



Environmental Forensics Report of Analysis
Project 20230212

Report #: 1737
Date Issued: 24-Jul-2023
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Client Project Reference: Menindee Fish Kill - 36 (IMT 13 Jun

Customer: Department of Planning & Environment

Attention: [REDACTED]

Report Date: 24 July 2023

Project Received: 16 June 2023

EF Project Contact: [REDACTED]
[REDACTED]
[REDACTED]



The following samples were analysed:

Sample ID	Client ID	Sample Type	Client Sampled Date/Time
235135	B1-1	Liquid	13/06/2023 9:10AM
235136	B2-1	Liquid	13/06/2023 9:58AM
235137	E1-1	Liquid	13/06/2023 10:22AM
235138	E2-1	Liquid	13/06/2023 10:56AM
235139	E3-1	Liquid	13/06/2023 11:40AM
235140	E4-1	Liquid	13/06/2023 12:13PM
235141	B3-1	Liquid	13/06/2023 12:27PM
235142	E5-1	Liquid	13/06/2023 12:54PM
235143	B1-2	Liquid	13/06/2023 9:11AM
235144	B2-2	Liquid	13/06/2023 10:00AM
235145	E1-2	Liquid	13/06/2023 10:23AM
235146	E2-2	Liquid	13/06/2023 10:57AM
235147	E3-2	Liquid	13/06/2023 11:41AM
235148	E4-2	Liquid	13/06/2023 12:14PM
235149	B3-2	Liquid	13/06/2023 12:27PM
235150	E5-2	Liquid	13/06/2023 12:55PM
235151	B1-3	Liquid	13/06/2023 9:13AM
235152	B2-3	Liquid	13/06/2023 10:00AM
235153	E1-3	Liquid	13/06/2023 10:23AM
235154	E2-3	Liquid	13/06/2023 10:57AM
235155	E3-3	Liquid	13/06/2023 11:41AM
235156	E4-3	Liquid	13/06/2023 12:14PM
235157	B3-3	Liquid	13/06/2023 12:28PM
235158	E5-3	Liquid	13/06/2023 12:56PM
235159	B1-4	Liquid	13/06/2023 9:14AM
235160	B2-4	Liquid	13/06/2023 10:00AM
235161	E1-4	Liquid	13/06/2023 10:23AM
235162	E2-4	Liquid	13/06/2023 10:58AM
235163	E3-4	Liquid	13/06/2023 11:42AM

Tests not covered by NATA accreditation 3040 are denoted with *

Codes: SN = Sample Note

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235164	E4-4	Liquid	13/06/2023	12:15PM
235165	B3-4	Liquid	13/06/2023	12:28PM
235166	E5-4	Liquid	13/06/2023	12:56PM
235167	B1-5	Liquid	13/06/2023	9:15AM
235168	B2-5	Liquid	13/06/2023	10:01AM
235169	E1-5	Liquid	13/06/2023	10:24AM
235170	E2-5	Liquid	13/06/2023	10:58AM
235171	E3-5	Liquid	13/06/2023	11:42AM
235172	E4-5	Liquid	13/06/2023	12:15PM
235173	B3-5	Liquid	13/06/2023	12:29PM
235174	E5-5	Liquid	13/06/2023	12:57PM
235175	B1-6	Liquid	13/06/2023	9:16AM
235176	B2-6	Liquid	13/06/2023	10:01AM
235177	E1-6	Liquid	13/06/2023	10:24AM
235178	E2-6	Liquid	13/06/2023	10:58AM
235179	E3-6	Liquid	13/06/2023	11:42AM
235180	E4-6	Liquid	13/06/2023	12:16PM
235181	B3-6	Liquid	13/06/2023	12:29PM
235182	E5-6	Liquid	13/06/2023	12:57PM
235246	B1-NUTS-Unfiltered	Liquid	13/06/2023	9:15AM
235247	B1-NUTS-Filtered 1	Liquid	13/06/2023	9:15AM
235248	B1-NUTS-Filtered 2	Liquid	13/06/2023	9:15AM
235249	B2-NUTS-Unfiltered	Liquid	13/06/2023	10:00AM
235250	B2-NUTS-Filtered 1	Liquid	13/06/2023	10:00AM
235251	B2-NUTS-Filtered 2	Liquid	13/06/2023	10:00AM
235252	B3-NUTS-Unfiltered	Liquid	13/06/2023	12:30PM
235253	B3-NUTS-Filtered 1	Liquid	13/06/2023	12:30PM
235254	B3-NUTS-Filtered 2	Liquid	13/06/2023	12:30PM
235255	E1-NUTS-Unfiltered	Liquid	13/06/2023	10:25AM
235256	E1-NUTS-Filtered 1	Liquid	13/06/2023	10:25AM
235257	E1-NUTS-Filtered 2	Liquid	13/06/2023	10:25AM

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235258	E1BW-NUTS-Unfiltered	Liquid	13/06/2023	10:30AM
235259	E1BW-NUTS-Filtered 1	Liquid	13/06/2023	10:30AM
235260	E1BW-NUTS-Filtered 2	Liquid	13/06/2023	10:30AM
235261	E2-NUTS-Unfiltered	Liquid	13/06/2023	11:00AM
235262	E2-NUTS-Filtered 1	Liquid	13/06/2023	11:00AM
235263	E2-NUTS-Filtered 2	Liquid	13/06/2023	11:00AM
235264	E2BW-NUTS-Unfiltered	Liquid	13/06/2023	11:05AM
235265	E2BW-NUTS-Filtered 1	Liquid	13/06/2023	11:05AM
235266	E2BW-NUTS-Filtered 2	Liquid	13/06/2023	11:05AM
235267	E3-NUTS-Unfiltered	Liquid	13/06/2023	11:45AM
235268	E3-NUTS-Filtered 1	Liquid	13/06/2023	11:45AM
235269	E3-NUTS-Filtered 2	Liquid	13/06/2023	11:45AM
235270	E3BW-NUTS-Unfiltered	Liquid	13/06/2023	11:50AM
235271	E3BW-NUTS-Filtered 1	Liquid	13/06/2023	11:50AM
235272	E3BW-NUTS-Filtered 2	Liquid	13/06/2023	11:50AM
235273	E4-NUTS-Unfiltered	Liquid	13/06/2023	12:15PM
235274	E4-NUTS-Filtered 1	Liquid	13/06/2023	12:15PM
235275	E4-NUTS-Filtered 2	Liquid	13/06/2023	12:15PM
235276	E4BW-NUTS-Unfiltered	Liquid	13/06/2023	12:20PM
235277	E4BW-NUTS-Filtered 1	Liquid	13/06/2023	12:20PM
235278	E4BW-NUTS-Filtered 2	Liquid	13/06/2023	12:20PM
235279	E5-NUTS-Unfiltered	Liquid	13/06/2023	1:00PM
235280	E5-NUTS-Filtered 1	Liquid	13/06/2023	1:00PM
235281	E5-NUTS-Filtered 2	Liquid	13/06/2023	1:00PM
235282	E5BW-NUTS-Unfiltered	Liquid	13/06/2023	1:05PM
235283	E5BW-NUTS-Filtered 1	Liquid	13/06/2023	1:05PM
235284	E5BW-NUTS-Filtered 2	Liquid	13/06/2023	1:05PM

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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 235246 to 235284 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 data from the attached external report: ES2320461, dated 27-Jun-2023.

· Samples 235135, 235136, 235137, 235138, 235139, 235140, 235141 and 235142 were analysed outside the method holding time for Total Suspended Solids

· Samples 235159 to 235166 were sent to ALS Environmental Laboratory (NATA Accreditation no: 825) for the analysis of EP202A: Phenoxyacetic Acid Herbicides by LCMS, EP204: Glyphosate and AMPA. This report summarises data from the attached external report: ES2320246, dated 26-Jun-2023.

· Sample 235175 to 235182, 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: 287133, dated 30/06/2023.

Samples 235151 to 235158 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: 287133, dated 30/06/2023, which gives Algal Toxins analysis results and the Blue-Green Algal ID and Enumeration summary results.



Analysis Results - External Methods*		Sample ID	235151	235152	235153	235154	235155	235156	235157	235158	235175	235176	235177	235178
Area - EXTERNAL		Start Date	20/06/2023	20/06/2023	20/06/2023	20/06/2023	20/06/2023	20/06/2023	20/06/2023	20/06/2023	29/06/2023	29/06/2023	30/06/2023	29/06/2023
		Client ID	B1-3	B2-3	E1-3	E2-3	E3-3	E4-3	B3-3	E5-3	B1-6	B2-6	E1-6	E2-6
Analyte														
Algal Enumeration	-										RC	RC	RC	RC
Algal Identification	-										RC	RC	RC	RC
Algal Toxins	-		RC	RC	RC	RC	RC	RC	RC	RC				

Analysis Results - External Methods*		Sample ID	235179	235180	235181	235182
Area - EXTERNAL		Start Date	30/06/2023	28/06/2023	28/06/2023	28/06/2023
		Client ID	E3-6	E4-6	B3-6	E5-6
Analyte						
Algal Enumeration	-		RC	RC	RC	RC
Algal Identification	-		RC	RC	RC	RC

Analysis Results - External Methods*		Sample ID	235159	235160	235161	235162	235163	235164	235165	235166
Area - EXTERNAL		Start Date	20/06/2023	20/06/2023	20/06/2023	20/06/2023	20/06/2023	20/06/2023	20/06/2023	20/06/2023
		Client ID	B1-4	B2-4	E1-4	E2-4	E3-4	E4-4	B3-4	E5-4
Analyte										
2.4.5-T	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
2.4.6-T	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
2.4-D	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
2.4-DB	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
2.4-DP	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
2.6-D	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
4-Chlorophenoxy acetic acid	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
AMPA	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
Clopyralid	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
Dicamba	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
Fluroxypyr	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
Glyphosate	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
MCPA	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
MCPB	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
Mecoprop	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
Princloram	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
Silvex (2.4.5-TP/Fenoprop)	µg/L		<10	<10	<10	<10	<10	<10	<10	<10
Triclopyr	µg/L		<10	<10	<10	<10	<10	<10	<10	<10

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Analysis Results - External Methods*

Area - EXTERNAL

		Sample ID	235246	235247	235248	235249	235250	235251	235252	235253	235254	235255	235256	235257
		Start Date	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023
		Client ID	B1-NUTS-Unfiltered	B1-NUTS-Filtered 1	B1-NUTS-Filtered 2	B2-NUTS-Unfiltered	B2-NUTS-Filtered 1	B2-NUTS-Filtered 2	B3-NUTS-Unfiltered	B3-NUTS-Filtered 1	B3-NUTS-Filtered 2	E1-NUTS-Unfiltered	E1-NUTS-Filtered 1	E1-NUTS-Filtered 2
Analyte														
Ammonia as N	mg/L			<0.01			0.02			<0.01			<0.01	
Nitrite+Nitrate as N	mg/L		0.04	0.02	<0.01	0.01	0.02	0.01	0.02	0.02	0.01	0.01	0.03	<0.01
Reactive Phosphorus as P	mg/L			<0.01			0.01			0.12			0.02	
Total Kjeldahl Nitrogen as N	mg/L		1.4		0.8	1.3		0.9	1.0		0.6	1.3		0.8
Total Nitrogen as N	mg/L		1.4		0.8	1.3		0.9	1.0		0.6	1.3		0.8
Total Phosphorus as P	mg/L		0.15		0.04	0.16		0.07	0.33		0.26	0.17		0.07

Analysis Results - External Methods*

Area - EXTERNAL

		Sample ID	235258	235259	235260	235261	235262	235263	235264	235265	235266	235267	235268	235269
		Start Date	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023
		Client ID	E1BW-NUTS-Unfiltered	E1BW-NUTS-Filtered 1	E1BW-NUTS-Filtered 2	E2-NUTS-Unfiltered	E2-NUTS-Filtered 1	E2-NUTS-Filtered 2	E2BW-NUTS-Unfiltered	E2BW-NUTS-Filtered 1	E2BW-NUTS-Filtered 2	E3-NUTS-Unfiltered	E3-NUTS-Filtered 1	E3-NUTS-Filtered 2
Analyte														
Ammonia as N	mg/L			<0.01			0.07			0.09			0.14	
Nitrite+Nitrate as N	mg/L		0.01	0.03	<0.01	0.04	0.07	0.04	0.05	0.08	0.04	0.11	0.14	0.09
Reactive Phosphorus as P	mg/L			0.02			0.04			0.03			0.02	
Total Kjeldahl Nitrogen as N	mg/L		1.3		0.8	1.4		0.9	1.4		0.9	1.4		0.9
Total Nitrogen as N	mg/L		1.3		0.8	1.4		0.9	1.4		0.9	1.5		1.0
Total Phosphorus as P	mg/L		0.17		0.08	0.21		0.13	0.21		0.14	0.23		0.13

Analysis Results - External Methods*

Area - EXTERNAL

		Sample ID	235270	235271	235272	235273	235274	235275	235276	235277	235278	235279	235280	235281
		Start Date	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023	21/06/2023
		Client ID	E3BW-NUTS-Unfiltered	E3BW-NUTS-Filtered 1	E3BW-NUTS-Filtered 2	E4-NUTS-Unfiltered	E4-NUTS-Filtered 1	E4-NUTS-Filtered 2	E4BW-NUTS-Unfiltered	E4BW-NUTS-Filtered 1	E4BW-NUTS-Filtered 2	E5-NUTS-Unfiltered	E5-NUTS-Filtered 1	E5-NUTS-Filtered 2
Analyte														
Ammonia as N	mg/L			0.20			0.13			0.16			0.10	
Nitrite+Nitrate as N	mg/L		0.09	0.11	0.09	0.10	0.16	0.10	0.10	0.15	0.07	0.08	0.12	0.08
Reactive Phosphorus as P	mg/L			0.04			0.02			0.04			0.06	
Total Kjeldahl Nitrogen as N	mg/L		1.3		0.9	1.3		0.9	1.4		1.2	1.3		0.9
Total Nitrogen as N	mg/L		1.4		1.0	1.4		1.0	1.5		1.3	1.4		1.0
Total Phosphorus as P	mg/L		0.24		0.13	0.24		0.14	0.24		0.11	0.25		0.16

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Analysis Results - External Methods*

Area - EXTERNAL

<i>Sample ID</i>	<i>Start Date</i>	<i>Client ID</i>	235282	235283	235284
	21/06/2023		E5BW-NUTS	E5BW-NUTS	E5BW-NUTS
			-Unfiltered	-Filtered 1	-Filtered 2

Analyte

Analyte	Unit	235282	235283	235284
Ammonia as N	mg/L		0.11	
Nitrite+Nitrate as N	mg/L	0.07	0.11	0.09
Reactive Phosphorus as P	mg/L		0.07	
Total Kjeldahl Nitrogen as N	mg/L	1.0		0.9
Total Nitrogen as N	mg/L	1.1		1.0
Total Phosphorus as P	mg/L	0.20		0.17

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Analysis Results - ICVAASW

Area - INORGANIC

Analyte

		235167 19/06/2023 B1-5	235168 19/06/2023 B2-5	235169 19/06/2023 E1-5	235170 19/06/2023 E2-5	235171 19/06/2023 E3-5	235172 19/06/2023 E4-5	235173 19/06/2023 B3-5	235174 19/06/2023 E5-5
Mercury	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Analysis Results - ICPAES

Area - INORGANIC

Analyte

		235167 19/06/2023 B1-5	235168 19/06/2023 B2-5	235169 19/06/2023 E1-5	235170 19/06/2023 E2-5	235171 19/06/2023 E3-5	235172 19/06/2023 E4-5	235173 19/06/2023 B3-5	235174 19/06/2023 E5-5
Aluminium (Lab. filtered)	mg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Barium (Lab. filtered)	mg/L	0.15	0.13	0.14	0.11	0.11	0.12	0.09	0.11
Boron (Lab. filtered)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium (Lab. filtered)	mg/L	45	41	43	37	36	36	30	33
Iron (Lab. filtered)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Magnesium (Lab. filtered)	mg/L	23	19	21	16	16	16	13	14
Potassium (Lab. filtered)	mg/L	12	12	12	13	13	13	11	12
Sodium (Lab. filtered)	mg/L	67	57	62	45	45	46	37	42
Strontium (Lab. filtered)	mg/L	0.51	0.46	0.48	0.40	0.39	0.40	0.32	0.36
Sulfur (Lab. filtered)	mg/L	5.5	4.5	5.2	3.4	3.4	3.4	3.5	3.3
Titanium (Lab. filtered)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

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Analysis Results - ICPMS

Area - INORGANIC

Analyte

	<i>Sample ID</i>	235167	235168	235169	235170	235171	235172	235173	235174
	<i>Start Date</i>	19/06/2023	19/06/2023	19/06/2023	19/06/2023	19/06/2023	19/06/2023	19/06/2023	19/06/2023
	<i>Client ID</i>	B1-5	B2-5	E1-5	E2-5	E3-5	E4-5	B3-5	E5-5
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	0.003	0.002	0.004	0.004	0.003	0.006	0.005
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	0.0002	0.0002	0.0002	0.0002	0.0001	0.0002
Copper (Lab. filtered)	mg/L	0.0011	0.0017	0.0014	0.0023	0.0022	0.0020	0.0028	0.0023
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	0.0018	0.0018	0.0018	0.0016	0.0016	0.0016	0.0014	0.0015
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	0.0014	0.0015	0.0015	0.0015	0.0015	0.0015	0.0011	0.0014
Nickel (Lab. filtered)	mg/L	0.0026	0.0029	0.0029	0.0034	0.0035	0.0037	0.0023	0.0031
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	0.0040	0.0068	0.0062	0.0099	0.0093	0.0089	0.019	0.012
Zinc (Lab. filtered)	mg/L	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001

Tests not covered by NATA accreditation 3040 are denoted with *

Codes: SN = Sample Note

RN = Result Note

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Analysis Results - ICPAES

Area - INORGANIC

<i>Sample ID</i>	<i>Start Date</i>	<i>Client ID</i>	235167 20/06/2023 B1-5	235168 20/06/2023 B2-5	235169 20/06/2023 E1-5	235170 20/06/2023 E2-5	235171 20/06/2023 E3-5	235172 20/06/2023 E4-5	235173 20/06/2023 B3-5	235174 20/06/2023 E5-5
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Analyte

Aluminium (acid extractable)	mg/L		0.74	2.6	2.3	4.0	3.0	3.4	4.8	2.4
Barium (acid extractable)	mg/L		0.16	0.15	0.15	0.13	0.14	0.14	0.12	0.13
Boron (acid extractable)	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium (acid extractable)	mg/L		47	43	43	37	37	37	32	35
Iron (acid extractable)	mg/L		0.6	1.9	1.6	2.7	2.1	2.4	3.3	1.6
Magnesium (acid extractable)	mg/L		24	21	22	16	17	17	14	15
Manganese (acid extractable)	mg/L		0.13	0.12	0.13	0.12	0.11	0.10	0.06	0.08
Potassium (acid extractable)	mg/L		12	13	13	14	14	14	12	13
Sodium (acid extractable)	mg/L		69	59	63	46	47	46	37	43
Strontium (acid extractable)	mg/L		0.53	0.48	0.49	0.41	0.42	0.42	0.34	0.38
Sulfur (acid extractable)	mg/L		5.6	4.7	5.2	3.4	3.5	3.5	3.5	3.5
Titanium (acid extractable)	mg/L		0.02	0.04	0.05	0.09	0.06	0.08	0.08	0.06

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Analysis Results - ICPMS

Area - INORGANIC

<i>Sample ID</i>	<i>Start Date</i>	<i>Client ID</i>	235167 20/06/2023 B1-5	235168 20/06/2023 B2-5	235169 20/06/2023 E1-5	235170 20/06/2023 E2-5	235171 20/06/2023 E3-5	235172 20/06/2023 E4-5	235173 20/06/2023 B3-5	235174 20/06/2023 E5-5
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<i>Analyte</i>										
Antimony (acid extractable)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic (acid extractable)	mg/L	0.002	0.003	0.003	0.004	0.004	0.004	0.004	0.006	0.005
Beryllium (acid extractable)	mg/L	0.0001	<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	<0.0001
Chromium (acid extractable)	mg/L	<0.001	0.002	0.003	0.004	0.003	0.003	0.003	0.004	0.002
Cobalt (acid extractable)	mg/L	0.0013	0.0014	0.0014	0.0016	0.0014	0.0015	0.0015	0.0013	0.0011
Copper (acid extractable)	mg/L	0.0021	0.0032	0.0028	0.0044	0.0037	0.0038	0.0038	0.0051	0.0037
Lead (acid extractable)	mg/L	0.0007	0.0007	0.0007	0.0009	0.0009	0.0010	0.0010	0.0010	0.0008
Lithium (acid extractable)	mg/L	0.0022	0.0025	0.0024	0.0027	0.0025	0.0026	0.0026	0.0028	0.0022
Molybdenum (acid extractable)	mg/L	0.0015	0.0015	0.0016	0.0016	0.0015	0.0016	0.0016	0.0012	0.0014
Nickel (acid extractable)	mg/L	0.0040	0.0047	0.0047	0.0059	0.0055	0.0059	0.0059	0.0052	0.0046
Selenium (acid extractable)	mg/L	<0.005	<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	<0.0001
Thallium (acid extractable)	mg/L	<0.0001	<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	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Vanadium (acid extractable)	mg/L	0.0076	0.012	0.011	0.017	0.015	0.015	0.015	0.025	0.017
Zinc (acid extractable)	mg/L	0.003	0.005	0.003	0.006	0.005	0.005	0.005	0.007	0.004

Analysis Results - IGRSS

Area - INORGANIC

<i>Sample ID</i>	<i>Start Date</i>	<i>Client ID</i>	235135 23/06/2023 B1-1	235136 23/06/2023 B2-1	235137 23/06/2023 E1-1	235138 23/06/2023 E2-1	235139 23/06/2023 E3-1	235140 23/06/2023 E4-1	235141 23/06/2023 B3-1	235142 23/06/2023 E5-1
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<i>Analyte</i>										
Fixed Suspended Solids	mg/L	14	44	29	57	61	58	58	26	24
Total Suspended Solids	mg/L	22	54	37	66	72	69	69	31	30
Volatile Suspended Solids	mg/L	8	10	8	10	11	11	11	5	<7

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Analysis Results - QQPEST
Area - ORGANIC

Analyte	Sample ID Start Date Client ID	235143	235144	235145	235146	235147	235148	235149	235150
		20/06/2023 B1-2	20/06/2023 B2-2	20/06/2023 E1-2	20/06/2023 E2-2	20/06/2023 E3-2	20/06/2023 E4-2	20/06/2023 B3-2	20/06/2023 E5-2
Aldrin	µg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Allethrin	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Alpha-Chlordane	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
alpha-HCH	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Ametryn	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Atraton	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Atrazine	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
beta-HCH	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bifenthrin	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bioresmethrin	µg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carbophenothion	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Cis-permethrin	µg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Crotoxyphos	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cyfluthrin	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cypermethrin	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
delta-HCH	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Deltamethrin	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorvos	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Dieldrin	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan II	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Endosulfan I	µg/L	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
Endosulfan Sulfate	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Endrin Aldehyde	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin Ketone	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenamiphos	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenthion	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4

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Codes: SN = Sample Note

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Analysis Results - QQPEST

Area - ORGANIC

Analyte

	<i>Sample ID</i>	235143	235144	235145	235146	235147	235148	235149	235150
	<i>Start Date</i>	20/06/2023	20/06/2023	20/06/2023	20/06/2023	20/06/2023	20/06/2023	20/06/2023	20/06/2023
	<i>Client ID</i>	B1-2	B2-2	E1-2	E2-2	E3-2	E4-2	B3-2	E5-2
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
Prometryn	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Propargite	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
Propetamphos	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
Simetryn	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
Terbutryn	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
235143	B1-2	OLCSCAN* - LC/MS Scan	19/06/2023	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).
235144	B2-2	OLCSCAN* - LC/MS Scan	19/06/2023	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).
235145	E1-2	OLCSCAN* - LC/MS Scan	19/06/2023	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).
235146	E2-2	OLCSCAN* - LC/MS Scan	19/06/2023	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).
235147	E3-2	OLCSCAN* - LC/MS Scan	19/06/2023	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).
235148	E4-2	OLCSCAN* - LC/MS Scan	19/06/2023	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).
235149	B3-2	OLCSCAN* - LC/MS Scan	19/06/2023	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).
235150	E5-2	OLCSCAN* - LC/MS Scan	19/06/2023	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).

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

<i>Method code</i>	<i>Method description</i>	<i>Area</i>
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
OLCSCAN*	Qualitative LC/MS scan	ORGANIC

The results in this report were authorised by:

<i>Name</i>	<i>Title</i>	<i>Area</i>
██████████	Senior Scientist	EXTERNAL
████████████████████	Scientist	INORGANIC
██████████	Scientist	ORGANIC

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