate alkalinity as $CaCO_3$.
- Laboratory duplicates were not reported for TPH C_{10}-C_{36} and TRH >C_{10}-C_{40} for batch ES1314375. The precision of TPH and TPH results has been considered acceptable based on the presence intra- and inter-laboratory duplicates were available and acceptable.

Tests requested/reported

Samples were analysed and reported as requested on the COC for batches ES1314375 and ES1314611.

Limits of reporting

LORs were sufficiently low to enable assessment against adopted guideline criteria.

Data transcription

A random 10% check of the laboratory results identified no anomalies within the electronic data, the laboratory reports, and tables generated by URS.

Sample management

Chain of Custody

Samples were analysed and reported as requested on the COC with the following exception:

According to the SRN field filtered metals bottles for QCB_260613 (field blank) and QCC_260613 (rinsate blank) were not supplied to the laboratory; consequently, the 'Clear Plastic Bottle – Natural' was subsampled, laboratory filtered and analysed for dissolved metals and mercury. Hence, due to not being acidified or field filtered, reported metal concentrations may not accurately represent field concentrations, and this should be taken into consideration when interpreting metals results for these samples. The reported metals concentrations are consistent with historical results for the affected monitoring wells and the results for these analytes are assessed as acceptable for interpretation.

Handling and preservation

Samples were transported with ice bricks and were received at 0.3°C and 0.2°C in batches ES1314375 and ES1314611, respectively. Samples from batches ES1314375 and ES1314611 were received below the recommended temperature range for water samples on receipt (4°C, ± 2°C).

Holding time compliance	Samples were extracted and analysed within recommended holding times, with the following exceptions: • Dissolved metals analysis was exceeded by 5 days for samples QCB01_250613 (field blank) and QCB01_250613 (rinsate blank) in batch ES1314374. As all results for these analytes were reported below LOR in the field blank and rinsate blank, there is no evidence of cross-contamination and the potential underreporting of dissolved metals in these samples is not considered to affect the interpretation of the results.
Data precision	
Field duplicate RPDs	Field duplicate RPDs were within control limits for batches ES1314375 and ES1314611.
Field triplicate RPDs	Field triplicate RPDs were within control limits for batches ES1314375 and ES1314611.
Laboratory duplicate RPDs	Laboratory duplicate RPDs were within control limits for batches ES1314375 and ES1314611.
Data accuracy	
Laboratory control spike recovery	Laboratory control spike recoveries were within control limits for batches ES1314375 and ES1314611.
Matrix spike recovery	The following recoveries were outside control limits and may affect data interpretation:

Sample	Analyte	Recovery (%)	LCL (%)	UCL (%)	Comment
Anonymous	Chloride	Not determined	-	-	MS recovery not determined, background level greater than or equal to 4x spike level.
Anonymous	TPH C_{10}-C_{14} fraction	Not determined	-	-	MS recovery not determined, background level greater than or equal to 4x spike level.
Anonymous	TRH >C_{10}-C_{16} fraction	Not determined	-	-	MS recovery not determined, background level greater than or equal to 4x spike level.

	The matrix spike for chloride (batch ES1314375) and TPH C_{10}-C_{14} fraction and TRH >C_{10}-C_{16} fraction (batch ES1314611) were not determined due to background levels being greater than the spike level. As this does not reflect method bias, the accuracy of the results for these analytes are assessed as acceptable, due to the presence of other laboratory quality control data, including method blanks, LCS recoveries and surrogate recoveries for analytes analysed under the same analytical method. Matrix spike recoveries were not reported for TPH C_{10}-C_{14} and TRH >C_{10}-C_{16} fractions in batch ES1314375. The accuracy of the data for these compound groups is considered acceptable based on the presence of other quality control data, such as method blanks, LCS recoveries and surrogate recoveries (where applicable).
Surrogate spike recovery	Surrogate recoveries were within control limits.
Blank monitoring	
Rinsate blank	Concentrations of all analytes were reported below the LOR.
Field blank	Concentrations of all analytes were reported below the LOR.
Trip blank	Concentrations of volatile TPH and TRH were reported below the LOR.
Method blank	Concentrations of all analytes were reported below the LOR.
Other observations	**Batch ES1314611** • EG020: LOR's have been raised due to matrix interference (High Total Dissolved Solids).

Site Name - Waterfront Precinct
Project No - 42213719
Project Manager - Tim Smith
Matrix - Water
Laboratory - ALS / Labmark
Batch File Number - ES1314375 / 384097

Analytical Method	Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Number of Primary Samples	Holding Times (a)	Limits of Reporting (b)	Field Blank (1 per day)		Rinsate Blank (1 per day)		Trip Blank (1 per esky with VOCs)		Method Blank (1 per batch)		Intra-Laboratory Duplicate Sample (1 in 20)		Inter-Laboratory Duplicate Sample (1 in 20)		Lab Duplicate (1 in 10)		Matrix Spike (1 in 20)		LCS (1 per batch)		Surrogates (GC-MS organics)	
							Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Reported	OK
METALS ANALYSIS/ALS/EG020F	Arsenic	5	5	1	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	-	-
	Cadmium	5	5	1	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	-	-
	Chromium	5	5	1	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	-	-
	Copper	5	5	1	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	-	-
	Lead	5	5	1	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	-	-
	Manganese	5	5	1	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	-	-
	Nickel	5	5	1	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	-	-
	Vanadium	5	5	1	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	-	-
	Zinc	5	5	1	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	3	1	2	1	2	-	-
VOLATILES ANALYSIS/ALS/EP080	Benzene	6	6	1	✓	✓	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	✓	✓
	Ethylbenzene	6	6	1	✓	✓	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	✓	✓
	meta- & para-Xylene	6	6	1	✓	✓	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	✓	✓
	Naphthalene	6	6	1	✓	✓	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	✓	✓
	ortho-Xylene	6	6	1	✓	✓	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	✓	✓
	Toluene	6	6	1	✓	✓	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP080/071	C6 - C10 Fraction	6	6	1	✓	✓	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	✓	✓
	C6 - C9 Fraction	6	6	1	✓	✓	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	✓	✓
SEMIVOLATILES ANALYSIS/ALS/EP080/071	>C10 - C16 Fraction	5	5	1	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	-	-
	>C16 - C34 Fraction	5	5	1	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	-	-
	>C34 - C40 Fraction	5	5	1	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	-	-
	C10 - C14 Fraction	5	5	1	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	-	-
	C15 - C28 Fraction	5	5	1	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	-	-
	C29 - C36 Fraction	5	5	1	✓	✓	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	1	1	-	-
METALS ANALYSIS/ALS/ED093F	Calcium	3	3	1	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	0	0	1	1	-	-
	Magnesium	3	3	1	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	0	0	1	1	-	-
	Potassium	3	3	1	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	0	0	1	1	-	-
	Sodium	3	3	1	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	0	0	1	1	-	-
WET CHEMISTRY AND PREPARATION/ALS/EA015	Total Dissolved Solids @180°C	3	3	1	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	0	0	1	2	-	-
METALS ANALYSIS/ALS/EG035F	Mercury	5	5	1	✓	✓	1	1	1	1	0	0	1	2	1	1	1	1	1	2	1	2	1	2	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED037P	Bicarbonate Alkalinity as CaCO3	3	3	1	✓	✓	0	0	0	0	0	0	0	0	1	1	1	0	1	2	0	0	0	0	-	-
	Carbonate Alkalinity as CaCO3	3	3	1	✓	✓	0	0	0	0	0	0	0	0	1	1	1	1	1	2	0	0	0	0	-	-
	Hydroxide Alkalinity as CaCO3	3	3	1	✓	✓	0	0	0	0	0	0	0	0	1	1	1	0	1	2	0	0	0	0	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED045G	Chloride	3	3	1	✓	✓	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	1	2	-	-

NOTES:

(a) ✓ holding times are within project guideline limits.
× holding times exceed project guideline limits.

(b) ✓ Limits of reporting (LORs) comply with project specifications.
× LORs do not comply with project specifications.

Site Name - Waterfront Precinct
Project No - 42213719
Project Manager - Tim Smith
Matrix - Water
Laboratory - ALS
Batch File Number - ES1314611

Analytical Method	Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Number of Primary Samples	Holding Times (a)	Limits of Reporting (b)	Field Blank (1 per day)		Rinsate Blank (1 per day)		Trip Blank (1 per esky with VOCs)		Method Blank (1 per batch)		Intra-Laboratory Duplicate Sample (1 in 20)		Inter-Laboratory Duplicate Sample (1 in 20)		Lab Duplicate (1 in 10)		Matrix Spike (1 in 20)		LCS (1 per batch)		Surrogates (GC-MS organics)	
							Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Reported	OK
METALS ANALYSIS/ALS/EG020F	Arsenic	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	1	1	1	-	-
	Cadmium	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	1	1	1	-	-
	Chromium	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	1	1	1	-	-
	Copper	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	1	1	1	-	-
	Lead	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	1	1	1	-	-
	Manganese	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	1	1	1	-	-
	Nickel	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	1	1	1	-	-
	Vanadium	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	1	1	1	-	-
	Zinc	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	1	1	1	-	-
VOLATILES ANALYSIS/ALS/EP080	Benzene	13	13	9	✓	✓	1	1	1	1	1	1	1	1	1	1	0	0	2	2	1	1	1	1	✓	✓
	Ethylbenzene	13	13	9	✓	✓	1	1	1	1	1	1	1	1	1	1	0	0	2	2	1	1	1	1	✓	✓
	meta- & para-Xylene	13	13	9	✓	✓	1	1	1	1	1	1	1	1	1	1	0	0	2	2	1	1	1	1	✓	✓
	Naphthalene	13	13	9	✓	✓	1	1	1	1	1	1	1	1	1	1	0	0	2	2	1	1	1	1	✓	✓
	ortho-Xylene	13	13	9	✓	✓	1	1	1	1	1	1	1	1	1	1	0	0	2	2	1	1	1	1	✓	✓
	Toluene	13	13	9	✓	✓	1	1	1	1	1	1	1	1	1	1	0	0	2	2	1	1	1	1	✓	✓
VOLATILES ANALYSIS/ALS/EP080/071	C6 - C10 Fraction	13	13	9	✓	✓	1	1	1	1	1	1	1	1	1	1	0	0	2	2	1	1	1	1	✓	✓
	C6 - C9 Fraction	13	13	9	✓	✓	1	1	1	1	1	1	1	1	1	1	0	0	2	2	1	1	1	1	✓	✓
SEMIVOLATILES ANALYSIS/ALS/EP080/071	>C10 - C16 Fraction	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	2	1	2	-	-
	>C16 - C34 Fraction	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	2	1	2	-	-
	>C34 - C40 Fraction	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	2	1	2	-	-
	C10 - C14 Fraction	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	2	1	2	-	-
	C15 - C28 Fraction	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	2	1	2	-	-
	C29 - C36 Fraction	12	12	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	2	1	2	1	2	-	-
METALS ANALYSIS/ALS/ED093F	Calcium	10	10	9	✓	✓	0	0	0	0	0	0	1	2	1	1	0	0	1	4	0	0	1	2	-	-
	Magnesium	10	10	9	✓	✓	0	0	0	0	0	0	1	2	1	1	0	0	1	4	0	0	1	2	-	-
	Potassium	10	10	9	✓	✓	0	0	0	0	0	0	1	2	1	1	0	0	1	4	0	0	1	2	-	-
	Sodium	10	10	9	✓	✓	0	0	0	0	0	0	1	2	1	1	0	0	1	4	0	0	1	2	-	-
METALS ANALYSIS/ALS/EG035F	Mercury	13	13	9	✓	✓	1	1	1	1	0	0	1	2	1	1	0	0	2	4	1	1	1	1	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED037P	Bicarbonate Alkalinity as CaCO3	10	10	9	✓	✓	0	0	0	0	0	0	0	0	1	1	0	0	1	2	0	0	0	0	-	-
	Carbonate Alkalinity as CaCO3	10	10	9	✓	✓	0	0	0	0	0	0	0	0	1	1	0	0	1	2	0	0	0	0	-	-
	Hydroxide Alkalinity as CaCO3	10	10	9	✓	✓	0	0	0	0	0	0	0	0	1	1	0	0	1	2	0	0	0	0	-	-
INSTRUMENT LABORATORY (NON-METALLICS)/ALS/ED045G	Chloride	10	10	9	✓	✓	0	0	0	0	0	0	1	2	1	1	0	0	1	4	1	2	1	4	-	-
WET CHEMISTRY AND PREPARATION/ALS/EA015	Total Dissolved Solids @ 180°C	10	10	9	✓	✓	0	0	0	0	0	0	1	2	1	1	0	0	1	4	0	0	1	4	-	-

NOTES:

(a) ✓ holding times are within project guideline limits.
× holding times exceed project guideline limits.

(b) ✓ Limits of reporting (LORs) comply with project specifications.
× LORs do not comply with project specifications.

Groundwater Analytical Results - March and June 2013 GME

Location	MW09	MW10	MW101	MW101	MW101	MW102	MW103	MW108	MW108	MW108	MW115	MW115	MW116	MW116	MW116	MW116
Sample ID	MW09_060313	MW10_060313	MW101_060313	QAQC05_060313	QAQC06_060313	MW102_060313	MW103_040213	MW108_050313	MW108_260613	QAQC04_260613	MW115_050313	MW115_270613	MW116_050313	MW116_250613	QAQC01_250613	QAQC02_250613
Sampled Date	6/03/2013	6/03/2013	6/03/2013	6/03/2013	6/03/2013	6/03/2013	4/03/2013	5/03/2013	26/06/2013	26/06/2013	5/03/2013	27/06/2013	5/03/2013	25/06/2013	25/06/2013	25/06/2013
Sample Type	Normal	Normal	Normal	Duplicate	Duplicate	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Duplicate	Triplicate
SDG	ES1305223	ES1305223	ES1305223	ES1305223	ES1305223	ES1305223	ES1304969	ES1305174	ES1314611	ES1314611	ES1305174	ES1314611	ES1305174	ES1314375	ES1314375	27/06/2013

Chem_Group	ChemName	output unit	EQL	Adopted IIs														
Alkalinity	Bicarbonate as HCO3	mg/L			161.04	361.12	151.28	148.84	147.62	191.54	156.16	337.94	318.42	305	901.58	778.36	62.22	106.14	107.36	-
	Carbonate as CO3	mg/L			0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	-
	Bicarbonate Alkalinity as CaCO3	mg/L	1		132	296	124	122	121	157	128	277	261	250	739	638	51	87	88	-
	Carbonate Alkalinity as CaCO3	mg/L	1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10
	Hydroxide Alkalinity as CaCO3	mg/L	1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
	Total Alkalinity as CaCO3	mg/L	1		132	296	124	122	121	157	128	277	261	250	739	638	51	87	88	-
BTEXN Compounds	Toluene	µg/L	2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1
	Benzene	µg/L	1	700	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	µg/L	2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1
	m&p-Xylene	µg/L	2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	o-Xylene	µg/L	2	350	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1
	Total Xylenes	µg/L	2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<3
	Total BTEX	µg/L	1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<6
	Naphthalene (VOC)	µg/L	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20
C1 - C4 Hydrocarbon Gases	Methane	mg/L	0.01		<0.01	0.067	<0.01	<0.01	<0.01	<0.01	0.135	11.9	-	-	16.2	-	<0.01	-	-	-
Chlorinated Hydrocarbons	1,2-Dichloroethene	µg/L			<10	<10	-	-	-	-	<10	-	-	-	<10	-	<10	-	-	-
Ferrous/Ferric Iron	Ferrous Iron	mg/L	0.05		0.31	11.3	0.06	-	-	<0.05	-	7.27	-	-	1.76	-	6.62	-	-	-
	Ferric Iron (Dissolved)	mg/L	0.05		<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	-	-	1	-	<0.05	-	-	-
Fumigants	Bromomethane	µg/L	50		-	<50	-	-	-	-	<50	-	-	-	<50	-	<50	-	-	-
	1,2-Dibromoethane (EDB)	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,2-Dichloropropane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	2,2-Dichloropropane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	cis-1,3-Dichloropropene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	trans-1,3-Dichloropropene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
Halogenated Aliphatic Compounds	1,1,1-Trichloroethane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,1-Dichloroethane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,1-Dichloroethene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,2-Dichloroethane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Carbon Tetrachloride	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Chloroethane	µg/L	50		-	<50	-	-	-	-	<50	-	-	-	<50	-	<50	-	-	-
	cis-1,2-Dichloroethene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Dichlorodifluoromethane	µg/L	50		-	<50	-	-	-	-	<50	-	-	-	<50	-	<50	-	-	-
	Hexachlorobutadiene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Tetrachloroethene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	trans-1,2-Dichloroethene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Trichloroethene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Trichlorofluoromethane	µg/L	50		-	<50	-	-	-	-	<50	-	-	-	<50	-	<50	-	-	-
	Vinyl chloride	µg/L	50		-	<50	-	-	-	-	<50	-	-	-	<50	-	<50	-	-	-
	1,1,1,2-Tetrachloroethane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,1,2,2-Tetrachloroethane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,1,2-Trichloroethane	µg/L	5	1900	-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,1-Dichloropropene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,2,3-Trichloropropane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,2-Dibromo-3-chloropropane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,3-Dichloropropane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Chloromethane	µg/L	50		-	<50	-	-	-	-	<50	-	-	-	<50	-	<50	-	-	-
	cis-1,4-Dichloro-2-butene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Dibromomethane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Iodomethane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Pentachloroethane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	trans-1,4-Dichloro-2-butene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
Halogenated Aromatic Compounds	Chlorobenzene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,2,3-Trichlorobenzene	µg/L	5	10	-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,2,4-Trichlorobenzene	µg/L	5	80	-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,2-Dichlorobenzene	µg/L	5	160	-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,3-Dichlorobenzene	µg/L	5	260	-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,4-Dichlorobenzene	µg/L	5	60	-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	2-Chorotoluene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	4-Chlorotoluene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Bromobenzene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
Major Ions	Chloride (Dissolved)	mg/L	1		14,800	13,100	480	480	481	274	22	1470	1150	1140	17,900	16,200	297	614	625	680
	Calcium (Dissolved)	mg/L	1		443	390	74	76	75	96	56	88	74	74	65	110	54	83	84	67
	Magnesium (Dissolved)	mg/L	1		1250	1040	43	44	44	25	7	66	54	54	926	935	22	40	41	38
	Potassium (Dissolved)	mg/L	1		395	330	13	14	13	13	15	31	35	35	379	360	10	17	18	14
	Sodium (Dissolved)	mg/L	1		11,200	9790	307	300	302	173	21	901	746	756	11,100	10,000	212	476	485	420
	Sulphide (as S2-) (Dissolved)	mg/L	0.1		0.3	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	0.6	-	<0.1	-	-	-
	Sulphite (as SO3-) (Dissolved)	mg/L	2		<2	<2	<2	<2	<2	<2	-	<2	-	-	<2	-	<2	-	-	-
	Sulphur (as S) (Dissolved)	mg/L	1		864	640	53	55	54	45	14	<1	-	-	<1	-	54	-	-	-
	Sulphate (as SO4-) (Dissolved)	mg/L	1		2520	1920	140	145	140	120	33	3	-	-	2	-	190	-	-	-
	Total Anions (Dissolved)	meq/L	0.01		473	415	18.9	19	18.9	13.4	4.5	47.1	-	-	520	-	13.4	-	-	-
	Total Cations (Dissolved)	meq/L	0.01		492	437	20.9	20.8	20.8	14.7	4.67	49.8	-	-	572	-	14	-	-	-
	Ionic Ballance (Dissolved)	%	0.01		1.98	2.56	4.98	4.58	4.86	4.78	1.81	2.82	-	-	4.77	-	2.3	-	-	-
Metals	Arsenic (Dissolved)	mg/L	0.001	0.1	0.003	<0.01	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.01	<0.01	0.002	0.001	-	0.003
	Cadmium (Dissolved)	mg/L	0.0001	0.0002	<0.0001	<0.001*	0.0007	0.0006	0.0005	0.0006	0.0112	<0.0001	<0.0001	<0.0001	<0.001*	<0.001*	0.0001	<0.0001	-	<0.0002
	Chromium (Dissolved)	mg/L	0.001	0.0044	<0.001	<0.01*	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01*	<0.01*	<0.001	<0.001	-	0.008
	Copper (Dissolved)	mg/L	0.001	0.0013	<0.001	<0.01*	0.001	<0.001	<0.001	0.001	0.083	<0.001	<0.001	<0.001	<0.01*	<0.01*	0.002	<0.001	-	0.006
	Iron (Dissolved)	mg/L	0.01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lead (Dissolved)	mg/L	0.001	0.0034	<0.001	<0.01*	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01*	<0.01*	<0.001	<0.001	-	0.005
	Manganese (Dissolved)	mg/L	0.001	0.2	0.091	1.59	0.017	0.016	0.015	0.002	0.012	0.449	0.312	0.308	0.04	0.409	5.41	0.16	-	1.4
	Mercury (Dissolved)	mg/L	0.0001	0.0004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001
	Nickel (Dissolved)	mg/L	0.001	0.011	<0.001	<0.01	0.001	<0.001	<0.001	<0.001	0.005	<0.001	<0.001	<0.001	<0.01	<0.01	0.006	0.01	-	0.012
	Vanadium (Dissolved)	mg/L	0.01	0.1	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01	<0.01	-	0.013
	Zinc (Dissolved)	mg/L	0.005	0.008	<0.005	<0.05*	0.012	0.016	0.012	0.089	0.793	0.008	<0.005	0.009	<0.05*	<0.05*	0.04	0.039	-	0.036

Location	MW09	MW10	MW101	MW101	MW101	MW102	MW103	MW108	MW108	MW108	MW115	MW115	MW116	MW116	MW116	MW116
Sample ID	MW09_060313	MW10_060313	MW101_060313	QAQC05_060313	QAQC06_060313	MW102_060313	MW103_040213	MW108_050313	MW108_260613	QAQC04_260613	MW115_050313	MW115_270613	MW116_050313	MW116_250613	QAQC01_250613	QAQC02_250613
Sampled Date	6/03/2013	6/03/2013	6/03/2013	6/03/2013	6/03/2013	6/03/2013	4/03/2013	5/03/2013	26/06/2013	26/06/2013	5/03/2013	27/06/2013	5/03/2013	25/06/2013	25/06/2013	25/06/2013
Sample Type	Normal	Normal	Normal	Duplicate	Duplicate	Normal	Normal	Normal	Normal	Duplicate	Normal	Normal	Normal	Normal	Duplicate	Triplicate
SDG	ES1305223	ES1305223	ES1305223	ES1305223	ES1305223	ES1305223	ES1304969	ES1305174	ES1314611	ES1314611	ES1305174	ES1314611	ES1305174	ES1314375	ES1314375	27/06/2013

Chem_Group	ChemName	output unit	EQL	Adopted ILs														
Monocyclic Aromatic Hydrocarbons	Styrene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Isopropylbenzene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,3,5-trimethylbenzene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	sec-butylbenzene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	1,2,4-trimethylbenzene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	n-butylbenzene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	n-propylbenzene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	p-isopropyltoluene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	tert-butylbenzene	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
Nutrients	Nitrate (as N)	mg/L	0.01	7.2	0.14	<0.01	0.06	0.53	0.03	0.54	8.87	<0.01	-	-	<0.01	-	0.01	-	-	-
	Nitrite (as N)	mg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	-	<0.01	-	-	-
	Nitrate & Nitrite (as N)	mg/L	0.01		-	-	-	-	-	-	8.87	<0.01	-	-	<0.01	-	0.01	-	-	-
Oxygenated Compounds	Vinyl acetate	µg/L	50		-	<50	-	-	-	-	<50	-	-	-	<50	-	<50	-	-	-
	2-Butanone (MEK)	µg/L	50		-	<50	-	-	-	-	<50	-	-	-	<50	-	<50	-	-	-
	2-hexanone (MBK)	µg/L	50		-	<50	-	-	-	-	<50	-	-	-	<50	-	<50	-	-	-
	4-Methyl-2-pentanone (MIBK)	µg/L	50		-	<50	-	-	-	-	<50	-	-	-	<50	-	<50	-	-	-
Polynuclear Aromatic Hydrocarbons	Naphthalene	µg/L	1	16	-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Acenaphthylene	µg/L	1		-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Acenaphthene	µg/L	1		-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Anthracene	µg/L	1	0.4	-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Fluorene	µg/L	1		-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Phenanthrene	µg/L	1	2	-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Fluoranthene	µg/L	1	1.4	-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Benz(a)anthracene	µg/L	1		-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Benzo(b)fluoranthene	µg/L	1		-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Benzo(k)fluoranthene	µg/L	1		-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Benzo(a)pyrene	µg/L	0.5	0.2	-	<0.5*	-	-	-	-	-	-	-	-	<0.5*	-	<0.5*	-	-	-
	Chrysene	µg/L	1		-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Pyrene	µg/L	1		-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Benzo(a)pyrene TEQ (WHO)	mg/L	0.0005		-	<0.0005	-	-	-	-	-	-	-	-	<0.0005	-	<0.0005	-	-	-
	Benzo(g,h,i)perylene	µg/L	1		-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Dibenz(a,h)anthracene	µg/L	1		-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Indeno(1,2,3-cd)pyrene	µg/L	1		-	<1	-	-	-	-	-	-	-	-	<1	-	<1	-	-	-
	Sum of PAHs	µg/L	0.5		-	<0.5	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	-	-
Sulfonated Compounds	Carbon disulfide	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
Total Dissolved Solids	Total Dissolved Solids	mg/L	10		33,500	26,300	1060	1080	1100	808	358	2710	2390	2520	29,600	34,800	840	1720	1740	1600
Total Organic Carbon	Total Organic Carbon	mg/L	1		<1	6	4	4	4	4	9	8	-	-	10	-	11	-	-	-
Total Petroleum Hydrocarbons	C6-C9 fraction	µg/L	20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C10-C14 fraction	µg/L	50		<50	<50	<50	<50	<50	<50	-	110	<50	<50	<50	<50	<50	<50	<50	<50
	C15-C28 fraction	µg/L	100		<100	<100	<100	<100	<100	<100	-	540	120	120	<100	<100	<100	<100	<100	<100
	C29-C36 fraction	µg/L	50		<50	<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50	<50	<50	<50	<100
	C10-C36 fraction (sum)	µg/L	50		<50	<50	<50	<50	<50	<50	-	650	120	120	<50	<50	<50	<50	<50	<100
Total Recoverable Hydrocarbons	C6-C10 fraction (F1 minus BTEX)	µg/L	20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C6-C10 fraction	µg/L	20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	>C10-C16 fraction	µg/L	100		<100	<100	<100	<100	<100	<100	-	220	<100	<100	<100	<100	<100	<100	<100	<50
	>C16-C34 fraction	µg/L	100		<100	<100	<100	<100	<100	<100	-	400	<100	<100	<100	<100	<100	<100	<100	<100
	>C34-C40 fraction	µg/L	100		<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<100	<100	<100	<100
	>C10-C40 fraction (sum)	µg/L	100		<100	<100	<100	<100	<100	<100	-	620	<100	<100	<100	<100	<100	<100	<100	-
Trihalomethanes	Bromodichloromethane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Bromoform	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Chloroform	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-
	Dibromochloromethane	µg/L	5		-	<5	-	-	-	-	<5	-	-	-	<5	-	<5	-	-	-

LEGEND

Exceedance of Adopted ILs based on:
Exceeds the ANZECC/ARMCANZ 2000 trigger values for the protection of aquatic ecosystems - Marine Water 95% species protection
Exceeds the ANZECC/ARMCANZ 2000 trigger values for the protection of quatic ecosystems - Freshwater 95% species protection

*LOR Exceeds Guideline Trigger Value

Groundwater Analytical Results - March and June 2013 GME

Location	MW119	MW121	MW122	MW122	MW122	MW125	MW125	MW127	MW127	MW128	MW128	MW129	MW129	MW129	MW129	MW134
Sample ID	MW119_060313	MW121_050313	MW122_040213	QAQC01_040213	QAQC02_040213	MW125_040213	MW125_270613	MW127_040213	MW127_270613	MW128_040213	MW128_260613	MW129_050313	QAQC03_050313	QAQC04_050313	MW129_270613	MW134_050313
Sampled Date	6/03/2013	5/03/2013	4/03/2013	4/03/2013	4/03/2013	4/03/2013	27/06/2013	4/03/2013	27/06/2013	4/03/2013	26/06/2013	5/03/2013	5/03/2013	5/03/2013	27/06/2013	5/03/2013
Sample Type	Normal	Normal	Normal	Duplicate	Triplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Triplicate	Normal	Normal
SDG	ES1305223	ES1305174	ES1304969	ES1304969	88813	ES1304969	ES1314611	ES1304969	ES1314611	ES1304969	ES1314611	ES1305174	ES1305174	86859	ES1314611	ES1305174

Chem_Group	ChemName	output unit	EQL	Adopted lls															
Alkalinity	Bicarbonate as HCO3	mg/L			274.5	222.04	134.2	134.2	158.6	479.46	498.98	384.3	339.16	148.84	152.5	453.84	448.96	512.4	442.86	326.96
	Carbonate as CO3	mg/L			0.6	0.6	0.6	0.6	3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	3	0.6	0.6
	Bicarbonate Alkalinity as CaCO3	mg/L	1		225	182	110	110	130	393	409	315	278	122	125	372	368	420	363	268
	Carbonate Alkalinity as CaCO3	mg/L	1		<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1
	Hydroxide Alkalinity as CaCO3	mg/L	1		<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1
	Total Alkalinity as CaCO3	mg/L	1		225	182	110	110	130	393	409	315	278	122	125	372	368	420	363	268
BTEXN Compounds	Toluene	µg/L	2		<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<2
	Benzene	µg/L	1	700	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	µg/L	2		<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<2
	m&p-Xylene	µg/L	2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	o-Xylene	µg/L	2	350	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<2
	Total Xylenes	µg/L	2		<2	<2	<2	<2	<3	<2	<2	<2	<2	<2	<2	<2	<2	<3	<2	<2
	Total BTEX	µg/L	1		<1	<1	<1	<1	<6	<1	<1	<1	<1	<1	<1	<1	<1	<6	<1	<1
	Naphthalene (VOC)	µg/L	5		<5	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5
C1 - C4 Hydrocarbon Gases	Methane	mg/L	0.01		0.039	0.187	<0.01	<0.01	<0.005	0.107	-	0.221	-	3.4	-	4.16	4.64	3.2	-	0.086
Chlorinated Hydrocarbons	1,2-Dichloroethene	µg/L			-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	<10
Ferrous/Ferric Iron	Ferrous Iron	mg/L	0.05		0.09	13	<0.05	<0.05	<0.05	0.15	-	0.38	-	5.66	-	8.66	8.73	9	-	2.04
	Ferric Iron (Dissolved)	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	0.13	<0.05	-	<0.05	-	<0.05	-	<0.05	<0.05	0.48	-	<0.05
Fumigants	Bromomethane	µg/L	50		-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	<50
	1,2-Dibromoethane (EDB)	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,2-Dichloropropane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	2,2-Dichloropropane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	cis-1,3-Dichloropropene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	trans-1,3-Dichloropropene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
Halogenated Aliphatic Compounds	1,1,1-Trichloroethane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,1-Dichloroethane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,1-Dichloroethene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,2-Dichloroethane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Carbon Tetrachloride	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Chloroethane	µg/L	50		-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	<50
	cis-1,2-Dichloroethene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Dichlorodifluoromethane	µg/L	50		-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	<50
	Hexachlorobutadiene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Tetrachloroethene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	trans-1,2-Dichloroethene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Trichloroethene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Trichlorofluoromethane	µg/L	50		-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	<50
	Vinyl chloride	µg/L	50		-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	<50
	1,1,1,2-Tetrachloroethane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,1,2,2-Tetrachloroethane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,1,2-Trichloroethane	µg/L	5	1900	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,1-Dichloropropene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,2,3-Trichloropropane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,2-Dibromo-3-chloropropane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,3-Dichloropropane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Chloromethane	µg/L	50		-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	<50
	cis-1,4-Dichloro-2-butene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Dibromomethane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Iodomethane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Pentachloroethane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	trans-1,4-Dichloro-2-butene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
Halogenated Aromatic Compounds	Chlorobenzene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,2,3-Trichlorobenzene	µg/L	5	10	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,2,4-Trichlorobenzene	µg/L	5	80	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,2-Dichlorobenzene	µg/L	5	160	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,3-Dichlorobenzene	µg/L	5	260	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,4-Dichlorobenzene	µg/L	5	60	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	2-Chlorotoluene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	4-Chlorotoluene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Bromobenzene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
Major Ions	Chloride (Dissolved)	mg/L	1		625	1490	16,300	16,200	18,000	113	165	62	62	33	45	3	3	2	4	992
	Calcium (Dissolved)	mg/L	1		20	114	432	412	370	7	4	7	3	30	30	105	108	110	97	19
	Magnesium (Dissolved)	mg/L	1		36	60	1240	1200	1200	9	6	7	4	5	5	20	20	20	17	30
	Potassium (Dissolved)	mg/L	1		33	29	377	363	460	23	23	16	12	7	6	18	17	19	13	37
	Sodium (Dissolved)	mg/L	1		525	918	10,000	10,000	12,000	261	326	160	164	33	36	6	6	7.3	7	818
	Sulphide (as S2-) (Dissolved)	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	-	<0.1	-	<0.1	-	<0.1	<0.1	0.8	-	<0.1
	Sulphite (as SO3-) (Dissolved)	mg/L	2		<2	<2	<2	<2	<2	<2	-	<2	-	<2	-	<2	<2	<2	-	<2
	Sulphur (as S) (Dissolved)	mg/L	1		55	20	888	859	980	19	-	3	-	2	-	<1	<1	<0.5	-	46
	Sulphate (as SO4-) (Dissolved)	mg/L	1		144	67	2510	2480	2300	46	-	6	-	3	-	<1	<1	<1	-	158
	Total Anions (Dissolved)	meq/L	0.01		25.1	47.1	514	511	-	12	-	8.17	-	3.43	-	7.52	7.44	-	-	36.6
	Total Cations (Dissolved)	meq/L	0.01		27.6	51.3	568	564	-	13	-	8.29	-	3.52	-	7.61	7.73	-	-	39.9
	Ionic Balance (Dissolved)	%	0.01		4.75	4.3	4.97	4.9	8.5	4.08	-	0.72	-	1.33	-	0.62	1.96	-2	-	4.31
Metals	Arsenic (Dissolved)	mg/L	0.001	0.1	<0.001	0.003	0.002	0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.001	<0.001	0.001	0.002	0.001	0.013	<0.001
	Cadmium (Dissolved)	mg/L	0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Chromium (Dissolved)	mg/L	0.001	0.0044	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Copper (Dissolved)	mg/L	0.001	0.0013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Iron (Dissolved)	mg/L	0.01		-	-	-	-	<0.01	-	-	-	-	-	-	-	-	<0.01	-	-
	Lead (Dissolved)	mg/L	0.001	0.0034	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Manganese (Dissolved)	mg/L	0.001	0.2	0.24	1.53	<0.001	<0.001	<0.005	0.283	0.443	0.257	0.184	0.132	0.11	0.071	0.072	0.084	0.067	0.092
	Mercury (Dissolved)	mg/L	0.0001	0.0004	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.0001	<0.0001
	Nickel (Dissolved)	mg/L	0.001	0.011	<0.001	0.001	<0.001	<0.001	<0.001	0.003	<0.001	0.006	0.002	0.02	0.008	<0.001	<0.001	<0.001	<0.001	0.001
	Vanadium (Dissolved)	mg/L	0.01	0.1	<0.01	<0.01	<0.01	<0.01	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	<0.01
	Zinc (Dissolved)	mg/L	0.005	0.008	<0.005	<0.005	<0.005	<0.005	0.003	<0.005	0.012	<0.005	<0.005	0.14	0.007	<0.005	0.006	0.012	<0.005	0.013

Location	MW119	MW121	MW122	MW122	MW122	MW125	MW125	MW127	MW127	MW128	MW128	MW129	MW129	MW129	MW129	MW134
Sample ID	MW119_060313	MW121_050313	MW122_040213	QAQC01_040213	QAQC02_040213	MW125_040213	MW125_270613	MW127_040213	MW127_270613	MW128_040213	MW128_260613	MW129_050313	QAQC03_050313	QAQC04_050313	MW129_270613	MW134_050313
Sampled Date	6/03/2013	5/03/2013	4/03/2013	4/03/2013	4/03/2013	4/03/2013	27/06/2013	4/03/2013	27/06/2013	4/03/2013	26/06/2013	5/03/2013	5/03/2013	5/03/2013	27/06/2013	5/03/2013
Sample Type	Normal	Normal	Normal	Duplicate	Triplicate	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Duplicate	Triplicate	Normal	Normal
SDG	ES1305223	ES1305174	ES1304969	ES1304969	86813	ES1304969	ES1314611	ES1304969	ES1314611	ES1304969	ES1314611	ES1305174	ES1305174	86859	ES1314611	ES1305174

Chem_Group	ChemName	output unit	EQL	Adopted ILs															
Monocyclic Aromatic Hydrocarbons	Styrene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Isopropylbenzene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,3,5-trimethylbenzene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	sec-butylbenzene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	1,2,4-trimethylbenzene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	n-butylbenzene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	n-propylbenzene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	p-isopropyltoluene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	tert-butylbenzene	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
Nutrients	Nitrate (as N)	mg/L	0.01	7.2	0.04	<0.01	0.09	0.1	0.075	0.14	-	<0.01	-	<0.01	-	<0.01	<0.01	<0.005	-	<0.01
	Nitrite (as N)	mg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.005	<0.01	-	<0.01	-	<0.01	-	<0.01	<0.01	<0.005	-	<0.01
	Nitrate & Nitrite (as N)	mg/L	0.01		-	<0.01	0.09	0.1	-	0.14	-	<0.01	-	<0.01	-	<0.01	<0.01	-	-	<0.01
Oxygenated Compounds	Vinyl acetate	µg/L	50		-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	<50
	2-Butanone (MEK)	µg/L	50		-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	<50
	2-hexanone (MBK)	µg/L	50		-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	<50
	4-Methyl-2-pentanone (MIBK)	µg/L	50		-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	<50
Polynuclear Aromatic Hydrocarbons	Naphthalene	µg/L	1	16	-	-	-	-	<1	-	-	<1	-	-	-	-	-	<1	-	<1
	Acenaphthylene	µg/L	1		-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Acenaphthene	µg/L	1		-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Anthracene	µg/L	1	0.4	-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Fluorene	µg/L	1		-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Phenanthrene	µg/L	1	2	-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Fluoranthene	µg/L	1	1.4	-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Benz(a)anthracene	µg/L	1		-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Benzo(b)fluoranthene	µg/L	1		-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Benzo(k)fluoranthene	µg/L	1		-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Benzo(a)pyrene	µg/L	0.5	0.2	-	-	-	-	-	-	-	<0.5*	-	-	-	-	-	-	-	<0.5*
	Chrysene	µg/L	1		-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Pyrene	µg/L	1		-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Benzo(a)pyrene TEQ (WHO)	mg/L	0.0005		-	-	-	-	-	-	-	<0.0005	-	-	-	-	-	-	-	<0.0005
	Benzo(g,h,i)perylene	µg/L	1		-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Dibenz(a,h)anthracene	µg/L	1		-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Indeno(1,2,3-cd)pyrene	µg/L	1		-	-	-	-	-	-	-	<1	-	-	-	-	-	-	-	<1
	Sum of PAHs	µg/L	0.5		-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	<0.5
Sulfonated Compounds	Carbon disulfide	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
Total Dissolved Solids	Total Dissolved Solids	mg/L	10		1450	2870	35,400	35,900	35,000	740	792	508	492	248	245	452	448	430	428	2270
Total Organic Carbon	Total Organic Carbon	mg/L	1		3	4	2	<1	1	3	-	6	-	2	-	9	14	8	-	5
Total Petroleum Hydrocarbons	C6-C9 fraction	µg/L	20		<20	<20	<20	<20	<10	<20	<20	<20	<20	<20	<20	<20	<20	<10	<20	<20
	C10-C14 fraction	µg/L	50		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	380	400	220	210	70
	C15-C28 fraction	µg/L	100		<100	<100	<100	<100	<100	<100	<100	150	100	<100	<100	1140	1370	1200	580	620
	C29-C36 fraction	µg/L	50		<50	<50	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<100	<50	<50
	C10-C36 fraction (sum)	µg/L	50		<50	<50	<50	<50	<250	<50	<50	150	100	<50	<50	1520	1770	1420	790	690
Total Recoverable Hydrocarbons	C6-C10 fraction (F1 minus BTEX)	µg/L	20		<20	<20	<20	<20	<10	<20	<20	<20	<20	<20	<20	<20	<20	<10	<20	<20
	C6-C10 fraction	µg/L	20		<20	<20	<20	<20	<10	<20	<20	<20	<20	<20	<20	<20	<20	<10	<20	<20
	>C10-C16 fraction	µg/L	100		<100	<100	<100	<100	<50	<100	<100	<100	<100	<100	<100	680	770	610	380	180
	>C16-C34 fraction	µg/L	100		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	790	900	840	400	480
	>C34-C40 fraction	µg/L	100		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	>C10-C40 fraction (sum)	µg/L	100		<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<100	1470	1670	-	780	660
Trihalomethanes	Bromodichloromethane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Bromoform	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Chloroform	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5
	Dibromochloromethane	µg/L	5		-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	<5

LEGEND

Exceedance of Adopted ILs based on:

Exceeds the ANZECC/ARMCANZ 2000 trigger values for the protection of aquatic ecosystems - Marine Water 95% species protection

Exceeds the ANZECC/ARMCANZ 2000 trigger values for the protection of quatic ecosystems - Freshwater 95% species protection

*LOR Exceeds Guideline Trigger Value

Groundwater Analytical Results - March and June 2013 GME

Location	MW134	MW135	MW135	MW136	MW136
Sample ID	MW134_270613	MW135_050313	MW135_270613	MW136_050313	MW136_270613
Sampled Date	27/06/2013	5/03/2013	27/06/2013	5/03/2013	27/06/2013
Sample Type	Normal	Normal	Normal	Normal	Normal
SDG	ES1314611	ES1305174	ES1314611	ES1305174	ES1314611

Chem_Group	ChemName	output unit	EQL	Adopted IIs				
Alkalinity	Bicarbonate as HCO3	mg/L			314.76	347.7	433.1	278.16	350.14
	Carbonate as CO3	mg/L			0.6	0.6	0.6	0.6	0.6
	Bicarbonate Alkalinity as CaCO3	mg/L	1		258	285	355	228	287
	Carbonate Alkalinity as CaCO3	mg/L	1		<1	<1	<1	<1	<1
	Hydroxide Alkalinity as CaCO3	mg/L	1		<1	<1	<1	<1	<1
	Total Alkalinity as CaCO3	mg/L	1		258	285	355	228	287
BTEXN Compounds	Toluene	µg/L	2		<2	<2	<2	<2	<2
	Benzene	µg/L	1	700	<1	<1	<1	<1	<1
	Ethylbenzene	µg/L	2		<2	<2	<2	<2	<2
	m&p-Xylene	µg/L	2		<2	<2	<2	<2	<2
	o-Xylene	µg/L	2	350	<2	<2	<2	<2	<2
	Total Xylenes	µg/L	2		<2	<2	<2	<2	<2
	Total BTEX	µg/L	1		<1	<1	<1	<1	<1
	Naphthalene (VOC)	µg/L	5		<5	<5	<5	<5	<5
C1 - C4 Hydrocarbon Gases	Methane	mg/L	0.01		-	0.047	-	1	-
Chlorinated Hydrocarbons	1,2-Dichloroethene	µg/L			-	<10	-	<10	-
Ferrous/Ferric Iron	Ferrous Iron	mg/L	0.05		-	0.18	-	2.31	-
	Ferric Iron (Dissolved)	mg/L	0.05		-	0.06	-	<0.05	-
Fumigants	Bromomethane	µg/L	50		-	<50	-	<50	-
	1,2-Dibromoethane (EDB)	µg/L	5		-	<5	-	<5	-
	1,2-Dichloropropane	µg/L	5		-	<5	-	<5	-
	2,2-Dichloropropane	µg/L	5		-	<5	-	<5	-
	cis-1,3-Dichloropropene	µg/L	5		-	<5	-	<5	-
	trans-1,3-Dichloropropene	µg/L	5		-	<5	-	<5	-
Halogenated Aliphatic Compounds	1,1,1-Trichloroethane	µg/L	5		-	<5	-	<5	-
	1,1-Dichloroethane	µg/L	5		-	<5	-	<5	-
	1,1-Dichloroethene	µg/L	5		-	<5	-	<5	-
	1,2-Dichloroethane	µg/L	5		-	<5	-	<5	-
	Carbon Tetrachloride	µg/L	5		-	<5	-	<5	-
	Chloroethane	µg/L	50		-	<50	-	<50	-
	cis-1,2-Dichloroethene	µg/L	5		-	<5	-	<5	-
	Dichlorodifluoromethane	µg/L	50		-	<50	-	<50	-
	Hexachlorobutadiene	µg/L	5		-	<5	-	<5	-
	Tetrachloroethene	µg/L	5		-	<5	-	<5	-
	trans-1,2-Dichloroethene	µg/L	5		-	<5	-	<5	-
	Trichloroethene	µg/L	5		-	<5	-	<5	-
	Trichlorofluoromethane	µg/L	50		-	<50	-	<50	-
	Vinyl chloride	µg/L	50		-	<50	-	<50	-
	1,1,1,2-Tetrachloroethane	µg/L	5		-	<5	-	<5	-
	1,1,2,2-Tetrachloroethane	µg/L	5		-	<5	-	<5	-
	1,1,2-Trichloroethane	µg/L	5	1900	-	<5	-	<5	-
	1,1-Dichloropropene	µg/L	5		-	<5	-	<5	-
	1,2,3-Trichloropropane	µg/L	5		-	<5	-	<5	-
	1,2-Dibromo-3-chloropropane	µg/L	5		-	<5	-	<5	-
	1,3-Dichloropropane	µg/L	5		-	<5	-	<5	-
	Chloromethane	µg/L	50		-	<50	-	<50	-
	cis-1,4-Dichloro-2-butene	µg/L	5		-	<5	-	<5	-
	Dibromomethane	µg/L	5		-	<5	-	<5	-
	Iodomethane	µg/L	5		-	<5	-	<5	-
	Pentachloroethane	µg/L	5		-	<5	-	<5	-
	trans-1,4-Dichloro-2-butene	µg/L	5		-	<5	-	<5	-
Halogenated Aromatic Compounds	Chlorobenzene	µg/L	5		-	<5	-	<5	-
	1,2,3-Trichlorobenzene	µg/L	5	10	-	<5	-	<5	-
	1,2,4-Trichlorobenzene	µg/L	5	80	-	<5	-	<5	-
	1,2-Dichlorobenzene	µg/L	5	160	-	<5	-	<5	-
	1,3-Dichlorobenzene	µg/L	5	260	-	<5	-	<5	-
	1,4-Dichlorobenzene	µg/L	5	60	-	<5	-	<5	-
	2-Chlorotoluene	µg/L	5		-	<5	-	<5	-
	4-Chlorotoluene	µg/L	5		-	<5	-	<5	-
	Bromobenzene	µg/L	5		-	<5	-	<5	-
Major Ions	Chloride (Dissolved)	mg/L	1		776	43	135	325	347
	Calcium (Dissolved)	mg/L	1		11	119	135	30	31
	Magnesium (Dissolved)	mg/L	1		21	22	30	17	18
	Potassium (Dissolved)	mg/L	1		37	18	24	13	18
	Sodium (Dissolved)	mg/L	1		656	35	96	282	321
	Sulphide (as S2-) (Dissolved)	mg/L	0.1		-	<0.1	-	<0.1	-
	Sulphite (as SO3-) (Dissolved)	mg/L	2		-	<2	-	<2	-
	Sulphur (as S) (Dissolved)	mg/L	1		-	33	-	6	-
	Sulphate (as SO4-) (Dissolved)	mg/L	1		-	122	-	24	-
	Total Anions (Dissolved)	meq/L	0.01		-	9.45	-	14.2	-
	Total Cations (Dissolved)	meq/L	0.01		-	9.73	-	15.5	-
	Ionic Ballance (Dissolved)	%	0.01		-	1.51	-	4.26	-
Metals	Arsenic (Dissolved)	mg/L	0.001	0.1	0.001	<0.001	<0.001	0.003	<0.001
	Cadmium (Dissolved)	mg/L	0.0001	0.0002	<0.0001	0.0097	0.0027	<0.0001	<0.0001
	Chromium (Dissolved)	mg/L	0.001	0.0044	<0.001	<0.001	<0.001	<0.001	<0.001
	Copper (Dissolved)	mg/L	0.001	0.0013	<0.001	0.007	0.001	<0.001	<0.001
	Iron (Dissolved)	mg/L	0.01		-	-	-	-	-
	Lead (Dissolved)	mg/L	0.001	0.0034	<0.001	<0.001	<0.001	<0.001	<0.001
	Manganese (Dissolved)	mg/L	0.001	0.2	0.065	0.894	1.03	1.05	1.12
	Mercury (Dissolved)	mg/L	0.0001	0.0004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Nickel (Dissolved)	mg/L	0.001	0.011	<0.001	<0.001	0.002	<0.001	0.001
	Vanadium (Dissolved)	mg/L	0.01	0.1	<0.01	<0.01	<0.01	<0.01	<0.01
	Zinc (Dissolved)	mg/L	0.005	0.008	<0.005	0.995	0.943	0.023	0.006

Location	MW134	MW135	MW135	MW136	MW136
Sample ID	MW134_270613	MW135_050313	MW135_270613	MW136_050313	MW136_270613
Sampled Date	27/06/2013	5/03/2013	27/06/2013	5/03/2013	27/06/2013
Sample Type	Normal	Normal	Normal	Normal	Normal
SDG	ES1314611	ES1305174	ES1314611	ES1305174	ES1314611

Chem_Group	ChemName	output unit	EQL	Adopted ils				
Monocyclic Aromatic Hydrocarbons	Styrene	µg/L	5		-	<5	-	<5	-
	Isopropylbenzene	µg/L	5		-	<5	-	<5	-
	1,3,5-trimethylbenzene	µg/L	5		-	<5	-	<5	-
	sec-butylbenzene	µg/L	5		-	<5	-	<5	-
	1,2,4-trimethylbenzene	µg/L	5		-	<5	-	<5	-
	n-butylbenzene	µg/L	5		-	<5	-	<5	-
	n-propylbenzene	µg/L	5		-	<5	-	<5	-
	p-isopropyltoluene	µg/L	5		-	<5	-	<5	-
	tert-butylbenzene	µg/L	5		-	<5	-	<5	-
Nutrients	Nitrate (as N)	mg/L	0.01	7.2	-	<0.01	-	<0.01	-
	Nitrite (as N)	mg/L	0.01		-	<0.01	-	<0.01	-
	Nitrate & Nitrite (as N)	mg/L	0.01		-	<0.01	-	<0.01	-
Oxygenated Compounds	Vinyl acetate	µg/L	50		-	<50	-	<50	-
	2-Butanone (MEK)	µg/L	50		-	<50	-	<50	-
	2-hexanone (MBK)	µg/L	50		-	<50	-	<50	-
	4-Methyl-2-pentanone (MIBK)	µg/L	50		-	<50	-	<50	-
Polynuclear Aromatic Hydrocarbons	Naphthalene	µg/L	1	16	-	<1	-	<1	-
	Acenaphthylene	µg/L	1		-	<1	-	<1	-
	Acenaphthene	µg/L	1		-	<1	-	<1	-
	Anthracene	µg/L	1	0.4	-	<1	-	<1	-
	Fluorene	µg/L	1		-	<1	-	<1	-
	Phenanthrene	µg/L	1	2	-	<1	-	<1	-
	Fluoranthene	µg/L	1	1.4	-	<1	-	<1	-
	Benz(a)anthracene	µg/L	1		-	<1	-	<1	-
	Benzo(b)fluoranthene	µg/L	1		-	<1	-	<1	-
	Benzo(k)fluoranthene	µg/L	1		-	<1	-	<1	-
	Benzo(a)pyrene	µg/L	0.5	0.2	-	<0.5*	-	<0.5*	-
	Chrysene	µg/L	1		-	<1	-	<1	-
	Pyrene	µg/L	1		-	<1	-	<1	-
	Benzo(a)pyrene TEQ (WHO)	mg/L	0.0005		-	<0.0005	-	<0.0005	-
	Benzo(g,h,i)perylene	µg/L	1		-	<1	-	<1	-
	Dibenz(a,h)anthracene	µg/L	1		-	<1	-	<1	-
	Indeno(1,2,3-cd)pyrene	µg/L	1		-	<1	-	<1	-
	Sum of PAHs	µg/L	0.5		-	<0.5	-	<0.5	-
Sulfonated Compounds	Carbon disulfide	µg/L	5		-	<5	-	<5	-
Total Dissolved Solids	Total Dissolved Solids	mg/L	10		1740	554	853	882	1090
Total Organic Carbon	Total Organic Carbon	mg/L	1		-	3	-	18	-
Total Petroleum Hydrocarbons	C6-C9 fraction	µg/L	20		<20	<20	<20	<20	<20
	C10-C14 fraction	µg/L	50		<50	<50	<50	<50	<50
	C15-C28 fraction	µg/L	100		210	<100	<100	<100	<100
	C29-C36 fraction	µg/L	50		<50	<50	<50	<50	<50
	C10-C36 fraction (sum)	µg/L	50		210	<50	<50	<50	<50
Total Recoverable Hydrocarbons	C6-C10 fraction (F1 minus BTEX)	µg/L	20		<20	<20	<20	<20	<20
	C6-C10 fraction	µg/L	20		<20	<20	<20	<20	<20
	>C10-C16 fraction	µg/L	100		<100	<100	<100	<100	<100
	>C16-C34 fraction	µg/L	100		140	<100	<100	<100	<100
	>C34-C40 fraction	µg/L	100		<100	<100	<100	<100	<100
	>C10-C40 fraction (sum)	µg/L	100		140	<100	<100	<100	<100
Trihalomethanes	Bromodichloromethane	µg/L	5		-	<5	-	<5	-
	Bromoform	µg/L	5		-	<5	-	<5	-
	Chloroform	µg/L	5		-	<5	-	<5	-
	Dibromochloromethane	µg/L	5		-	<5	-	<5	-

LEGEND

Exceedance of Adopted ILs based on:
Exceeds the ANZECC/ARMCANZ 2000 trigger values for the protection of aquatic ecosystems - Marine Water 95% species protection
Exceeds the ANZECC/ARMCANZ 2000 trigger values for the protection of quatic ecosystems - Frashwater 95% species protection

*LOR Exceeds Guideline Trigger Value

Table ??
Analytical Results -
Darwin Waterfront - GME
[Client_Name]

Field QC Samples - March and June 2013

Sample ID			QCA01	QCA01	QCA01	QCA01	QCA02	QCB01	QCB01	QCB01	QCB01_250613	QCB02_270613	QCC01	QCC01	QCC01	QCC01_250613	QCC02_270613
Sampled Date			4/03/2013	5/03/2013	6/03/2013	25/06/2013	27/06/2013	4/03/2013	5/03/2013	6/03/2013	25/06/2013	27/06/2013	4/03/2013	5/03/2013	6/03/2013	25/06/2013	27/06/2013
Sample Type			Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate
SDG			ES1304969	ES1305174	ES1305223	ES1314375	ES1314611	ES1304969	ES1305174	ES1305223	ES1314375	ES1314611	ES1304969	ES1305174	ES1305223	ES1314375	ES1314611
Chem_Group	**ChemName**	**Output Unit**	**LOR**														
BTEXN Compounds	Benzene	µg/L	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Toluene	µg/L	2	-	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Ethylbenzene	µg/L	2	-	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	m&p-Xylene	µg/L	2	-	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	o-Xylene	µg/L	2	-	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Total Xylenes	µg/L	2	-	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Total BTEX	µg/L	1	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Naphthalene (VOC)	µg/L	5	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Metals	Arsenic (Dissolved)	mg/L	0.001	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Cadmium (Dissolved)	mg/L	0.0001	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Chromium (Dissolved)	mg/L	0.001	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Copper (Dissolved)	mg/L	0.001	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lead	mg/L	0.001	-	-	-	-	-	-	<0.001	<0.001	-	<0.001	-	<0.001	<0.001	-	<0.001
	Lead (Dissolved)	mg/L	0.001	-	-	-	-	-	<0.001	-	-	<0.001	-	<0.001	-	-	<0.001	-
	Manganese (Dissolved)	mg/L	0.001	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Mercury (Dissolved)	mg/L	0.0001	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Nickel (Dissolved)	mg/L	0.001	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	<0.001	<0.001	<0.001	<0.001
	Vanadium (Dissolved)	mg/L	0.01	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Zinc (Dissolved)	mg/L	0.005	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Petroleum Hydrocarbons	C6-C9 fraction	µg/L	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C10-C14 fraction	µg/L	50	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C15-C28 fraction	µg/L	100	-	-	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C29-C36 fraction	µg/L	50	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C10-C36 fraction (sum)	µg/L	50	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Total Recoverable Hydrocarbons	C6-C10 fraction (F1 minus BTEX)	µg/L	20	-	-	-	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C6-C10 fraction	µg/L	20	-	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	>C10-C16 fraction	µg/L	100	-	-	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	>C16-C34 fraction	µg/L	100	-	-	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	>C34-C40 fraction	µg/L	100	-	-	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	>C10-C40 fraction (sum)	µg/L	100	-	-	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100

10% check for March 2013

BA 9/9/2013

Table ??
Analytical Results -
Darwin Waterfront - GME
[Client_Name]

								X		X		
Location	MW09	MW10	MW101	MW101	MW101	MW102	MW103	MW108	MW115	MW116	MW119
Sample ID	MW09	MW10	MW101	QAQC05	QAQC06	MW102	MW103	MW108	MW115	MW116	MW119
Sampled_Date_Time	6/03/2013	6/03/2013	6/03/2013	6/03/2013	6/03/2013	6/03/2013	4/03/2013	5/03/2013	5/03/2013	5/03/2013	6/03/2013
Sample_Type	Normal	Normal	Normal	Duplicate	Triplicate	Normal	Normal	Normal	Normal	Normal	Normal
SDG	ES1305223	ES1305223	ES1305223	ES1305223	ES1305223	ES1305223	ES1304969	ES1305174	ES1305174	ES1305174	ES1305223
Monitoring_Round	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME
Lab_Report_Number	ES1305223	ES1305223	ES1305223	ES1305223	ES1305223	ES1305223	ES1304969	ES1305174	ES1305174	ES1305174	ES1305223

Chem_Group	ChemName	output unit	EQL	ANZECC 2000 Freshwater 95%	ANZECC 2000 Marine water 95%										
Alkalinity	Bicarbonate as HCO3	mg/L				161.04	381.12	151.28	148.84	147.62	191.54	156.16	337.94	901.58	62.22	274.5
	Carbonate as CO3	mg/L				0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Hydroxide Alkalinity	mg/L	5			-	-	-	-	-	-	-	-	-	-	-
	Total Alkalinity	mg/L	5			-	-	-	-	-	-	-	-	-	-	-
	Bicarbonate Alkalinity as CaCO3	mg/L	1			132	296	124	122	121	157	128	277	739	51	225
	Carbonate Alkalinity as CaCO3	mg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Hydroxide Alkalinity as CaCO3	mg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Total Alkalinity as CaCO3	mg/L	1			132	296	124	122	121	157	128	277	739	51	225
BTEX Compounds	Toluene	µg/L	2			<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Ethylbenzene	µg/L	2			<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	m&p-Xylene	µg/L	2			<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	o-Xylene	µg/L	2	350		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Total Xylenes	µg/L	2			<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Total BTEX	µg/L	1			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
C1 - C4 Hydrocabon Gases	Methane	mg/L	0.01			<0.01	0.067	<0.01	<0.01	<0.01	<0.01	0.135	11.9	16.2	<0.01	0.039
Chlorinated Hydrocarbons	1,2-Dichloroethene	µg/L				-	<10	-	-	-	-	<10	-	<10	<10	-
Ferrous/Ferric Iron	Ferrous Iron	mg/L	0.05			0.31	11.3	0.06	-	-	<0.05	-	7.27	1.76	6.62	0.09
	Ferric Iron	mg/L	0.05			-	-	-	-	-	-	-	-	-	-	-
	Ferric Iron (Filtered)	mg/L	0.05			<0.05	<0.05	<0.05	-	-	<0.05	-	<0.05	1	<0.05	<0.05
Fumigants	Bromomethane	µg/L	50			-	<50	-	-	-	-	<50	-	<50	<50	-
	1,2-Dibromoethane (EDB)	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	1,2-Dichloropropane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	2,2-Dichloropropane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	cis-1,3-Dichloropropene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	trans-1,3-Dichloropropene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
Halogenated Aliphatic Compounds	1,1,1-Trichloroethane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	1,1-Dichloroethane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	1,1-Dichloroethene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	1,2-Dichloroethane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Carbon Tetrachloride	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Chloroethane	µg/L	50			-	<50	-	-	-	-	<50	-	<50	<50	-
	cis-1,2-Dichloroethene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Dichlorodifluoromethane	µg/L	50			-	<50	-	-	-	-	<50	-	<50	<50	-
	Hexachlorobutadiene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Tetrachloroethene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	trans-1,2-Dichloroethene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Trichloroethene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Trichlorofluoromethane	µg/L	50			-	<50	-	-	-	-	<50	-	<50	<50	-
	Vinyl chloride	µg/L	50			-	<50	-	-	-	-	<50	-	<50	<50	-
	1,1,1,2-Tetrachloroethane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	1,1,2,2-Tetrachloroethane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	1,1,2-Trichloroethane	µg/L	5	6500	1900	-	<5	-	-	-	-	<5	-	<5	<5	-
	1,1-Dichloropropene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	1,2,3-Trichloropropane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	1,2-Dibromo-3-chloropropane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	1,3-Dichloropropane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Chloromethane	µg/L	50			-	<50	-	-	-	-	<50	-	<50	<50	-
	cis-1,4-Dichloro-2-butene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Dibromomethane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Iodomethane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Pentachloroethane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	trans-1,4-Dichloro-2-butene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
Halogenated Aromatic Compounds	Chlorobenzene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	1,2,3-Trichlorobenzene	µg/L	5	10		-	<5	-	-	-	-	<5	-	<5	<5	-
	1,2,4-Trichlorobenzene	µg/L	5	170	80	-	<5	-	-	-	-	<5	-	<5	<5	-
	1,2-Dichlorobenzene	µg/L	5	160		-	<5	-	-	-	-	<5	-	<5	<5	-
	1,3-Dichlorobenzene	µg/L	5	260		-	<5	-	-	-	-	<5	-	<5	<5	-
	1,4-Dichlorobenzene	µg/L	5	60		-	<5	-	-	-	-	<5	-	<5	<5	-
	2-Chlorotoluene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	4-Chlorotoluene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Bromobenzene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
Lead	Lead	mg/L	0.001	0.0034	0.0044	-	-	-	-	-	-	-	-	-	-	-
	Lead (Filtered)	mg/L	0.001	0.0034	0.0044	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001
Major Ions	Chloride	mg/L	1			14,800	13,100	460	480	481	274	22	1470	17,900	297	625
	Calcium (Filtered)	mg/L	1			443	390	74	76	75	96	56	88	65	54	20
	Magnesium (Filtered)	mg/L	1			1250	1040	43	44	44	25	7	66	926	22	36
	Potassium (Filtered)	mg/L	1			395	330	13	14	13	13	15	31	379	10	33
	Sodium (Filtered)	mg/L	1			11,200	9790	307	300	302	173	21	901	11,100	212	525
	Sulphide (as S2-)	mg/L	0.1			0.3	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	0.6	<0.1	<0.1
	Sulphite (as SO3-)	mg/L	2			<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2
	Sulphur (as S)	mg/L	0.5			-	-	-	-	-	-	-	-	-	-	-
	Sulphur (as S) (Filtered)	mg/L	1			864	640	53	55	54	45	14	<1	<1	54	55
	Sulphate (as SO4-)	mg/L	1			-	-	-	-	-	-	-	-	-	-	-
	Sulphate (as SO4-) (Filtered)	mg/L	1			2530	1920	140	145	140	120	33	3	2	190	144
	Total Anions	meq/L	0.01			473	415	18.9	19	18.9	13.4	4.5	47.1	520	13.4	25.1
	Total Cations	meq/L	0.01			492	437	20.9	20.8	20.8	14.7	4.67	49.8	572	14	27.6
	Ionic Balance	%	0.01			1.98	2.56	4.98	4.58	4.86	4.78	1.81	2.82	4.77	2.3	4.75

Table ??
Analytical Results -
Darwin Waterfront - GME
[Client_Name]

Location	MW09	MW10	MW101	MW101	MW101	MW102	MW103	MW108	MW115	MW116	MW119
Sample ID	MW09	MW10	MW101	QAQC05	QAQC06	MW102	MW103	MW108	MW115	MW116	MW119
Sampled_Date_Time	6/03/2013	6/03/2013	6/03/2013	6/03/2013	6/03/2013	6/03/2013	4/03/2013	5/03/2013	5/03/2013	5/03/2013	6/03/2013
Sample_Type	Normal	Normal	Normal	Duplicate	Triplicate	Normal	Normal	Normal	Normal	Normal	Normal
SDG	ES1305223	ES1305223	ES1305223	ES1305223	ES1305223	ES1305223	ES1304969	ES1305174	ES1305174	ES1305174	ES1305223
Monitoring_Round	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME	March 2013 GME
Lab_Report_Number	ES1305223	ES1305223	ES1305223	ES1305223	ES1305223	ES1305223	ES1304969	ES1305174	ES1305174	ES1305174	ES1305223

Chem_Group	ChemName	output unit	EQL	ANZECC 2000 Freshwater 95%	ANZECC 2000 Marine water 95%										
Metals	Arsenic	mg/L	0.001			-	-	-	-	-	-	-	-	-	-
	Arsenic (Filtered)	mg/L	0.001			0.003	<0.01	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.01	0.002	<0.001
	Cadmium	mg/L	0.0001	0.0002	0.0055	-	-	-	-	-	-	-	-	-	-	-
	Cadmium (Filtered)	mg/L	0.0001	0.0002	0.0055	<0.0001	<0.001*	0.0007	0.0006	0.0005	0.0006	0.0012	<0.0001	<0.001*	0.0001	<0.0001
	Chromium	mg/L	0.001			-	-	-	-	-	-	-	-	-	-	-
	Chromium (Filtered)	mg/L	0.001			<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001
	Copper	mg/L	0.001	0.0014	0.0013	-	-	-	-	-	-	-	-	-	-	-
	Copper (Filtered)	mg/L	0.001	0.0014	0.0013	<0.001	<0.01*	0.001	<0.001	<0.001	0.001	0.083	<0.001	<0.01*	0.002	<0.001
	Mercury	mg/L	0.0001	0.0006	0.0004	-	-	-	-	-	-	-	-	-	-	-
	Mercury (Filtered)	mg/L	0.0001	0.0006	0.0004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Nickel	mg/L	0.001	0.011	0.07	-	-	-	-	-	-	-	-	-	-	-
	Nickel (Filtered)	mg/L	0.001	0.011	0.07	<0.001	<0.01	0.001	<0.001	<0.001	<0.001	0.005	<0.001	<0.01	0.006	<0.001
	Iron (Filtered)	mg/L	0.01			-	-	-	-	-	-	-	-	-	-	-
	Manganese	mg/L	0.001	1.9		-	-	-	-	-	-	-	-	-	-	-
	Manganese (Filtered)	mg/L	0.001	1.9		0.091	1.58	0.017	0.016	0.015	0.002	0.012	0.449	0.04	5.4	0.24
	Vanadium	mg/L	0.01		0.1	-	-	-	-	-	-	-	-	-	-	-
	Vanadium (Filtered)	mg/L	0.01		0.1	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01
	Zinc	mg/L	0.005	0.008	0.015	-	-	-	-	-	-	-	-	-	-	-
	Zinc (Filtered)	mg/L	0.005	0.008	0.015	<0.005	<0.05*	0.012	0.016	0.012	0.089	0.793	0.008	<0.05*	0.04	<0.005
Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	1	950	700	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Styrene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Isopropylbenzene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	1,3,5-trimethylbenzene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	sec-butylbenzene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	1,2,4-trimethylbenzene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	n-butylbenzene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	n-propylbenzene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	p-Isopropyltoluene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	tert-butylbenzene	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
Naphthalene	Naphthalene (VOC)	µg/L	5			<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nutrients	Nitrate (as N)	mg/L	0.01	7.2		0.14	<0.01	0.06	0.53	0.03	0.54	8.87	<0.01	<0.01	0.01	0.04
	Nitrite (as N)	mg/L	0.01			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Nitrate & Nitrite (as N)	mg/L	0.01			-	-	-	-	-	-	8.87	<0.01	<0.01	0.01	-
Oxygenated Compounds	Vinyl acetate	µg/L	50			-	<50	-	-	-	-	<50	-	<50	<50	-
	2-Butanone (MEK)	µg/L	50			-	<50	-	-	-	-	<50	-	<50	<50	-
	2-hexanone (MBK)	µg/L	50			-	<50	-	-	-	-	<50	-	<50	<50	-
	4-Methyl-2-pentanone (MIBK)	µg/L	50			-	<50	-	-	-	-	<50	-	<50	<50	-
Polynuclear Aromatic Hydrocarbons	Naphthalene	µg/L	1	16	70	-	<1	-	-	-	-	-	-	<1	<1	-
	Acenaphthylene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Acenaphthene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Anthracene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Fluorene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Phenanthrene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Fluoranthene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Benz(a)anthracene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Benzo(b)fluoranthene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Benzo(k)fluoranthene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Benzo(a)pyrene	µg/L	0.5			-	<0.5	-	-	-	-	-	-	<0.5	<0.5	-
	Chrysene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Pyrene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Benzo(a)pyrene TEQ (WHO)	mg/L	0.0005			-	<0.0005	-	-	-	-	-	-	<0.0005	<0.0005	-
	Benzo(g,h,i)perylene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Dibenz(a,h)anthracene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Indeno(1,2,3-cd)pyrene	µg/L	1			-	<1	-	-	-	-	-	-	<1	<1	-
	Sum of polycyclic aromatic hydrocarbons	mg/L	0.0005			-	<0.0005	-	-	-	-	-	-	<0.0005	<0.0005	-
Sulfonated Compounds	Carbon disulfide	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
Total Dissolved Solids	Total Dissolved Solids	mg/L	10			33,500	26,300	1060	1080	1100	808	358	2710	29,600	840	1450
Total Organic Carbon	Total Organic Carbon	mg/L	1			<1	8	4	4	4	4	9	8	10	11	3
Total Petroleum Hydrocarbons	C6-C9 fraction	µg/L	20			<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C10-C14 fraction	µg/L	50			<50	<50	<50	<50	<50	<50	-	110	<50	<50	<50
	C15-C28 fraction	µg/L	100			<100	<100	<100	<100	<100	<100	-	540	<100	<100	<100
	C29-C36 fraction	µg/L	50			<50	<50	<50	<50	<50	<50	-	<50	<50	<50	<50
	C10-C36 fraction (sum)	µg/L	50			<50	<50	<50	<50	<50	<50	-	650	<50	<50	<50
Total Recoverable Hydrocarbons	C6-C10 fraction (F1 minus BTEX)	µg/L	20			<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C6-C10 fraction	µg/L	20			<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	>C10-C16 fraction	µg/L	100			<100	<100	<100	<100	<100	<100	-	220	<100	<100	<100
	>C10-C16 (less Naphthalene)	µg/L	50			-	-	-	-	-	-	-	-	-	-	-
	>C16-C34 fraction	µg/L	100			<100	<100	<100	<100	<100	<100	-	400	<100	<100	<100
	>C34-C40 fraction	µg/L	100			<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100
	>C10-C40 fraction (sum)	µg/L	100			<100	<100	<100	<100	<100	<100	-	620	<100	<100	<100
Trihalomethanes	Bromodichloromethane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Bromoform	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Chloroform	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-
	Dibromochloromethane	µg/L	5			-	<5	-	-	-	-	<5	-	<5	<5	-