



Environmental Forensics Report of Analysis
Project 20230152

Report #: 1661

Date Issued: 06-Jun-2023

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Client Project Reference: Menindee Fish kill - 21 (IMT 9 May 2

Customer: Department of Planning & Environment

Attention: [Redacted]

Report Date: 06 June 2023

Project Received: 10 May 2023

EF Project Contact: [Redacted]

[Redacted]

The following samples were analysed:

Sample ID	Client ID	Sample Type	Client Sampled Date/Time	Aliquot
233075	B1	Liquid	09/05/2023 10:00AM	
233098	B1	Liquid	09/05/2023 10:00AM	Field Aliquot
233099	B1	Liquid	09/05/2023 10:00AM	Field Aliquot
233100	B1	Liquid	09/05/2023 10:00AM	Laboratory Aliquot
233101	B1	Liquid	09/05/2023 10:00AM	Field Aliquot
233102	B1	Liquid	09/05/2023 10:00AM	Field Aliquot
233103	B1	Liquid	09/05/2023 10:00AM	Field Aliquot
233104	B1	Liquid	09/05/2023 10:00AM	Field Aliquot
233105	B1	Liquid	09/05/2023 10:00AM	Field Aliquot
233076	B2	Liquid	09/05/2023 10:40AM	
233106	B2	Liquid	09/05/2023 10:40AM	Field Aliquot
233107	B2	Liquid	09/05/2023 10:40AM	Field Aliquot
233108	B2	Liquid	09/05/2023 10:40AM	Laboratory Aliquot
233109	B2	Liquid	09/05/2023 10:40AM	Field Aliquot
233110	B2	Liquid	09/05/2023 10:40AM	Field Aliquot
233111	B2	Liquid	09/05/2023 10:40AM	Field Aliquot
233112	B2	Liquid	09/05/2023 10:40AM	Field Aliquot
233113	B2	Liquid	09/05/2023 10:40AM	Field Aliquot
233077	B3	Liquid	09/05/2023 2:00PM	
233114	B3	Liquid	09/05/2023 2:00PM	Field Aliquot
233115	B3	Liquid	09/05/2023 2:00PM	Field Aliquot
233116	B3	Liquid	09/05/2023 2:00PM	Laboratory Aliquot
233117	B3	Liquid	09/05/2023 2:00PM	Field Aliquot
233118	B3	Liquid	09/05/2023 2:00PM	Field Aliquot
233119	B3	Liquid	09/05/2023 2:00PM	Field Aliquot
233120	B3	Liquid	09/05/2023 2:00PM	Field Aliquot
233121	B3	Liquid	09/05/2023 2:00PM	Field Aliquot
233078	E1	Liquid	09/05/2023 11:20AM	
233122	E1	Liquid	09/05/2023 11:20AM	Field Aliquot

Tests not covered by NATA accreditation 3040 are denoted with *

Codes: SN = Sample Note RN = Result Note RC = Project Comment

233123	E1	Liquid	09/05/2023	11:20AM	Field Aliquot
233124	E1	Liquid	09/05/2023	11:20AM	Laboratory Aliquot
233125	E1	Liquid	09/05/2023	11:20AM	Field Aliquot
233126	E1	Liquid	09/05/2023	11:20AM	Field Aliquot
233127	E1	Liquid	09/05/2023	11:20AM	Field Aliquot
233128	E1	Liquid	09/05/2023	11:20AM	Field Aliquot
233129	E1	Liquid	09/05/2023	11:20AM	Field Aliquot
233079	E2	Liquid	09/05/2023	12:00PM	
233130	E2	Liquid	09/05/2023	12:00PM	Field Aliquot
233131	E2	Liquid	09/05/2023	12:00PM	Field Aliquot
233132	E2	Liquid	09/05/2023	12:00PM	Laboratory Aliquot
233133	E2	Liquid	09/05/2023	12:00PM	Field Aliquot
233134	E2	Liquid	09/05/2023	12:00PM	Field Aliquot
233135	E2	Liquid	09/05/2023	12:00PM	Field Aliquot
233136	E2	Liquid	09/05/2023	12:00PM	Field Aliquot
233137	E2	Liquid	09/05/2023	12:00PM	Field Aliquot
233080	E3	Liquid	09/05/2023	12:50PM	
233138	E3	Liquid	09/05/2023	12:50PM	Field Aliquot
233139	E3	Liquid	09/05/2023	12:50PM	Field Aliquot
233140	E3	Liquid	09/05/2023	12:50PM	Laboratory Aliquot
233141	E3	Liquid	09/05/2023	12:50PM	Field Aliquot
233142	E3	Liquid	09/05/2023	12:50PM	Field Aliquot
233143	E3	Liquid	09/05/2023	12:50PM	Field Aliquot
233144	E3	Liquid	09/05/2023	12:50PM	Field Aliquot
233145	E3	Liquid	09/05/2023	12:50PM	Field Aliquot
233081	E4	Liquid	09/05/2023	2:00PM	
233146	E4	Liquid	09/05/2023	2:00PM	Field Aliquot
233147	E4	Liquid	09/05/2023	2:00PM	Field Aliquot
233148	E4	Liquid	09/05/2023	2:00PM	Laboratory Aliquot
233149	E4	Liquid	09/05/2023	2:00PM	Field Aliquot
233150	E4	Liquid	09/05/2023	2:00PM	Field Aliquot

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233151	E4	Liquid	09/05/2023	2:00PM	Field Aliquot
233152	E4	Liquid	09/05/2023	2:00PM	Field Aliquot
233153	E4	Liquid	09/05/2023	2:00PM	Field Aliquot
233082	E5	Liquid	09/05/2023	2:55PM	Field Aliquot
233154	E5	Liquid	09/05/2023	2:55PM	Field Aliquot
233155	E5	Liquid	09/05/2023	2:55PM	Field Aliquot
233156	E5	Liquid	09/05/2023	2:55PM	Laboratory Aliquot
233157	E5	Liquid	09/05/2023	2:55PM	Field Aliquot
233158	E5	Liquid	09/05/2023	2:55PM	Field Aliquot
233159	E5	Liquid	09/05/2023	2:55PM	Field Aliquot
233160	E5	Liquid	09/05/2023	2:55PM	Field Aliquot
233161	E5	Liquid	09/05/2023	2:55PM	Field Aliquot
233083	MFK E1 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233162	MFK E1 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233163	MFK E1 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233164	MFK E1 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233084	MFK E2 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233165	MFK E2 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233166	MFK E2 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233167	MFK E2 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233085	MFK E3 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233168	MFK E3 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233169	MFK E3 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233170	MFK E3 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233086	MFK E4 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233171	MFK E4 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233172	MFK E4 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233173	MFK E4 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233087	MFK E5 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233174	MFK E5 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233175	MFK E5 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot

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233176	MFK E5 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233088	MFK B2 - BW	Liquid	09/05/2023	1:00AM	
233177	MFK B2 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233178	MFK B2 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233179	MFK B2 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233089	MFK B3 - BW	Liquid	09/05/2023	1:00AM	
233180	MFK B3 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233181	MFK B3 - BW	Liquid	09/05/2023	1:00AM	Field Aliquot
233182	MFK B3 - BW	Liquid	09/05/2023	1:00AM	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 233103 - 233105; 233111 - 233113; 233119 - 233121; 233127 - 233129; 233135 - 233137; 233143 - 233145; 233151 - 233153; 233159 - 233161; and 233162 to 233182 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, EK061F - Filtered Total Kjeldahl Nitrogen as N (TKN), EK061G - Total Kjeldahl Nitrogen By Discrete Analyser, EK062F - Filtered Total Nitrogen as N, EK062G - Total Nitrogen as N (TKN + NOx) by Discrete Analyser, EK067FG - Filtered Total Phosphorus as P 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 ES2315722 dated 17-May-2023.
- Samples 233100, 233108, 233116, 233124, 233132, 233140, 233148 and 233156 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 ES2315722 dated 17-May-2023.
- Samples 233101, 233109, 233117, 233125, 233133, 233141, 233149, 233157 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. 285265 dated 28 May 2023.
- Samples 233099, 233107, 233115, 233123, 233131, 233139, 233147, 233155 were sent to Sydney Water Laboratory Services (NATA Accreditation no: 63 and 610) for the analysis of Algal Toxins. Please the attached Analytical Report No: 285265 dated 28 May 2023, which gives Algal Toxins analysis results and the Blue-Green Algal ID and Enumeration summary results.
- Samples 233075, 233076, 233077, 233078, 233079, 233080, 233081, 233082, 233083, 233084, 233085, 233086, 233087, 233088 and 233089 collected in 500 mL "Bacto" bottles and were analysed outside the method holding time for Total suspended solids.

Analysis Results - External Methods*

Area - EXTERNAL

Analyte	Sample ID	Start Date	Client ID	233099	233101	233107	233109	233115	233117	233123	233125	233131	233133	233139	233141
Algal Enumeration	-	-	-	12/05/2023	26/05/2023	12/05/2023	26/05/2023	12/05/2023	26/05/2023	12/05/2023	26/05/2023	12/05/2023	26/05/2023	12/05/2023	26/05/2023
Algal Identification	-	-	-	B1	B1	B2	B2	B3	B3	E1	E1	E2	E2	E3	E3
Algal Toxins	-	-	-	RC	RC	RC	RC	RC	RC	RC	RC	RC	RC	RC	RC

Analysis Results - External Methods*

Area - EXTERNAL

Analyte	Sample ID	Start Date	Client ID	233147	233149	233155	233157
Algal Enumeration	-	-	-	12/05/2023	26/05/2023	12/05/2023	26/05/2023
Algal Identification	-	-	-	E4	E4	E5	E5
Algal Toxins	-	-	-	RC	RC	RC	RC

Analysis Results - External Methods*

Area - EXTERNAL

Analyte	Sample ID	Start Date	Client ID	233103	233104	233105	233111	233112	233113	233119	233120	233121	233127	233128	233129
Ammonia as N	-	-	-	11/05/2023	11/05/2023	11/05/2023	11/05/2023	11/05/2023	11/05/2023	11/05/2023	11/05/2023	11/05/2023	11/05/2023	11/05/2023	11/05/2023
Dissolved TKN as N	-	-	-	B1 Filtered 2	B1 Filtered 1	B1	B2 Filtered 2	B2 Filtered 1	B2	B3 Filtered 2	B3 Filtered 1	B3	E1 Filtered 2	E1 Filtered 1	E1
Filtered Total Nitrogen as N	0.6	0.06	0.06	0.6	0.06	0.06	0.8	0.04	0.8	0.8	<0.01	0.7	0.7	0.02	Unfiltered
Filtered Total Phosphorus as P	0.6	0.03	0.03	0.6	0.03	0.03	0.8	0.22	0.8	0.22	0.06	0.06	0.06	0.03	0.02
Nitrite+Nitrate as N	0.02	0.03	0.03	0.02	0.03	0.02	0.03	0.01	0.02	0.01	0.01	<0.01	0.01	0.03	0.02
Reactive Phosphorus as P	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	0.01	0.01	<0.01	0.01	0.06	0.02
Total Kjeldahl Nitrogen as N	-	-	-	-	-	1.3	-	1.4	1.4	-	0.17	0.8	-	1.1	1.1
Total Nitrogen as N	-	-	-	-	-	1.3	-	1.4	1.4	-	0.8	0.8	-	1.1	1.1
Total Phosphorus as P	-	-	-	-	-	0.13	-	0.17	0.17	-	0.41	0.41	-	0.20	0.20

Analysis Results - External Methods*

Area - EXTERNAL

Analyte	Sample ID Start Date Client ID	233174 11/05/2023 MFK E5-BW Filtered 2	233175 11/05/2023 MFK E5-BW Filtered 1	233176 11/05/2023 MFK E5-BW Unfiltered	233177 11/05/2023 MFK B2-BW Filtered 2	233178 11/05/2023 MFK B2-BW Filtered 1	233179 11/05/2023 MFK B2-BW Unfiltered	233180 11/05/2023 MFK B3-BW Filtered 2	233181 11/05/2023 MFK B3-BW Filtered 1	233182 11/05/2023 MFK B3-BW Unfiltered
Ammonia as N	mg/L		0.09			0.06			0.03	
Dissolved TKN as N	mg/L	0.7			0.8			0.7		
Filtered Total Nitrogen as N	mg/L	0.7			0.8			0.7		
Filtered Total Phosphorus as P	mg/L	0.12			0.04			0.24		
Nitrite+Nitrate as N	mg/L	0.04	0.05	0.04	0.01	0.02	0.02	0.01	0.03	<0.01
Reactive Phosphorus as P	mg/L		0.07			<0.01			0.15	
Total Kjeldahl Nitrogen as N	mg/L			1.0						0.8
Total Nitrogen as N	mg/L			1.0						0.8
Total Phosphorus as P	mg/L			0.21						0.36

Analysis Results - External Methods*

Area - EXTERNAL

Analyte	Sample ID Start Date Client ID	233100 11/05/2023 B1	233108 11/05/2023 B2	233116 11/05/2023 B3	233124 11/05/2023 E1	233132 11/05/2023 E2	233140 11/05/2023 E3	233148 11/05/2023 E4	233156 11/05/2023 E5
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
Clpyralid	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
Picloram	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Silvex (2,4,5-TPI/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 - ICVAASW
Area - INORGANIC

Analyte	Sample ID Start Date Client ID	233102 16/05/2023 B1	233110 16/05/2023 B2	233118 16/05/2023 B3	233126 16/05/2023 E1	233134 16/05/2023 E2	233142 16/05/2023 E3	233150 16/05/2023 E4	233158 16/05/2023 E5
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	Sample ID Start Date Client ID	233102 11/05/2023 B1	233110 11/05/2023 B2	233118 11/05/2023 B3	233126 11/05/2023 E1	233134 11/05/2023 E2	233142 11/05/2023 E3	233150 11/05/2023 E4	233158 11/05/2023 E5
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	0.14	0.09	0.12	0.12	0.13	0.13	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	42	41	29	37	37	36	36	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	22	21	12	16	16	16	16	14
Potassium (Lab. filtered)	mg/L	11	11	11	12	12	13	12	12
Sodium (Lab. filtered)	mg/L	62	59	36	48	48	46	47	42
Strontium (Lab. filtered)	mg/L	0.48	0.46	0.30	0.40	0.40	0.40	0.40	0.35
Sulfur (Lab. filtered)	mg/L	5.0	4.6	3.4	3.5	3.5	3.3	3.4	3.4
Titanium (Lab. filtered)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Analysis Results - ICPMS
Area - INORGANIC

Analyte	Sample ID Start Date Client ID	233102 11/05/2023 B1	233110 11/05/2023 B2	233118 11/05/2023 B3	233126 11/05/2023 E1	233134 11/05/2023 E2	233142 11/05/2023 E3	233150 11/05/2023 E4	233158 11/05/2023 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	0.002	0.006	0.004	0.003	0.003	0.003	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	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002
Copper (Lab. filtered)	mg/L	0.0011	0.0010	0.0029	0.0020	0.0020	0.0019	0.0017	0.0021
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	0.0020	0.0020	0.0016	0.0019	0.0019	0.0018	0.0018	0.0017
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	0.0013	0.0015	0.0011	0.0016	0.0015	0.0015	0.0015	0.0013
Nickel (Lab. filtered)	mg/L	0.0028	0.0029	0.0023	0.0031	0.0034	0.0033	0.0034	0.0029
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	0.0036	0.018	0.0084	0.0084	0.0080	0.0074	0.012
Zinc (Lab. filtered)	mg/L	<0.001	<0.001	<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	233102	233110	233118	233126	233134	233142	233150	233158
				11/05/2023	11/05/2023	11/05/2023	11/05/2023	11/05/2023	11/05/2023	11/05/2023	11/05/2023
				B1	B2	B3	E1	E2	E3	E4	E5
Aluminium (acid extractable)				1.2	3.6	6.6	3.6	4.0	4.3	3.8	5.3
Barium (acid extractable)				0.16	0.17	0.13	0.15	0.15	0.15	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)				43	43	31	38	38	38	37	34
Iron (acid extractable)				1.1	3.0	5.3	2.9	3.1	3.3	3.0	4.2
Magnesium (acid extractable)				23	23	14	18	18	18	17	16
Manganese (acid extractable)				0.13	0.21	0.05	0.13	0.14	0.13	0.12	0.10
Potassium (acid extractable)				12	13	13	13	13	14	13	13
Sodium (acid extractable)				62	61	38	49	48	47	46	42
Strontium (acid extractable)				0.48	0.48	0.32	0.42	0.41	0.41	0.40	0.36
Sulfur (acid extractable)				5.0	4.9	3.6	3.6	3.6	3.4	3.5	3.5
Titanium (acid extractable)				0.02	0.04	0.07	0.04	0.05	0.05	0.05	0.06

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Analysis Results - ICPMS
Area - INORGANIC

Analyte	Sample ID Start Date Client ID	233102 11/05/2023 B1	233110 11/05/2023 B2	233118 11/05/2023 B3	233126 11/05/2023 E1	233134 11/05/2023 E2	233142 11/05/2023 E3	233150 11/05/2023 E4	233158 11/05/2023 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	0.003	0.006	0.004	0.004	0.004	0.004	0.005
Beryllium (acid extractable)	mg/L	<0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002
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	0.007	0.004	0.004	0.004	0.004	0.005
Cobalt (acid extractable)	mg/L	0.0012	0.0021	0.0016	0.0018	0.0019	0.0019	0.0016	0.0018
Copper (acid extractable)	mg/L	0.0021	0.0032	0.0063	0.0042	0.0042	0.0042	0.0038	0.0051
Lead (acid extractable)	mg/L	0.0007	0.0013	0.0013	0.0010	0.0011	0.0013	0.0011	0.0013
Lithium (acid extractable)	mg/L	0.0024	0.0031	0.0037	0.0030	0.0030	0.0032	0.0031	0.0034
Molybdenum (acid extractable)	mg/L	0.0016	0.0015	0.0011	0.0016	0.0015	0.0015	0.0016	0.0013
Nickel (acid extractable)	mg/L	0.0041	0.0055	0.0068	0.0059	0.0062	0.0065	0.0060	0.0064
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	0.0076	0.012	0.028	0.015	0.016	0.016	0.014	0.021
Zinc (acid extractable)	mg/L	0.004	0.006	0.011	0.007	0.007	0.007	0.008	0.009

Analysis Results - IGR TSS
Area - INORGANIC

Analyte	Sample ID Start Date Client ID	233075 19/05/2023 B1	233076 19/05/2023 B2	233077 19/05/2023 B3	233078 19/05/2023 E1	233079 19/05/2023 E2	233080 19/05/2023 E3	233081 19/05/2023 E4	233082 19/05/2023 E5	233083 25/05/2023 MFK E1 - BW	233084 25/05/2023 MFK E2 - BW	233085 25/05/2023 MFK E3 - BW	233086 25/05/2023 MFK E4 - BW
Fixed Suspended Solids	mg/L	17	60	12	35	36	37	35	25	70	73	110	53
Total Suspended Solids	mg/L	25	74	16	44	45	45	45	32	85	88	140	66
Volatile Suspended Solids	mg/L	8	14	<8	9	9	9	9	<8	15	15	26	13

Analysis Results - IGR TSS
Area - INORGANIC

Analyte	Sample ID Start Date Client ID	233087 25/05/2023 MFK E5 - BW	233088 25/05/2023 MFK B2 - BW	233089 25/05/2023 MFK B3 - BW
Fixed Suspended Solids	mg/L	71	67	18
Total Suspended Solids	mg/L	84	87	24
Volatile Suspended Solids	mg/L	13	19	<10

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Analysis Results - QQPEST
Area - ORGANIC

Analyte	Sample ID Start Date Client ID	233098 12/05/2023 B1	233106 12/05/2023 B2	233114 12/05/2023 B3	233122 12/05/2023 E1	233130 12/05/2023 E2	233138 12/05/2023 E3	233146 12/05/2023 E4	233154 12/05/2023 E5
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
Anetryn	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
Bioremethrin	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
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
Fenitrothion	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Fenvalerate	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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Analysis Results - QQQPEST
Area - ORGANIC

Analyte	Sample ID	Start Date	Client ID	233098	233106	233114	233122	233130	233138	233146	233154				
		12/05/2023	B1	12/05/2023	B2	12/05/2023	E1	12/05/2023	E2	12/05/2023	E3	12/05/2023	E4	12/05/2023	E5
Gamma-Chlordane	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<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	<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	<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	<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	<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	<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	<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	<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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl Chlorpyrifos	µg/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Teirachlorinphos	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7

Sample ID Client ID Method Start Date Result

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Project:

Report #:

Date Issued:

Area - ORGANIC

Method code	Method description	Area
233098	B1 OLCSCAN* - LC/MS Scan	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).
233106	B2 OLCSCAN* - LC/MS Scan	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).
233114	B3 OLCSCAN* - LC/MS Scan	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).
233122	E1 OLCSCAN* - LC/MS Scan	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).
233130	E2 OLCSCAN* - LC/MS Scan	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).
233138	E3 OLCSCAN* - LC/MS Scan	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).
233146	E4 OLCSCAN* - LC/MS Scan	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).
233154	E5 OLCSCAN* - LC/MS Scan	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
QQPEST	Determination of Multiresidue Pesticides by GC/MSMS	ORGANIC
OLCSCAN*	Qualitative LC/MS scan	ORGANIC

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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