APPENDIX V

INLAND RAIL

EMR Search Certificates and Laboratory Certificates

HELIDON TO CALVERT ENVIRONMENTAL IMPACT STATEMENT

IR_1381

ARTC

The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.

APPENDIX V

EMR Search Certificates and Laboratory Certificates

Appendix V1 EMR Search Certificates

HELIDON TO CALVERT ENVIRONMENTAL IMPACT STATEMENT

Department of Environment and Science (DES)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454, Brisbane QLD 4001, AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Globalx Terrain
Cathedral Square, West Tower
Level 6, 410 Ann St
Brisbane QLD 4000

Transaction ID: 50513130 EMR Site Id: 90591 15 February 2019
Client Reference:
Cheque Number:

This response relates to a search request received for the site:
Lot: 3 Plan: SP235464

EMR RESULT

The above site IS included on the Environmental Management Register.

The site you have searched has been subdivided from the following site, which IS included on the EMR or the CLR.

Lot: 2 Plan: RP96384
Address: ADARE ROAD
GATTON NORTH 4343

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
WASTE STORAGE, TREATMENT OR DISPOSAL - storing, treating, reprocessing or disposing of regulated waste (other than at the place it is generated), including operating a nightsoil disposal site or sewage treatment plant where the site or plant has a design capacity that is more than the equivalent of 50, 000 persons having sludge drying beds or on-site disposal facilities.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

Administering Authority

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www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Globalx Terrain
Cathedral Square, West Tower
Level 6, 410 Ann St
Brisbane QLD 4000

Transaction ID: 50513131 EMR Site Id: 90592 15 February 2019
Client Reference:
Cheque Number:

This response relates to a search request received for the site:
Lot: 4 Plan: SP235464

EMR RESULT

The above site IS included on the Environmental Management Register.

The site you have searched has been subdivided from the following site, which IS included on the EMR or the CLR.

Lot: 2 Plan: RP96384
Address: ADARE ROAD
GATTON NORTH 4343

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
WASTE STORAGE, TREATMENT OR DISPOSAL - storing, treating, reprocessing or disposing of regulated waste (other than at the place it is generated), including operating a nightsoil disposal site or sewage treatment plant where the site or plant has a design capacity that is more than the equivalent of 50, 000 persons having sludge drying beds or on-site disposal facilities.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Globalx Terrain
Cathedral Square, West Tower
Level 6, 410 Ann St
Brisbane QLD 4000

Transaction ID: 50513133 EMR Site Id: 6387 15 February 2019
Client Reference:
Cheque Number:

This response relates to a search request received for the site:
Lot: 11 Plan: CC807888

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 11 Plan: CC807888
Address: 23 EAST STREET
GATTON 4343

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
LANDFILL - disposing of waste (excluding inert construction and demolition waste).

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Globalx Terrain
Cathedral Square, West Tower
Level 6, 410 Ann St
Brisbane QLD 4000

Transaction ID: 50513132 EMR Site Id: 35900 15 February 2019
Client Reference:
Cheque Number:

This response relates to a search request received for the site:
Lot: 35 Plan: CP846028

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 35 Plan: CP846028
Address: TREATMENT PLANT ROAD
GATTON NORTH 4343

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
LANDFILL - disposing of waste (excluding inert construction and demolition waste).

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Globalx Terrain
Cathedral Square, West Tower
Level 6, 410 Ann St
Brisbane QLD 4000

Transaction ID: 50513113 EMR Site Id: 6331 15 February 2019
Client Reference:
Cheque Number:

This response relates to a search request received for the site:
Lot: 125 Plan: CP907566

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 125 Plan: CP907566
Address: AIRFORCE ROAD
HELIDON 4344

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
EXPLOSIVES PRODUCTION OR STORAGE - operating a factory under the *Explosives Act 1952.*

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Globalx Terrain
Cathedral Square, West Tower
Level 6, 410 Ann St
Brisbane QLD 4000

Transaction ID: 50513112 EMR Site Id: 6399 15 February 2019
Client Reference:
Cheque Number:

This response relates to a search request received for the site:
Lot: 145 Plan: CSH51

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 145 Plan: CSH51
Address: CONNORS ROAD
HELIDON 4344

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
LANDFILL - disposing of waste (excluding inert construction and demolition waste).

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

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SEARCH RESPONSE

ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Globalx Terrain
Cathedral Square, West Tower
Level 6, 410 Ann St
Brisbane QLD 4000

Transaction ID: 50513141 EMR Site Id: 55322 15 February 2019
Cheque Number:
Client Reference:

This response relates to a search request received for the site:
Lot: 362 Plan: SP117133

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 362 Plan: SP117133
Address: GATTON
GATTON 4343

The site has been subject to contamination from a hazardous contaminant as follows:
HAZARDOUS CONTAMINANT - This site has been subject to a hazardous contaminant. Refer to the summary given below.
Possible high arsenic levels along rail corridor.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

Administering Authority

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www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Gloablx Terrain
Po Box 2746
Brisbane QLD 4069

Transaction ID: 50542084 EMR Site Id: 6437 10 July 2019
Client Reference:
Cheque Number:

This response relates to a search request received for the site:
Lot: 184 Plan: CC3374

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 184 Plan: CC3374
Address: WARREGO HIGHWAY
GATTON SOUTH 4343

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
LANDFILL - disposing of waste (excluding inert construction and demolition waste).

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

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If you have any queries in relation to this search please phone 13QGOV (13 74 68)

Administering Authority

APPENDIX V

EMR Search Certificates and Laboratory Certificates

Appendix V2 Soils (September 2018)

HELIDON TO CALVERT ENVIRONMENTAL IMPACT STATEMENT

Aurecon	Project ID:	Inland Rail - H2C	Client:	Future Freight Joint Venture - Land Resources	
	Project Name:	Inland Rail - H2C	Address:	Level 8, 32 Turbot St, Brisbane 4000	
	Project Phase:	Land Resources			
	Project Manager:	Adam Anderson			

Scheduling		Contamination		Storage		Completion	
Schedule Prepared By		Samples contaminated?	No	No. Tubes		Requested Return Date	
Schedule Approved By	Adam Anderson	Samples from Fire Ant Zone?	No	No. Bags	*14*	Completed By	
Request Date	24/09/2018	Details		No. Containers		Completion Date	
Test Request Reference	20180924_H2C	Location of MSDS		Retention (months)		Received Date	

Chain of Custody

Sender			Receiver			Date	Time	Additional Information
Company	Name	Signature	Company	Name	Signature			
Golder	*Rob Cupper*							

Laboratory Specimen ID	Point ID	Label ID	Depth from (m)	Depth to (m)	Sample Type	Sample Preparation (hr)	HOLD	Sodium Adsorption Ratio (SAR)	Cation Exchange Capacity (CEC)	Exchangeable Sodium Percentage (%ESP)	Default Testing Method (Use when standard left blank)	Remarks
	330-01-BH2207	330-01-BH2207-D00000	0	0.2	DS			1	1	1		
	330-01-BH2207	330-01-BH2207-D00050	0.5	0.5	DS			1	1	1		
	330-01-BH2207	330-01-BH2207-D00100	1	1	DS			1	1	1		
	330-01-BH2102	330-01-BH2102-D00000	0	0.2	DS			1	1	1		
	330-01-BH2102	330-01-BH2102-D00050	0.5	0.5	DS			1	1	1		
	330-01-BH2102	330-01-BH2102-D00100	1	1	DS			1	1	1		
	330-01-BH2227	330-01-BH2227-D00000	0	0.2	DS			1	1	1		
	330-01-BH2227	330-01-BH2227-D00050	0.5	0.5	DS			1	1	1		
	330-01-BH2227	330-01-BH2227-D00100	1	1	DS			1	1	1		
	330-01-BH2303	330-01-BH2303-D00000	0	0.2	DS			1	1	1		
	330-01-BH2303	330-01-BH2303-D00050	0.5	0.5	DS			1	1	1		
	330-01-BH2104	330-01-BH2104-D00000	0	0.2	DS			1	1	1		
	330-01-BH2104	330-01-BH2104-D00050	0.5	0.5	DS			1	1	1		
	330-01-BH2104	330-01-BH2104-D00100	1	1	DS			1	1	1		

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB1823610**	Page	: 1 of 5
Client	: **TRILAB PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: ADMIN RESULTS	Contact	: Customer Services EB
Address	: 346A BILSEN RD GEEBUNG QLD, AUSTRALIA 4031	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Inland Rail H2C	Date Samples Received	: 28-Sep-2018 11:30
Order number	: BNE 1909023	Date Analysis Commenced	: 03-Oct-2018
C-O-C number	: ----	Issue Date	: 10-Oct-2018 14:30
Sampler	: ----		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 14		
No. of samples analysed	: 14		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EA006 (Sodium Adsorption Ratio) Unable to report result for Sample EB1823610-011(18091020 / 330-01-BH2303-D00050 / 0.50-0.50m) as required Calcium and Magnesium results are < LOR
- ED006(Exchangeable Cations on Alkaline Soils): Unable to calculate Magnesium/Potassium Ratio for some samples as the required results for Magnesium/Potassium are below LOR.
- ED007(Exchangeable Cations): Unable to calculate Magnesium/Potassium Ratio for some samples as the required results for Magnesium/Potassium are below LOR.
- ALS is not NATA accredited for the analysis of Exchangeable Aluminium and Exchange Acidity in soils when performed under ALS Method ED005.
- ALS is not NATA accredited for the analysis of Exchangeable Cations on Alkaline Soils when performed under ALS Method ED006.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	18091010 / 330-01-BH2207-D0000 0 / 0.00-0.20m	18091011 / 330-01-BH2207-D0005 0 / 0.50-0.50m	18091012 / 330-01-BH2207-D0010 0 / 1.00-1.00m	18091013 / 330-01-BH2102-D0000 0 / 0.00-0.20m	18091014 / 330-01-BH2102-D0005 0 / 0.50-0.95m
				Client sampling date / time	28-Sep-2018 00:00	28-Sep-2018 00:00	28-Sep-2018 00:00	28-Sep-2018 00:00	28-Sep-2018 00:00
					EB1823610-001	EB1823610-002	EB1823610-003	EB1823610-004	EB1823610-005
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		**5.8**	**5.9**	**5.7**	**5.9**	**5.9**
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		**4.45**	**4.74**	**11.0**	**3.28**	**5.52**
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm		**9**	**9**	**30**	**7**	**14**
ED005: Exchange Acidity									
Exchange Acidity	----	0.1	meq/100g		**1.4**	**1.0**	**2.8**	**1.3**	**1.1**
Exchangeable Aluminium	----	0.1	meq/100g		**1.3**	**0.9**	**2.3**	**1.2**	**1.0**
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Magnesium	----	0.1	meq/100g		**0.7**	**0.7**	**2.4**	**2.2**	**2.7**
Exchangeable Potassium	----	0.1	meq/100g		<0.1	<0.1	**0.1**	**0.1**	**0.2**
Exchangeable Sodium	----	0.1	meq/100g		**0.2**	**0.2**	**0.9**	**0.2**	**0.2**
Cation Exchange Capacity	----	0.1	meq/100g		**2.3**	**1.9**	**6.2**	**3.8**	**4.2**
Exchangeable Sodium Percent	----	0.1	%		**16.4**	**17.2**	**26.9**	**6.6**	**7.4**
Calcium/Magnesium Ratio	----	0.1	-		<0.1	<0.1	<0.1	<0.1	<0.1
Magnesium/Potassium Ratio	----	0.1	-		**----**	**----**	**16.9**	**16.5**	**16.3**

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	18091015 / 330-01-BH2102-D0010 0 / 1.00-1.00m	18091016 / 330-01-BH2227-D0000 0 / 0.00-0.20m	18091017 / 330-01-BH2227-D0005 0 / 0.50-0.50m	18091018 / 330-01-BH2227-D0010 0 / 1.00-1.00m	18091019 / 330-01-BH2303-D0000 0 / 0.00-0.20m
				Client sampling date / time	28-Sep-2018 00:00	28-Sep-2018 00:00	28-Sep-2018 00:00	28-Sep-2018 00:00	28-Sep-2018 00:00
					EB1823610-006	EB1823610-007	EB1823610-008	EB1823610-009	EB1823610-010
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		**5.8**	**7.0**	**7.9**	**8.5**	**5.8**
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		**7.44**	**6.11**	**15.5**	**31.2**	**3.23**
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm		**23**	**42**	**193**	**383**	**4**
ED005: Exchange Acidity									
Exchange Acidity	----	0.1	meq/100g		**0.9**	**----**	**----**	**----**	**0.8**
Exchangeable Aluminium	----	0.1	meq/100g		**0.7**	**----**	**----**	**----**	**0.7**
ED006: Exchangeable Cations on Alkaline Soils									
Exchangeable Calcium	----	0.2	meq/100g		**----**	**----**	**10.2**	**8.7**	**----**
Exchangeable Magnesium	----	0.2	meq/100g		**----**	**----**	**8.7**	**9.4**	**----**
Exchangeable Potassium	----	0.2	meq/100g		**----**	**----**	**0.2**	<0.2	**----**
Exchangeable Sodium	----	0.2	meq/100g		**----**	**----**	**3.5**	**4.4**	**----**
Cation Exchange Capacity	----	0.2	meq/100g		**----**	**----**	**22.7**	**22.7**	**----**
Exchangeable Sodium Percent	----	0.2	%		**----**	**----**	**15.6**	**19.6**	**----**
Calcium/Magnesium Ratio	----	0.2	-		**----**	**----**	**1.2**	**0.9**	**----**
Magnesium/Potassium Ratio	----	0.2	-		**----**	**----**	**39.1**	**----**	**----**
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		**0.3**	**11.0**	**----**	**----**	<0.1
Exchangeable Magnesium	----	0.1	meq/100g		**2.4**	**8.5**	**----**	**----**	**0.6**
Exchangeable Potassium	----	0.1	meq/100g		**0.2**	**0.3**	**----**	**----**	<0.1
Exchangeable Sodium	----	0.1	meq/100g		**0.2**	**1.5**	**----**	**----**	<0.1
Cation Exchange Capacity	----	0.1	meq/100g		**4.0**	**21.3**	**----**	**----**	**1.4**
Exchangeable Sodium Percent	----	0.1	%		**7.8**	**7.2**	**----**	**----**	**7.2**
Calcium/Magnesium Ratio	----	0.1	-		**0.1**	**1.3**	**----**	**----**	<0.1
Magnesium/Potassium Ratio	----	0.1	-		**14.4**	**31.1**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	18091020 / 330-01-BH2303-D0005 0 / 0.50-0.50m	18091021 / 330-01-BH2104-D0000 0 / 0.00-0.20m	18091022 / 330-01-BH2104-D0005 0 / 0.50-0.50m	18091023 / 330-01-BH2104-D0010 0 / 1.00-1.00m	----
				Client sampling date / time	28-Sep-2018 00:00	28-Sep-2018 00:00	28-Sep-2018 00:00	28-Sep-2018 00:00	----
					EB1823610-011	EB1823610-012	EB1823610-013	EB1823610-014	--------
					Result	Result	Result	Result	----
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		**6.2**	**6.7**	**6.9**	**7.0**	**----**
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		**----**	**3.51**	**3.91**	**4.28**	**----**
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm		**8**	**15**	**16**	**21**	**----**
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		<0.1	**9.8**	**9.4**	**8.8**	**----**
Exchangeable Magnesium	----	0.1	meq/100g		**0.9**	**6.1**	**5.8**	**6.2**	**----**
Exchangeable Potassium	----	0.1	meq/100g		**0.2**	**0.2**	**0.2**	**0.2**	**----**
Exchangeable Sodium	----	0.1	meq/100g		<0.1	**0.4**	**0.5**	**0.4**	**----**
Cation Exchange Capacity	----	0.1	meq/100g		**1.1**	**16.5**	**15.9**	**15.6**	**----**
Exchangeable Sodium Percent	----	0.1	%		**7.7**	**2.8**	**3.0**	**2.7**	**----**
Calcium/Magnesium Ratio	----	0.1	-		<0.1	**1.6**	**1.6**	**1.4**	**----**
Magnesium/Potassium Ratio	----	0.1	-		**5.6**	**39.2**	**38.4**	**33.4**	**----**

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB1823610**	Page	: 1 of 4
Client	: **TRILAB PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: ADMIN RESULTS	Contact	: Customer Services EB
Address	: 346A BILSEN RD GEEBUNG QLD, AUSTRALIA 4031	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Inland Rail H2C	Date Samples Received	: 28-Sep-2018
Order number	: BNE 1909023	Date Analysis Commenced	: 03-Oct-2018
C-O-C number	: ----	Issue Date	: 10-Oct-2018
Sampler	: ----		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 14		
No. of samples analysed	: 14		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA002: pH 1:5 (Soils) (QC Lot: 1960457)									
EB1823609-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.3	6.4	0.00	0% - 20%
EB1823610-008	18091017 / 330-01-BH2227-D00050 / 0.50-0.50m	EA002: pH Value	----	0.1	pH Unit	7.9	8.1	2.38	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 1960456)									
EB1823609-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	144	127	12.7	0% - 20%
EB1823610-008	18091017 / 330-01-BH2227-D00050 / 0.50-0.50m	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	193	216	11.4	0% - 20%
ED005: Exchange Acidity (QC Lot: 1963746)									
EB1823610-001	18091010 / 330-01-BH2207-D00000 / 0.00-0.20m	ED005: Exchange Acidity	----	0.1	meq/100g	1.4	1.3	8.96	0% - 50%
		ED005: Exchangeable Aluminium	----	0.1	meq/100g	1.3	1.2	12.2	0% - 50%
ED006: Exchangeable Cations on Alkaline Soils (QC Lot: 1963781)									
EB1823610-008	18091017 / 330-01-BH2227-D00050 / 0.50-0.50m	ED006: Exchangeable Calcium	----	0.2	meq/100g	10.2	9.5	6.99	0% - 20%
		ED006: Exchangeable Magnesium	----	0.2	meq/100g	8.7	8.1	7.71	0% - 20%
		ED006: Exchangeable Potassium	----	0.2	meq/100g	0.2	0.2	0.00	No Limit
		ED006: Exchangeable Sodium	----	0.2	meq/100g	3.5	3.5	0.00	0% - 50%
		ED006: Cation Exchange Capacity	----	0.2	meq/100g	22.7	21.3	6.16	0% - 20%
ED007: Exchangeable Cations (QC Lot: 1963745)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED007: Exchangeable Cations (QC Lot: 1963745) - continued									
EB1823610-001	18091010 / 330-01-BH2207-D00000 / 0.00-0.20m	ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	<0.1	0.00	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.7	0.7	0.00	No Limit
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.00	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.00	No Limit
ED007: Exchangeable Cations (QC Lot: 1963770)									
EB1823610-007	18091016 / 330-01-BH2227-D00000 / 0.00-0.20m	ED007: Exchangeable Calcium	----	0.1	meq/100g	11.0	11.4	3.47	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	8.5	8.7	2.72	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.3	0.3	0.00	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	1.5	1.6	0.00	0% - 50%

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

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA002: pH 1:5 (Soils) (QCLot: 1960457)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	100	98	102
				----	7 pH Unit	100	98	102
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 1961044)								
EA006: Sodium Adsorption Ratio	----	0.01	-	<0.01	----	----	----	----
EA010: Conductivity (1:5) (QCLot: 1960456)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	100	97	103
ED005: Exchange Acidity (QCLot: 1963746)								
ED005: Exchange Acidity	----	0.1	meq/100g	<0.1	----	----	----	----
ED005: Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----
ED006: Exchangeable Cations on Alkaline Soils (QCLot: 1963781)								
ED006: Exchangeable Calcium	----	0.2	meq/100g	<0.2	5.4 meq/100g	109	70	130
ED006: Exchangeable Magnesium	----	0.2	meq/100g	<0.2	4.84 meq/100g	86.3	70	130
ED006: Exchangeable Potassium	----	0.2	meq/100g	<0.2	2.73 meq/100g	116	70	130
ED006: Exchangeable Sodium	----	0.2	meq/100g	<0.2	2.68 meq/100g	120	70	130
ED006: Cation Exchange Capacity	----	0.2	meq/100g	<0.2	15.6 meq/100g	105	70	130
ED007: Exchangeable Cations (QCLot: 1963745)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	3.54 meq/100g	92.1	79	113
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.15 meq/100g	94.8	85	115
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.635 meq/100g	92.9	70	122
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.382 meq/100g	84.0	76	112
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	5.707 meq/100g	92.1	82	112
ED007: Exchangeable Cations (QCLot: 1963770)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	3.54 meq/100g	95.0	79	113
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.15 meq/100g	96.6	85	115
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.635 meq/100g	96.1	70	122
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.382 meq/100g	87.2	76	112
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	5.707 meq/100g	94.6	82	112

Matrix Spike (MS) Report

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

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

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB1823610**	Page	: 1 of 5
Client	: **TRILAB PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: ADMIN RESULTS	Telephone	: +61-7-3243 7222
Project	: Inland Rail H2C	Date Samples Received	: 28-Sep-2018
Site	: ----	Issue Date	: 10-Oct-2018
Sampler	: ----	No. of samples received	: 14
Order number	: BNE 1909023	No. of samples analysed	: 14

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)							
Snap Lock Bag (EA002)							
18091010 / 330-01-BH2207-D00000 / 0.00-0.20m, 18091011 / 330-01-BH2207-D00050 / 0.50-0.50m, 18091012 / 330-01-BH2207-D00100 / 1.00-1.00m, 18091013 / 330-01-BH2102-D00000 / 0.00-0.20m, 18091014 / 330-01-BH2102-D00050 / 0.50-0.95m, 18091015 / 330-01-BH2102-D00100 / 1.00-1.00m, 18091016 / 330-01-BH2227-D00000 / 0.00-0.20m, 18091017 / 330-01-BH2227-D00050 / 0.50-0.50m, 18091018 / 330-01-BH2227-D00100 / 1.00-1.00m, 18091019 / 330-01-BH2303-D00000 / 0.00-0.20m, 18091020 / 330-01-BH2303-D00050 / 0.50-0.50m, 18091021 / 330-01-BH2104-D00000 / 0.00-0.20m, 18091022 / 330-01-BH2104-D00050 / 0.50-0.50m, 18091023 / 330-01-BH2104-D00100 / 1.00-1.00m	**28-Sep-2018**	**03-Oct-2018**	05-Oct-2018	✓	**03-Oct-2018**	03-Oct-2018	✓
EA006: Sodium Adsorption Ratio (SAR)							
Snap Lock Bag (EA006)							
18091010 / 330-01-BH2207-D00000 / 0.00-0.20m, 18091011 / 330-01-BH2207-D00050 / 0.50-0.50m, 18091012 / 330-01-BH2207-D00100 / 1.00-1.00m, 18091013 / 330-01-BH2102-D00000 / 0.00-0.20m, 18091014 / 330-01-BH2102-D00050 / 0.50-0.95m, 18091015 / 330-01-BH2102-D00100 / 1.00-1.00m, 18091016 / 330-01-BH2227-D00000 / 0.00-0.20m, 18091017 / 330-01-BH2227-D00050 / 0.50-0.50m, 18091018 / 330-01-BH2227-D00100 / 1.00-1.00m, 18091019 / 330-01-BH2303-D00000 / 0.00-0.20m, 18091021 / 330-01-BH2104-D00000 / 0.00-0.20m, 18091022 / 330-01-BH2104-D00050 / 0.50-0.50m, 18091023 / 330-01-BH2104-D00100 / 1.00-1.00m	**28-Sep-2018**	**05-Oct-2018**	27-Mar-2019	✓	**05-Oct-2018**	27-Mar-2019	✓
EA010: Conductivity (1:5)							
Snap Lock Bag (EA010)							
18091010 / 330-01-BH2207-D00000 / 0.00-0.20m, 18091011 / 330-01-BH2207-D00050 / 0.50-0.50m, 18091012 / 330-01-BH2207-D00100 / 1.00-1.00m, 18091013 / 330-01-BH2102-D00000 / 0.00-0.20m, 18091014 / 330-01-BH2102-D00050 / 0.50-0.95m, 18091015 / 330-01-BH2102-D00100 / 1.00-1.00m, 18091016 / 330-01-BH2227-D00000 / 0.00-0.20m, 18091017 / 330-01-BH2227-D00050 / 0.50-0.50m, 18091018 / 330-01-BH2227-D00100 / 1.00-1.00m, 18091019 / 330-01-BH2303-D00000 / 0.00-0.20m, 18091020 / 330-01-BH2303-D00050 / 0.50-0.50m, 18091021 / 330-01-BH2104-D00000 / 0.00-0.20m, 18091022 / 330-01-BH2104-D00050 / 0.50-0.50m, 18091023 / 330-01-BH2104-D00100 / 1.00-1.00m	**28-Sep-2018**	**03-Oct-2018**	05-Oct-2018	✓	**03-Oct-2018**	31-Oct-2018	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED005: Exchange Acidity							
Snap Lock Bag (ED005)							
18091010 / 330-01-BH2207-D00000 / 0.00-0.20m, 18091011 / 330-01-BH2207-D00050 / 0.50-0.50m, 18091012 / 330-01-BH2207-D00100 / 1.00-1.00m, 18091013 / 330-01-BH2102-D00000 / 0.00-0.20m, 18091014 / 330-01-BH2102-D00050 / 0.50-0.95m, 18091015 / 330-01-BH2102-D00100 / 1.00-1.00m, 18091016 / 330-01-BH2227-D00000 / 0.00-0.20m, 18091019 / 330-01-BH2303-D00000 / 0.00-0.20m, 18091020 / 330-01-BH2303-D00050 / 0.50-0.50m, 18091021 / 330-01-BH2104-D00000 / 0.00-0.20m, 18091022 / 330-01-BH2104-D00050 / 0.50-0.50m, 18091023 / 330-01-BH2104-D00100 / 1.00-1.00m	**28-Sep-2018**	**05-Oct-2018**	26-Oct-2018	✓	**09-Oct-2018**	26-Oct-2018	✓
Snap Lock Bag (ED005)							
18091017 / 330-01-BH2227-D00050 / 0.50-0.50m, 18091018 / 330-01-BH2227-D00100 / 1.00-1.00m	**28-Sep-2018**	**08-Oct-2018**	26-Oct-2018	✓	**08-Oct-2018**	26-Oct-2018	✓
ED006: Exchangeable Cations on Alkaline Soils							
Snap Lock Bag (ED006)							
18091017 / 330-01-BH2227-D00050 / 0.50-0.50m, 18091018 / 330-01-BH2227-D00100 / 1.00-1.00m	**28-Sep-2018**	**05-Oct-2018**	26-Oct-2018	✓	**08-Oct-2018**	26-Oct-2018	✓
Snap Lock Bag (ED006)							
18091010 / 330-01-BH2207-D00000 / 0.00-0.20m, 18091011 / 330-01-BH2207-D00050 / 0.50-0.50m, 18091012 / 330-01-BH2207-D00100 / 1.00-1.00m, 18091013 / 330-01-BH2102-D00000 / 0.00-0.20m, 18091014 / 330-01-BH2102-D00050 / 0.50-0.95m, 18091015 / 330-01-BH2102-D00100 / 1.00-1.00m, 18091016 / 330-01-BH2227-D00000 / 0.00-0.20m, 18091019 / 330-01-BH2303-D00000 / 0.00-0.20m, 18091020 / 330-01-BH2303-D00050 / 0.50-0.50m, 18091021 / 330-01-BH2104-D00000 / 0.00-0.20m, 18091022 / 330-01-BH2104-D00050 / 0.50-0.50m, 18091023 / 330-01-BH2104-D00100 / 1.00-1.00m	**28-Sep-2018**	**08-Oct-2018**	26-Oct-2018	✓	**08-Oct-2018**	26-Oct-2018	✓
ED007: Exchangeable Cations							
Snap Lock Bag (ED007)							
18091010 / 330-01-BH2207-D00000 / 0.00-0.20m, 18091011 / 330-01-BH2207-D00050 / 0.50-0.50m, 18091012 / 330-01-BH2207-D00100 / 1.00-1.00m, 18091013 / 330-01-BH2102-D00000 / 0.00-0.20m, 18091014 / 330-01-BH2102-D00050 / 0.50-0.95m, 18091015 / 330-01-BH2102-D00100 / 1.00-1.00m, 18091016 / 330-01-BH2227-D00000 / 0.00-0.20m, 18091019 / 330-01-BH2303-D00000 / 0.00-0.20m, 18091020 / 330-01-BH2303-D00050 / 0.50-0.50m, 18091021 / 330-01-BH2104-D00000 / 0.00-0.20m, 18091022 / 330-01-BH2104-D00050 / 0.50-0.50m, 18091023 / 330-01-BH2104-D00100 / 1.00-1.00m	**28-Sep-2018**	**05-Oct-2018**	26-Oct-2018	✓	**09-Oct-2018**	26-Oct-2018	✓
Snap Lock Bag (ED007)							
18091017 / 330-01-BH2227-D00050 / 0.50-0.50m, 18091018 / 330-01-BH2227-D00100 / 1.00-1.00m	**28-Sep-2018**	**08-Oct-2018**	26-Oct-2018	✓	**08-Oct-2018**	26-Oct-2018	✓
ED008: Exchangeable Cations							
Snap Lock Bag (ED008)							
18091010 / 330-01-BH2207-D00000 / 0.00-0.20m, 18091011 / 330-01-BH2207-D00050 / 0.50-0.50m, 18091012 / 330-01-BH2207-D00100 / 1.00-1.00m, 18091013 / 330-01-BH2102-D00000 / 0.00-0.20m, 18091014 / 330-01-BH2102-D00050 / 0.50-0.95m, 18091015 / 330-01-BH2102-D00100 / 1.00-1.00m, 18091016 / 330-01-BH2227-D00000 / 0.00-0.20m, 18091019 / 330-01-BH2303-D00000 / 0.00-0.20m, 18091020 / 330-01-BH2303-D00050 / 0.50-0.50m, 18091021 / 330-01-BH2104-D00000 / 0.00-0.20m, 18091022 / 330-01-BH2104-D00050 / 0.50-0.50m, 18091023 / 330-01-BH2104-D00100 / 1.00-1.00m	**28-Sep-2018**	**05-Oct-2018**	26-Oct-2018	✓	**09-Oct-2018**	26-Oct-2018	✓
Snap Lock Bag (ED008)							
18091017 / 330-01-BH2227-D00050 / 0.50-0.50m, 18091018 / 330-01-BH2227-D00100 / 1.00-1.00m	**28-Sep-2018**	**08-Oct-2018**	26-Oct-2018	✓	**08-Oct-2018**	26-Oct-2018	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Electrical Conductivity (1:5)	EA010	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchange Acidity by 1M Potassium Chloride	ED005	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations	ED007	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Electrical Conductivity (1:5)	EA010	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations	ED007	2	12	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Electrical Conductivity (1:5)	EA010	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchange Acidity by 1M Potassium Chloride	ED005	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations	ED007	2	12	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sodium Adsorption Ratio (SAR)	EA006	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3)
Sodium Adsorption Ratio (SAR)	EA006	SOIL	In house: Referenced to USEPA 600/2 - 78 - 54. The concentration as meq of Ca, Mg and Na are determined on saturated soil by water leach. Results are used to calculate SAR.
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3)
Exchange Acidity by 1M Potassium Chloride	ED005	SOIL	In house: referenced to Rayment and Lyons, (2011), method 15G1. This method is unsuitable for near neutral and alkaline soils. NATA accreditation does not cover performance of this service.
Exchangeable Cations on Alkaline Soils	ED006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Higginson (2011) Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)

Preparation Methods	Method	Matrix	Method Descriptions
SAR Prep	EA006PR	SOIL	In house: Referenced to USEPA 600/2. Soil is bought to saturation with distilled water by capiliary action.
Exchangeable Cations Preparation Method (Alkaline Soils)	ED006PR	SOIL	In house: Referenced to Rayment and Lyons 2011 method 15C1.
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Higginson (1992) method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

ADELAIDE 3/1 Burma Road Pooraka SA 5095 Ph: 08 8162 5130 E: adelaide@alsglobal.com

BRISBANE 2 Byth Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GLADSTONE 48 Callemondah Drive Gladstone QLD 4680 Ph: 07 4978 7944 E: gladstone@alsglobal.com

MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

MUDGEE 1/29 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

NEWCASTLE 5/585 Maitland Road Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E: nowra@alsglobal.com

PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

WOLLONGONG 1/19-21 Ralph Black Drive, Nth Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: Golder Associates Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	☑ Standard TAT (List due date): 48 hrs.	FOR LABORATORY USE ONLY (Circle)
OFFICE: Golder-Brisbane		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Inland Rail (P13) PROJECT NO.: 1893802	ALS QUOTE NO.:	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: PURCHASE ORDER NO.:	COUNTRY OF ORIGIN:	COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Mitch McGinnis CONTACT PH:		OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Rob Cupper SAMPLER MOBILE: 0448611113	RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY: / RECEIVED BY:
COC Emailed to ALS? (YES / (NO) EDD FORMAT (or default):			
Email Reports to (will default to PM if no other addresses are listed): skumarapeli@golder.com.au	DATE/TIME:	DATE/TIME: 24/10/18 9:17	DATE/TIME: / DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) When Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	Anions / cations Ca, Mg, Na, Cl, F SO4, Alkalinity, Hardness	EC, pH, TDS	Total / Dissolved As, B, Ba, Be, Cd, Cr Co, Cu, Cd, Mn, Fe	Ni, Pb, Se, V, Zn Hg	Nutrients Nitrate, Nitrite Ammonia	Reactive Phosphorus Total P/N, TKN	Sodium Adsorption Ratio		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	330-01-BH2212	22/10/18 15:20	W	N, SP	4	✓	✓	✓	✓	✓	✓	✓		
2	330-01-BH 2216	23/10/18 13:40	W	N, SP	4	✓	✓	✓	✓	✓	✓	✓		
3	GW 789	23/10/18 13:50	W	N, SP	4	✓	✓	✓	✓	✓	✓	✓		
	~~330-01-BH2214~~													
4	330-01-BH 2104	23/10/18 16:00	W	N, SP	4	✓	✓	✓	✓	✓	✓	✓		
				TOTAL	16									

URGENT

H7

Environmental Division Brisbane
Work Order Reference
EB1825628

Telephone : + 61-7-3243 7222

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

ADELAIDE 3/1 Burma Road Pooraka SA 5095 Ph: 08 8162 5130 E: adelaide@alsglobal.com
BRISBANE 2 Byth Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
GLADSTONE 48 Callemondah Drive Gladstone QLD 4680 Ph: 07 4978 7944 E: gladstone@alsglobal.com
MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
MUDGEE 1/29 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
NEWCASTLE 5/585 Maitland Road Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com
NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E: nowra@alsglobal.com
PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: [illegible]

500

Environmental Division
Brisbane
Work Order Reference
EB1825910

Telephone : + 61-7-3243 7222

CLIENT: Golder Associates Pty Ltd	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☐ Standard TAT (List due date):	FOR LI
OFFICE: Golder - Brisbane		☑ Non Standard or urgent TAT (List due date): 48 hrs	Custody
PROJECT: Inland Rail CP13 PROJECT NO. 1893802	ALS QUOTE NO.:	COC SEQUENCE NUMBER (Circle)	Free Ice receipt?
ORDER NUMBER: PURCHASE ORDER NO.:	COUNTRY OF ORIGIN:	COC: 1 2 3 4 5 6 7	Random
PROJECT MANAGER: Mitch McGinnis CONTACT PH:		OF: 1 2 3 4 5 6 7	Other cor
SAMPLER: Rob Cupper SAMPLER MOBILE: 0448611113	RELINQUISHED BY:	RECEIVED BY:	RELINQUISH
COC Emailed to ALS? (YES / NO) EDD FORMAT (or default):	DATE/TIME:	DATE/TIME: 26/10/18 9:05	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): skumarapeli@golder.com.au			
Email Invoice to (will default to PM if no other addresses are listed):			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

N/A
N/A

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) When Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	Anions/Cations Ca, Mg, Na, Cl, F SO4, Alkalinity, Hardness	EC, PH, TDS	(Total / Dissolved) As, B, Ba, Be, Ca, Cr, Co, Cu, Mn, Fe, Ni, Pb, Se, V, Zn, Hg	Nutrients Nitrates, Nitrite Ammonia	Reactive Phosphorus	Total PSN, TKN	Sodium Adsorption Ratio		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	330-01-BH 2102	24/10/18 12:00	W	N, SP	4	✓	✓	✓	✓	✓	✓	✓		
	330-01-BH 2303	25/10/18 7:30	W	N, SP	4	✓	✓	✓	✓	✓	✓	✓		
	330-01-BH 2207	25/10/18 9:45	W	N, SP	4	✓	✓	✓	✓	✓	✓	✓		
														URGENT
				TOTAL	12									

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

APPENDIX V

EMR Search Certificates and Laboratory Certificates

Appendix V3 Surface water quality results—Round 1 (October 2017)

HELIDON TO CALVERT ENVIRONMENTAL IMPACT STATEMENT

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

☐ Eurofins | mgt Sydney Lab — Unit F3 Building F 16 Mars Road, Lane Cove West, NSW 2066 P: +61 2 9900 8400 E: EnviroSampleNSW@eurofins.com.au

☑ Eurofins | mgt Brisbane Lab — Unit 1, 21 Smallwood Place, Murarrie, QLD 4172 P: +61 7 3902 4600 E: EnviroSampleQLD@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh, VIC 3166 P: +61 3 8564 5000 F: +61 3 8564 5090 E: EnviroSampleVic@eurofins.com.au

Company	Aurecon	Purchase Order	500569	Project Manager	Leesa Leathbridge
Address	Level 14, 32 Turbot Street, Brisbane, QLD	Eurofins | mgt Quote №	160329AUR	Project №	Inland Rail
Contact Name	Leesa Leathbridge				
Contact Phone №	07 3173 8730				
Special Direction	* 2 eskies in total				
Relinquished by (Signature)	Leesa Leathbridge.				
(Time / Date)	2:15pm 13/10/17.				

Project Name	Baseline Surface Water Monitoring
Electronic Results Format	
Email for Results	leesa.leathbridge@aurecongroup.com
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* (* Surcharges apply) ☑ 5 DAY (Std.) ☐ Other ( )

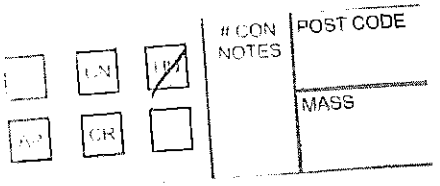
Analysis (Note: Where metals are requested, please specify "Total" or "Filtered")

№	Client Sample ID	Date	Matrix	pH	Suspended Solids (SS)	Turbidity	Speciated nitrogens (ammonia, nitrate, nitrite, organic nitrogen, oxidised nitrogen, total kjeldahl nitrogen, total nitrogen)	Electrical conductivity (Actual + Specific)	M8 - 8 metals	Total Phosphorus	Reactive Phosphorus	Chlorophyll a	Polycyclic aromatic hydrocarbons (PAH)	Salinity (ppt)	Dissolved oxygen (% saturation)	Dissolved oxygen (mg/L)	Containers: 1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	60mL plastic	500mL plastic	Sample Comments / DG Hazard Warning
1	H2C 11A	09/10/17	W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1			2	1	
2	H2C 4A	09/10/17	W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1			2	1	
3	H2C 12A	10/10/17	W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1			2	1	
4	H2C 9A	11/10/17	W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1			2	1	
5	H2C 7A	11/10/17	W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1			2	1	
6	H2C 3A	12/10/17	W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1			2	1	
7	H2C 10A	11/10/17	W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1			2	1	
8	H2C Dup 1	—	W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1			2	1	
9	H2C Dup 2	—	W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1			2	1	
10	H2C Trip 1	—	W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1			2	1	
11	H2C 17A	13/10/17	W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1			2	1	
12	H2C 18A	13/10/17	W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1			2	1	

Method of Shipment: ☐ Courier (#) ☑ Hand Delivered ☐ Postal

Laboratory Use Only									
Received By	Krystel Byrne	SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	13/10/17	Time	3:01pm	Signature		Temperature 18.27°C
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature		Report №

15.9
14.6
14.2
14.60°C



18.8
19.8
16.2
18.27°C

Krystel Bryant
13/10/17
3:01 PM

eurofins | mgt

Certificate of Analysis

Aurecon Australia (BRIS) Pty Ltd
Level 14, 32 Turbot St
Brisbane
QLD 4001

NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **LEESA LEATHBRIDGE**

Report **567573-W**
Project name BASELINE SURFACE WATER MONITORING
Project ID INLAND RAIL
Received Date Oct 13, 2017

Client Sample ID			**H2C 11A**	**H2C 4A**	**H2C 12A**	**H2C 9A**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**B17-Oc14979**	**B17-Oc14980**	**B17-Oc14981**	**B17-Oc14982**
Date Sampled			**Oct 09, 2017**	**Oct 09, 2017**	**Oct 10, 2017**	**Oct 11, 2017**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	62	79	147	95
p-Terphenyl-d14 (surr.)	1	%	70	85	140	99
Ammonia (as N)	0.01	mg/L	0.11	0.13	< 0.01	< 0.01
Chlorophyll a	5	ug/L	< 10	< 10	87	< 10
Conductivity (at 25°C)	1	uS/cm	1400	510	970	2200
Dissolved Oxygen	0.01	mg/L	9.3	8.6	8.6	7.3
Dissolved Oxygen (% Saturation)		%	110	95	96	81
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	0.47	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	0.43	< 0.02	0.03
Nitrite (as N)	0.02	mg/L	< 0.02	0.04	< 0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	0.49	<0.2	0.4	0.2
pH	0.1	pH Units	9.3	8.1	8.4	8.2
Phosphate total (as P)	0.05	mg/L	0.10	0.10	0.10	0.15
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	0.10	< 0.05	< 0.05
Salinity (determined from EC)*	20	mg/L	700	250	480	1100
Suspended Solids	1	mg/L	47	< 1	19	11
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.6	0.2	0.4	0.2

Client Sample ID			H2C 11A	H2C 4A	H2C 12A	H2C 9A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B17-Oc14979	B17-Oc14980	B17-Oc14981	B17-Oc14982
Date Sampled			Oct 09, 2017	Oct 09, 2017	Oct 10, 2017	Oct 11, 2017
Test/Reference	LOR	Unit				
Total Nitrogen (as N)	0.2	mg/L	0.6	0.7	0.4	0.2
Turbidity	1	NTU	36	2.3	9.6	4.8
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.001	0.002	0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.003	0.002	0.005	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005	0.011	< 0.005	< 0.005

Client Sample ID			H2C 7A	H2C 3A	H2C 10A	H2C DUP1
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B17-Oc14983	B17-Oc14984	B17-Oc14985	B17-Oc14986
Date Sampled			Oct 11, 2017	Oct 11, 2017	Oct 11, 2017	Oct 11, 2017
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	69	143	74	103
p-Terphenyl-d14 (surr.)	1	%	81	140	80	81
Ammonia (as N)	0.01	mg/L	0.13	0.03	< 0.01	0.13
Chlorophyll a	5	ug/L	< 10	< 10	< 5	< 5
Conductivity (at 25°C)	1	uS/cm	740	870	3800	510
Dissolved Oxygen	0.01	mg/L	8.1	8.7	8.3	8.6
Dissolved Oxygen (% Saturation)		%	90	97	92	96
Nitrate & Nitrite (as N)	0.05	mg/L	0.20	< 0.05	< 0.05	0.45
Nitrate (as N)	0.02	mg/L	0.19	< 0.02	0.05	0.41
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	0.04
Organic Nitrogen (as N)	0.2	mg/L	0.5	0.3	0.4	0.27
pH	0.1	pH Units	8.1	8.3	8.4	8.1

Client Sample ID			H2C 7A	H2C 3A	H2C 10A	H2C DUP1
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B17-Oc14983	B17-Oc14984	B17-Oc14985	B17-Oc14986
Date Sampled			Oct 11, 2017	Oct 11, 2017	Oct 11, 2017	Oct 11, 2017
Test/Reference	LOR	Unit				
Phosphate total (as P)	0.05	mg/L	0.13	< 0.05	0.06	0.11
Phosphorus reactive (as P)	0.05	mg/L	0.11	< 0.05	< 0.05	0.10
Salinity (determined from EC)*	20	mg/L	360	430	2000	250
Suspended Solids	1	mg/L	4.4	1.6	7.2	< 1
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.6	0.3	0.4	0.4
Total Nitrogen (as N)	0.2	mg/L	0.8	0.3	0.4	0.85
Turbidity	1	NTU	1.7	< 1	3.3	1.8
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.002
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.003	0.002	0.002	0.002
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	0.009

Client Sample ID			H2C DUP2	H2C TRIP 1	H2C 17A	H2C 18A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B17-Oc14987	B17-Oc14988	B17-Oc14989	B17-Oc14990
Date Sampled			Oct 11, 2017	Oct 11, 2017	Oct 11, 2017	Oct 11, 2017
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	145	int	int	int
p-Terphenyl-d14 (surr.)	1	%	146	69	84	58
Ammonia (as N)	0.01	mg/L	0.01	0.01	0.02	0.02
Chlorophyll a	5	ug/L	< 10	< 10	< 10	< 5
Conductivity (at 25°C)	1	uS/cm	2200	1900	850	2300
Dissolved Oxygen	0.01	mg/L	7.4	7.4	8.0	8.0
Dissolved Oxygen (% Saturation)		%	83	83	89	89

Client Sample ID			H2C DUP2	H2C TRIP 1	H2C 17A	H2C 18A
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**B17-Oc14987**	**B17-Oc14988**	**B17-Oc14989**	**B17-Oc14990**
Date Sampled			**Oct 11, 2017**	**Oct 11, 2017**	**Oct 11, 2017**	**Oct 11, 2017**
Test/Reference	LOR	Unit				
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	0.03	0.04	0.03	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	0.4	0.3	0.3	0.6
pH	0.1	pH Units	8.2	8.3	8.2	8.1
Phosphate total (as P)	0.05	mg/L	0.17	0.17	0.27	0.05
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	0.21	< 0.05
Salinity (determined from EC)*	20	mg/L	1100	960	420	1200
Suspended Solids	1	mg/L	7.0	10	7.0	2.5
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.4	0.3	0.3	0.6
Total Nitrogen (as N)	0.2	mg/L	0.4	0.3	0.3	0.6
Turbidity	1	NTU	4.7	2.9	2.1	2.6
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.001	0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	< 0.001	0.002	0.002
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Melbourne	Oct 17, 2017	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS			
Chlorophyll a	Melbourne	Oct 16, 2017	2 Day
- Method: APHA Method 10200H			
Conductivity (at 25°C)	Melbourne	Oct 16, 2017	28 Day
- Method: LTM-INO-4030			
Dissolved Oxygen	Melbourne	Oct 16, 2017	1 Day
- Method: LTM-INO-4130 Determination of Dissolved Oxygen using a DO meter			
Dissolved Oxygen (% Saturation)	Melbourne	Oct 16, 2017	1 Day
- Method: LTM-INO-4130 Determination of Dissolved Oxygen using a DO meter			
pH	Melbourne	Oct 16, 2017	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Phosphate total (as P)	Melbourne	Oct 16, 2017	28 Day
- Method: APHA 4500-P E. Phosphorous			
Phosphorus reactive (as P)	Melbourne	Oct 16, 2017	2 Day
- Method: APHA4500-PO4			
Salinity (determined from EC)*	Melbourne	Oct 16, 2017	0 Day
Suspended Solids	Melbourne	Oct 16, 2017	7 Days
- Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry			
Turbidity	Melbourne	Oct 16, 2017	2 Day
- Method: LTM-INO-4140 Turbidity by Nephelometric Method			
Metals M8 filtered	Melbourne	Oct 16, 2017	28 Day
- Method: LTM-MET-3040 Metals in Waters by ICP-MS			
Nitrogens (speciated)			
Ammonia (as N)	Melbourne	Oct 16, 2017	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Nitrate & Nitrite (as N)	Melbourne	Oct 16, 2017	28 Day
- Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA			
Nitrate (as N)	Melbourne	Oct 16, 2017	7 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Nitrite (as N)	Melbourne	Oct 16, 2017	2 Day
- Method: APHA 4500-NO2 Nitrite Nitrogen by FIA			
Organic Nitrogen (as N)	Melbourne	Oct 13, 2017	7 Day
- Method: APHA 4500 Organic Nitrogen (N)			
Total Kjeldahl Nitrogen (as N)	Melbourne	Oct 16, 2017	7 Day
- Method: APHA 4500 TKN			

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ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	Aurecon Australia (BRIS) Pty Ltd	**Order No.:**	500569	**Received:**	Oct 13, 2017 3:00 PM
Address:	Level 14, 32 Turbot St Brisbane QLD 4001	**Report #:**	567573	**Due:**	Oct 20, 2017
		Phone:	07 3173 8000	**Priority:**	5 Day
		Fax:	+61 7 3173 8001	**Contact Name:**	LEESA LEATHBRIDGE
Project Name:	BASELINE SURFACE WATER MONITORING				
Project ID:	INLAND RAIL				

Eurofins | mgt Analytical Services Manager : Ryan Gilbert

Sample Detail						Chlorophyll a	Conductivity (at 25°C)	Dissolved Oxygen	Dissolved Oxygen (% Saturation)	pH	Phosphate total (as P)	Phosphorus reactive (as P)	Salinity (determined from EC)*	Suspended Solids	Turbidity	Polycyclic Aromatic Hydrocarbons	Metals M8 filtered	Nitrogens (speciated)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																		
Brisbane Laboratory - NATA Site # 20794																		
Perth Laboratory - NATA Site # 23736																		
External Laboratory																		
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**													
1	H2C 11A	Oct 09, 2017		Water	B17-Oc14979	X	X	X	X	X	X	X	X	X	X	X	X	X
2	H2C 4A	Oct 09, 2017		Water	B17-Oc14980	X	X	X	X	X	X	X	X	X	X	X	X	X
3	H2C 12A	Oct 10, 2017		Water	B17-Oc14981	X	X	X	X	X	X	X	X	X	X	X	X	X
4	H2C 9A	Oct 11, 2017		Water	B17-Oc14982	X	X	X	X	X	X	X	X	X	X	X	X	X
5	H2C 7A	Oct 11, 2017		Water	B17-Oc14983	X	X	X	X	X	X	X	X	X	X	X	X	X
6	H2C 3A	Oct 11, 2017		Water	B17-Oc14984	X	X	X	X	X	X	X	X	X	X	X	X	X
7	H2C 10A	Oct 11, 2017		Water	B17-Oc14985	X	X	X	X	X	X	X	X	X	X	X	X	X
8	H2C DUP1	Oct 11, 2017		Water	B17-Oc14986	X	X	X	X	X	X	X	X	X	X	X	X	X
9	H2C DUP2	Oct 11, 2017		Water	B17-Oc14987	X	X	X	X	X	X	X	X	X	X	X	X	X

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ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Aurecon Australia (BRIS) Pty Ltd
Address: Level 14, 32 Turbot St
Brisbane
QLD 4001

Project Name: BASELINE SURFACE WATER MONITORING
Project ID: INLAND RAIL

Order No.: 500569
Report #: 567573
Phone: 07 3173 8000
Fax: +61 7 3173 8001

Received: Oct 13, 2017 3:00 PM
Due: Oct 20, 2017
Priority: 5 Day
Contact Name: LEESA LEATHBRIDGE

Eurofins | mgt Analytical Services Manager : Ryan Gilbert

Sample Detail						Chlorophyll a	Conductivity (at 25°C)	Dissolved Oxygen	Dissolved Oxygen (% Saturation)	pH	Phosphate total (as P)	Phosphorus reactive (as P)	Salinity (determined from EC)*	Suspended Solids	Turbidity	Polycyclic Aromatic Hydrocarbons	Metals M8 filtered	Nitrogens (speciated)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																		
Brisbane Laboratory - NATA Site # 20794																		
Perth Laboratory - NATA Site # 23736																		
10	H2C TRIP 1	Oct 11, 2017		Water	B17-Oc14988	X	X	X	X	X	X	X	X	X	X	X	X	X
11	H2C 17A	Oct 11, 2017		Water	B17-Oc14989	X	X	X	X	X	X	X	X	X	X	X	X	X
12	H2C 18A	Oct 11, 2017		Water	B17-Oc14990	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						12	12	12	12	12	12	12	12	12	12	12	12	12

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chlorophyll a	ug/L	< 5			5	Pass	
Dissolved Oxygen (% Saturation)	%	100				N/A	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.05			0.05	Pass	
Phosphorus reactive (as P)	mg/L	< 0.05			0.05	Pass	
Suspended Solids	mg/L	< 1			1	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Turbidity	NTU	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	108			70-130	Pass	
Acenaphthylene	%	117			70-130	Pass	
Anthracene	%	109			70-130	Pass	
Benz(a)anthracene	%	112			70-130	Pass	
Benzo(a)pyrene	%	121			70-130	Pass	
Benzo(b&j)fluoranthene	%	126			70-130	Pass	
Benzo(g.h.i)perylene	%	108			70-130	Pass	
Benzo(k)fluoranthene	%	119			70-130	Pass	
Chrysene	%	124			70-130	Pass	
Dibenz(a.h)anthracene	%	104			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluoranthene	%	127			70-130	Pass	
Fluorene	%	126			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	109			70-130	Pass	
Naphthalene	%	100			70-130	Pass	
Phenanthrene	%	125			70-130	Pass	
Pyrene	%	126			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	91			70-130	Pass	
Nitrate & Nitrite (as N)	%	92			70-130	Pass	
Nitrate (as N)	%	92			70-130	Pass	
Nitrite (as N)	%	95			70-130	Pass	
Phosphate total (as P)	%	82			70-130	Pass	
Phosphorus reactive (as P)	%	114			70-130	Pass	
Suspended Solids	%	104			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	106			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	110			80-120	Pass	
Cadmium (filtered)	%	110			80-120	Pass	
Chromium (filtered)	%	105			80-120	Pass	
Copper (filtered)	%	108			80-120	Pass	
Lead (filtered)	%	103			80-120	Pass	
Mercury (filtered)	%	95			70-130	Pass	
Nickel (filtered)	%	108			80-120	Pass	
Zinc (filtered)	%	112			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M17-Oc15002	NCP	%	83			70-130	Pass	
Nitrate & Nitrite (as N)	M17-Oc15002	NCP	%	90			70-130	Pass	
Nitrate (as N)	M17-Oc15002	NCP	%	90			70-130	Pass	
Nitrite (as N)	M17-Oc15002	NCP	%	93			70-130	Pass	
Phosphate total (as P)	M17-Oc14879	NCP	%	81			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M17-Oc07052	NCP	%	71			70-130	Pass	
Spike - % Recovery									
				Result 1					
Phosphorus reactive (as P)	B17-Oc14982	CP	%	108			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	B17-Oc14985	CP	%	76			70-130	Pass	
Acenaphthylene	B17-Oc14985	CP	%	85			70-130	Pass	
Anthracene	B17-Oc14985	CP	%	79			70-130	Pass	
Benz(a)anthracene	B17-Oc14985	CP	%	72			70-130	Pass	
Benzo(a)pyrene	B17-Oc14985	CP	%	88			70-130	Pass	
Benzo(b&j)fluoranthene	B17-Oc14985	CP	%	89			70-130	Pass	
Benzo(g.h.i)perylene	B17-Oc14985	CP	%	72			70-130	Pass	
Benzo(k)fluoranthene	B17-Oc14985	CP	%	70			70-130	Pass	
Chrysene	B17-Oc14985	CP	%	75			70-130	Pass	
Dibenz(a.h)anthracene	B17-Oc14985	CP	%	72			70-130	Pass	
Fluoranthene	B17-Oc14985	CP	%	77			70-130	Pass	
Fluorene	B17-Oc14985	CP	%	87			70-130	Pass	
Indeno(1.2.3-cd)pyrene	B17-Oc14985	CP	%	73			70-130	Pass	
Naphthalene	B17-Oc14985	CP	%	81			70-130	Pass	
Phenanthrene	B17-Oc14985	CP	%	81			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pyrene	B17-Oc14985	CP	%	84			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	B17-Oc14988	CP	%	105			70-130	Pass	
Cadmium (filtered)	B17-Oc14988	CP	%	99			70-130	Pass	
Chromium (filtered)	B17-Oc14988	CP	%	102			70-130	Pass	
Copper (filtered)	B17-Oc14988	CP	%	98			70-130	Pass	
Lead (filtered)	B17-Oc14988	CP	%	98			70-130	Pass	
Mercury (filtered)	B17-Oc14988	CP	%	87			70-130	Pass	
Nickel (filtered)	B17-Oc14988	CP	%	97			70-130	Pass	
Zinc (filtered)	B17-Oc14988	CP	%	101			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M17-Oc15002	NCP	mg/L	1.9	1.8	2.0	30%	Pass	
Chlorophyll a	B17-Oc14979	CP	ug/L	< 10	< 10	<1	30%	Pass	
Conductivity (at 25°C)	M17-Oc15023	NCP	uS/cm	1400	1400	1.0	30%	Pass	
Nitrate & Nitrite (as N)	M17-Oc15002	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Nitrate (as N)	M17-Oc15002	NCP	mg/L	0.03	0.03	5.0	30%	Pass	
Nitrite (as N)	M17-Oc15002	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
pH	M17-Oc15023	NCP	pH Units	7.9	7.8	pass	30%	Pass	
Phosphate total (as P)	M17-Oc14978	NCP	mg/L	0.10	0.09	11	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M17-Oc14978	NCP	mg/L	0.3	0.3	8.0	30%	Pass	
Turbidity	M17-Oc12949	NCP	NTU	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Phosphorus reactive (as P)	B17-Oc14981	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	B17-Oc14984	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Dissolved Oxygen	B17-Oc14984	CP	mg/L	8.7	8.8	1.0	30%	Pass	
Dissolved Oxygen (% Saturation)	B17-Oc14984	CP	%	97	98	1.0	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	B17-Oc14988	CP	mg/L	0.001	0.001	5.0	30%	Pass	
Cadmium (filtered)	B17-Oc14988	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	B17-Oc14988	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	B17-Oc14988	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	B17-Oc14988	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	B17-Oc14988	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	B17-Oc14988	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	B17-Oc14988	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Suspended Solids	B17-Oc14989	CP	mg/L	7.0	5.6	22	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Ryan Gilbert	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Alex Petridis	Senior Analyst-Organic (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

APPENDIX

V

EMR Search Certificates and Laboratory Certificates

Appendix V4 Surface water quality results—Round 2 (March 2018)

HELIDON TO CALVERT ENVIRONMENTAL IMPACT STATEMENT

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

Eurofins | mgt Sydney Lab — Unit 3 Building F, 16 Mars Road, Lane Cove West NSW 2066, P: +61 2 9900 8400, E: EnviroSamplesNSW@eurofins.com.au

☑ Eurofins | mgt Brisbane Lab — 1/21 Smallwood Place, Murarrie QLD 4172, P: +61 7 3902 4600, E: EnviroSamplesBNE@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh VIC 3166, P: +61 3 8564 5000, F: +61 3 8564 5099, E: EnviroSamplesVic@eurofins.com.au

Company	Aurecon	Purchase Order	23200	Project Manager	Leesa Leathbridge
Address	Level 14, 32 Turbot Street, Brisbane, QLD	Eurofins | mgt Quote №	160329AUR	Project №	Inland Rail Project
Contact Name	Leesa Leathbridge				
Contact Phone №	07 3173 8730				
Special Direction	# 6 eskies in total				
Relinquished by					
(Signature)					
(Time / Date)	13.34 2/3/2018				

Project Name: Baseline Surface Water Monitoring

Electronic Results Format:

Email for Results: leesa.leathbridge@aurecongroup.com

Turn Around Requirements: ☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* ☑ 5 DAY (Std.) ☐ Other ( )

Method of Shipment: ☐ Courier (#) ☑ Hand Delivered ☐ Postal

№	Client Sample ID	Date	Matrix	Analysis (Note: Where metals are requested please specify "Total" or "Filtered")	pH	Suspended Solids (SS)	Turbidity	Speciated nitrogens (ammonia, nitrate, nitrite, organic nitrogen, oxidised nitrogen, total kjeldahl nitrogen, total nitrogen)	Electrical conductivity (Actual and specific)	M8 - 8 metals	Total Phosphorus	Reactive Phosphorus	Chlorophyll a	Polycyclic aromatic hydrocarbons (PAH)	Salinity (ppt)	Dissolved oxygen (% saturation)	Dissolved oxygen (mg/L)	Containers: 1L Plastic	250mL Plastic	125mL Plastic	250mL Amber Glass	40mL vial	125mL Amber Glass	Jar	60 ml plastic	Sample Comments / DG Hazard Warning
1	G2H 1A	01/03/2018	W		X	X	X	X	X	X	X	X	X	X	X	X	X		2		1				2	
2	G2H DUP1	"	W		X	X	X	X	X	X	X	X	X	X	X	X	X		2		1				2	
3	G2H ~~TRIP~~ TRIP1	"	W		X	X	X	X	X	X	X	X	X	X	X	X	X		2		1				2	
4	G2H2A	"	W		X	X	X	X	X	X	X	X	X	X	X	X	X		2		1				2	
5	~~Copy~~ G2H 3A	"	W		X	X	X	X	X	X	X	X	X	X	X	X	X		2		1				2	
6	~~G2~~ H2C 2A	"	W		X	X	X	X	X	X	X	X	X	X	X	X	X		2		1				2	
7	H2C 1BA	02/03/2018	W		X	X	X	X	X	X	X	X	X	X	X	X	X		2		1				2	
8	H2C 14A	"	W		X	X	X	X	X	X	X	X	X	X	X	X	X		2		1				2	
9	H2C 17A	"	W		X	X	X	X	X	X	X	X	X	X	X	X	X		2		1				2	
10	C2K 1A (Alt)	"	W		X	X	X	X	X	X	X	X	X	X	X	X	X		2		1				2	
11			W		X	X	X	X	X	X	X	X	X	X	X	X	X		2		1				2	
12			W		X	X	X	X	X	X	X	X	X	X	X	X	X		2		1				2	

Laboratory Use Only

Received By: E. Palacios — SYD \| (BNE) \| MEL \| PER \| ADL \| NEW \| DAR — Date: 2/3/18 — Time: 1.40 — Signature:

Received By: — SYD \| BNE \| MEL \| PER \| ADL \| NEW \| DAR — Date: __/__/__ — Time: ____ — Signature:

Temperature: 13.2

Report №:

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | mgt Standard Terms and Conditions unless agreed otherwise. A copy of Eurofins | mgt Standard Terms and Conditions is available on request

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

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☑ Eurofins | mgt Brisbane Lab — Unit 1, 21 Smallwood Place, Murarrie QLD 4172 P: +61 7 3902 4600 E: EnviroSampleQLD@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh VIC 3166 P: +61 3 8564 5000 E: EnviroSampleVic@eurofins.com.au

Company	Aurecon	Purchase Order	23200
Address	Level 14, 32 Turbot Street, Brisbane, QLD	Eurofins | mgt Quote №	160329AUR
Contact Name	Leesa Leathbridge	Project Manager	Leesa Leathbridge
Contact Phone №	07 3173 8730	Project №	Inland Rail Project
Special Direction	# 6 eskies in total	Project Name	Baseline Surface Water Monitoring
Relinquished by (Signature)		Electronic Results Format	
(Time / Date)	13:34 2/3/2018	Email for Results	leesa.leathbridge@aurecongroup.com

Turn Around Requirements: ☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* ☑ 5 DAY (Std.) ☐ Other ( )

Method of Shipment: ☐ Courier (#) ☑ Hand Delivered ☐ Postal

Analysis (Note: Where metals are requested please specify "Total" or "Filtered"): pH; Suspended Solids (SS); Turbidity; Speciated nitrogens (ammonia, nitrate, nitrite, organic nitrogen, oxidised nitrogen, total kjeldahl nitrogen, total nitrogen); Electrical conductivity (Actual and specific); M8 - 8 metals; Total Phosphorus; Reactive Phosphorus; Chlorophyll a; Polycyclic aromatic hydrocarbons (PAH); Salinity (ppt); Dissolved oxygen (% saturation); Dissolved oxygen (mg/L)

Containers: 1L Plastic; 250mL Plastic; 125mL Plastic; 200mL Amber Glass; 40mL Vial; 125mL Amber Glass Jar; 60 ml plastic

№	Client Sample ID	Date	Matrix																Sample Comments / DG Hazard Warning
1	C2K11A	27/02/18	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2	1	2	
2	C2K10A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2	1	2	
3	C2K9A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2	1	2	
4	C2K7A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2	1	2	
5	C2K8A	28/02/18	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2	1	2	
6	C2K7A (Alt)	28/02/18	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2	1	2	
7	C2K 13A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2	1	2	
8	C2K 6A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2	1	2	
9	C2K 12A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2	1	2	
10	C2K 5A (1)	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2	1	2	
11	C2K 5A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2	1	2	
12	C2K DUP1	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2	1	2	

Laboratory Use Only

Received By: E. Valenbos — SYD | (BNE) | MEL | PER | ADL | NEW | DAR — Date: 23/2/18 — Time: 1:40 — Signature:

Received By: — SYD | BNE | MEL | PER | ADL | NEW | DAR — Date: __/__/__ — Time: ____ — Signature:

Temperature: 13.2

Report №:

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | mgt Standard Terms and Conditions unless agreed otherwise. A copy of Eurofins | mgt Standard Terms and Conditions is available on request.

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

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☑ Eurofins | mgt Brisbane Lab — unit 1, 21 Smallwood Place, Murarrie QLD 4172 — P +61 7 3902 4600 — E EnviroSampleQLD@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 6 Monterey Court, Glen Waverley VIC 3150 — P +61 3 8564 5000 — E EnviroSampleVic@eurofins.com.au

Company	Aurecon	Purchase Order	23200	Project Manager	Leesa Leathbridge
Address	Level 14, 32 Turbot Street, Brisbane, QLD	Eurofins | mgt Quote №	160329AUR	Project №	Inland Rail Project
Contact Name	Leesa Leathbridge				
Contact Phone №	07 3173 8730				
Special Direction	# 6 eskies in total				
Relinquished by (Signature)					
(Time / Date)	13 34 — 2/3/2018				

Project Name: Baseline Surface Water Monitoring

Electronic Results Format:

Email for Results: leesa.leathbridge@aurecongroup.com

Turn Around Requirements: ☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* (* Surcharges apply) ☑ 5 DAY (Std) ☐ Other ( )

Method of Shipment: ☐ Courier (#) ☑ Hand Delivered ☐ Postal

№	Client Sample ID	Date	Matrix	pH	Suspended Solids (SS)	Turbidity	Speciated nitrogens (ammonia, nitrate, nitrite, organic nitrogen, oxidised nitrogen, total kjeldahl nitrogen, total nitrogen)	Electrical conductivity (Actual and specific)	M8 - 8 metals	Total Phosphorus	Reactive Phosphorus	Chlorophyll a	Polycyclic aromatic hydrocarbons (PAH)	Salinity (ppt)	Dissolved oxygen (% saturation)	Dissolved oxygen (mg/L)	1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass Jar	60 ml plastic	Sample Comments / DG Hazard Warning
1	C2K TRIP	28/02/18	W	X	X	X	X	X	X	X	X	X	X	X	X	X		2		1			2	
2	C2K 14 A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X		2		1			2	
3	C2K 2A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X		2		1			2	
4	H2C 11A	01/03/18	W	X	X	X	X	X	X	X	X	X	X	X	X	X		2		1			2	
5	H2C 15A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X		2		1			2	
6	G2H 10A (AIF)	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X		2		1			2	
7	G2H 9A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X		2		1			2	
8	G2H 8A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X		2		1			2	
9	G2H 7A (AIF)	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X		2		1			2	
10	G2H 6A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X		2		1			2	
11	G2H 5A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X		2		1			2	
12	G2H 4A	"	W	X	X	X	X	X	X	X	X	X	X	X	X	X		2		1			2	

Laboratory Use Only

Received By: B. Valambol — SYD \| (BNE) \| MEL \| PER \| ADL \| NEW \| DAR — Date 2/3/18 — Time 1.40 — Signature

Received By: — SYD \| BNE \| MEL \| PER \| ADL \| NEW \| DAR — Date ___/___/___ — Time ___:___ — Signature

Temperature 13.2

Report №

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Attention: **LEESA LEATHBRIDGE**

Report **587469-W**
Project name BASELINE SURFACE WATER MONITORING
Project ID INLAND RAIL PROJECT
Received Date Mar 02, 2018

Client Sample ID **Sample Matrix** **Eurofins | mgt Sample No.** **Date Sampled** Test/Reference	LOR	Unit	**G2H 1A** **Water** **B18-Ma02442** **Mar 01, 2018**	**G2H DUP1** **Water** **B18-Ma02443** **Mar 01, 2018**	**G2H TRIP1** **Water** **B18-Ma02444** **Mar 01, 2018**	**G2H 2A** **Water** **B18-Ma02446** **Mar 01, 2018**
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	101	50	60	66
p-Terphenyl-d14 (surr.)	1	%	95	53	54	87
Ammonia (as N)	0.01	mg/L	0.04	0.17	0.03	0.04
Chlorophyll a	5	ug/L	< 5	< 5	< 5	< 5
Conductivity (at 25°C)	1	uS/cm	760	770	760	430
Dissolved Oxygen	0.01	mg/L	8.0	7.6	7.9	8.2
Dissolved Oxygen (% Saturation)		%	88	85	87	91
Nitrate & Nitrite (as N)	0.05	mg/L	1.9	1.9	1.8	1.3
Nitrate (as N)	0.02	mg/L	1.9	1.9	1.8	1.2
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	0.02
Organic Nitrogen (as N)	0.2	mg/L	1.3	0.6	1.2	0.7
pH (at 25°C)	0.1	pH Units	8.0	7.9	8.1	8.3
Phosphate total (as P)	0.05	mg/L	1.2	1.3	1.1	0.11
Phosphorus reactive (as P)	0.05	mg/L	0.92	0.90	0.92	< 0.05
Salinity (determined from EC)*	20	mg/L	370	380	370	210
Suspended Solids	1	mg/L	2.0	3.2	3.5	2.6
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.3	0.8	1.2	0.7

Client Sample ID			G2H 1A	G2H DUP1	G2H TRIP1	G2H 2A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02442	B18-Ma02443	B18-Ma02444	B18-Ma02446
Date Sampled			Mar 01, 2018	Mar 01, 2018	Mar 01, 2018	Mar 01, 2018
Test/Reference	LOR	Unit				
Total Nitrogen (as N)	0.2	mg/L	2.2	2.7	3.0	2.0
Turbidity	1	NTU	2.8	2.5	2.4	3.1
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	0.011	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.008	0.009	0.008	0.002
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.003	0.007	0.003	0.001
Zinc (filtered)	0.005	mg/L	0.052	0.054	0.051	< 0.005

Client Sample ID			G2H 3A	H2C 2A	H2C 13A	H2C 14A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02447	B18-Ma02448	B18-Ma02449	B18-Ma02450
Date Sampled			Mar 01, 2018	Mar 01, 2018	Mar 02, 2018	Mar 02, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	73	79	56	63
p-Terphenyl-d14 (surr.)	1	%	83	112	52	61
Ammonia (as N)	0.01	mg/L	< 0.01	0.03	0.04	0.02
Chlorophyll a	5	ug/L	< 5	< 5	< 5	< 5
Conductivity (at 25°C)	1	uS/cm	410	3600	310	300
Dissolved Oxygen	0.01	mg/L	8.4	7.2	6.9	7.1
Dissolved Oxygen (% Saturation)		%	93	80	77	78
Nitrate & Nitrite (as N)	0.05	mg/L	1.4	37	0.14	0.22
Nitrate (as N)	0.02	mg/L	1.4	37	0.13	0.20
Nitrite (as N)	0.02	mg/L	< 0.02	0.34	< 0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	0.8	1.9	0.6	0.5
pH (at 25°C)	0.1	pH Units	8.1	7.9	8.0	8.1

Client Sample ID			G2H 3A	H2C 2A	H2C 13A	H2C 14A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02447	B18-Ma02448	B18-Ma02449	B18-Ma02450
Date Sampled			Mar 01, 2018	Mar 01, 2018	Mar 02, 2018	Mar 02, 2018
Test/Reference	LOR	Unit				
Phosphate total (as P)	0.05	mg/L	0.24	0.32	0.44	0.40
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	0.13	0.25	0.21
Salinity (determined from EC)*	20	mg/L	200	1900	150	140
Suspended Solids	1	mg/L	5.9	2.8	13	11
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.8	1.9	0.6	0.5
Total Nitrogen (as N)	0.2	mg/L	2.2	43	0.74	0.72
Turbidity	1	NTU	2.8	1.7	17	14
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.001	0.004	0.003	0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	0.006	0.006	0.002
Zinc (filtered)	0.005	mg/L	0.006	< 0.005	< 0.005	0.012

Client Sample ID			H2C 17A	C2K 1A (ALT)	C2K 11A	C2K 10A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02451	B18-Ma02452	B18-Ma02453	B18-Ma02454
Date Sampled			Mar 02, 2018	Mar 02, 2018	Feb 27, 2018	Feb 27, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	69	57	72	69
p-Terphenyl-d14 (surr.)	1	%	87	70	83	78
Ammonia (as N)	0.01	mg/L	0.02	0.02	0.05	0.02
Chlorophyll a	5	ug/L	< 5	< 5	< 5	6.0
Conductivity (at 25°C)	1	uS/cm	340	290	49	470
Dissolved Oxygen	0.01	mg/L	7.8	6.8	4.1	7.9
Dissolved Oxygen (% Saturation)		%	87	75	45	88

Client Sample ID			H2C 17A	C2K 1A (ALT)	C2K 11A	C2K 10A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02451	B18-Ma02452	B18-Ma02453	B18-Ma02454
Date Sampled			Mar 02, 2018	Mar 02, 2018	Feb 27, 2018	Feb 27, 2018
Test/Reference	LOR	Unit				
Nitrate & Nitrite (as N)	0.05	mg/L	0.19	0.25	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	0.16	0.20	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	0.03	0.05	< 0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	0.3	1.0	0.6	0.5
pH (at 25°C)	0.1	pH Units	8.3	7.7	6.8	8.0
Phosphate total (as P)	0.05	mg/L	0.39	0.48	0.18	0.06
Phosphorus reactive (as P)	0.05	mg/L	0.20	0.32	< 0.05	< 0.05
Salinity (determined from EC)*	20	mg/L	160	140	30	230
Suspended Solids	1	mg/L	21	22	33	14
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.3	1.0	0.6	0.5
Total Nitrogen (as N)	0.2	mg/L	0.49	1.3	0.6	0.5
Turbidity	1	NTU	8.4	58	32	9.0
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	0.003	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.001	0.004	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005	0.008	< 0.005	< 0.005

Client Sample ID			C2K 9A	C2K 7A	C2K 8A	C2K 7A (ALT)
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02455	B18-Ma02456	B18-Ma02457	B18-Ma02458
Date Sampled			Feb 27, 2018	Feb 27, 2018	Feb 28, 2018	Feb 28, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	59	60	81	81
p-Terphenyl-d14 (surr.)	1	%	58	60	81	108

Client Sample ID			C2K 9A	C2K 7A	C2K 8A	C2K 7A (ALT)
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02455	B18-Ma02456	B18-Ma02457	B18-Ma02458
Date Sampled			Feb 27, 2018	Feb 27, 2018	Feb 28, 2018	Feb 28, 2018
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	0.03	0.03	0.02	< 0.01
Chlorophyll a	5	ug/L	< 5	< 5	< 5	< 5
Conductivity (at 25°C)	1	uS/cm	160	180	180	140
Dissolved Oxygen	0.01	mg/L	7.5	8.3	7.9	8.4
Dissolved Oxygen (% Saturation)		%	83	92	87	93
Nitrate & Nitrite (as N)	0.05	mg/L	0.06	0.07	0.07	< 0.05
Nitrate (as N)	0.02	mg/L	0.04	0.07	0.06	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	0.03
Organic Nitrogen (as N)	0.2	mg/L	0.8	0.9	0.7	0.5
pH (at 25°C)	0.1	pH Units	7.4	7.7	7.6	7.4
Phosphate total (as P)	0.05	mg/L	0.08	0.09	0.07	0.07
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Salinity (determined from EC)*	20	mg/L	80	90	90	70
Suspended Solids	1	mg/L	45	14	7.7	10
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.8	0.9	0.7	0.5
Total Nitrogen (as N)	0.2	mg/L	0.86	0.97	0.77	0.5
Turbidity	1	NTU	140	120	99	90
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.002	0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	0.001	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	0.009	< 0.005	0.010	< 0.005

Client Sample ID			C2K 13A	C2K 6A	C2K 12A	C2K 5A (1)
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02459	B18-Ma02460	B18-Ma02461	B18-Ma02462
Date Sampled			Feb 28, 2018	Feb 28, 2018	Feb 28, 2018	Feb 28, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			C2K 13A	C2K 6A	C2K 12A	C2K 5A (1)
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02459	B18-Ma02460	B18-Ma02461	B18-Ma02462
Date Sampled			Feb 28, 2018	Feb 28, 2018	Feb 28, 2018	Feb 28, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	99	79	55	79
p-Terphenyl-d14 (surr.)	1	%	64	118	58	113
Ammonia (as N)	0.01	mg/L	< 0.01	0.02	0.07	0.19
Chlorophyll a	5	ug/L	< 5	< 5	< 5	< 5
Conductivity (at 25°C)	1	uS/cm	200	250	180	130
Dissolved Oxygen	0.01	mg/L	7.4	7.3	7.3	2.8
Dissolved Oxygen (% Saturation)		%	82	80	81	32
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	0.19	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	0.19	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	0.6	0.7	0.6	1.1
pH (at 25°C)	0.1	pH Units	7.6	7.6	7.3	6.8
Phosphate total (as P)	0.05	mg/L	0.07	0.08	0.08	0.12
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.07
Salinity (determined from EC)*	20	mg/L	95	120	90	65
Suspended Solids	1	mg/L	20	26	6.4	17
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.6	0.7	0.7	1.1
Total Nitrogen (as N)	0.2	mg/L	0.6	0.7	0.89	1.1
Turbidity	1	NTU	120	98	97	56
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.001	0.001	0.002	0.003
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.001	0.001	0.001	0.002
Zinc (filtered)	0.005	mg/L	0.011	0.006	< 0.005	0.009

Client Sample ID			C2K 5A	C2K DUP1	C2K TRIP	C2K 14A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02463	B18-Ma02464	B18-Ma02465	B18-Ma02466
Date Sampled			Feb 28, 2018	Feb 28, 2018	Feb 28, 2018	Feb 28, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			C2K 5A	C2K DUP1	C2K TRIP	C2K 14A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02463	B18-Ma02464	B18-Ma02465	B18-Ma02466
Date Sampled			Feb 28, 2018	Feb 28, 2018	Feb 28, 2018	Feb 28, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	53	105	84	68
p-Terphenyl-d14 (surr.)	1	%	64	132	117	88
Ammonia (as N)	0.01	mg/L	0.28	0.15	0.23	0.02
Chlorophyll a	5	ug/L	11	19	19	< 5
Conductivity (at 25°C)	1	uS/cm	270	270	260	220
Dissolved Oxygen	0.01	mg/L	7.4	7.9	7.2	7.7
Dissolved Oxygen (% Saturation)		%	82	87	80	85
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	1.2	1.2	1.2	0.7
pH (at 25°C)	0.1	pH Units	8.5	8.9	8.9	7.6
Phosphate total (as P)	0.05	mg/L	0.07	0.06	0.05	0.09
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Salinity (determined from EC)*	20	mg/L	130	130	125	110
Suspended Solids	1	mg/L	25	10	12	9.3
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.5	1.4	1.4	0.7
Total Nitrogen (as N)	0.2	mg/L	1.5	1.4	1.4	0.7
Turbidity	1	NTU	7.9	6.9	7.0	62
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.002	0.002	0.002	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.002
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.002
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			C2K 2A	H2C 11A	G2H 10A (ALT)	G2H 9A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02467	B18-Ma02468	B18-Ma02470	B18-Ma02471
Date Sampled			Feb 28, 2018	Mar 01, 2018	Mar 01, 2018	Mar 01, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			C2K 2A	H2C 11A	G2H 10A (ALT)	G2H 9A
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**B18-Ma02467**	**B18-Ma02468**	**B18-Ma02470**	**B18-Ma02471**
Date Sampled			**Feb 28, 2018**	**Mar 01, 2018**	**Mar 01, 2018**	**Mar 01, 2018**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	77	73	96	76
p-Terphenyl-d14 (surr.)	1	%	83	104	127	94
Ammonia (as N)	0.01	mg/L	0.07	< 0.01	0.19	< 0.01
Chlorophyll a	5	ug/L	< 5	29	12	< 5
Conductivity (at 25°C)	1	uS/cm	200	1100	510	810
Dissolved Oxygen	0.01	mg/L	5.8	5.9	4.6	5.9
Dissolved Oxygen (% Saturation)		%	65	64	51	65
Nitrate & Nitrite (as N)	0.05	mg/L	0.05	< 0.05	0.23	< 0.05
Nitrate (as N)	0.02	mg/L	0.05	< 0.02	0.21	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	0.7	0.7	0.6	0.3
pH (at 25°C)	0.1	pH Units	7.4	8.5	7.8	8.0
Phosphate total (as P)	0.05	mg/L	0.54	0.19	0.25	0.09
Phosphorus reactive (as P)	0.05	mg/L	0.36	< 0.05	0.06	< 0.05
Salinity (determined from EC)*	20	mg/L	100	500	250	400
Suspended Solids	1	mg/L	49	53	170	4.0
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.8	0.7	0.8	0.3
Total Nitrogen (as N)	0.2	mg/L	0.85	0.7	1.0	0.3
Turbidity	1	NTU	95	32	420	2.8
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	0.001	0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.004	< 0.001	0.003	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.004	0.002	0.009	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	0.005	< 0.005

Client Sample ID			G2H 7A (ALT)	G2H 6A	G2H 5A	G2H 4A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B18-Ma02473	B18-Ma02474	B18-Ma02475	B18-Ma02476
Date Sampled			Mar 01, 2018	Mar 01, 2018	Mar 01, 2018	Mar 01, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	70	104	81	86
p-Terphenyl-d14 (surr.)	1	%	96	147	107	120
Ammonia (as N)	0.01	mg/L	0.02	0.03	0.11	< 0.01
Chlorophyll a	5	ug/L	< 5	< 5	< 5	< 5
Conductivity (at 25°C)	1	uS/cm	570	800	950	1000
Dissolved Oxygen	0.01	mg/L	5.7	6.8	8.4	6.7
Dissolved Oxygen (% Saturation)		%	64	75	93	74
Nitrate & Nitrite (as N)	0.05	mg/L	0.46	0.31	0.18	0.13
Nitrate (as N)	0.02	mg/L	0.41	0.30	0.17	0.12
Nitrite (as N)	0.02	mg/L	0.05	< 0.02	< 0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	1.2	0.4	0.3	0.3
pH (at 25°C)	0.1	pH Units	7.6	8.1	8.6	8.4
Phosphate total (as P)	0.05	mg/L	0.09	0.12	0.17	0.25
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	0.06	0.08
Salinity (determined from EC)*	20	mg/L	280	400	460	490
Suspended Solids	1	mg/L	89	18	18	30
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.2	0.4	0.4	0.3
Total Nitrogen (as N)	0.2	mg/L	1.7	0.7	0.58	0.43
Turbidity	1	NTU	210	28	11	19
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.006	0.001	0.002	0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.006	0.004	0.003	0.003
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	0.011	< 0.005

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Melbourne	Mar 08, 2018	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS			
Chlorophyll a	Melbourne	Mar 06, 2018	2 Day
- Method: APHA Method 10200H			
Conductivity (at 25°C)	Melbourne	Mar 05, 2018	28 Day
- Method: LTM-INO-4030 Conductivity			
Dissolved Oxygen	Melbourne	Mar 05, 2018	1 Day
- Method: LTM-INO-4130 Determination of Dissolved Oxygen using a DO meter			
Dissolved Oxygen (% Saturation)	Melbourne	Mar 05, 2018	1 Day
- Method: LTM-INO-4130 Determination of Dissolved Oxygen using a DO meter			
pH (at 25°C)	Melbourne	Mar 05, 2018	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Phosphate total (as P)	Melbourne	Mar 05, 2018	28 Day
- Method: APHA 4500-P E. Phosphorous			
Phosphorus reactive (as P)	Melbourne	Mar 05, 2018	2 Day
- Method: APHA4500-PO4			
Salinity (determined from EC)*	Brisbane	Mar 08, 2018	0 Day
Suspended Solids	Melbourne	Mar 05, 2018	7 Days
- Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry			
Turbidity	Melbourne	Mar 06, 2018	2 Day
- Method: LTM-INO-4140 Turbidity by Nephelometric Method			
Metals M8 filtered	Melbourne	Mar 05, 2018	28 Day
- Method: LTM-MET-3040 Metals in Waters by ICP-MS			
Nitrogens (speciated)			
Ammonia (as N)	Melbourne	Mar 05, 2018	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Nitrate & Nitrite (as N)	Melbourne	Mar 05, 2018	28 Day
- Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA			
Nitrate (as N)	Melbourne	Mar 05, 2018	7 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Nitrite (as N)	Melbourne	Mar 05, 2018	2 Day
- Method: APHA 4500-NO2 Nitrite Nitrogen by FIA			
Organic Nitrogen (as N)	Melbourne	Mar 02, 2018	7 Day
- Method: APHA 4500 Organic Nitrogen (N)			
Total Kjeldahl Nitrogen (as N)	Melbourne	Mar 05, 2018	7 Day
- Method: APHA 4500 TKN			

Repeat Samples

Description	Testing Site	Extracted	Holding Time
Nitrogens (speciated)			
Nitrate & Nitrite (as N)	Melbourne	Mar 08, 2018	28 Day
- Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA			
Nitrate (as N)	Melbourne	Mar 08, 2018	7 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Nitrite (as N)	Melbourne	Mar 08, 2018	2 Day
- Method: APHA 4500-NO2 Nitrite Nitrogen by FIA			

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ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Aurecon Australia (BRIS) Pty Ltd
Address: Level 14, 32 Turbot St
Brisbane
QLD 4001

Project Name: BASELINE SURFACE WATER MONITORING
Project ID: INLAND RAIL PROJECT

Order No.: 23200
Report #: 587469
Phone: 07 3173 8000
Fax: +61 7 3173 8001

Received: Mar 2, 2018 1:40 PM
Due: Mar 9, 2018
Priority: 5 Day
Contact Name: LEESA LEATHBRIDGE

Eurofins | mgt Analytical Services Manager : Ryan Gilbert

Sample Detail						Chlorophyll a	Conductivity (at 25°C)	Dissolved Oxygen	Dissolved Oxygen (% Saturation)	pH (at 25°C)	Phosphate total (as P)	Phosphorus reactive (as P)	Salinity (expressed as TDS)*	Suspended Solids	Turbidity	Polycyclic Aromatic Hydrocarbons	Metals M8 filtered	Nitrogens (speciated)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																		
Brisbane Laboratory - NATA Site # 20794																		
Perth Laboratory - NATA Site # 23736																		
External Laboratory																		
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**													
1	G2H 1A	Mar 01, 2018		Water	B18-Ma02442	X	X	X	X	X	X	X	X	X	X	X	X	X
2	G2H DUP1	Mar 01, 2018		Water	B18-Ma02443	X	X	X	X	X	X	X	X	X	X	X	X	X
3	G2H TRIP1	Mar 01, 2018		Water	B18-Ma02444	X	X	X	X	X	X	X	X	X	X	X	X	X
4	G2H 2A	Mar 01, 2018		Water	B18-Ma02446	X	X	X	X	X	X	X	X	X	X	X	X	X
5	G2H 3A	Mar 01, 2018		Water	B18-Ma02447	X	X	X	X	X	X	X	X	X	X	X	X	X
6	H2C 2A	Mar 01, 2018		Water	B18-Ma02448	X	X	X	X	X	X	X	X	X	X	X	X	X
7	H2C 13A	Mar 02, 2018		Water	B18-Ma02449	X	X	X	X	X	X	X	X	X	X	X	X	X
8	H2C 14A	Mar 02, 2018		Water	B18-Ma02450	X	X	X	X	X	X	X	X	X	X	X	X	X
9	H2C 17A	Mar 02, 2018		Water	B18-Ma02451	X	X	X	X	X	X	X	X	X	X	X	X	X

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ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Aurecon Australia (BRIS) Pty Ltd
Address: Level 14, 32 Turbot St
Brisbane
QLD 4001

Project Name: BASELINE SURFACE WATER MONITORING
Project ID: INLAND RAIL PROJECT

Order No.: 23200
Report #: 587469
Phone: 07 3173 8000
Fax: +61 7 3173 8001

Received: Mar 2, 2018 1:40 PM
Due: Mar 9, 2018
Priority: 5 Day
Contact Name: LEESA LEATHBRIDGE

Eurofins | mgt Analytical Services Manager : Ryan Gilbert

Sample Detail						Chlorophyll a	Conductivity (at 25°C)	Dissolved Oxygen	Dissolved Oxygen (% Saturation)	pH (at 25°C)	Phosphate total (as P)	Phosphorus reactive (as P)	Salinity (expressed as TDS)*	Suspended Solids	Turbidity	Polycyclic Aromatic Hydrocarbons	Metals M8 filtered	Nitrogens (speciated)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																		
Brisbane Laboratory - NATA Site # 20794																		
Perth Laboratory - NATA Site # 23736																		
10	C2K 1A (ALT)	Mar 02, 2018		Water	B18-Ma02452	X	X	X	X	X	X	X	X	X	X	X	X	X
11	C2K 11A	Feb 27, 2018		Water	B18-Ma02453	X	X	X	X	X	X	X	X	X	X	X	X	X
12	C2K 10A	Feb 27, 2018		Water	B18-Ma02454	X	X	X	X	X	X	X	X	X	X	X	X	X
13	C2K 9A	Feb 27, 2018		Water	B18-Ma02455	X	X	X	X	X	X	X	X	X	X	X	X	X
14	C2K 7A	Feb 27, 2018		Water	B18-Ma02456	X	X	X	X	X	X	X	X	X	X	X	X	X
15	C2K 8A	Feb 28, 2018		Water	B18-Ma02457	X	X	X	X	X	X	X	X	X	X	X	X	X
16	C2K 7A (ALT)	Feb 28, 2018		Water	B18-Ma02458	X	X	X	X	X	X	X	X	X	X	X	X	X
17	C2K 13A	Feb 28, 2018		Water	B18-Ma02459	X	X	X	X	X	X	X	X	X	X	X	X	X
18	C2K 6A	Feb 28, 2018		Water	B18-Ma02460	X	X	X	X	X	X	X	X	X	X	X	X	X
19	C2K 12A	Feb 28, 2018		Water	B18-Ma02461	X	X	X	X	X	X	X	X	X	X	X	X	X
20	C2K 5A (1)	Feb 28, 2018		Water	B18-Ma02462	X	X	X	X	X	X	X	X	X	X	X	X	X
21	C2K 5A	Feb 28, 2018		Water	B18-Ma02463	X	X	X	X	X	X	X	X	X	X	X	X	X

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ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																		
Brisbane Laboratory - NATA Site # 20794																		
Perth Laboratory - NATA Site # 23736																		
22	C2K DUP1	Feb 28, 2018		Water	B18-Ma02464	X	X	X	X	X	X	X	X	X	X	X	X	X
23	C2K TRIP	Feb 28, 2018		Water	B18-Ma02465	X	X	X	X	X	X	X	X	X	X	X	X	X
24	C2K 14A	Feb 28, 2018		Water	B18-Ma02466	X	X	X	X	X	X	X	X	X	X	X	X	X
25	C2K 2A	Feb 28, 2018		Water	B18-Ma02467	X	X	X	X	X	X	X	X	X	X	X	X	X
26	H2C 11A	Mar 01, 2018		Water	B18-Ma02468	X	X	X	X	X	X	X	X	X	X	X	X	X
27	G2H 10A (ALT)	Mar 01, 2018		Water	B18-Ma02470	X	X	X	X	X	X	X	X	X	X	X	X	X
28	G2H 9A	Mar 01, 2018		Water	B18-Ma02471	X	X	X	X	X	X	X	X	X	X	X	X	X
29	G2H 7A (ALT)	Mar 01, 2018		Water	B18-Ma02473	X	X	X	X	X	X	X	X	X	X	X	X	X
30	G2H 6A	Mar 01, 2018		Water	B18-Ma02474	X	X	X	X	X	X	X	X	X	X	X	X	X
31	G2H 5A	Mar 01, 2018		Water	B18-Ma02475	X	X	X	X	X	X	X	X	X	X	X	X	X
32	G2H 4A	Mar 01, 2018		Water	B18-Ma02476	X	X	X	X	X	X	X	X	X	X	X	X	X

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Eurofins | mgt Analytical Services Manager : Ryan Gilbert

Sample Detail	Chlorophyll a	Conductivity (at 25°C)	Dissolved Oxygen	Dissolved Oxygen (% Saturation)	pH (at 25°C)	Phosphate total (as P)	Phosphorus reactive (as P)	Salinity (expressed as TDS)*	Suspended Solids	Turbidity	Polycyclic Aromatic Hydrocarbons	Metals M8 filtered	Nitrogens (speciated)
Melbourne Laboratory - NATA Site # 1254 & 14271	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217													
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Test Counts	32	32	32	32	32	32	32	32	32	32	32	32	32

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	Units	Result	Repeat				Qualifying Code
Repeat Analysis								
Nitrate & Nitrite (as N)	B18-Ma02448	mg/L	37	41				
Nitrate (as N)	B18-Ma02448	mg/L	37	41				
Nitrite (as N)	B18-Ma02448	mg/L	0.34	< 0.4				
Test		**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Method Blank								
Polycyclic Aromatic Hydrocarbons								
Acenaphthene		mg/L	< 0.001			0.001	Pass	
Acenaphthylene		mg/L	< 0.001			0.001	Pass	
Anthracene		mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene		mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene		mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene		mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene		mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene		mg/L	< 0.001			0.001	Pass	
Chrysene		mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene		mg/L	< 0.001			0.001	Pass	
Fluoranthene		mg/L	< 0.001			0.001	Pass	
Fluorene		mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene		mg/L	< 0.001			0.001	Pass	
Naphthalene		mg/L	< 0.001			0.001	Pass	
Phenanthrene		mg/L	< 0.001			0.001	Pass	
Pyrene		mg/L	< 0.001			0.001	Pass	
Method Blank								
Ammonia (as N)		mg/L	< 0.01			0.01	Pass	
Chlorophyll a		ug/L	< 5			5	Pass	
Dissolved Oxygen (% Saturation)		%	98				N/A	
Nitrate & Nitrite (as N)		mg/L	< 0.05			0.05	Pass	
Nitrate (as N)		mg/L	< 0.02			0.02	Pass	
Nitrite (as N)		mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)		mg/L	< 0.05			0.05	Pass	
Phosphorus reactive (as P)		mg/L	< 0.05			0.05	Pass	
Suspended Solids		mg/L	< 1			1	Pass	
Total Kjeldahl Nitrogen (as N)		mg/L	< 0.2			0.2	Pass	
Turbidity		NTU	< 1			1	Pass	
Method Blank								
Heavy Metals								
Arsenic (filtered)		mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)		mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)		mg/L	< 0.001			0.001	Pass	
Copper (filtered)		mg/L	< 0.001			0.001	Pass	
Lead (filtered)		mg/L	< 0.001			0.001	Pass	
Mercury (filtered)		mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)		mg/L	< 0.001			0.001	Pass	
Zinc (filtered)		mg/L	< 0.005			0.005	Pass	
LCS - % Recovery								
Polycyclic Aromatic Hydrocarbons								
Acenaphthene		%	106			70-130	Pass	
Acenaphthylene		%	110			70-130	Pass	
Anthracene		%	96			70-130	Pass	
Benz(a)anthracene		%	96			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(a)pyrene	%	105			70-130	Pass	
Benzo(b&j)fluoranthene	%	76			70-130	Pass	
Benzo(g.h.i)perylene	%	89			70-130	Pass	
Benzo(k)fluoranthene	%	84			70-130	Pass	
Chrysene	%	84			70-130	Pass	
Dibenz(a.h)anthracene	%	120			70-130	Pass	
Fluoranthene	%	80			70-130	Pass	
Fluorene	%	109			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	124			70-130	Pass	
Naphthalene	%	95			70-130	Pass	
Phenanthrene	%	102			70-130	Pass	
Pyrene	%	104			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	109			70-130	Pass	
Nitrate & Nitrite (as N)	%	103			70-130	Pass	
Nitrate (as N)	%	83			70-130	Pass	
Nitrite (as N)	%	110			70-130	Pass	
Phosphate total (as P)	%	89			70-130	Pass	
Phosphorus reactive (as P)	%	106			70-130	Pass	
Suspended Solids	%	98			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	91			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	90			80-120	Pass	
Cadmium (filtered)	%	92			80-120	Pass	
Chromium (filtered)	%	92			80-120	Pass	
Copper (filtered)	%	93			80-120	Pass	
Lead (filtered)	%	96			80-120	Pass	
Mercury (filtered)	%	102			70-130	Pass	
Nickel (filtered)	%	93			80-120	Pass	
Zinc (filtered)	%	94			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M18-Ma03965	NCP	%	92			70-130	Pass	
Cadmium (filtered)	M18-Ma03965	NCP	%	96			70-130	Pass	
Chromium (filtered)	M18-Ma03965	NCP	%	97			70-130	Pass	
Copper (filtered)	M18-Ma03965	NCP	%	92			70-130	Pass	
Lead (filtered)	M18-Ma03965	NCP	%	100			70-130	Pass	
Mercury (filtered)	P18-Ma01481	NCP	%	81			70-130	Pass	
Nickel (filtered)	M18-Ma03965	NCP	%	96			70-130	Pass	
Zinc (filtered)	M18-Ma03965	NCP	%	96			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	B18-Ma02448	CP	%	101			70-130	Pass	
Nitrite (as N)	B18-Ma02448	CP	%	106			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	B18-Ma02451	CP	%	78			70-130	Pass	
Acenaphthylene	B18-Ma02451	CP	%	90			70-130	Pass	
Anthracene	B18-Ma02451	CP	%	84			70-130	Pass	
Benz(a)anthracene	B18-Ma02451	CP	%	86			70-130	Pass	
Benzo(a)pyrene	B18-Ma02451	CP	%	74			70-130	Pass	
Benzo(b&j)fluoranthene	B18-Ma02451	CP	%	106			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(g.h.i)perylene	B18-Ma02451	CP	%	72			70-130	Pass	
Benzo(k)fluoranthene	B18-Ma02451	CP	%	119			70-130	Pass	
Chrysene	B18-Ma02451	CP	%	86			70-130	Pass	
Dibenz(a.h)anthracene	B18-Ma02451	CP	%	100			70-130	Pass	
Fluoranthene	B18-Ma02451	CP	%	98			70-130	Pass	
Fluorene	B18-Ma02451	CP	%	74			70-130	Pass	
Indeno(1.2.3-cd)pyrene	B18-Ma02451	CP	%	92			70-130	Pass	
Naphthalene	B18-Ma02451	CP	%	112			70-130	Pass	
Phenanthrene	B18-Ma02451	CP	%	82			70-130	Pass	
Pyrene	B18-Ma02451	CP	%	100			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	B18-Ma02451	CP	%	95			70-130	Pass	
Nitrate & Nitrite (as N)	B18-Ma02451	CP	%	94			70-130	Pass	
Nitrate (as N)	B18-Ma02451	CP	%	93			70-130	Pass	
Nitrite (as N)	B18-Ma02451	CP	%	120			70-130	Pass	
Phosphate total (as P)	B18-Ma02451	CP	%	85			70-130	Pass	
Spike - % Recovery									
				Result 1					
Phosphorus reactive (as P)	B18-Ma02453	CP	%	89			70-130	Pass	
Spike - % Recovery									
				Result 1					
Phosphorus reactive (as P)	B18-Ma02463	CP	%	90			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	B18-Ma02467	CP	%	77			70-130	Pass	
Acenaphthylene	B18-Ma02467	CP	%	83			70-130	Pass	
Anthracene	B18-Ma02467	CP	%	85			70-130	Pass	
Benz(a)anthracene	B18-Ma02467	CP	%	86			70-130	Pass	
Benzo(a)pyrene	B18-Ma02467	CP	%	78			70-130	Pass	
Benzo(b&j)fluoranthene	B18-Ma02467	CP	%	75			70-130	Pass	
Benzo(g.h.i)perylene	B18-Ma02467	CP	%	86			70-130	Pass	
Benzo(k)fluoranthene	B18-Ma02467	CP	%	78			70-130	Pass	
Chrysene	B18-Ma02467	CP	%	85			70-130	Pass	
Dibenz(a.h)anthracene	B18-Ma02467	CP	%	82			70-130	Pass	
Fluoranthene	B18-Ma02467	CP	%	106			70-130	Pass	
Fluorene	B18-Ma02467	CP	%	78			70-130	Pass	
Indeno(1.2.3-cd)pyrene	B18-Ma02467	CP	%	77			70-130	Pass	
Naphthalene	B18-Ma02467	CP	%	90			70-130	Pass	
Phenanthrene	B18-Ma02467	CP	%	83			70-130	Pass	
Pyrene	B18-Ma02467	CP	%	104			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	B18-Ma02468	CP	%	110			70-130	Pass	
Nitrate & Nitrite (as N)	B18-Ma02468	CP	%	82			70-130	Pass	
Nitrate (as N)	B18-Ma02468	CP	%	82			70-130	Pass	
Nitrite (as N)	B18-Ma02468	CP	%	119			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (at 25°C)	B18-Ma02442	CP	uS/cm	760	760	<1	30%	Pass	
pH (at 25°C)	B18-Ma02442	CP	pH Units	8.0	8.0	pass	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M18-Ma04999	NCP	mg/L	0.066	0.066	1.0	30%	Pass	
Cadmium (filtered)	M18-Ma04999	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M18-Ma04999	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M18-Ma04999	NCP	mg/L	0.046	0.046	<1	30%	Pass	
Lead (filtered)	M18-Ma04999	NCP	mg/L	0.003	0.003	1.0	30%	Pass	
Mercury (filtered)	M18-Ma04999	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M18-Ma04999	NCP	mg/L	0.016	0.016	2.0	30%	Pass	
Zinc (filtered)	M18-Ma04999	NCP	mg/L	0.11	0.11	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Dissolved Oxygen (% Saturation)	B18-Ma02447	CP	%	93	93	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	B18-Ma02448	CP	mg/L	0.03	0.03	6.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Dissolved Oxygen	B18-Ma02449	CP	mg/L	6.9	7.1	2.0	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	B18-Ma02450	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	B18-Ma02451	CP	mg/L	0.02	0.02	12	30%	Pass	
Conductivity (at 25°C)	B18-Ma02451	CP	uS/cm	340	350	2.0	30%	Pass	
Nitrate & Nitrite (as N)	B18-Ma02451	CP	mg/L	0.19	0.20	7.0	30%	Pass	
Nitrate (as N)	B18-Ma02451	CP	mg/L	0.16	0.18	11	30%	Pass	
Nitrite (as N)	B18-Ma02451	CP	mg/L	0.03	0.03	17	30%	Pass	
pH (at 25°C)	B18-Ma02451	CP	pH Units	8.3	8.3	pass	30%	Pass	
Turbidity	B18-Ma02451	CP	NTU	8.4	8.0	4.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Phosphorus reactive (as P)	B18-Ma02453	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Dissolved Oxygen (% Saturation)	B18-Ma02457	CP	%	87	88	1.0	30%	Pass	
Suspended Solids	B18-Ma02457	CP	mg/L	7.7	9.3	20	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Dissolved Oxygen	B18-Ma02459	CP	mg/L	7.4	7.4	1.0	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Conductivity (at 25°C)	B18-Ma02461	CP	uS/cm	180	180	1.0	30%	Pass	
pH (at 25°C)	B18-Ma02461	CP	pH Units	7.3	7.4	pass	30%	Pass	
Turbidity	B18-Ma02461	CP	NTU	97	96	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Phosphorus reactive (as P)	B18-Ma02463	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	B18-Ma02466	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Dissolved Oxygen (% Saturation)	B18-Ma02467	CP	%	65	67	3.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	B18-Ma02468	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Nitrate & Nitrite (as N)	B18-Ma02468	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Nitrate (as N)	B18-Ma02468	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Nitrite (as N)	B18-Ma02468	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Dissolved Oxygen	B18-Ma02470	CP	mg/L	4.6	4.4	3.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Phosphate total (as P)	B18-Ma02473	CP	mg/L	0.09	0.09	3.0	30%	Pass	
Total Kjeldahl Nitrogen (as N)	B18-Ma02473	CP	mg/L	1.2	1.5	22	30%	Pass	
Turbidity	B18-Ma02473	CP	NTU	210	210	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (at 25°C)	B18-Ma02475	CP	uS/cm	950	960	1.0	30%	Pass	
pH (at 25°C)	B18-Ma02475	CP	pH Units	8.6	8.6	pass	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chlorophyll a	B18-Ma02476	CP	ug/L	< 5	< 5	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Comments

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Ryan Gilbert	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Jonathon Angell	Senior Analyst-Inorganic (QLD)
Joseph Edouard	Senior Analyst-Organic (VIC)
Michael Brancati	Senior Analyst-Inorganic (VIC)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Attention: **LEESA LEATHBRIDGE**

Report **588540-W**
Project name BASELINE SURFACE WATER MONITORING
Project ID INLAND RAIL PROJECT
Received Date Mar 07, 2018

Client Sample ID **Sample Matrix** **Eurofins | mgt Sample No.** **Date Sampled** Test/Reference	LOR	Unit	**H2C 3A** **Water** **M18-Ma09925** **Mar 06, 2018**	**H2C 4A** **Water** **M18-Ma09926** **Mar 06, 2018**	**H2C 7A** **Water** **M18-Ma09927** **Mar 06, 2018**	**H2C 9A** **Water** **M18-Ma09928** **Mar 06, 2018**
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	84	119	57	106
p-Terphenyl-d14 (surr.)	1	%	148	81	60	104
Ammonia (as N)	0.01	mg/L	0.08	0.01	0.04	0.22
Chlorophyll a	5	ug/L	77	110	92	110
Conductivity (at 25°C)	1	uS/cm	590	350	280	1800
Dissolved Oxygen	0.01	mg/L	8.5	8.5	7.0	4.6
Dissolved Oxygen (% Saturation)		%	95	93	78	50
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	0.06	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	0.04	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	0.02	< 0.02	< 0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	0.21	< 0.2	0.60	0.39
pH (at 25°C)	0.1	pH Units	8.3	8.4	7.4	7.4
Phosphate total (as P)	0.05	mg/L	0.50	0.39	0.81	0.46
Phosphorus reactive (as P)	0.05	mg/L	0.43	0.22	0.44	< 0.05
Salinity (determined from EC)*	20	mg/L	290	170	140	910
Suspended Solids	1	mg/L	18	23	15	94
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.3	< 0.2	0.6	0.6

Client Sample ID			H2C 3A	H2C 4A	H2C 7A	H2C 9A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Ma09925	M18-Ma09926	M18-Ma09927	M18-Ma09928
Date Sampled			Mar 06, 2018	Mar 06, 2018	Mar 06, 2018	Mar 06, 2018
Test/Reference	LOR	Unit				
Total Nitrogen (as N)	0.2	mg/L	0.29	< 0.2	0.63	0.61
Turbidity	1	NTU	8.2	16	6.1	58
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	0.002	0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.002	0.002	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	0.001	0.004	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			H2C 10A	H2C 12A	H2C 18A	H2C DUP1
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Ma09929	M18-Ma09930	M18-Ma09931	M18-Ma09932
Date Sampled			Mar 06, 2018	Mar 06, 2018	Mar 06, 2018	Mar 06, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	82	111	72	96
p-Terphenyl-d14 (surr.)	1	%	81	133	82	120
Ammonia (as N)	0.01	mg/L	0.05	0.43	0.05	0.05
Chlorophyll a	5	ug/L	220	83	< 10	87
Conductivity (at 25°C)	1	uS/cm	230	430	1400	640
Dissolved Oxygen	0.01	mg/L	5.2	7.5	6.5	9.0
Dissolved Oxygen (% Saturation)		%	57	82	71	97
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	0.18	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	0.09	< 0.02	0.02
Nitrite (as N)	0.02	mg/L	< 0.02	0.09	< 0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	0.60	0.44	0.56	< 0.2
pH (at 25°C)	0.1	pH Units	7.2	8.4	7.7	8.4

Client Sample ID			H2C 10A	H2C 12A	H2C 18A	H2C DUP1
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Ma09929	M18-Ma09930	M18-Ma09931	M18-Ma09932
Date Sampled			Mar 06, 2018	Mar 06, 2018	Mar 06, 2018	Mar 06, 2018
Test/Reference	LOR	Unit				
Phosphate total (as P)	0.05	mg/L	0.41	0.71	0.20	0.53
Phosphorus reactive (as P)	0.05	mg/L	0.15	0.58	< 0.05	0.43
Salinity (determined from EC)*	20	mg/L	110	210	700	310
Suspended Solids	1	mg/L	33	16	6.2	16
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.6	0.9	0.6	< 0.2
Total Nitrogen (as N)	0.2	mg/L	0.64	1.1	0.62	< 0.2
Turbidity	1	NTU	49	4.3	3.9	7.6
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.006	0.001	0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.005	0.001	< 0.001	0.002
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.003	0.002	< 0.001	0.002
Zinc (filtered)	0.005	mg/L	0.007	< 0.005	< 0.005	< 0.005

Client Sample ID			H2C TRIP1
Sample Matrix			Water
Eurofins | mgt Sample No.			M18-Ma09933
Date Sampled			Mar 06, 2018
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	91
p-Terphenyl-d14 (surr.)	1	%	110
Ammonia (as N)	0.01	mg/L	0.03
Chlorophyll a	5	ug/L	91
Conductivity (at 25°C)	1	uS/cm	580
Dissolved Oxygen	0.01	mg/L	9.1
Dissolved Oxygen (% Saturation)		%	99

Client Sample ID			H2C TRIP1
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**M18-Ma09933**
Date Sampled			**Mar 06, 2018**
Test/Reference	LOR	Unit	
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	< 0.2
pH (at 25°C)	0.1	pH Units	8.5
Phosphate total (as P)	0.05	mg/L	0.56
Phosphorus reactive (as P)	0.05	mg/L	0.43
Salinity (determined from EC)*	20	mg/L	280
Suspended Solids	1	mg/L	15
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.2
Total Nitrogen (as N)	0.2	mg/L	< 0.2
Turbidity	1	NTU	7.9
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	0.002
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002
Zinc (filtered)	0.005	mg/L	< 0.005

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Melbourne	Mar 14, 2018	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS			
Chlorophyll a	Melbourne	Mar 16, 2018	2 Day
- Method: APHA Method 10200H			
Conductivity (at 25°C)	Melbourne	Mar 13, 2018	28 Day
- Method: LTM-INO-4030 Conductivity			
Dissolved Oxygen	Melbourne	Mar 08, 2018	1 Day
- Method: LTM-INO-4130 Determination of Dissolved Oxygen using a DO meter			
Dissolved Oxygen (% Saturation)	Melbourne	Mar 09, 2018	1 Day
- Method: LTM-INO-4130 Determination of Dissolved Oxygen using a DO meter			
pH (at 25°C)	Melbourne	Mar 13, 2018	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Phosphate total (as P)	Melbourne	Mar 13, 2018	28 Day
- Method: APHA 4500-P E. Phosphorous			
Phosphorus reactive (as P)	Melbourne	Mar 13, 2018	2 Day
- Method: APHA4500-PO4			
Salinity (determined from EC)*	Melbourne	Mar 13, 2018	0 Day
Suspended Solids	Melbourne	Mar 13, 2018	7 Days
- Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry			
Turbidity	Melbourne	Mar 13, 2018	2 Day
- Method: LTM-INO-4140 Turbidity by Nephelometric Method			
Metals M8 filtered	Melbourne	Mar 13, 2018	28 Day
- Method: LTM-MET-3040 Metals in Waters by ICP-MS			
Nitrogens (speciated)			
Ammonia (as N)	Melbourne	Mar 13, 2018	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Nitrate & Nitrite (as N)	Melbourne	Mar 13, 2018	28 Day
- Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA			
Nitrate (as N)	Melbourne	Mar 13, 2018	7 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Nitrite (as N)	Melbourne	Mar 13, 2018	2 Day
- Method: APHA 4500-NO2 Nitrite Nitrogen by FIA			
Organic Nitrogen (as N)	Melbourne	Mar 08, 2018	7 Day
- Method: APHA 4500 Organic Nitrogen (N)			
Total Kjeldahl Nitrogen (as N)	Melbourne	Mar 13, 2018	7 Day
- Method: APHA 4500 TKN			

eurofins | mgt

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Aurecon Australia (BRIS) Pty Ltd
Address: Level 14, 32 Turbot St
Brisbane
QLD 4001

Project Name: BASELINE SURFACE WATER MONITORING
Project ID: INLAND RAIL PROJECT

Order No.: 23200
Report #: 588540
Phone: 07 3173 8000
Fax: +61 7 3173 8001

Received: Mar 7, 2018 3:36 PM
Due: Mar 15, 2018
Priority: 5 Day
Contact Name: LEESA LEATHBRIDGE

Eurofins | mgt Analytical Services Manager : Ryan Gilbert

Sample Detail						Chlorophyll a	Conductivity (at 25°C)	Dissolved Oxygen	Dissolved Oxygen (% Saturation)	pH (at 25°C)	Phosphate total (as P)	Phosphorus reactive (as P)	Salinity (determined from EC)*	Suspended Solids	Turbidity	Polycyclic Aromatic Hydrocarbons	Metals M8	Metals M8 filtered	Nitrogens (speciated)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																			
Brisbane Laboratory - NATA Site # 20794																			
Perth Laboratory - NATA Site # 23736																			
External Laboratory																			
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**														
1	H2C 3A	Mar 06, 2018		Water	M18-Ma09925	X	X	X	X	X	X	X	X	X	X	X		X	X
2	H2C 4A	Mar 06, 2018		Water	M18-Ma09926	X	X	X	X	X	X	X	X	X	X	X		X	X
3	H2C 7A	Mar 06, 2018		Water	M18-Ma09927	X	X	X	X	X	X	X	X	X	X	X		X	X
4	H2C 9A	Mar 06, 2018		Water	M18-Ma09928	X	X	X	X	X	X	X	X	X	X	X		X	X
5	H2C 10A	Mar 06, 2018		Water	M18-Ma09929	X	X	X	X	X	X	X	X	X	X	X		X	X
6	H2C 12A	Mar 06, 2018		Water	M18-Ma09930	X	X	X	X	X	X	X	X	X	X	X	X		X
7	H2C 18A	Mar 06, 2018		Water	M18-Ma09931	X	X	X	X	X	X	X	X	X	X	X		X	X
8	H2C DUP1	Mar 06, 2018		Water	M18-Ma09932	X	X	X	X	X	X	X	X	X	X	X		X	X
9	H2C TRIP1	Mar 06, 2018		Water	M18-Ma09933	X	X	X	X	X	X	X	X	X	X	X		X	X

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	Aurecon Australia (BRIS) Pty Ltd	**Order No.:**	23200	**Received:**	Mar 7, 2018 3:36 PM
Address:	Level 14, 32 Turbot St Brisbane QLD 4001	**Report #:**	588540	**Due:**	Mar 15, 2018
		Phone:	07 3173 8000	**Priority:**	5 Day
		Fax:	+61 7 3173 8001	**Contact Name:**	LEESA LEATHBRIDGE
Project Name:	BASELINE SURFACE WATER MONITORING				
Project ID:	INLAND RAIL PROJECT				

Eurofins | mgt Analytical Services Manager : Ryan Gilbert

Sample Detail	Chlorophyll a	Conductivity (at 25°C)	Dissolved Oxygen	Dissolved Oxygen (% Saturation)	pH (at 25°C)	Phosphate total (as P)	Phosphorus reactive (as P)	Salinity (determined from EC)*	Suspended Solids	Turbidity	Polycyclic Aromatic Hydrocarbons	Metals M8	Metals M8 filtered	Nitrogens (speciated)
Melbourne Laboratory - NATA Site # 1254 & 14271	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 23736														
Test Counts	9	9	9	9	9	9	9	9	9	9	9	1	8	9

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Dissolved Oxygen (% Saturation)	%	100				N/A	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.05			0.05	Pass	
Phosphorus reactive (as P)	mg/L	< 0.05			0.05	Pass	
Suspended Solids	mg/L	< 1			1	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Turbidity	NTU	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	115			70-130	Pass	
Acenaphthylene	%	116			70-130	Pass	
Anthracene	%	104			70-130	Pass	
Benz(a)anthracene	%	99			70-130	Pass	
Benzo(a)pyrene	%	112			70-130	Pass	
Benzo(b&j)fluoranthene	%	108			70-130	Pass	
Benzo(g.h.i)perylene	%	90			70-130	Pass	
Benzo(k)fluoranthene	%	126			70-130	Pass	
Chrysene	%	113			70-130	Pass	
Dibenz(a.h)anthracene	%	73			70-130	Pass	
Fluoranthene	%	106			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluorene	%	116			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	83			70-130	Pass	
Naphthalene	%	120			70-130	Pass	
Phenanthrene	%	124			70-130	Pass	
Pyrene	%	125			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	74			70-130	Pass	
Nitrate & Nitrite (as N)	%	98			70-130	Pass	
Nitrate (as N)	%	97			70-130	Pass	
Nitrite (as N)	%	83			70-130	Pass	
Phosphate total (as P)	%	97			70-130	Pass	
Phosphorus reactive (as P)	%	116			70-130	Pass	
Suspended Solids	%	115			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	110			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	95			80-120	Pass	
Cadmium (filtered)	%	97			80-120	Pass	
Chromium (filtered)	%	92			80-120	Pass	
Copper (filtered)	%	89			80-120	Pass	
Lead (filtered)	%	104			80-120	Pass	
Mercury (filtered)	%	100			70-130	Pass	
Nickel (filtered)	%	88			80-120	Pass	
Zinc (filtered)	%	94			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M18-Ma07562	NCP	%	74			70-130	Pass	
Nitrate & Nitrite (as N)	M18-Ma07562	NCP	%	98			70-130	Pass	
Nitrate (as N)	M18-Ma07562	NCP	%	98			70-130	Pass	
Nitrite (as N)	M18-Ma07562	NCP	%	81			70-130	Pass	
Phosphate total (as P)	M18-Ma07542	NCP	%	78			70-130	Pass	
Phosphorus reactive (as P)	P18-Ma09789	NCP	%	118			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M18-Ma07542	NCP	%	102			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M18-Ma10627	NCP	%	98			70-130	Pass	
Cadmium (filtered)	M18-Ma10627	NCP	%	91			70-130	Pass	
Chromium (filtered)	M18-Ma10627	NCP	%	91			70-130	Pass	
Copper (filtered)	M18-Ma10627	NCP	%	86			70-130	Pass	
Lead (filtered)	M18-Ma10627	NCP	%	98			70-130	Pass	
Mercury (filtered)	M18-Ma10449	NCP	%	72			70-130	Pass	
Nickel (filtered)	M18-Ma10627	NCP	%	86			70-130	Pass	
Zinc (filtered)	M18-Ma10627	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Ma09930	CP	%	82			70-130	Pass	
Acenaphthylene	M18-Ma09930	CP	%	89			70-130	Pass	
Anthracene	M18-Ma09930	CP	%	90			70-130	Pass	
Benz(a)anthracene	M18-Ma09930	CP	%	71			70-130	Pass	
Benzo(a)pyrene	M18-Ma09930	CP	%	82			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Ma09930	CP	%	89			70-130	Pass	
Benzo(g.h.i)perylene	M18-Ma09930	CP	%	73			70-130	Pass	
Benzo(k)fluoranthene	M18-Ma09930	CP	%	105			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chrysene	M18-Ma09930	CP	%	97			70-130	Pass	
Dibenz(a.h)anthracene	M18-Ma09930	CP	%	72			70-130	Pass	
Fluoranthene	M18-Ma09930	CP	%	112			70-130	Pass	
Fluorene	M18-Ma09930	CP	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-Ma09930	CP	%	71			70-130	Pass	
Naphthalene	M18-Ma09930	CP	%	94			70-130	Pass	
Phenanthrene	M18-Ma09930	CP	%	88			70-130	Pass	
Pyrene	M18-Ma09930	CP	%	98			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M18-Ma10515	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M18-Ma10449	NCP	mg/L	0.54	0.52	3.0	30%	Pass	
Chlorophyll a	M18-Ma16227	NCP	ug/L	< 5	< 5	<1	30%	Pass	
Dissolved Oxygen	B18-Ma07531	NCP	mg/L	8.2	8.1	1.0	30%	Pass	
Nitrate & Nitrite (as N)	M18-Ma10449	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Nitrate (as N)	M18-Ma10449	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Nitrite (as N)	M18-Ma10449	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Phosphate total (as P)	M18-Ma09925	CP	mg/L	0.50	0.56	10	30%	Pass	
Phosphorus reactive (as P)	P18-Ma09826	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M18-Ma09925	CP	mg/L	0.3	0.2	17	30%	Pass	
Turbidity	S18-Ma09590	NCP	NTU	63	64	2.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M18-Ma10627	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M18-Ma10627	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M18-Ma10627	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M18-Ma10627	NCP	mg/L	0.011	0.011	5.0	30%	Pass	
Lead (filtered)	M18-Ma10627	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	M18-Ma10627	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M18-Ma10627	NCP	mg/L	0.001	0.001	15	30%	Pass	
Zinc (filtered)	M18-Ma10627	NCP	mg/L	0.010	0.009	4.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (at 25°C)	M18-Ma09927	CP	uS/cm	280	280	1.0	30%	Pass	
pH (at 25°C)	M18-Ma09927	CP	pH Units	7.4	7.3	pass	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Dissolved Oxygen (% Saturation)	M18-Ma09929	CP	%	57	54	5.0	30%	Pass	
Suspended Solids	M18-Ma09929	CP	mg/L	33	30	9.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Suspended Solids	M18-Ma09931	CP	mg/L	6.2	7.2	15	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Ryan Gilbert	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Michael Brancati	Senior Analyst-Inorganic (VIC)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Appendix V5 Surface water quality results—Round 3 (Mar 2019)

HELIDON TO CALVERT ENVIRONMENTAL IMPACT STATEMENT

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

☐ Eurofins | mgt Sydney Lab — Unit F3 Building F, 16 Mars Road, Lane Cove West, NSW 2066 P: +61 2 9900 8400 E: EnviroSampleNSW@eurofins.com.au

☑ Eurofins | mgt Brisbane Lab — Unit 1, 21 Smallwood Place, Murarrie, QLD 4172 P: +61 7 3902 4600 E: EnviroSampleQLD@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh, VIC 3166 P: +61 3 8564 5000 F: +61 3 8564 5090 E: EnviroSampleVic@eurofins.com.au

Company	Aurecon	Purchase Order	23200	Project Manager	Shannah Brown
Address	Level 14, 32 Turbot Street, Brisbane, QLD	Eurofins | mgt Quote №	160329AUR	Project №	Inland Rail Project
Contact Name	James Bone				
Contact Phone №	james.bone@aurecongroup.com				
Special Direction	#3 eskies in total				
Relinquished by (Signature)					
(Time / Date)	5:20 13/3/19				

Project Name	Baseline Surface Water Monitoring
Electronic Results Format	
Email for Results	james.bone@aurecongroup.com gabriella.singh@aurecongroup.com
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* (* Surcharges apply) ☑ 5 DAY (Std.) ☐ Other ( )

Containers | Method of Shipment: ☐ Courier (#) ☑ Hand Delivered ☐ Postal

№	Client Sample ID	Date	Matrix	pH	Suspended Solids (SS)	Turbidity	Speciated nitrogens (ammonia, nitrate, nitrite, organic nitrogen, oxidised nitrogen, total kjeldahl nitrogen, total nitrogen)	Electrical conductivity (Actual and specific)	M8 - 8 metals	Total Phosphorus	Reactive Phosphorus	Chlorophyll a	Polycyclic aromatic hydrocarbons (PAH)	Salinity (ppt)	Dissolved oxygen (% saturation)	Dissolved oxygen (mg/L)	1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	Jar	60 ml plastic	Sample Comments / DG Hazard Warning
1	G2H 1A	11/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2		1					2	
2	G2H 2A	11/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2		1					2	
3	G2H 3A	11/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2		1					2	
4	G2H 9A	11/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2		1					2	
5	G2H Duplicate 1	11/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2		1					2	
6	H2C 4A	12/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2		1					2	
7	H2C Duplicate 2	12/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2		1					2	
8	H2C 3A	12/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2		1					2	
9	H2C 18A	12/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2		1					2	
10	C2K 5A	13/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2		1					2	
11	C2K 6A	13/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2		1					2	
12	C2K 13A	13/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2		1					2	

Laboratory Use Only						
Received By		SYD | (BNE) | MEL | PER | ADL | NEW | DAR	Date 13/3/19	Time 17:29	Signature	Temperature 22.2°C
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date __/__/__	Time __:__	Signature	Report № 645158

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

☐ Eurofins | mgt Sydney Lab — Unit F3 Building F, 16 Mars Road, Lane Cove West, NSW 2066 — P : +61 2 9900 8400 — E : EnviroSampleNSW@eurofins.com.au

☑ Eurofins | mgt Brisbane Lab — Unit 1, 21 Smallwood Place, Murarrie, QLD 4172 — P : +61 7 3902 4600 — E : EnviroSampleQLD@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh, VIC 3166 — P : +61 3 8564 5000 — F : +61 3 8564 5090 — E : EnviroSampleVic@eurofins.com.au

Company	Aurecon	Purchase Order	23200	Project Manager	Shannah Brown
Address	Level 14, 32 Turbot Street, Brisbane, QLD	Eurofins | mgt Quote №	160329AUR	Project №	Inland Rail Project
Contact Name	James Bone				
Contact Phone №	james.bone@aurecongroup.com				
Special Direction	# 3 eskies in total				
Relinquished by (Signature)					
(Time / Date)	5:29 13/3/19				

Project Name	Baseline Surface Water Monitoring
Electronic Results Format	
Email for Results	james.bone@aurecongroup.com gabriella.singh@aurecongroup.com
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* (* Surcharges apply) ☑ 5 DAY (Std.) ☐ Other ( )

Containers | Method of Shipment: ☐ Courier (#) ☑ Hand Delivered ☐ Postal

№	Client Sample ID	Date	Matrix	pH	Suspended Solids (SS)	Turbidity	Speciated nitrogens (ammonia, nitrate, nitrite, organic nitrogen, oxidised nitrogen, total kjeldahl nitrogen, total nitrogen)	Electrical conductivity (Actual and specific)	M8 - 8 metals	Total Phosphorus	Reactive Phosphorus	Chlorophyll a	Polycyclic aromatic hydrocarbons (PAH)	Salinity (ppt)	Dissolved oxygen (% saturation)	Dissolved oxygen (mg/L)	1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL vial	125mL Amber Glass	Jar	60 ml plastic	Sample Comments / DG Hazard Warning
1	C2K 10A	13/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2			1				2	
2	C2K duplicate 3	13/3/19	W	X	X	X	X	X	X	X	X	X	X	X	X	X	2			1				2	
3			W	X	X	X	X	X	X	X	X	X	X	X	X	X	2			1				2	
4			W	X	X	X	X	X	X	X	X	X	X	X	X	X	2			1				2	
5			W	X	X	X	X	X	X	X	X	X	X	X	X	X	2			1				2	
6			W	X	X	X	X	X	X	X	X	X	X	X	X	X	2			1				2	
7			W	X	X	X	X	X	X	X	X	X	X	X	X	X	2			1				2	
8			W	X	X	X	X	X	X	X	X	X	X	X	X	X	2			1				2	
9			W	X	X	X	X	X	X	X	X	X	X	X	X	X	2			1				2	
10			W	X	X	X	X	X	X	X	X	X	X	X	X	X	2			1				2	
11			W	X	X	X	X	X	X	X	X	X	X	X	X	X	2			1				2	
12			W	X	X	X	X	X	X	X	X	X	X	X	X	X	2			1				2	

Laboratory Use Only							
Received By		SYD | (BNE) | MEL | PER | ADL | NEW | DAR	Date	13/3/19	Time	17:29	Signature
Received By		SYD | BNE | MEL | PER | ADL | NEW | DAR	Date	__/__/__	Time	__:__	Signature

Temperature: 22.2c

Report № 645158

eurofins | mgt

Certificate of Analysis

Aurecon Australia (BRIS) Pty Ltd
Level 14, 32 Turbot St
Brisbane
QLD 4001

NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **James Bone**

Report **645158-W**
Project name BASELINE SURFACE WATER MONITORING
Project ID INLAND RAIL PROJECT
Received Date Mar 13, 2019

Client Sample ID			**G2H1A**	**G2H 2A**	**G2H 3A**	**G2H 9A**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**B19-Ma15933**	**B19-Ma15934**	**B19-Ma15935**	**B19-Ma15936**
Date Sampled			**Mar 11, 2019**	**Mar 11, 2019**	**Mar 11, 2019**	**Mar 11, 2019**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	50	65	64	52
p-Terphenyl-d14 (surr.)	1	%	123	62	65	54
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	0.04
Chlorophyll a	5	ug/L	< 5	< 5	< 5	7.5
Conductivity (at 25°C)	1	uS/cm	920	440	380	1800
Dissolved Oxygen	0.01	mg/L	9.1	9.2	9.0	9.0
Nitrate & Nitrite (as N)	0.05	mg/L	2.1	0.71	1.1	< 0.05
Nitrate (as N)	0.02	mg/L	2.1	0.70	1.0	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	1.1	< 0.2	1.2	0.42
pH (at 25°C)	0.1	pH Units	8.3	8.5	8.3	8.4
Phosphate total (as P)	0.01	mg/L	0.12	0.04	0.06	0.01
Phosphorus reactive (as P)	0.01	mg/L	0.10	0.02	0.03	0.01
Salinity (determined from EC)*	20	mg/L	450	210	180	930
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.1	< 0.2	1.2	0.5
Total Nitrogen (as N)	0.2	mg/L	3.2	0.71	1.3	0.46
Total Suspended Solids Dried at 103–105°C	1	mg/L	13	3.8	4.9	13
Turbidity	1	NTU	2.5	1.8	2.1	7.1

Client Sample ID			G2H1A	G2H 2A	G2H 3A	G2H 9A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B19-Ma15933	B19-Ma15934	B19-Ma15935	B19-Ma15936
Date Sampled			Mar 11, 2019	Mar 11, 2019	Mar 11, 2019	Mar 11, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.002
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	0.001	0.001	< 0.001
Zinc (filtered)	0.005	mg/L	0.025	< 0.005	< 0.005	< 0.005

Client Sample ID			G2H DUPLICATE 1	H2C 4A	H2C DUPLICATE 2	H2C 3A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B19-Ma15937	B19-Ma15938	B19-Ma15939	B19-Ma15940
Date Sampled			Mar 11, 2019	Mar 12, 2019	Mar 12, 2019	Mar 12, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	56	54	59	112
p-Terphenyl-d14 (surr.)	1	%	53	51	56	108
Ammonia (as N)	0.01	mg/L	0.06	< 0.01	< 0.01	0.18
Chlorophyll a	5	ug/L	7.5	6.4	21	< 5
Conductivity (at 25°C)	1	uS/cm	1700	480	490	710
Dissolved Oxygen	0.01	mg/L	9.0	9.0	9.0	9.0
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	0.35	0.67	0.71	0.70
pH (at 25°C)	0.1	pH Units	8.4	8.7	8.7	9.1
Phosphate total (as P)	0.01	mg/L	< 0.01	0.10	0.06	0.06
Phosphorus reactive (as P)	0.01	mg/L	0.01	0.01	0.03	0.05
Salinity (determined from EC)*	20	mg/L	880	230	240	340

Client Sample ID			G2H DUPLICATE 1	H2C 4A	H2C DUPLICATE 2	H2C 3A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B19-Ma15937	B19-Ma15938	B19-Ma15939	B19-Ma15940
Date Sampled			Mar 11, 2019	Mar 12, 2019	Mar 12, 2019	Mar 12, 2019
Test/Reference	LOR	Unit				
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.4	0.7	0.7	0.9
Total Nitrogen (as N)	0.2	mg/L	0.41	0.67	0.71	0.88
Total Suspended Solids Dried at 103–105°C	1	mg/L	12	67	49	11
Turbidity	1	NTU	6.6	42	24	2.9
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	0.002
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	0.002	0.002	0.001
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	0.005

Client Sample ID			H2C 18A	C2K 5A	C2K 6A	C2K 13A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B19-Ma15941	B19-Ma15942	B19-Ma15943	B19-Ma15944
Date Sampled			Mar 12, 2019	Mar 13, 2019	Mar 13, 2019	Mar 13, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	71	53	51	67
p-Terphenyl-d14 (surr.)	1	%	74	50	57	79
Ammonia (as N)	0.01	mg/L	0.20	< 0.01	0.67	< 0.01
Chlorophyll a	5	ug/L	18	32	< 5	20
Conductivity (at 25°C)	1	uS/cm	3000	380	3400	2000
Dissolved Oxygen	0.01	mg/L	8.7	9.1	8.5	8.9
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	0.06	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	0.06	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02

Client Sample ID			H2C 18A	C2K 5A	C2K 6A	C2K 13A
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			B19-Ma15941	B19-Ma15942	B19-Ma15943	B19-Ma15944
Date Sampled			Mar 12, 2019	Mar 13, 2019	Mar 13, 2019	Mar 13, 2019
Test/Reference	LOR	Unit				
Organic Nitrogen (as N)	0.2	mg/L	1.3	1.6	1.2	0.59
pH (at 25°C)	0.1	pH Units	6.3	9.1	8.3	8.4
Phosphate total (as P)	0.01	mg/L	0.01	0.01	0.02	0.01
Phosphorus reactive (as P)	0.01	mg/L	0.01	0.01	0.01	0.01
Salinity (determined from EC)*	20	mg/L	1600	180	1800	1000
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.3	1.6	1.9	0.6
Total Nitrogen (as N)	0.2	mg/L	1.3	1.6	1.9	0.59
Total Suspended Solids Dried at 103–105°C	1	mg/L	21	36	42	24
Turbidity	1	NTU	18	21	34	9.7
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.002	0.002	0.001	0.006
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.004	< 0.001	0.003	0.002
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			C2K 10A	C2K DUPLICATE 3
Sample Matrix			Water	Water
Eurofins | mgt Sample No.			B19-Ma15945	B19-Ma15946
Date Sampled			Mar 13, 2019	Mar 13, 2019
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.001	mg/L	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	74	79
p-Terphenyl-d14 (surr.)	1	%	78	80

Client Sample ID			C2K 10A	C2K DUPLICATE 3
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**B19-Ma15945**	**B19-Ma15946**
Date Sampled			**Mar 13, 2019**	**Mar 13, 2019**
Test/Reference	LOR	Unit		
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01
Chlorophyll a	5	ug/L	< 5	< 5
Conductivity (at 25°C)	1	uS/cm	2700	2700
Dissolved Oxygen	0.01	mg/L	9.0	9.0
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02
Organic Nitrogen (as N)	0.2	mg/L	0.29	0.34
pH (at 25°C)	0.1	pH Units	8.2	8.4
Phosphate total (as P)	0.01	mg/L	0.01	< 0.01
Phosphorus reactive (as P)	0.01	mg/L	0.01	0.10
Salinity (determined from EC)*	20	mg/L	1400	1400
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.3	0.3
Total Nitrogen (as N)	0.2	mg/L	0.29	0.34
Total Suspended Solids Dried at 103–105°C	1	mg/L	13	10
Turbidity	1	NTU	7.4	5.2
Heavy Metals				
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Melbourne	Mar 15, 2019	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Chlorophyll a	Melbourne	Mar 20, 2019	2 Day
- Method: LTM-INO-4340 Chlorophyll a in Waters			
Conductivity (at 25°C)	Melbourne	Mar 18, 2019	28 Day
- Method: LTM-INO-4030 Conductivity			
Dissolved Oxygen	Melbourne	Mar 16, 2019	1 Day
- Method: LTM-INO-4130 Determination of Dissolved Oxygen using a DO meter			
pH (at 25°C)	Melbourne	Mar 18, 2019	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Phosphate total (as P)	Melbourne	Mar 15, 2019	28 Day
- Method: APHA 4500-P E. Phosphorus			
Phosphorus reactive (as P)	Melbourne	Mar 15, 2019	2 Day
- Method: APHA4500-PO4			
Salinity (determined from EC)*	Melbourne	Mar 18, 2019	0 Day
- Method: LTM-INO-4030			
Total Suspended Solids Dried at 103–105°C	Melbourne	Mar 15, 2019	7 Days
- Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry			
Turbidity	Melbourne	Mar 20, 2019	2 Day
- Method: Turbidity by classical using APHA 2130B (LTM-INO-4140)			
Metals M8 filtered	Brisbane	Mar 14, 2019	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Nitrogens (speciated)			
Ammonia (as N)	Melbourne	Mar 15, 2019	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Nitrate & Nitrite (as N)	Melbourne	Mar 15, 2019	28 Day
- Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA			
Nitrate (as N)	Melbourne	Mar 15, 2019	28 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Nitrite (as N)	Melbourne	Mar 15, 2019	2 Day
- Method: APHA 4500-NO2 Nitrite Nitrogen by FIA			
Organic Nitrogen (as N)	Melbourne	Mar 13, 2019	7 Day
- Method: APHA 4500 Organic Nitrogen (N)			
Total Kjeldahl Nitrogen (as N)	Melbourne	Mar 15, 2019	7 Day
- Method: LTM-INO-4040 Phosphate and Nitrogen in waters by Continuous Flow Analysis (CFA)			

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ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Aurecon Australia (BRIS) Pty Ltd
Address: Level 14, 32 Turbot St
Brisbane
QLD 4001

Project Name: BASELINE SURFACE WATER MONITORING
Project ID: INLAND RAIL PROJECT

Order No.: 23200
Report #: 645158
Phone: 07 3173 8000
Fax: +61 7 3173 8001

Received: Mar 13, 2019 5:29 PM
Due: Mar 20, 2019
Priority: 5 Day
Contact Name: James Bone

Eurofins | mgt Analytical Services Manager : Ryan Gilbert

Sample Detail						Chlorophyll a	Conductivity (at 25°C)	Dissolved Oxygen	pH (at 25°C)	Phosphate total (as P)	Phosphorus reactive (as P)	Salinity (determined from EC)*	Total Suspended Solids Dried at 103–105°C	Turbidity	Polycyclic Aromatic Hydrocarbons	Metals M8	Nitrogens (speciated)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X		X
Sydney Laboratory - NATA Site # 18217																	
Brisbane Laboratory - NATA Site # 20794																X	
Perth Laboratory - NATA Site # 23736																	
External Laboratory																	
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**												
1	G2H1A	Mar 11, 2019		Water	B19-Ma15933	X	X	X	X	X	X	X	X	X	X	X	X
2	G2H 2A	Mar 11, 2019		Water	B19-Ma15934	X	X	X	X	X	X	X	X	X	X	X	X
3	G2H 3A	Mar 11, 2019		Water	B19-Ma15935	X	X	X	X	X	X	X	X	X	X	X	X
4	G2H 9A	Mar 11, 2019		Water	B19-Ma15936	X	X	X	X	X	X	X	X	X	X	X	X
5	G2H DUPLICATE 1	Mar 11, 2019		Water	B19-Ma15937	X	X	X	X	X	X	X	X	X	X	X	X
6	H2C 4A	Mar 12, 2019		Water	B19-Ma15938	X	X	X	X	X	X	X	X	X	X	X	X
7	H2C DUPLICATE 2	Mar 12, 2019		Water	B19-Ma15939	X	X	X	X	X	X	X	X	X	X	X	X
8	H2C 3A	Mar 12, 2019		Water	B19-Ma15940	X	X	X	X	X	X	X	X	X	X	X	X

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ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
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1/21 Smallwood Place
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Sample Detail						Chlorophyll a	Conductivity (at 25°C)	Dissolved Oxygen	pH (at 25°C)	Phosphate total (as P)	Phosphorus reactive (as P)	Salinity (determined from EC)*	Total Suspended Solids Dried at 103–105°C	Turbidity	Polycyclic Aromatic Hydrocarbons	Metals M8	Nitrogens (speciated)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X		X
Sydney Laboratory - NATA Site # 18217																	
Brisbane Laboratory - NATA Site # 20794																X	
Perth Laboratory - NATA Site # 23736																	
9	H2C 18A	Mar 12, 2019		Water	B19-Ma15941	X	X	X	X	X	X	X	X	X	X	X	X
10	C2K 5A	Mar 13, 2019		Water	B19-Ma15942	X	X	X	X	X	X	X	X	X	X	X	X
11	C2K 6A	Mar 13, 2019		Water	B19-Ma15943	X	X	X	X	X	X	X	X	X	X	X	X
12	C2K 13A	Mar 13, 2019		Water	B19-Ma15944	X	X	X	X	X	X	X	X	X	X	X	X
13	C2K 10A	Mar 13, 2019		Water	B19-Ma15945	X	X	X	X	X	X	X	X	X	X	X	X
14	C2K DUPLICATE 3	Mar 13, 2019		Water	B19-Ma15946	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						14	14	14	14	14	14	14	14	14	14	14	14

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram | **mg/L:** milligrams per litre | **ug/L:** micrograms per litre

ppm: Parts per million | **ppb:** Parts per billion | **%:** Percentage

org/100mL: Organisms per 100 millilitres | **NTU:** Nephelometric Turbidity Units | **MPN/100mL:** Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chlorophyll a	ug/L	< 5			5	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.01			0.01	Pass	
Phosphorus reactive (as P)	mg/L	0.01			0.01	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Suspended Solids Dried at 103–105°C	mg/L	< 1			1	Pass	
Turbidity	NTU	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	81			70-130	Pass	
Acenaphthylene	%	80			70-130	Pass	
Anthracene	%	74			70-130	Pass	
Benz(a)anthracene	%	104			70-130	Pass	
Benzo(a)pyrene	%	119			70-130	Pass	
Benzo(b&j)fluoranthene	%	118			70-130	Pass	
Benzo(g.h.i)perylene	%	121			70-130	Pass	
Benzo(k)fluoranthene	%	121			70-130	Pass	
Chrysene	%	119			70-130	Pass	
Dibenz(a.h)anthracene	%	114			70-130	Pass	
Fluoranthene	%	95			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluorene	%	89			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	71			70-130	Pass	
Naphthalene	%	70			70-130	Pass	
Phenanthrene	%	92			70-130	Pass	
Pyrene	%	93			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	100			70-130	Pass	
Nitrate & Nitrite (as N)	%	100			70-130	Pass	
Nitrate (as N)	%	100			70-130	Pass	
Nitrite (as N)	%	119			70-130	Pass	
Phosphate total (as P)	%	113			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	91			70-130	Pass	
Total Suspended Solids Dried at 103–105°C	%	108			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	89			80-120	Pass	
Cadmium (filtered)	%	88			80-120	Pass	
Chromium (filtered)	%	90			80-120	Pass	
Copper (filtered)	%	89			80-120	Pass	
Lead (filtered)	%	88			80-120	Pass	
Mercury (filtered)	%	94			70-130	Pass	
Nickel (filtered)	%	90			80-120	Pass	
Zinc (filtered)	%	89			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M19-Ma16921	NCP	%	92			70-130	Pass	
Nitrate & Nitrite (as N)	M19-Ma16921	NCP	%	92			70-130	Pass	
Nitrate (as N)	M19-Ma16921	NCP	%	92			70-130	Pass	
Nitrite (as N)	M19-Ma16921	NCP	%	103			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	B19-Ma15933	CP	%	100			70-130	Pass	
Cadmium (filtered)	B19-Ma15933	CP	%	99			70-130	Pass	
Chromium (filtered)	B19-Ma15933	CP	%	83			70-130	Pass	
Copper (filtered)	B19-Ma15933	CP	%	80			70-130	Pass	
Lead (filtered)	B19-Ma15933	CP	%	81			70-130	Pass	
Mercury (filtered)	B19-Ma15933	CP	%	82			70-130	Pass	
Nickel (filtered)	B19-Ma15933	CP	%	83			70-130	Pass	
Zinc (filtered)	B19-Ma15933	CP	%	82			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	B19-Ma15938	CP	%	98			70-130	Pass	
Acenaphthylene	B19-Ma15938	CP	%	94			70-130	Pass	
Anthracene	B19-Ma15938	CP	%	85			70-130	Pass	
Benz(a)anthracene	B19-Ma15938	CP	%	96			70-130	Pass	
Benzo(a)pyrene	B19-Ma15938	CP	%	102			70-130	Pass	
Benzo(b&j)fluoranthene	B19-Ma15938	CP	%	104			70-130	Pass	
Benzo(g.h.i)perylene	B19-Ma15938	CP	%	89			70-130	Pass	
Benzo(k)fluoranthene	B19-Ma15938	CP	%	77			70-130	Pass	
Chrysene	B19-Ma15938	CP	%	78			70-130	Pass	
Dibenz(a.h)anthracene	B19-Ma15938	CP	%	80			70-130	Pass	
Fluoranthene	B19-Ma15938	CP	%	74			70-130	Pass	
Fluorene	B19-Ma15938	CP	%	92			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Indeno(1.2.3-cd)pyrene	B19-Ma15938	CP	%	70			70-130	Pass	
Naphthalene	B19-Ma15938	CP	%	76			70-130	Pass	
Phenanthrene	B19-Ma15938	CP	%	86			70-130	Pass	
Pyrene	B19-Ma15938	CP	%	75			70-130	Pass	
Spike - % Recovery									
				Result 1					
Phosphate total (as P)	B19-Ma15943	CP	%	102			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	B19-Ma15943	CP	%	94			70-130	Pass	
Cadmium (filtered)	B19-Ma15943	CP	%	96			70-130	Pass	
Chromium (filtered)	B19-Ma15943	CP	%	96			70-130	Pass	
Copper (filtered)	B19-Ma15943	CP	%	94			70-130	Pass	
Lead (filtered)	B19-Ma15943	CP	%	86			70-130	Pass	
Mercury (filtered)	B19-Ma15943	CP	%	89			70-130	Pass	
Nickel (filtered)	B19-Ma15943	CP	%	94			70-130	Pass	
Zinc (filtered)	B19-Ma15943	CP	%	93			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M19-Ma16921	NCP	mg/L	1.7	1.7	1.0	30%	Pass	
Chlorophyll a	B19-Ma15933	CP	ug/L	< 5	< 5	<1	30%	Pass	
Conductivity (at 25°C)	B19-Ma15933	CP	uS/cm	920	910	<1	30%	Pass	
Nitrate & Nitrite (as N)	M19-Ma16921	NCP	mg/L	0.45	0.44	2.0	30%	Pass	
Nitrate (as N)	M19-Ma16921	NCP	mg/L	0.45	0.44	2.0	30%	Pass	
Nitrite (as N)	M19-Ma16921	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
pH (at 25°C)	B19-Ma15933	CP	pH Units	8.3	8.3	pass	30%	Pass	
Phosphate total (as P)	B19-Ma15933	CP	mg/L	0.12	0.12	1.0	30%	Pass	
Salinity (determined from EC)*	M19-Ma16795	NCP	mg/L	630	650	3.0	30%	Pass	
Total Kjeldahl Nitrogen (as N)	B19-Ma15933	CP	mg/L	1.1	1.3	19	30%	Pass	
Turbidity	M19-Ma21125	NCP	NTU	1.8	1.8	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Suspended Solids Dried at 103–105°C	B19-Ma15675	NCP	mg/L	40	37	8.0	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	B19-Ma15937	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Dissolved Oxygen	B19-Ma15937	CP	mg/L	9.0	8.8	2.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	B19-Ma15942	CP	mg/L	0.002	0.002	2.0	30%	Pass	
Cadmium (filtered)	B19-Ma15942	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	B19-Ma15942	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	B19-Ma15942	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	B19-Ma15942	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	B19-Ma15942	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	B19-Ma15942	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	B19-Ma15942	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Ryan Gilbert	Analytical Services Manager
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)
Steven Trout	Senior Analyst-Metal (QLD)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.