



Environmental Forensics Report of Analysis

Project 20230170

Report #:

1677

Date Issued:

23-Jun-2023

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Client Project Reference: Menindee Fish Kill - 24 (12 May 202

Customer: Department of Planning & Environment

Attention:

[Redacted]

Report Date: 23 June 2023

Project Received: 17 May 2023

EF Project Contact:

[Redacted]

[Redacted]

[Redacted]

The following samples were analysed:

Sample ID	Client ID	Sample Type	Client Sampled Date/Time	Aliquot	Client Description
233610	B2BW	Liquid	12/05/2023 10:45AM		
233625	B2BW	Liquid	12/05/2023 10:45AM	Field Aliquot	
233626	B2BW	Liquid	12/05/2023 10:45AM	Field Aliquot	
233627	B2BW	Liquid	12/05/2023 10:45AM	Field Aliquot	
233611	B3BW	Liquid	12/05/2023 1:20PM		
233628	B3BW	Liquid	12/05/2023 1:20PM	Field Aliquot	
233629	B3BW	Liquid	12/05/2023 1:20PM	Field Aliquot	
233630	B3BW	Liquid	12/05/2023 1:20PM	Field Aliquot	
233612	E1BW	Liquid	12/05/2023 11:15AM		
233631	E1BW	Liquid	12/05/2023 11:15AM	Field Aliquot	
233632	E1BW	Liquid	12/05/2023 11:15AM	Field Aliquot	
233633	E1BW	Liquid	12/05/2023 11:15AM	Field Aliquot	
233613	E2BW	Liquid	12/05/2023 11:55AM		
233634	E2BW	Liquid	12/05/2023 11:55AM	Field Aliquot	
233635	E2BW	Liquid	12/05/2023 11:55AM	Field Aliquot	
233636	E2BW	Liquid	12/05/2023 11:55AM	Field Aliquot	
233614	E3BW	Liquid	12/05/2023 12:40AM		
233637	E3BW	Liquid	12/05/2023 12:40AM	Field Aliquot	
233638	E3BW	Liquid	12/05/2023 12:40AM	Field Aliquot	
233639	E3BW	Liquid	12/05/2023 12:40AM	Field Aliquot	
233615	E4BW	Liquid	12/05/2023 1:10PM		
233640	E4BW	Liquid	12/05/2023 1:10PM	Field Aliquot	
233641	E4BW	Liquid	12/05/2023 1:10PM	Field Aliquot	
233642	E4BW	Liquid	12/05/2023 1:10PM	Field Aliquot	
233616	E5BW	Liquid	12/05/2023 2:00PM		
233643	E5BW	Liquid	12/05/2023 2:00PM	Field Aliquot	
233644	E5BW	Liquid	12/05/2023 2:00PM	Field Aliquot	
233645	E5BW	Liquid	12/05/2023 2:00PM	Field Aliquot	
233617	B1	Liquid	12/05/2023 10:00AM		

Tests not covered by NATA accreditation 3040 are denoted with *

RN = Result Note

RC = Project Comment

Codes: SN = Sample Note

233646	B1	Liquid	12/05/2023	10:00AM	Field Aliquot
233647	B1	Liquid	12/05/2023	10:00AM	Field Aliquot
233648	B1	Liquid	12/05/2023	10:00AM	Field Aliquot
233649	B1	Liquid	12/05/2023	10:00AM	Field Aliquot
233650	B1	Liquid	12/05/2023	10:00AM	Field Aliquot
233651	B1	Liquid	12/05/2023	10:00AM	Field Aliquot
233652	B1	Liquid	12/05/2023	10:00AM	Field Aliquot
233653	B1	Liquid	12/05/2023	10:00AM	Field Aliquot
233618	B2	Liquid	12/05/2023	10:45AM	
233654	B2	Liquid	12/05/2023	10:45AM	Field Aliquot
233655	B2	Liquid	12/05/2023	10:45AM	Field Aliquot
233656	B2	Liquid	12/05/2023	10:45AM	Field Aliquot
233657	B2	Liquid	12/05/2023	10:45AM	Field Aliquot
233658	B2	Liquid	12/05/2023	10:45AM	Field Aliquot
233659	B2	Liquid	12/05/2023	10:45AM	Field Aliquot
233660	B2	Liquid	12/05/2023	10:45AM	Field Aliquot
233661	B2	Liquid	12/05/2023	10:45AM	Field Aliquot
233619	B3	Liquid	12/05/2023	1:20PM	
233662	B3	Liquid	12/05/2023	1:20PM	Field Aliquot
233663	B3	Liquid	12/05/2023	1:20PM	Field Aliquot
233664	B3	Liquid	12/05/2023	1:20PM	Field Aliquot
233665	B3	Liquid	12/05/2023	1:20PM	Field Aliquot
233666	B3	Liquid	12/05/2023	1:20PM	Field Aliquot
233667	B3	Liquid	12/05/2023	1:20PM	Field Aliquot
233668	B3	Liquid	12/05/2023	1:20PM	Field Aliquot
233669	B3	Liquid	12/05/2023	1:20PM	Field Aliquot
233620	E1	Liquid	12/05/2023	11:15AM	
233670	E1	Liquid	12/05/2023	11:15AM	Field Aliquot
233671	E1	Liquid	12/05/2023	11:15AM	Field Aliquot
233672	E1	Liquid	12/05/2023	11:15AM	Field Aliquot
233673	E1	Liquid	12/05/2023	11:15AM	Field Aliquot

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233674	E1	Liquid	12/05/2023	11:15AM	Field Aliquot
233675	E1	Liquid	12/05/2023	11:15AM	Field Aliquot
233676	E1	Liquid	12/05/2023	11:15AM	Field Aliquot
233677	E1	Liquid	12/05/2023	11:15AM	Field Aliquot
233621	E2	Liquid	12/05/2023	11:55AM	Field Aliquot
233678	E2	Liquid	12/05/2023	11:55AM	Field Aliquot
233679	E2	Liquid	12/05/2023	11:55AM	Field Aliquot
233680	E2	Liquid	12/05/2023	11:55AM	Field Aliquot
233681	E2	Liquid	12/05/2023	11:55AM	Field Aliquot
233682	E2	Liquid	12/05/2023	11:55AM	Field Aliquot
233683	E2	Liquid	12/05/2023	11:55AM	Field Aliquot
233684	E2	Liquid	12/05/2023	11:55AM	Field Aliquot
233685	E2	Liquid	12/05/2023	11:55AM	Field Aliquot
233622	E3	Liquid	12/05/2023	12:40PM	Field Aliquot
233686	E3	Liquid	12/05/2023	12:40PM	Field Aliquot
233687	E3	Liquid	12/05/2023	12:40PM	Field Aliquot
233688	E3	Liquid	12/05/2023	12:40PM	Field Aliquot
233689	E3	Liquid	12/05/2023	12:40PM	Field Aliquot
233690	E3	Liquid	12/05/2023	12:40PM	Field Aliquot
233691	E3	Liquid	12/05/2023	12:40PM	Field Aliquot
233692	E3	Liquid	12/05/2023	12:40PM	Field Aliquot
233693	E3	Liquid	12/05/2023	12:40PM	Field Aliquot
233623	E4	Liquid	12/05/2023	1:10PM	Field Aliquot
233694	E4	Liquid	12/05/2023	1:10PM	Field Aliquot
233695	E4	Liquid	12/05/2023	1:10PM	Field Aliquot
233696	E4	Liquid	12/05/2023	1:10PM	Field Aliquot
233697	E4	Liquid	12/05/2023	1:10PM	Field Aliquot
233698	E4	Liquid	12/05/2023	1:10PM	Field Aliquot
233699	E4	Liquid	12/05/2023	1:10PM	Field Aliquot
233700	E4	Liquid	12/05/2023	1:10PM	Field Aliquot
233701	E4	Liquid	12/05/2023	1:10PM	Field Aliquot

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233624	E5	Liquid	12/05/2023	2:00PM	Field Aliquot
233702	E5	Liquid	12/05/2023	2:00PM	Field Aliquot
233703	E5	Liquid	12/05/2023	2:00PM	Field Aliquot
233704	E5	Liquid	12/05/2023	2:00PM	Field Aliquot
233705	E5	Liquid	12/05/2023	2:00PM	Field Aliquot
233706	E5	Liquid	12/05/2023	2:00PM	Field Aliquot
233707	E5	Liquid	12/05/2023	2:00PM	Field Aliquot
233708	E5	Liquid	12/05/2023	2:00PM	Field Aliquot
233709	E5	Liquid	12/05/2023	2:00PM	Field Aliquot

Report Notes

- This document has been authorised by the person whose name appears in this report.
- This report shall not be reproduced except in full. Samples analysed as received from the client.
- Results reported as 'less than' (<) indicates a result below the practical quantitation limit for the sample matrix and method used.

Project Comments

- Samples 233610 to 233616; 233650, 233658, 233666, 233674, 233682, 233690, 233698 and 233706 were analysed outside the method holding time for Total suspended solids .
- Samples 233649, 233657, 233665, 233673, 233681, 233689, 233697 and 233705 were sent to Sydney Water Laboratory Services (NATA Accreditation no: 63 and 610) for the analysis of Blue-Green Algal ID and Enumeration. Please see detailed results in the attached Phytoplankton Analysis Report no. 285625 dated 03 June 2023.
- Samples 233647, 233655, 233663, 233671, 233679, 233687, 233695 and 233703 were sent to Sydney Water Laboratory Services (NATA Accreditation no: 63 and 610) for the analysis of Algal Toxins. Please see the attached Analytical Report No: 285625 dated 03 June 2023, which gives Algal Toxins analysis results and the Blue-Green Algal ID and Enumeration summary results.
- Samples 233625 to 233645; 233651 - 233653; 233659 - 233661; 233667 - 233669; 233675 - 233677; 233683 - 233685; 233691 - 233693; 233699 - 233701 and 233707 - 233709 were sent to ALS Environmental Laboratory (NATA Accreditation no. 825) for the analysis of Nutrients: EK055G - Ammonia as N by Discrete Analyser, EK059G - Nitrite plus Nitrate as N (NOx) by Discrete Analyser, EK061G - Total Kjeldahl Nitrogen By Discrete Analyser, EK062G - Total Nitrogen as N (TKN + NOx) by Discrete Analyser, EK067G - Total Phosphorus as P by Discrete Analyser, EK071G - Reactive Phosphorus as P by discrete analyser. This report summarises the Nutrients data from the attached external report ES2316869 Amendment 1, dated 08-June-2023.
- Samples 233617 to 233624 were also sent to ALS Environmental Laboratory (NATA Accreditation no. 825) for the analysis of Pesticides: EP202A - Phenoxycetic Acid Herbicides by LCMS, and EP204 - Glyphosate and AMPA by LCMS. This report also summarises Pesticides data from the attached external report ES2316869 Amendment 1, dated 08-June-2023.

Analysis Results - External Methods*

Area - EXTERNAL

Analyte	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID
Algal Enumeration	233647	22/05/2023	B1	233649	1/06/2023	B1	233655	22/05/2023	B2	233657	1/06/2023	B2	233663	22/05/2023	B3
Algal Identification				RC			RC			RC			RC		
Algal Toxins				RC			RC			RC			RC		

Analysis Results - External Methods*

Area - EXTERNAL

Analyte	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID
Algal Enumeration	233695	22/05/2023	E4	233697	1/06/2023	E4	233703	22/05/2023	E5
Algal Identification				RC			RC		
Algal Toxins				RC			RC		

Analysis Results - External Methods*

Area - EXTERNAL

Analyte	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID
^h Filtered Total Nitrogen as N																		
^h Total Nitrogen as N																		
Ammonia as N																		
Dissolved TKN as N																		
Filtered Total Phosphorus as P																		
Nitrite+Nitrate as N																		
Reactive Phosphorus as P																		
Total Kjeldahl Nitrogen as N																		
Total Phosphorus as P																		

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Analysis Results - External Methods*
Area - EXTERNAL

Analyte	233637 19/05/2023 E3BW - Filtered 1	233638 19/05/2023 E3BW - Filtered 2	233639 19/05/2023 E3BW - Unfiltered	233640 19/05/2023 E4BW - Filtered 1	233641 19/05/2023 E4BW - Filtered 2	233642 19/05/2023 E4BW - Unfiltered	233643 19/05/2023 E5BW - Filtered 1	233644 19/05/2023 E5BW - Filtered 2	233645 19/05/2023 E5BW - Unfiltered	233651 19/05/2023 B1 - Filtered 1	233652 19/05/2023 B1 - Filtered 2	233653 19/05/2023 B1 - Unfiltered
^ Filtered Total Nitrogen as N		0.7			1.0	1.2		0.7			0.6	
^ Total Nitrogen as N			1.1						0.9			1.2
Ammonia as N	0.06			0.10			0.03			<0.01		
Dissolved TKN as N		0.7			0.9			0.7			0.6	
Filtered Total Phosphorus as P		0.06			0.08			0.14			0.05	
Nitrite+Nitrate as N	0.04	0.04	0.04	0.05	0.05	0.05	0.03	0.03	0.04	<0.01	0.02	0.01
Reactive Phosphorus as P	0.04			0.04			0.13			<0.01		
Total Kjeldahl Nitrogen as N			1.1			1.2			0.9			1.2
Total Phosphorus as P			0.15			0.17			0.23			0.09

Analysis Results - External Methods*
Area - EXTERNAL

Analyte	233659 19/05/2023 B2 - Filtered 1	233660 19/05/2023 B2 - Filtered 2	233661 19/05/2023 B2 - Unfiltered	233667 19/05/2023 B3 - Filtered 1	233668 19/05/2023 B3 - Filtered 2	233669 19/05/2023 B3 - Unfiltered	233675 19/05/2023 E1 - Filtered 1	233676 19/05/2023 E1 - Filtered 2	233677 19/05/2023 E1 - Unfiltered	233683 19/05/2023 E2 - Filtered 1	233684 19/05/2023 E2 - Filtered 2	233685 19/05/2023 E2 - Unfiltered
^ Filtered Total Nitrogen as N		0.8			0.5			0.7			0.7	
^ Total Nitrogen as N			0.8			0.8			1.1			1.0
Ammonia as N	0.04			0.03			<0.01			0.02		
Dissolved TKN as N		0.8			0.5			0.7			0.7	
Filtered Total Phosphorus as P		0.11			0.29			0.09			0.09	
Nitrite+Nitrate as N	0.02	<0.01	0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.02	0.02	0.02
Reactive Phosphorus as P	0.08			0.22			0.07			0.06		
Total Kjeldahl Nitrogen as N			0.8			0.8			1.1			1.0
Total Phosphorus as P			0.10			0.30			0.18			0.15

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Analysis Results - External Methods*
Area - EXTERNAL

Analyte	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID
^ Filtered Total Nitrogen as N		19/05/2023	E3 - Filtered 1		19/05/2023	E3 - Filtered 2		19/05/2023	E3 - Unfiltered		19/05/2023	E4 - Filtered 1
	mg/L			0.7			1.0			1.2		
^ Total Nitrogen as N	mg/L											
Ammonia as N	mg/L		0.04									
Dissolved TKN as N	mg/L			0.7			0.9					
Filtered Total Phosphorus as P	mg/L			0.06			0.06					
Nitrite+Nitrate as N	mg/L		0.04	0.04			0.05					
Reactive Phosphorus as P	mg/L		0.04				0.04					
Total Kjeldahl Nitrogen as N	mg/L									1.2		
Total Nitrogen as N	mg/L											
Total Phosphorus as P	mg/L									0.20		

Analysis Results - External Methods*
Area - EXTERNAL

Analyte	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID
2,4,5-T		19/05/2023	B1		19/05/2023	B2		19/05/2023	B3		19/05/2023	E1
	µg/L			<10			<10			<10		
2,4,6-T	µg/L			<10			<10			<10		
2,4-D	µg/L			<10			<10			<10		
2,4-DB	µg/L			<10			<10			<10		
2,4-DP	µg/L			<10			<10			<10		
2,6-D	µg/L			<10			<10			<10		
4-Chlorophenoxy acetic acid	µg/L			<10			<10			<10		
AMPA	µg/L			<10			<10			<10		
Clopyralid	µg/L			<10			<10			<10		
Dicamba	µg/L			<10			<10			<10		
Fluroxypyr	µg/L			<10			<10			<10		
Glyphosate	µg/L			<10			<10			<10		
MCPA	µg/L			<10			<10			<10		
MCPB	µg/L			<10			<10			<10		
Mecoprop	µg/L			<10			<10			<10		
Picloram	µg/L			<10			<10			<10		
Silvex (2,4,5-TP/Fenoprop)	µg/L			<10			<10			<10		
Tridopyr	µg/L			<10			<10			<10		

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Analysis Results - ICVAASW
Area - INORGANIC

Analyte	µg/L	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID
Mercury	<0.05	233648	19/05/2023	B1	233680	19/05/2023	E2
	<0.05				233672	19/05/2023	E1
	<0.05				233664	19/05/2023	B3
	<0.05				233656	19/05/2023	B2
	<0.05				233688	19/05/2023	E3
	<0.05				233696	19/05/2023	E4
	<0.05				233704	19/05/2023	E5

Analysis Results - ICPAES
Area - INORGANIC

Analyte	mg/L	Sample ID	Start Date	Client ID	Sample ID	Start Date	Client ID
Aluminium (Lab. filtered)	<0.04	233648	18/05/2023	B1	233680	18/05/2023	E2
Barium (Lab. filtered)	0.14				233672	18/05/2023	E1
Boron (Lab. filtered)	<0.1				233664	18/05/2023	B3
Calcium (Lab. filtered)	39				233656	18/05/2023	B2
Iron (Lab. filtered)	<0.1				233688	18/05/2023	E3
Magnesium (Lab. filtered)	21				233696	18/05/2023	E4
Potassium (Lab. filtered)	11				233704	18/05/2023	E5
Sodium (Lab. filtered)	58						
Strontium (Lab. filtered)	0.46						
Sulfur (Lab. filtered)	5.1						
Titanium (Lab. filtered)	<0.01						
	<0.04						
	0.11						
	<0.1						
	34						
	<0.1						
	15						
	12						
	11						
	42						
	0.38						
	3.0						
	<0.01						
	<0.04						
	0.09						
	<0.1						
	29						
	<0.1						
	12						
	11						
	36						
	0.31						
	3.4						
	<0.01						
	<0.04						
	0.12						
	<0.1						
	35						
	<0.1						
	16						
	12						
	47						
	0.40						
	3.4						
	<0.01						
	<0.04						
	0.11						
	<0.1						
	35						
	<0.1						
	16						
	12						
	47						
	0.40						
	3.4						
	<0.01						
	<0.04						
	0.12						
	<0.1						
	35						
	<0.1						
	16						
	12						
	47						
	0.39						
	3.3						
	<0.01						
	<0.04						
	0.11						
	<0.1						
	35						
	<0.1						
	16						
	12						
	47						
	0.40						
	3.4						
	<0.01						
	<0.04						
	0.12						
	<0.1						
	35						
	<0.1						
	16						
	12						
	47						
	0.40						
	3.3						
	<0.01						

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Analysis Results - ICPMS
Area - INORGANIC

Analyte	Sample ID Start Date Client ID	233648 18/05/2023 B1	233656 18/05/2023 B2	233664 18/05/2023 B3	233672 18/05/2023 E1	233680 18/05/2023 E2	233688 18/05/2023 E3	233696 18/05/2023 E4	233704 18/05/2023 E5
Antimony (Lab. filtered)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic (Lab. filtered)	mg/L	0.002	0.004	0.006	0.004	0.003	0.003	0.003	0.004
Beryllium (Lab. filtered)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium (Lab. filtered)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (Lab. filtered)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt (Lab. filtered)	mg/L	0.0002	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002
Copper (Lab. filtered)	mg/L	0.0011	0.0023	0.0029	0.0024	0.0022	0.0018	0.0017	0.0022
Lead (Lab. filtered)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Lithium (Lab. filtered)	mg/L	0.0024	0.0021	0.0018	0.0021	0.0021	0.0022	0.0022	0.0020
Manganese (Lab. filtered)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum (Lab. filtered)	mg/L	0.0015	0.0015	0.0011	0.0015	0.0015	0.0016	0.0016	0.0013
Nickel (Lab. filtered)	mg/L	0.0027	0.0033	0.0022	0.0033	0.0033	0.0032	0.0032	0.0027
Selenium (Lab. filtered)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver (Lab. filtered)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Thallium (Lab. filtered)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Tin (Lab. filtered)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Vanadium (Lab. filtered)	mg/L	0.0032	0.0096	0.018	0.0097	0.0089	0.0077	0.0072	0.013
Zinc (Lab. filtered)	mg/L	<0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001

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Analysis Results - ICPAES
Area - INORGANIC

Analyte	Sample ID	Start Date	Client ID	233648	233656	233664	233672	233680	233688	233696	233704				
		19/05/2023	B1	19/05/2023	B2	19/05/2023	E1	19/05/2023	E2	19/05/2023	E3	19/05/2023	E4	19/05/2023	E5
Aluminium (acid extractable)		0.57		4.6		6.2	5.3	3.8	2.9	4.1		6.1			
Barium (acid extractable)		0.15		0.14		0.12	0.14	0.14	0.14	0.15		0.14			
Boron (acid extractable)		<0.1		<0.1		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1			
Calcium (acid extractable)		42		36		31	36	37	38	38		35			
Iron (acid extractable)		0.5		3.3		4.4	3.9	2.8	2.2	3.0		4.3			
Magnesium (acid extractable)		22		16		14	16	17	18	18		16			
Manganese (acid extractable)		0.11		0.11		0.05	0.11	0.13	0.12	0.14		0.10			
Potassium (acid extractable)		12		14		13	14	14	14	14		14			
Sodium (acid extractable)		62		44		38	44	47	49	49		44			
Strontium (acid extractable)		0.50		0.41		0.33	0.41	0.42	0.44	0.43		0.39			
Sulfur (acid extractable)		4.9		3.1		3.4	3.1	3.4	3.6	3.6		3.5			
Titanium (acid extractable)		0.01		0.07		0.13	0.09	0.05	0.05	0.07		0.11			

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Analysis Results - ICPMS
Area - INORGANIC

Analyte	Sample ID Start Date Client ID	233648 19/05/2023 B1	233656 19/05/2023 B2	233664 19/05/2023 B3	233672 19/05/2023 E1	233680 19/05/2023 E2	233688 19/05/2023 E3	233696 19/05/2023 E4	233704 19/05/2023 E5
Antimony (acid extractable)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic (acid extractable)	mg/L	0.002	0.004	0.006	0.004	0.004	0.003	0.003	0.005
Beryllium (acid extractable)	mg/L	<0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001
Cadmium (acid extractable)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (acid extractable)	mg/L	<0.001	0.004	0.005	0.005	0.003	0.003	0.004	0.005
Cobalt (acid extractable)	mg/L	0.0009	0.0016	0.0012	0.0018	0.0016	0.0014	0.0016	0.0017
Copper (acid extractable)	mg/L	0.0019	0.0047	0.0056	0.0048	0.0042	0.0031	0.0038	0.0047
Lead (acid extractable)	mg/L	0.0005	0.0009	0.0010	0.0010	0.0009	0.0008	0.0012	0.0012
Lithium (acid extractable)	mg/L	0.0021	0.0029	0.0029	0.0029	0.0025	0.0024	0.0029	0.0031
Molybdenum (acid extractable)	mg/L	0.0015	0.0015	0.0011	0.0015	0.0015	0.0016	0.0016	0.0013
Nickel (acid extractable)	mg/L	0.0036	0.0060	0.0054	0.0064	0.0057	0.0049	0.0058	0.0061
Selenium (acid extractable)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver (acid extractable)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Thallium (acid extractable)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Tin (acid extractable)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Vanadium (acid extractable)	mg/L	0.0061	0.016	0.024	0.018	0.015	0.013	0.015	0.021
Zinc (acid extractable)	mg/L	0.003	0.007	0.008	0.008	0.006	0.004	0.006	0.008

Analysis Results - IGR TSS
Area - INORGANIC

Analyte	Sample ID Start Date Client ID	233610 25/05/2023 B2BW	233611 25/05/2023 B3BW	233612 25/05/2023 E1BW	233613 25/05/2023 E2BW	233614 25/05/2023 E3BW	233615 25/05/2023 E4BW	233616 25/05/2023 E5BW	233650 24/05/2023 B1	233658 24/05/2023 B2	233666 24/05/2023 B3	233674 24/05/2023 E1	233682 24/05/2023 E2
Fixed Suspended Solids	mg/L	65	22	100	64	55	96	61	11	52	20	57	53
Total Suspended Solids	mg/L	80	29	120	75	66	110	72	19	61	24	66	63
Volatile Suspended Solids	mg/L	14	<8	15	12	11	15	11	8	9	4	9	10

Analysis Results - IGR TSS
Area - INORGANIC

Analyte	Sample ID Start Date Client ID	233690 24/05/2023 E3	233698 24/05/2023 E4	233706 24/05/2023 E5
Fixed Suspended Solids	mg/L	45	50	31
Total Suspended Solids	mg/L	58	62	38
Volatile Suspended Solids	mg/L	13	12	7

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Analysis Results - QQPEST
Area - ORGANIC

Analyte	Sample ID Start Date Client ID	233646 19/05/2023 B1	233654 19/05/2023 B2	233662 19/05/2023 B3	233670 19/05/2023 E1	233678 19/05/2023 E2	233686 19/05/2023 E3	233694 19/05/2023 E4	233702 19/05/2023 E5
Fenvalerate	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Gamma-Chlordane	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
gamma-HCH	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Heptachlor Epoxide	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Hexachlorobenzene	µg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Hexazinone	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
L-cyhalothrin	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Malathion	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methidathion	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl Azinphos	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Methyl Chlorpyrifos	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Methyl Parathion	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Mevinphos	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Oxyfluorfen	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phorate	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Profenofos	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Prometon	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Promethyn	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Propagite	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Propazine	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Propelamphos	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Simazine	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Simethyn	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulprofos	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Tebuconazole	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tebuthiuron	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Terbutylazine	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Terbutyn	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachlorvinphos	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trans-permethrin	µg/L	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7

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Area - ORGANIC

Sample ID	Client ID	Method	Start Date	Result
233646	B1	OLSCAN* - LC/MS Scan	19/05/2023	LC/MS scan for approximately 600 pesticides was negative. A list of analysed compounds can be provided on request. Note the list doesn't include glyphosate and quaternary ammonium herbicides (e.g. Paraquat and Diquat).
233654	B2	OLSCAN* - LC/MS Scan	19/05/2023	LC/MS scan for approximately 600 pesticides was negative. A list of analysed compounds can be provided on request. Note the list doesn't include glyphosate and quaternary ammonium herbicides (e.g. Paraquat and Diquat).
233662	B3	OLSCAN* - LC/MS Scan	19/05/2023	LC/MS scan for approximately 600 pesticides was negative. A list of analysed compounds can be provided on request. Note the list doesn't include glyphosate and quaternary ammonium herbicides (e.g. Paraquat and Diquat).
233670	E1	OLSCAN* - LC/MS Scan	19/05/2023	LC/MS scan for approximately 600 pesticides was negative. A list of analysed compounds can be provided on request. Note the list doesn't include glyphosate and quaternary ammonium herbicides (e.g. Paraquat and Diquat).
233678	E2	OLSCAN* - LC/MS Scan	19/05/2023	LC/MS scan for approximately 600 pesticides was negative. A list of analysed compounds can be provided on request. Note the list doesn't include glyphosate and quaternary ammonium herbicides (e.g. Paraquat and Diquat).
233686	E3	OLSCAN* - LC/MS Scan	19/05/2023	LC/MS scan for approximately 600 pesticides was negative. A list of analysed compounds can be provided on request. Note the list doesn't include glyphosate and quaternary ammonium herbicides (e.g. Paraquat and Diquat).
233694	E4	OLSCAN* - LC/MS Scan	19/05/2023	LC/MS scan for approximately 600 pesticides was negative. A list of analysed compounds can be provided on request. Note the list doesn't include glyphosate and quaternary ammonium herbicides (e.g. Paraquat and Diquat).
233702	E5	OLSCAN* - LC/MS Scan	19/05/2023	LC/MS scan for approximately 600 pesticides was negative. A list of analysed compounds can be provided on request. Note the list doesn't include glyphosate and quaternary ammonium herbicides (e.g. Paraquat and Diquat).

The sample(s) referred to in this report were analysed by the following method(s):

Method code	Method description	Area
External Methods*	External Methods - Analysis completed externally	EXTERNAL
External Methods*	External Methods - Analysis completed externally	EXTERNAL
External Methods*	External Methods - Analysis completed externally	EXTERNAL
ICVAASW	Mercury by Cold Vapour Atomic Absorption Spectroscopy	INORGANIC
ICPAES	Dissolved element analysis by Inductively Coupled Plasma-Atomic Emission Spectrometry (ICPAES)	INORGANIC
ICPMS	Dissolved Metals by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)	INORGANIC
ICPAES	Acid extractable element analysis by Inductively Coupled Plasma-Atomic Emission Spectrometry (ICPAES)	INORGANIC
ICPMS	Acid extractable Metals by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)	INORGANIC
IGRTSS	Total Suspended Solids (TSS) (includes Volatile and Fixed Suspended Solids)	INORGANIC
QQQPEST	Determination of Multiresidue Pesticides by GCMSMS	ORGANIC
OLSCAN*	Qualitative LC/MS scan	ORGANIC

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The results in this report were authorised by:

Name	Title	Area
[REDACTED]	Senior Scientist	EXTERNAL
[REDACTED]	Scientist	INORGANIC
[REDACTED]	Scientist	ORGANIC

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