

Groundwater Interpretative Report

Imperial Oil and Gas Pty Ltd

Environmental Management Plan

2021-2025 EP187 Work Program IMP4-3

(17th of October 2021 to 16th of October 2022)

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Acronyms / Terms	Definition
Code	Code of Practice: Onshore Petroleum Activities in the Northern Territory
CBM	Control Monitoring Bore
DENR	Department of Environment and Natural Resources
DEPWS	Department of Environment, Parks and Water Security (NT)
EC	Electrical Conductivity
EMP	Environment Management Plan
EP	Exploration Permit
Guideline	Preliminary Guideline: Groundwater Monitoring Bores for Exploration Petroleum Wells in the Beetaloo Sub-Basin
IMB	Impact Monitoring Bore
LOR / LOD	Limit of Reporting / Detection
TDS	Total Dissolved Solids

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1 Introduction

The EMP IMP4-3 – Imperial OG 2021-2025 EP187 Program, Rev 3, dated 20 July 2021 was approved on the 17th October 2021.

Ministerial Condition 5.iii of the EMP Approval Notice requires Imperial Oil & Gas (Imperial) to provide an interpretative report of groundwater quality based on the groundwater monitoring required to be conducted at the well site.

Ministerial Condition 5.iii of the Approval Notice is as follows:

"...in support of clause B.4.17.2 of the code, the interest holder must provide to DEPWS, via Onshoregas.depws@nt.gov.au, an interpretative report of groundwater quality based on the groundwater monitoring required to be conducted at the well site(s) in accordance with Table 6 of the Code of Practice: Onshore Petroleum Activities in the Northern Territory. The interpretative report must be provided annually within 3 months of the anniversary of the approval date of the EMP and include:

- *demonstration that there is no change to groundwater quality or level attributable to conduct of the regulated activity at the well site(s);*
- *interpretation of any statistical outliers observed from baseline measured values for each of the analytes;*
- *discussion of any trends observed; and*
- *a summary of the results including descriptive statistics."*

The regulated activities occurring between the 17th of October 2021 and the 16th of October 2022 under this EMP included the drilling, hydraulic fracturing, and extended production testing of the Carpentaria 2 well and the beginning of drilling of Carpentaria 3.

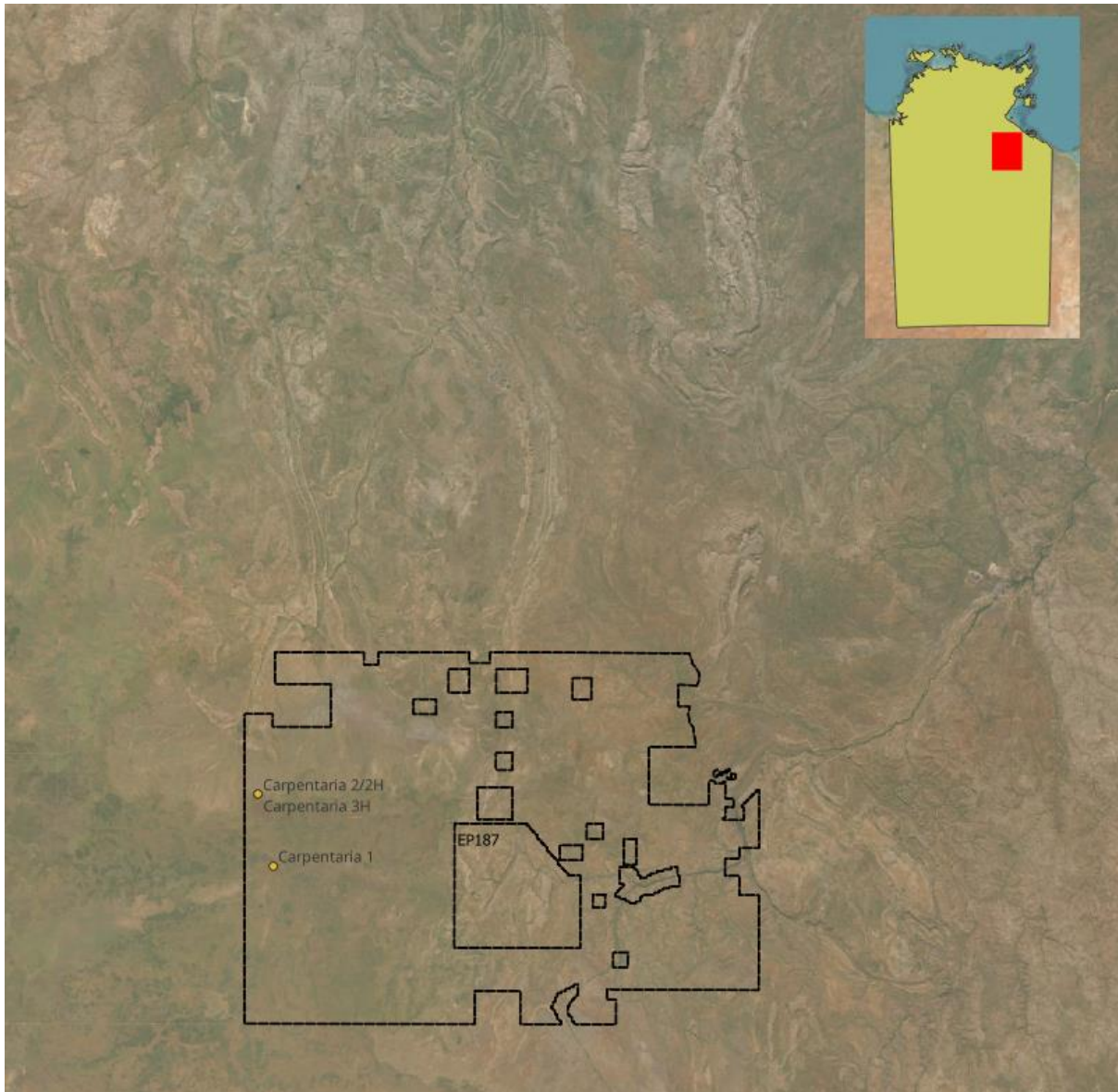


Figure 1 – Location of the Carpentaria-2 and 3 wellsite

For this well site two water monitoring bores were installed as per the Department of Environment and Natural Resources (DENR) Preliminary Guideline: Groundwater Monitoring Bores for Exploration Petroleum Wells in the Beetaloo Sub-Basin (Guideline).

The following report demonstrates that the activities under the EMP have not had any impact on groundwater quality.

2 Methodology

2.1 Water Monitoring Bores

As per the Guideline a Control Monitoring Bore (CMB) is located approximately 100 metres up-gradient from the petroleum well, and an Impact Monitoring Bore (IMB) is located approximately 20 metres down-gradient from the well. Details of the monitoring bores are presented in Table 1.

Table 1 – Monitoring bores information

Well site	Carpentaria 2			
Aquifer	Gum Ridge		Anthony Lagoon	
Bore Number	RNo42461	RNo42464	RNo42462	RNo42463
Category	IMB	CMB	IMB	CMB
Total Depth (m)	234	228	100	100
Length of slotted liner (m)	130.7	124	24	29
ID of casing (mm)	153	156	158	158
Total Vol. of bore (L)	4302	4357	1960	1960
Production rate (L/s)	3	2	4	4
Time of produce one full volume (min)	23	36	8.2	8.2

The locations of the monitoring bores relevant to IMP4-3 are present on the Carpentaria 2 and 3 wellsite. These are visualised on Figure 2.

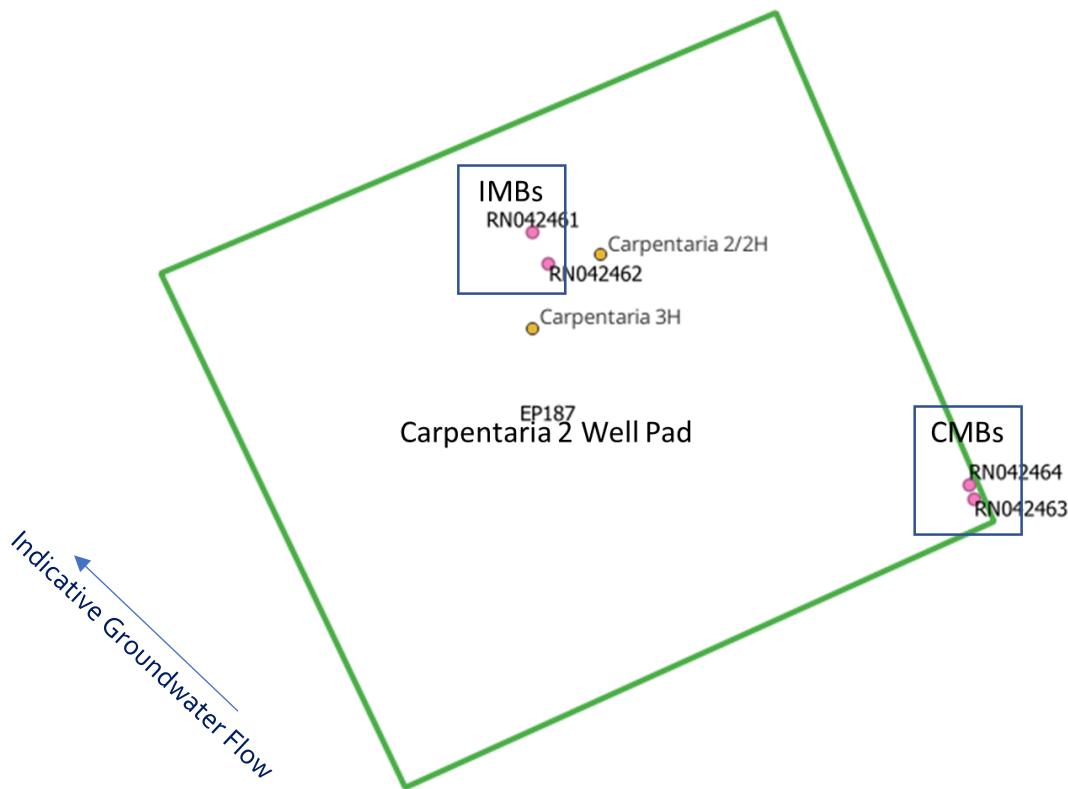


Figure 2 – Schematic of the monitoring bores locations in relation to Carpentaria-2/3 well

2.2 Water Sampling

Between October 17th 2021 and October 16th 2022, water samples were taken and analysed in accordance with the suite of analytes presented in Table 6: Minimum suite of analytes for groundwater monitoring from the Code of Practice: Onshore Petroleum Activities in the Northern Territory (the Code):

- 15 samples were taken from both bores prior to initiating the hydraulic fracturing activity to provide site-specific data baseline groundwater data between the dates of:
 - 03/11/2021 – 06/04/2022
- 1 sample was taken while hydraulic fracturing activities were being conducted:
 - 17/07/2022

Timeframes for these activities are as follows:

- Drilling of Carpentaria 2 was initiated on the 07/11/2021 and completed on the 16/12/2021
- Hydraulic Fracturing of Carpentaria 2 was initiated on 12/07/2022 and completed on 01/08/2022
- Drilling of Carpentaria 3 was initiated on the 13/10/2022 and completed on the 11/11/2022

Raw data tables are provided in Appendix A – Data Tables.

3 Results and Discussions

As per the Preliminary Guideline: Groundwater Monitoring Bores for Exploration Petroleum Wells in the Beetaloo Sub-basin. Analytes of particular interest include Total Dissolved Solids, Chloride, and Electrical Conductivity (E.C.) as a proxy, because drilling fluids, hydraulic fracturing fluids, well suspension fluids and produced formation fluids may have orders of magnitude (100s~1000s) higher concentrations of Chloride than background values in potable waters. In addition, Strontium and Barium are typically elevated in produced water from unconventional shale gas reservoirs and serve among others as additional useful tracers. Dissolved methane is important to monitor as a baseline and over the longer term. As such these analytes have been discussed in detail below. All other analytes did not show any notable change to groundwater quality between the Control Monitoring and Impact Monitoring Bores, all raw data can be found in **Appendix A**.

3.1 Gum Ridge Aquifer

3.1.1 Electrical Conductivity

The results of monitoring for Electrical Conductivity in Gum Ridge aquifer are presented in Figure 3.

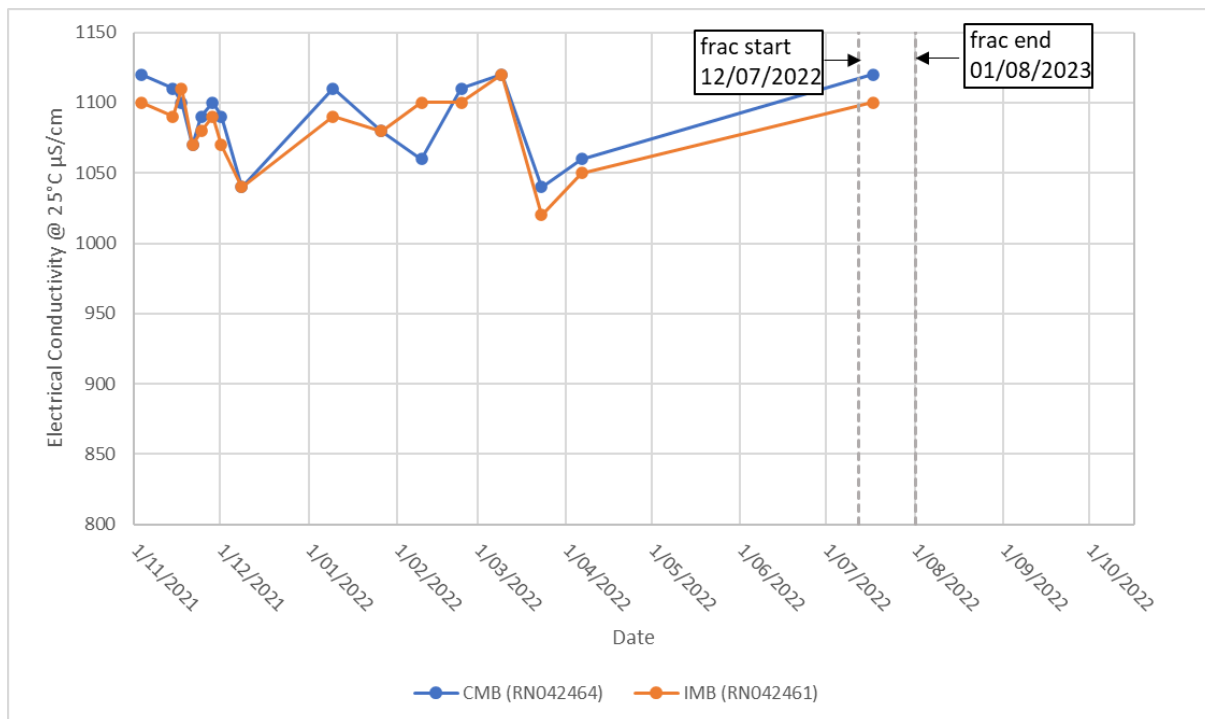


Figure 3 – Electrical Conductivity measurements in Gum Ridge aquifer

The data shows consistent trends between the IMB and CMB measurements. Both datasets follow relatively flat trend throughout the observation period. Datapoints prior to and during the hydraulic fracturing activities are consistent with the previous observations, falling within 2 standard deviations from the averages.

Table 2 – Summary statistics of the Electrical Conductivity measurements in Gum Ridge aquifer

Electrical Conductivity @ 25°C μS/cm	CMB (RN042464)	IMB (RN042461)
Minimum	1040	1020
Maximum	1120	1120
Average	1091	1082
20th percentile	1060	1058
80th percentile	1116	1100
Limit of detection	1	1
STD	28	27

3.1.2 Total Dissolved Solids

The results of monitoring for Total Dissolved Solids in Gum Ridge aquifer are presented in Figure 4.

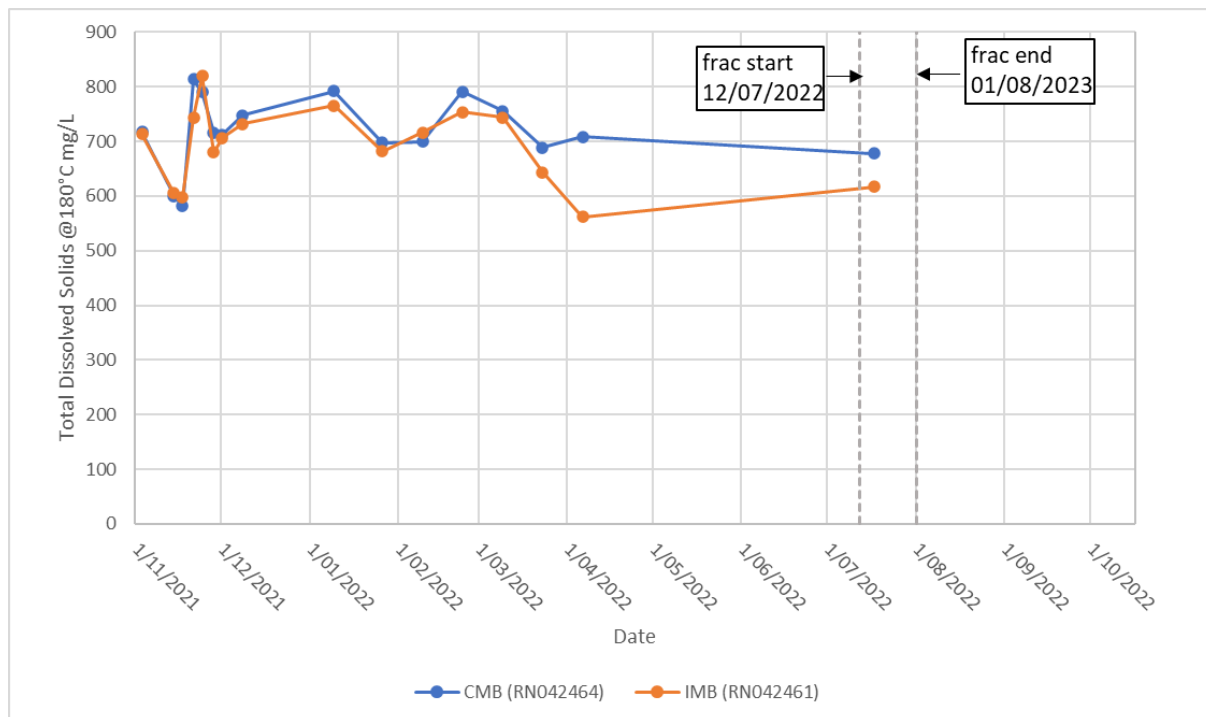


Figure 4 – Total Dissolved Solids measurement in Gum Ridge aquifer

The data shows consistent trends between the IMB and CMB measurements. Both datasets follow relatively flat trend throughout the observation period. Datapoints prior to and during the hydraulic fracturing activities are consistent with the previous observations, falling within 2 standard deviations from the averages.

Table 3 – Summary statistics of the Total Dissolved Solids measurements in Gum Ridge aquifer

Total Dissolved Solids @180°C mg/L	CMB (RN042464)	IMB (RN042461)
Minimum	582	562
Maximum	814	820
Average	718	693
20th percentile	682	610
80th percentile	791	750
Limit of detection	10	10
STD	65	71

3.1.3 Chloride

The results of monitoring for Chloride in Gum Ridge aquifer are presented in Figure 5.

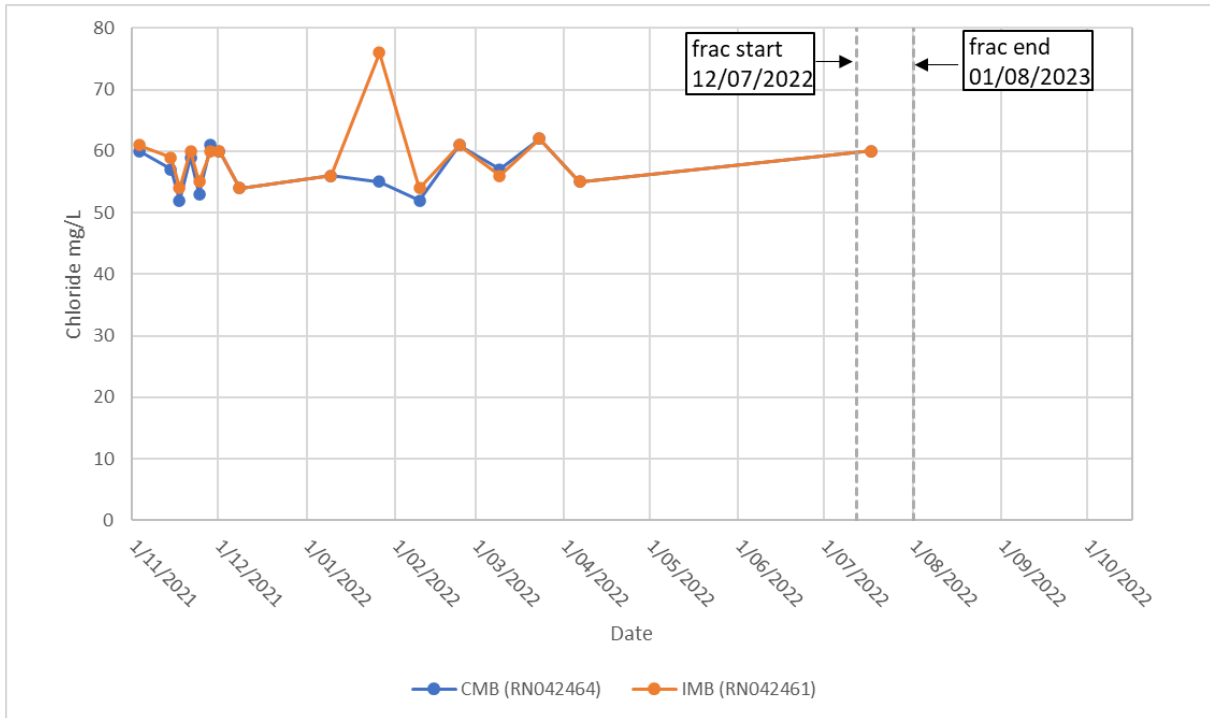


Figure 5 – Chloride measurements in Gum Ridge aquifer

The data shows consistent trends between the IMB and CMB measurements. Both datasets follow relatively flat trend throughout the observation period. Datapoints prior to and during the hydraulic fracturing activities are consistent with the previous observations, falling within 2 standard deviations from the averages. Notably, there is an upward spike in chloride concentration observed in February 2022 at the IMB, however no activities by Imperial were undertaken at the time.

Table 4 – Summary statistics of the Chloride measurements in Gum Ridge aquifer

Chloride mg/L	CMB (RN042464)	IMB (RN042461)
Minimum	52	54
Maximum	62	76
Average	57	59
20th percentile	53	54
80th percentile	61	61
Limit of detection	1	1
STD	3	5

3.1.4 Barium

The results of monitoring for Barium in Gum Ridge aquifer are presented in Figure 6.

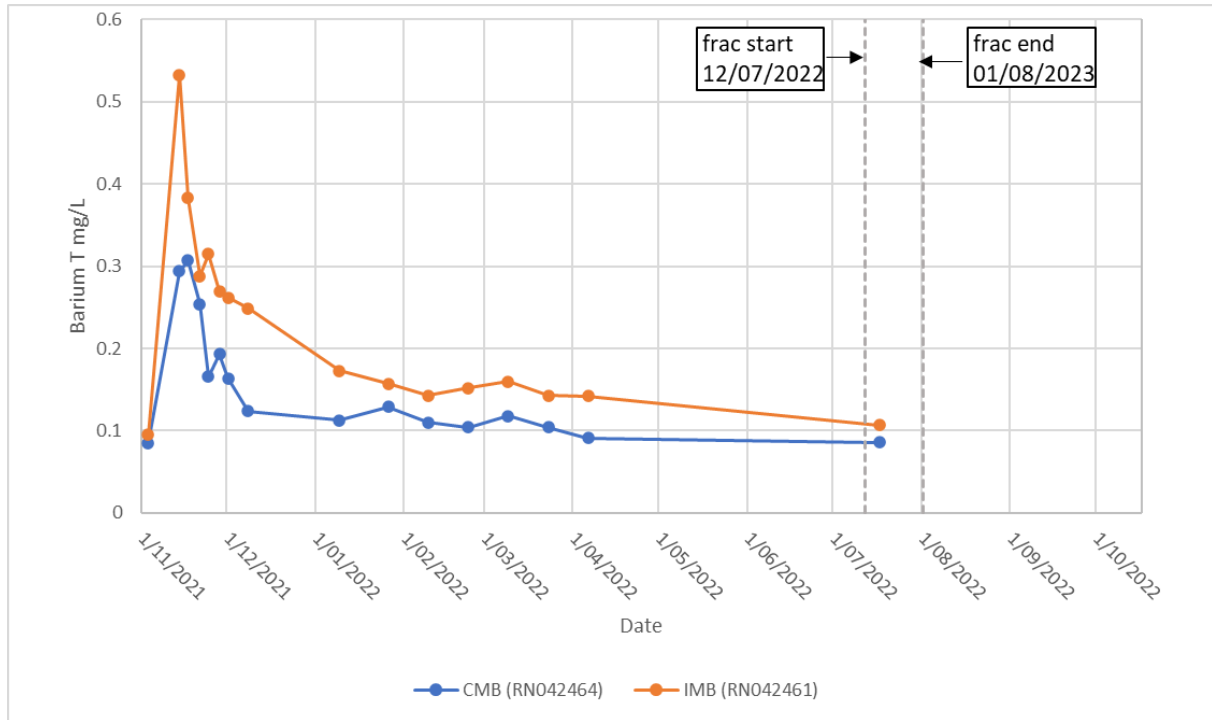


Figure 6 – Total Barium measurements in Gum Ridge aquifer

The data shows consistent trends between the IMB and CMB measurements. Both datasets show an initial spike in Barium concentration, potentially related to the drilling activity of Carpentaria-2, with later full stabilization in both bores. Datapoints prior to and during the hydraulic fracturing activities are consistent with the previous observations, falling within 2 standard deviations from the averages.

Table 5 – Summary statistics of the Total Barium measurements in Gum Ridge aquifer

Barium T mg/L	CMB (RN042464)	IMB (RN042461)
Minimum	0.085	0.095
Maximum	0.307	0.533
Average	0.153	0.223
20th percentile	0.096	0.142
80th percentile	0.230	0.304
Limit of detection	0.001	0.001
STD	0.073	0.117

3.1.5 Strontium

The results of monitoring for Strontium in Gum Ridge aquifer are presented in Figure 7.

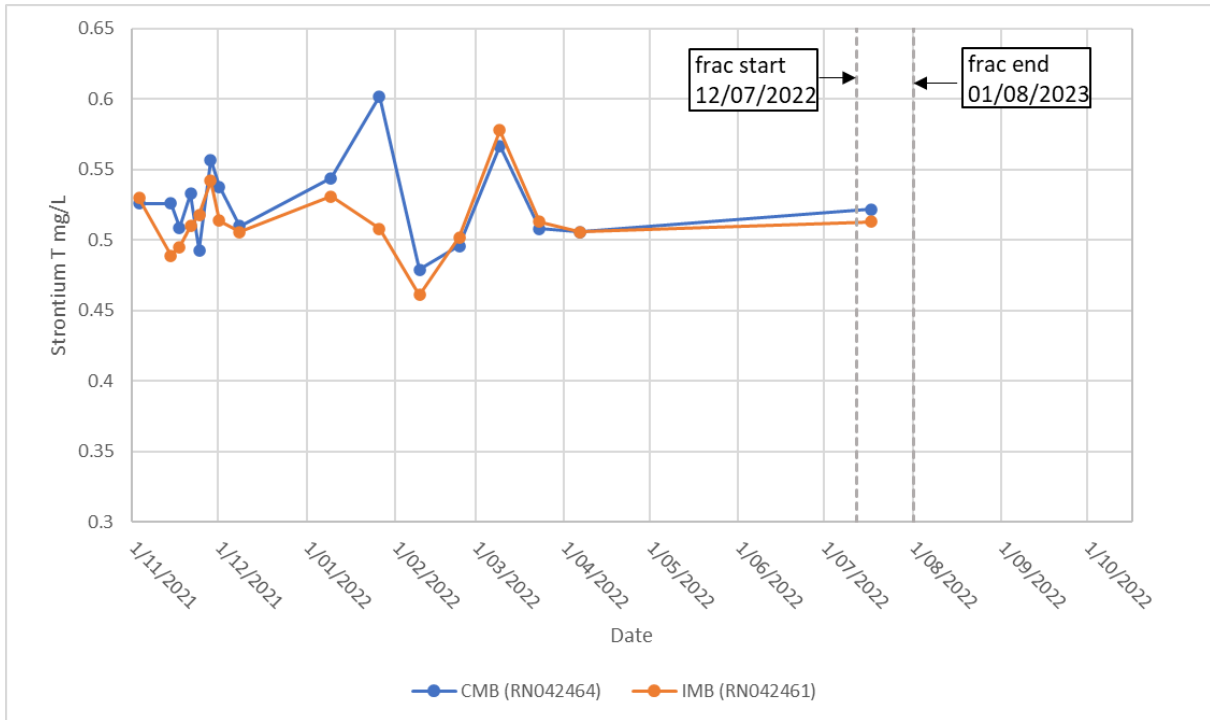


Figure 7 – Total Strontium measurements in Gum Ridge aquifer

The measurements show consistent trends between the IMB and CMB measurements. Both datasets follow relatively flat trend throughout the observation period. Datapoints prior to and during the hydraulic fracturing activities are consistent with the previous observations, falling within 2 standard deviations from the averages. Notably, there is an upward spike in Strontium concentration observed in January 2022 (CMB only) and March 2022 (both CMB and IMB), however no activities by Imperial were undertaken at the time.

Table 6 – Summary statistics of the Total Strontium measurements in Gum Ridge aquifer

Strontium T mg/L	CMB (RN042464)	IMB (RN042461)
Minimum	0.479	0.461
Maximum	0.602	0.578
Average	0.526	0.514
20th percentile	0.500	0.498
80th percentile	0.552	0.531
Limit of detection	0.001	0.001
STD	0.031	0.025

3.1.6 Methane

The results of monitoring for Methane in Gum Ridge aquifer are presented in Figure 8. Measurements with values below the Limit of Detection (LOD) of 0.01 mg/L were assumed to be equal to 0.01 mg/L.

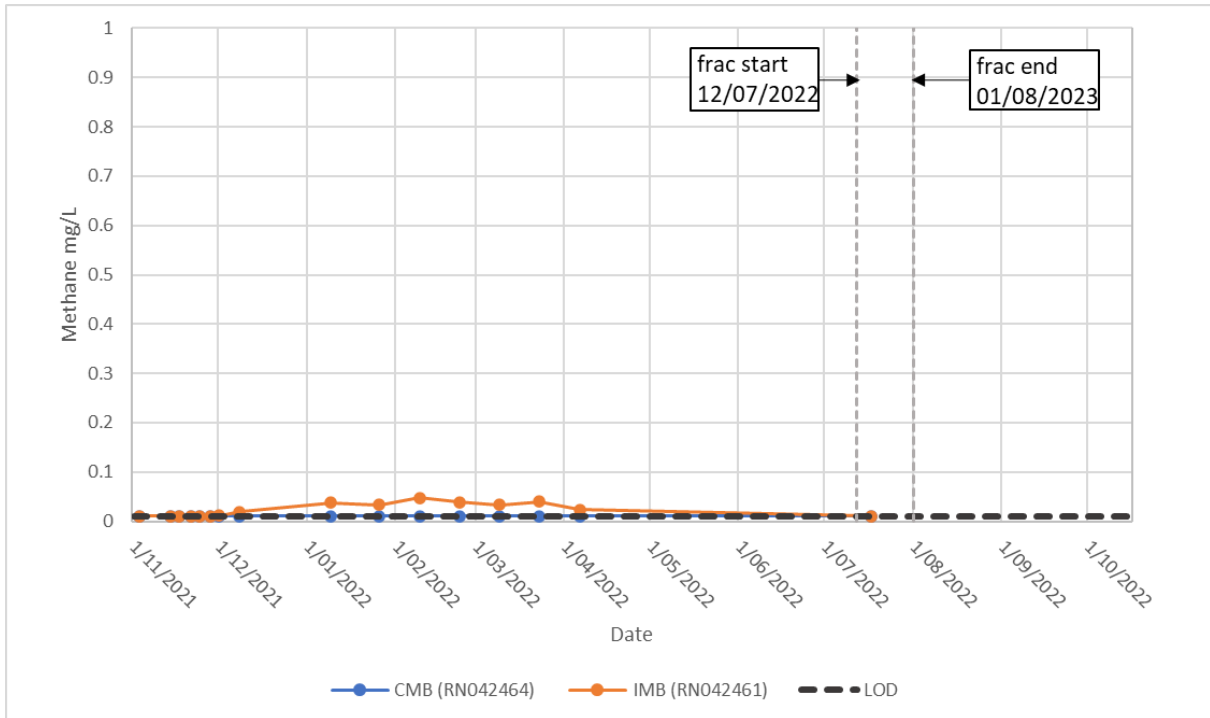


Figure 8 – Methane measurements in Gum Ridge aquifer

The data shows no measurements from the CMB above the detection threshold. Some observations were made at the IMB with concentrations increasing and then decreasing in the period from January 2022 to April 2022 and no activities by Imperial were occurring at this time. Methane levels during the hydraulic fracturing activities were not above the detection limit.

Table 7 – Summary statistics of the Methane measurements in Gum Ridge aquifer

Methane mg/L	CMB (RN042464)	IMB (RN042461)
Minimum	0.01	0.01
Maximum	0.01	0.05
Average	0.01	0.02
20th percentile	0.01	0.01
80th percentile	0.01	0.04
Limit of detection	0.01	0.01
STD	0.00	0.01

3.1.7 Water Level

The water levels for Gum Ridge were monitored at various points during the reporting period. This data can be seen in Figure 9.

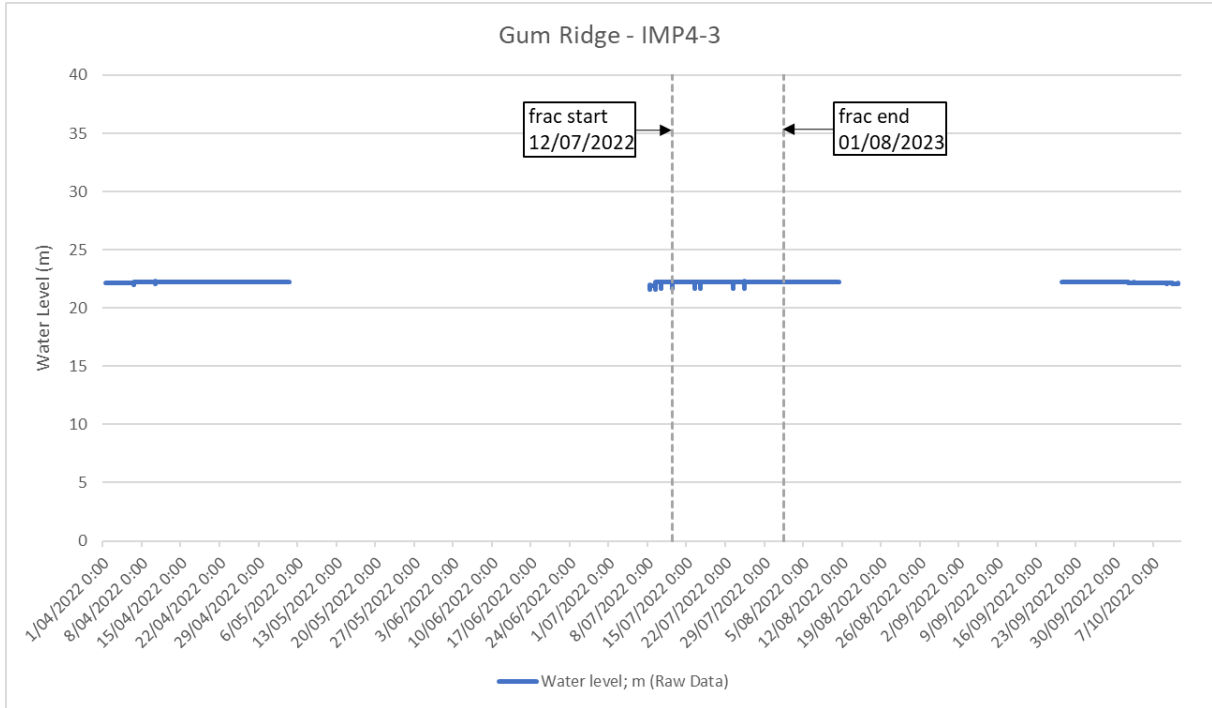


Figure 9 – Gum Ridge Aquifer Water Level

Datapoints are consistent throughout the period with the Gum Ridge aquifer maintaining roughly a 22m water level, before, during and after hydraulic fracturing. A few drops in water level can be attributed to the anticipated short disturbances to the water during hydraulic fracturing, equipment 'data spikes' or data retrieval requiring the water level logger to be removed from the aquifer for data download.

3.2 Anthony Lagoon Aquifer

3.2.1 Electrical Conductivity

The results of monitoring for Electrical Conductivity in Anthony Lagoon aquifer are presented in Figure 10.

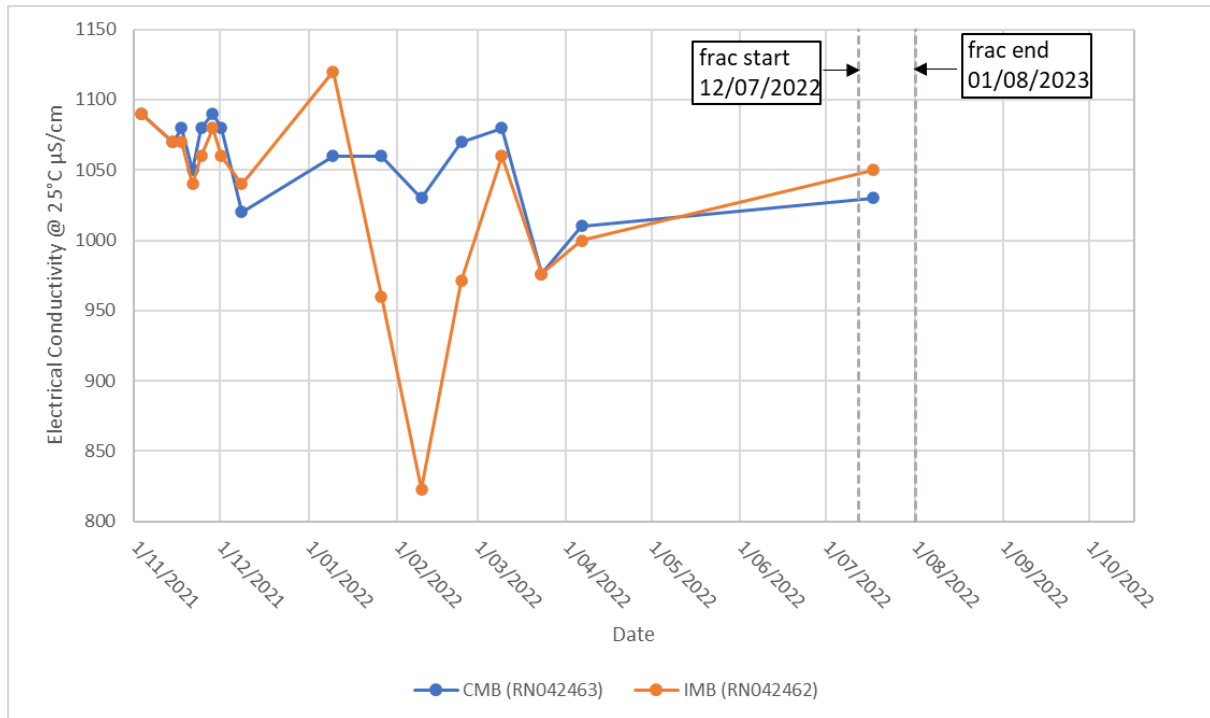


Figure 10 – Electrical Conductivity measurements in Anthony Lagoon aquifer

The data shows consistent trends between the IMB and CMB measurements. A downward spike in chloride concentration was observed in February 2022 at the IMB, however no activities by Imperial were undertaken at the time. Except for that spike, data shows a relatively flat trend for both sets. Datapoints prior to and during the hydraulic fracturing activities are consistent with the previous observations, falling within 2 standard deviations from the averages.

Table 8 – Summary statistics of the Electrical Conductivity measurements in Anthony Lagoon aquifer

Electrical Conductivity @ 25°C μS/cm	CMB (RN042463)	IMB (RN042462)
Minimum	976	823
Maximum	1090	1120
Average	1055	1029
20th percentile	1024	973
80th percentile	1080	1076
Limit of detection	1	1
STD	33	71

3.2.2 Total Dissolved Solids

The results of monitoring for Total Dissolved Solids in Anthony Lagoon aquifer are presented in Figure 11.

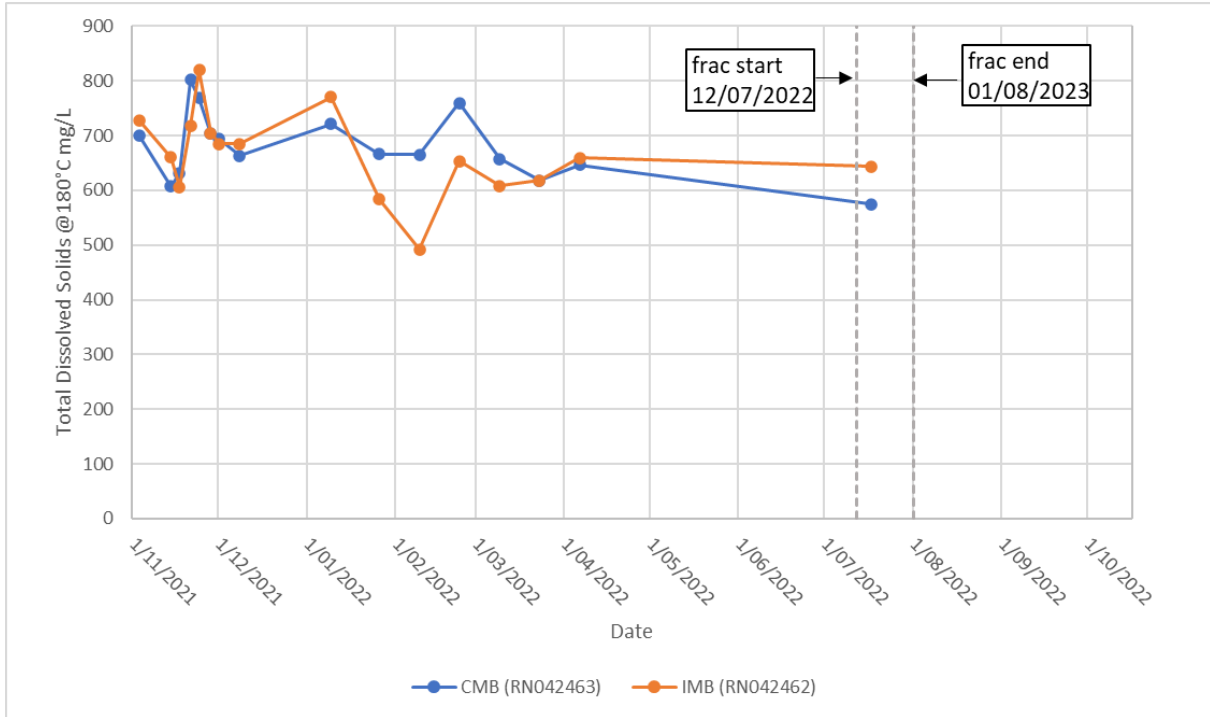


Figure 11 – Total Dissolved Solids measurements in Anthony Lagoon aquifer

The data shows consistent trends between the IMB and CMB measurements. Both datasets follow relatively flat trend throughout the observation period. Datapoints prior to and during the hydraulic fracturing activities are consistent with the previous observations, falling within 2 standard deviations from the averages.

Table 9 – Summary statistics of Total Dissolved Solids measurements in Anthony Lagoon aquifer

Total Dissolved Solids @180°C mg/L	CMB (RN042463)	IMB (RN042462)
Minimum	575	492
Maximum	802	820
Average	680	665
20th percentile	624	607
80th percentile	744	724
Limit of detection	10	10
STD	62	78

3.2.3 Chloride

The results of monitoring for Chloride in Anthony Lagoon Aquifer are presented in Figure 12.

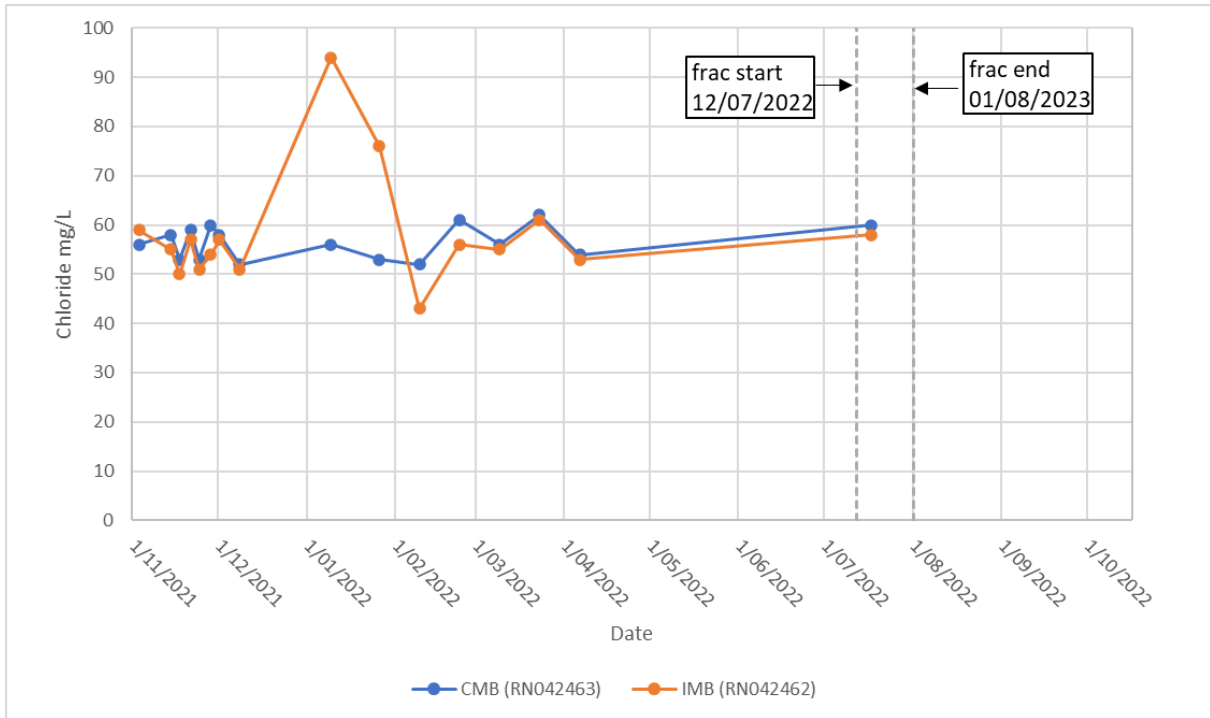


Figure 12 – Chloride measurements in Anthony Lagoon aquifer

The data shows consistent trends between the IMB and CMB measurements. Both datasets follow relatively flat trend throughout the observation period. Datapoints prior to and during the hydraulic fracturing activities are consistent with the previous observations, falling within 2 standard deviations from the averages. Notably, there is an upward spike in chloride concentration observed in February 2022 at the IMB, however no activities by Imperial were undertaken at the time.

Table 10 – Summary statistics of Chloride measurements in Anthony Lagoon aquifer

Chloride mg/L	CMB (RN042463)	IMB (RN042462)
Minimum	52	43
Maximum	62	94
Average	56	58
20th percentile	53	51
80th percentile	60	60
Limit of detection	1	1
STD	3	12

3.2.4 Barium

The results of monitoring for Barium in Anthony Lagoon aquifer are presented in Figure 13.

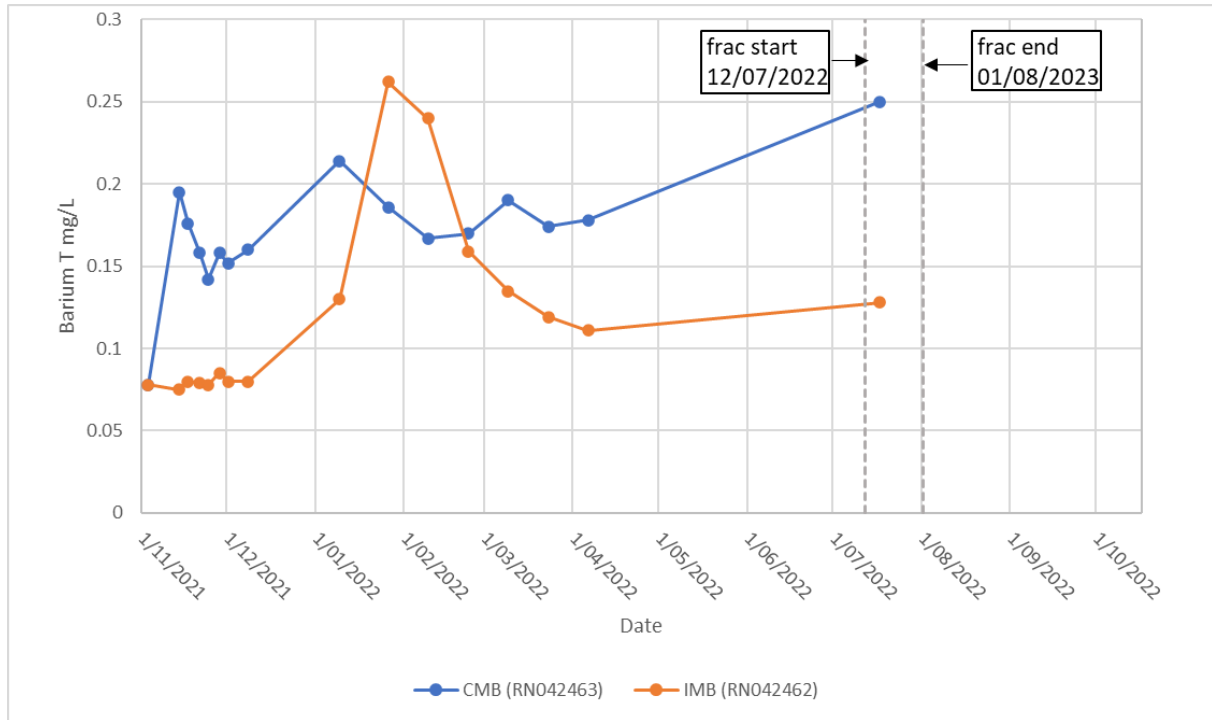


Figure 13 – Total Barium measurements in Anthony Lagoon aquifer

The data shows consistent trends between the IMB and CMB measurements. Both datasets follow a slowly increasing trend throughout the observation period. Datapoints prior to and during the hydraulic fracturing activities are consistent with the previous observations, falling within 2 standard deviations from the averages. Notably, there is an upward spike in Barium concentration observed in January and February 2022 at the IMB, however no activities by Imperial were undertaken at the time.

Table 11 – Summary statistics of Total Barium measurements in Anthony Lagoon aquifer

Barium T mg/L	CMB (RN042463)	IMB (RN042462)
Minimum	0.078	0.075
Maximum	0.250	0.262
Average	0.172	0.120
20th percentile	0.154	0.078
80th percentile	0.193	0.149
Limit of detection	0.001	0.001
STD	0.036	0.058

3.2.5 Strontium

The results of monitoring for Strontium in Anthony Lagoon aquifer are presented in Figure 14.

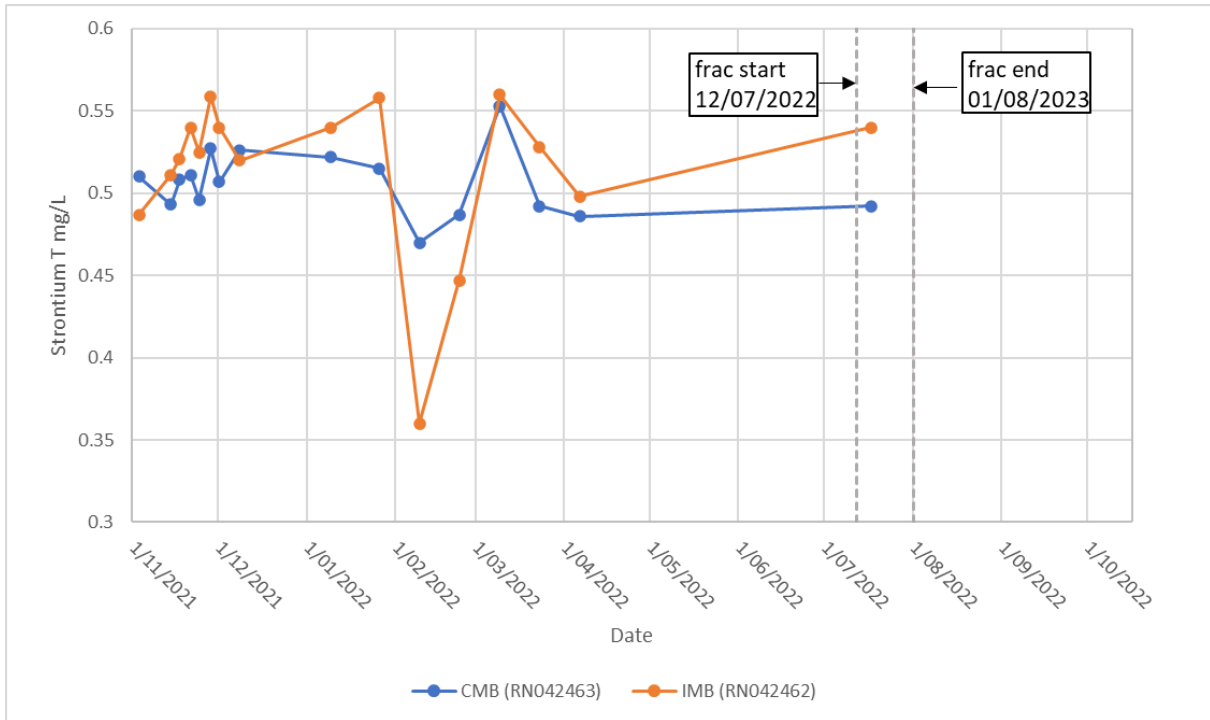


Figure 14 – Total Strontium measurements in Anthony Lagoon aquifer

The data shows consistent trends between the IMB and CMB measurements. Both datasets follow a slowly increasing trend throughout the observation period. Datapoints prior to and during the hydraulic fracturing activities are consistent with the previous observations, falling within 2 standard deviations from the averages. Notably, there is a downward spike in Barium concentration observed in February 2022 at the IMB, however no activities by Imperial were undertaken at the time.

Table 12 – Summary statistics of Total Strontium measurements in Anthony Lagoon aquifer

Strontium T mg/L	CMB (RN042463)	IMB (RN042462)
Minimum	0.470	0.360
Maximum	0.553	0.560
Average	0.506	0.515
20th percentile	0.489	0.491
80th percentile	0.524	0.551
Limit of detection	0.001	0.001
STD	0.020	0.051

3.2.6 Methane

The results of monitoring for Methane in Anthony Lagoon aquifer are presented in Figure 15. Measurements with values below the Limit of Detection (LOD) of 0.01 mg/L were assumed to be equal to 0.01 mg/L.

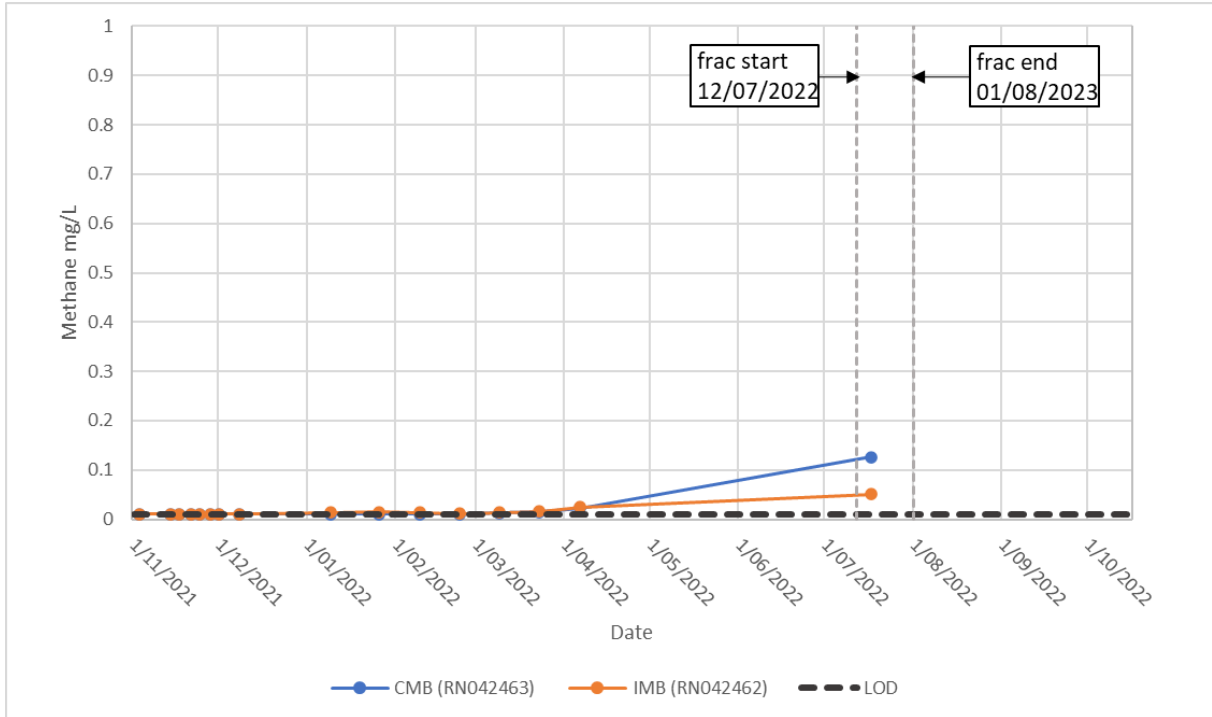


Figure 15 – Methane measurements in Anthony Lagoon aquifer

The data shows consistent trends between the IMB and CMB measurements. Both datasets follow a slowly increasing trend throughout the observation period. Datapoints prior to and during the hydraulic fracturing activities are consistent with the previous observations, falling within 2 standard deviations from the averages.

Table 13 – Summary statistics of Methane measurements in Anthony Lagoon aquifer

Methane µg/L	CMB (RN042463)	IMB (RN042462)
Minimum	0.01	0.01
Maximum	0.13	0.05
Average	0.02	0.02
20th percentile	0.01	0.01
80th percentile	0.01	0.02
Limit of detection	0.01	0.01
STD	0.03	0.01

3.2.7 Water Level

The water levels for Anthony Lagoon were monitored at various points during the reporting period. This data can be seen in Figure 16.

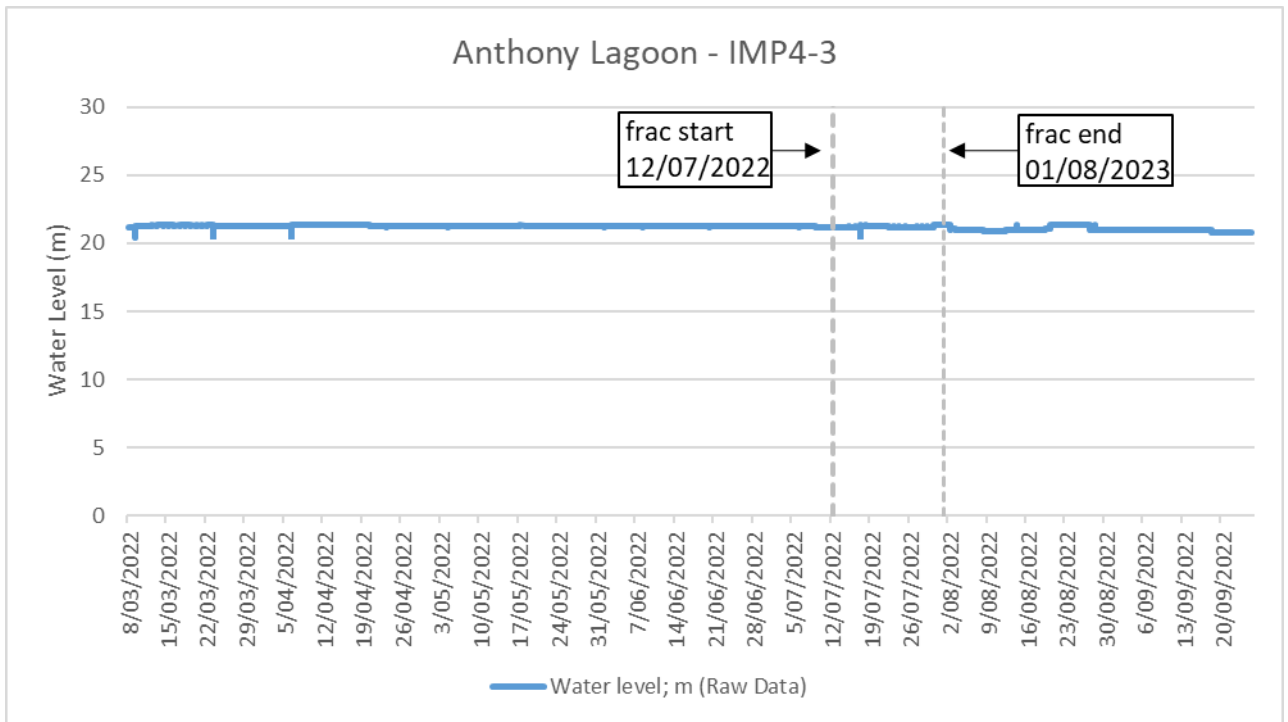


Figure 16 – Anthony Lagoon Aquifer Water Level

Datapoints are consistent throughout the period with the Anthony Lagoon aquifer maintaining roughly a 21m water level, before, during and after hydraulic fracturing. A few abrupt changes in water level can be attributed to the anticipated short disturbances to the water during hydraulic fracturing, equipment 'data spikes' or data retrieval requiring the water level logger to be removed from the aquifer for data download.

4 Conclusions

In conclusion, the analysis results from the IMBs and the CMBs revealed consistent trends and similar levels of concentration throughout the reporting period. Therefore, confirming that there have been no notable changes in groundwater quality or level because of activity at the well site. The ongoing groundwater sampling, as required by Ministerial Condition 5, being undertaken by Imperial will continue to provide further certainty of the state of groundwater at the IMP4-3 well sites.

Appendix A – Data Tables

CARPENTARIA 2

Category	CHEMICAL NAME	RESULT UNIT	LIMIT OF DETECTION	3/11/2021	14/11/2021	17/11/2021	21/11/2021	24/11/2021	28/11/2021	1/12/2021	8/12/2021	9/01/2022	26/01/2022	9/02/2022	23/02/2022	9/03/2022	23/03/2022	6/04/2022	17/07/2022	
General, anions, cations and metal	pH - Lab	pH Unit	0.01	7.6	7.55	7.52	7	7.45	7.7	7.52	7.22	7.59	7.36	7.37	7.64	7.47	7.29	7.01	7.44	
	Electrical Conductivity @ 25°C	µS/cm	1	1100	1090	1110	1070	1080	1090	1070	1040	1090	1080	1100	1100	1120	1020	1050	1100	
	Total Dissolved Solids @180°C	mg/L	10	713	605	598	744	820	690	732	706	766	682	716	754	744	644	562	617	
	Suspended Solids (SS)	mg/L	1	---	3	2	<1	<1	<1	<1	<1	3	2	2	4	2	5	10	<1	
	Gross beta	Bq/L	0.10	0.33	0.45	0.34	0.39	0.36	0.34	0.37	0.26	0.37	0.21	0.24	0.31	0.36	---	0.31	0.39	
	Hydroxide Alkalinity as CaCO3	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
	Carbonate Alkalinity as CaCO3	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
	Bicarbonate Alkalinity as CaCO3	mg/L	1	484	478	395	496	480	373	478	494	480	464	448	484	492	479	479	461	
	Total Alkalinity as CaCO3	mg/L	1	484	478	395	496	480	373	478	494	480	464	448	484	492	479	479	461	
	Sulfate as SO4 2-	mg/L	1	81	90	86	82	79	86	80	82	83	88	81	82	80	81	81	81	86
	Chloride	mg/L	1	61	59	54	60	55	60	60	54	56	76	54	61	56	62	55	60	
	Calcium D	mg/L	1	129	131	116	127	124	125	134	125	122	138	139	139	130	129	132	124	
	Magnesium D	mg/L	1	47	54	44	49	48	49	50	47	47	57	50	50	48	49	46	49	
	Sodium D	mg/L	1	38	48	38	42	41	40	41	40	39	43	41	40	39	39	37	38	
	Potassium D	mg/L	1	8	10	7	9	8	8	8	8	8	8	8	9	8	8	8	7	
	Calcium T	mg/L	1	125	118	124	126	127	135	124	129	130	125	121	134	144	138	137	123	
	Magnesium T	mg/L	1	51	47	48	50	49	50	50	50	49	48	52	51	55	51	51	52	
	Sodium T	mg/L	1	36	43	41	41	42	41	43	42	40	37	39	41	41	42	41	40	
	Potassium T	mg/L	1	7	8	8	8	8	9	9	8	8	7	7	8	8	8	8	7	
	Arsenic D	mg/L	0.001	<0.001	0.003	0.002	0.003	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
	Barium D	mg/L	0.001	0.089	0.552	0.342	0.279	0.302	0.238	0.125	0.258	0.234	0.155	0.125	0.156	0.148	0.141	0.134	0.131	0.102
	Cadmium D	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Chromium D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
	Copper D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lead D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lithium D	mg/L	0.001	0.038	0.042	0.036	0.046	0.04	0.04	0.042	0.04	0.04	0.027	0.04	0.04	0.039	0.038	0.039	0.043	
	Manganese D	mg/L	0.001	0.012	1.32	0.781	0.688	0.662	0.56	0.569	0.455	0.337	0.264	0.326	0.285	0.246	0.18	0.117	0.049	
	Selenium D	mg/L	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Silver D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Strontium D	mg/L	0.001	0.502	0.504	0.457	0.452	0.511	0.5	0.502	0.488	0.468	0.408	0.503	0.494	0.487	0.472	0.494	0.489	
	Zinc D	mg/L	0.005	0.006	0.007	0.009	0.013	0.012	0.014	0.01	0.01	0.01	0.01	0.011	0.008	0.01	0.009	0.011	0.01	
	Boron D	mg/L	0.05	0.1	0.1	0.1	0.12	0.11	0.11	0.11	0.11	0.11	0.09	0.11	0.11	0.09	0.12	0.1	0.12	
	Iron D	mg/L	0.05	0.22	1.37	0.48	0.49	0.24	0.14	0.22	0.53	0.41	0.26	0.5	0.53	0.76	0.89	1.11	<0.05	
	Arsenic T	mg/L	0.001	<0.001	0.002	0.002	0.001	0.001	0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Barium T	mg/L	0.001	0.095	0.533	0.383	0.288	0.315	0.27	0.262	0.249	0.173	0.157	0.157	0.152	0.16	0.143	0.142	0.107	
	Cadmium T	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Chromium T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Copper T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lead T	mg/L	0.001	<0.001	<0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lithium T	mg/L	0.001	0.038	0.045	0.042	0.041	0.04	0.048	0.042	0.043	0.04	0.07	0.042	0.041	0.044	0.038	0.042	0.04	
	Manganese T	mg/L	0.001	0.014	1.28	0.854	0.674	0.704	0.604	0.584	0.471	0.375	0.313	0.28	0.288	0.276	0.188	0.129	0.05	
	Selenium T	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Silver T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Strontium T	mg/L	0.001	0.53	0.489	0.495	0.51	0.518	0.542	0.514	0.506	0.531	0.508	0.461	0.502	0.578	0.513	0.506	0.513	
	Zinc T	mg/L	0.005	0.008	0.01	0.012	0.015	0.016	0.015	0.014	0.014	0.013	0.009	0.014	0.013	0.013	0.011	0.016	0.009	
	Boron T	mg/L	0.05	0.11	0.13	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.16	0.16	0.12	0.13	0.12	0.12	0.12	
	Iron T	mg/L	0.05	0.29	1.44	0.81	0.69	0.63	0.43	0.8	1.43	1.22	0.7	1.66	1.42	2.14	1.62	5.01	0.06	
	Mercury D	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Mercury T	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Reactive Silica	mg/L	0.05	32	28.9	29.8	30	30.4	31.5	30.6	31.5	31.6	30.4	31.4	30.4	31	30.4	31.4	31.4	
Fluoride	mg/L	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.6	0.4	0.3	0.4	0.4		
Nitrite as N	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Nitrate as N	mg/L	0.01	0.08	<0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.04	0.04	0.03	0.04	0.05	0.08	0.02	0.07		
Nitrite + Nitrate as N	mg/L	0.01	0.08	<0.01	0.01	0.02	0.01	0.01	0.01	0.03	0.04	0.04	0.03	0.04	0.05	0.08	0.02	0.07		
Total Anions	meq/L	0.01	13.1	13.1	11.2	13.3	12.8	10.9	12.9	13.1	12.9	13.2	12.2	13.1	13.1	13	12.8	12.7		
Total Cations	meq/L	0.01	12.2	13.3	11.2	12.4	12.1	12.2	12.8	12	11.8	13.6	13.6	13	12.3	12.4	12.2	12		
Ionic Balance	%	0.01	3.62	0.89	0.16	3.43	2.65	5.53	0.36	4.18	4.2	1.51	3.58	0.29	2.9	2.5	2.38	2.59		
Diss. pet. gases	Methane	µg/L	10	<10	<10	<10	<10	<10	<10	11	19	38	33	48	39	40	24	<10		
	Ethane	µg/L</																		

CARPENTARIA 2

Category	CHEMICAL NAME	RESULT UNIT	LIMIT OF DETECTION	3/11/2021	14/11/2021	17/11/2021	21/11/2021	24/11/2021	28/11/2021	1/12/2021	8/12/2021	9/01/2022	26/01/2022	9/02/2022	23/02/2022	9/03/2022	23/03/2022	6/04/2022	17/07/2022
General, anions, cations and metal	pH - Lab	pH Unit	0.01	7.66	7.55	7.51	7.1	7.56	7.78	7.58	7.3	7.75	7.48	7.51	7.8	7.32	7.4	7.13	7.45
	Electrical Conductivity @ 25°C	µS/cm	1	1090	1070	1070	1040	1060	1080	1060	1040	1120	960	823	971	1060	976	1000	1050
	Total Dissolved Solids @180°C	mg/L	10	728	660	606	718	820	705	685	685	770	584	492	653	608	618	659	644
	Suspended Solids (SS)	mg/L	1	---	1	<1	1	<1	1	1	1	8	25	20	12	6	5	3	1
	Gross beta	Bq/L	0.10	0.35	0.45	0.48	0.47	0.38	0.4	0.49	0.48	0.64	0.24	0.36	0.48	0.42	---	0.43	0.55
	Hydroxide Alkalinity as CaCO3	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Carbonate Alkalinity as CaCO3	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Bicarbonate Alkalinity as CaCO3	mg/L	1	483	474	422	480	474	370	472	477	443	350	325	423	448	443	455	439
	Total Alkalinity as CaCO3	mg/L	1	483	474	422	480	474	370	472	477	443	350	325	423	448	443	455	439
	Sulfate as SO4 2-	mg/L	1	80	96	90	88	86	94	91	92	82	78	52	69	73	80	83	83
	Chloride	mg/L	1	59	55	50	57	51	54	57	51	94	76	43	56	55	61	53	58
	Calcium D	mg/L	1	115	118	108	116	112	113	122	117	105	94	91	108	108	112	112	106
	Magnesium D	mg/L	1	50	59	52	57	54	55	57	55	53	46	39	48	51	55	50	54
	Sodium D	mg/L	1	38	42	37	46	39	40	39	39	46	38	30	36	38	41	36	38
	Potassium D	mg/L	1	7	10	8	10	9	9	9	9	16	11	10	10	9	9	11	8
	Calcium T	mg/L	1	120	109	115	115	112	120	115	117	112	117	87	101	118	120	116	105
	Magnesium T	mg/L	1	60	52	55	56	55	56	57	54	56	38	50	53	62	56	57	
	Sodium T	mg/L	1	37	39	39	40	39	40	42	40	46	45	30	36	39	43	40	40
	Potassium T	mg/L	1	7	9	9	9	9	10	9	9	17	13	9	9	10	11	10	8
	Arsenic D	mg/L	0.001	<0.001	0.001	<0.001	0.002	0.001	0.002	0.002	0.002	0.003	<0.001	0.001	0.001	0.001	0.002	0.001	0.002
	Barium D	mg/L	0.001	0.088	0.076	0.072	0.075	0.077	0.079	0.077	0.08	0.111	0.145	0.24	0.159	0.126	0.114	0.099	0.125
	Cadmium D	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Chromium D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Copper D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lead D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lithium D	mg/L	0.001	0.055	0.085	0.08	0.095	0.083	0.087	0.089	0.088	0.086	0.072	0.056	0.072	0.079	0.083	0.086	0.091
	Manganese D	mg/L	0.001	0.028	0.053	0.043	0.047	0.042	0.043	0.04	0.042	0.073	0.087	0.121	0.088	0.073	0.074	0.056	0.05
	Selenium D	mg/L	0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Silver D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Strontium D	mg/L	0.001	0.495	0.517	0.498	0.477	0.535	0.548	0.528	0.528	0.479	0.459	0.366	0.451	0.485	0.473	0.486	0.518
	Zinc D	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Boron D	mg/L	0.05	0.11	0.11	0.11	0.15	0.12	0.12	0.12	0.11	0.11	0.1	0.08	0.1	0.13	0.11	0.14	
	Iron D	mg/L	0.05	0.43	<0.05	0.7	0.83	0.69	0.87	0.57	0.71	2.76	<0.05	2.64	2.37	2.05	1.88	0.84	0.76
	Arsenic T	mg/L	0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001	0.002	0.001	0.001	0.001	0.001
	Barium T	mg/L	0.001	0.078	0.075	0.08	0.079	0.078	0.085	0.08	0.08	0.13	0.262	0.24	0.159	0.135	0.119	0.111	0.128
	Cadmium T	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Chromium T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Copper T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lead T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lithium T	mg/L	0.001	0.057	0.089	0.09	0.084	0.084	0.103	0.095	0.091	0.085	0.08	0.052	0.073	0.089	0.08	0.086	0.085
	Manganese T	mg/L	0.001	0.026	0.051	0.047	0.048	0.044	0.044	0.041	0.041	0.081	0.133	0.12	0.092	0.078	0.073	0.063	0.053
	Selenium T	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Silver T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Strontium T	mg/L	0.001	0.487	0.511	0.521	0.54	0.525	0.559	0.54	0.52	0.54	0.558	0.36	0.447	0.56	0.528	0.498	0.54
	Zinc T	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Boron T	mg/L	0.05	0.11	0.13	0.12	0.12	0.12	0.14	0.14	0.12	0.12	0.1	0.07	0.1	0.13	0.12	0.12	0.12
	Iron T	mg/L	0.05	0.54	1.18	0.86	0.91	0.61	0.94	0.65	0.78	3.48	10.7	3.55	3.13	2.57	2.03	1.89	0.93
	Mercury D	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Mercury T	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Reactive Silica	mg/L	0.05	28.2	24.5	27.6	25.9	26	27.1	26.4	26.7	24.7	21.6	18.2	21.7	25.1	24.6	25.5	
Fluoride	mg/L	0.1	0.5	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.7	0.6	0.8	0.8		
Nitrite as N	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Nitrate as N	mg/L	0.01	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Nitrite + Nitrate as N	mg/L	0.01	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Total Anions	meq/L	0.01	13	13	11.7	13	12.7	10.9	12.9	12.9	13.2	10.8	8.79	11.5	12	12.2	12.3		
Total Cations	meq/L	0.01	11.7	12.8	11.5	12.7	12	12.1	12.7	12.3	12	10.4	9.31	11.2	11.5	12.1	11.6		
Ionic Balance	%	0.01	5.25	0.75	1	1.14	3	5.49	0.89	2.36	4.75	1.65	2.88	1.35	2.35	0.44	3.2		
Diss. pet. gases	Methane	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	14	15	14	12	14	25		
	Ethane	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10		
	Propane	µg/L	<10	<10															

CARPENTARIA 2

Category	CHEMICAL NAME	RESULT UNIT	LIMIT OF DETECTION	3/11/2021	14/11/2021	17/11/2021	21/11/2021	24/11/2021	28/11/2021	1/12/2021	8/12/2021	9/01/2022	26/01/2022	9/02/2022	23/02/2022	9/03/2022	23/03/2022	6/04/2022	17/07/2022	
General anions, cations and metal	pH - Lab	pH Unit	0.01	7.65	7.45	7.46	7.04	7.55	7.6	7.52	7.26	7.24	7.39	7.5	7.57	7.29	7.35	7.11	7.52	
	Electrical Conductivity @ 25°C	µS/cm	1	1090	1070	632	1050	1090	1090	1090	1090	1090	1090	1090	1090	1090	1090	1090	1090	1090
	Total Dissolved Solids @180°C	mg/L	10	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607
	Suspended Solids (SS)	mg/L	10	13	10	13	11	12	12	13	9	9	9	9	9	9	9	9	9	9
	Gross beta	mg/L	0.10	0.45	0.37	0.38	0.33	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
	Hardness	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Carbonate Alkalinity as CaCO3	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Bicarbonate Alkalinity as CaCO3	mg/L	1	473	473	347	484	484	484	483	483	483	474	489	489	489	489	489	489	489
	Total Alkalinity as CaCO3	mg/L	1	473	476	347	484	484	483	483	483	483	474	489	489	489	489	489	489	489
	Sulfate as SO4-2	mg/L	1	84	91	82	81	79	84	81	80	75	65	68	67	66	55	59	56	57
	Chloride	mg/L	1	56	58	53	59	53	60	58	52	56	53	52	51	56	52	54	61	60
	Calcium D	mg/L	1	105	110	111	109	119	111	110	129	121	111	103	110	126	116	115	117	101
	Magnesium D	mg/L	1	51	50	48	54	49	53	55	52	51	48	51	53	51	54	49	49	51
	Sodium D	mg/L	1	44	39	35	39	36	38	39	38	38	36	38	39	38	39	36	38	38
	Potassium D	mg/L	1	8	7	7	7	8	8	8	8	8	7	7	7	8	7	9	6	6
	Calcium T	mg/L	1	114	113	120	119	117	126	118	126	120	114	118	118	126	122	122	119	100
	Magnesium T	mg/L	1	63	51	54	52	54	54	57	53	52	51	54	53	58	55	54	54	54
	Sodium T	mg/L	1	38	39	39	38	38	41	41	41	38	36	39	39	39	41	40	40	40
	Potassium T	mg/L	1	8	8	8	8	8	8	8	8	7	7	7	7	8	9	7	7	7
	Barium D	mg/L	0.001	<0.001	<0.001	0.002	0.007	0.001	0.001	0.003	0.002	0.003	0.002	0.002	0.002	0.004	0.004	0.002	0.002	0.002
	Barium T	mg/L	0.001	0.084	0.173	0.15	0.154	0.128	0.145	0.148	0.152	0.156	0.159	0.17	0.174	0.169	0.166	0.166	0.239	0.239
	Cadmium D	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Chromium D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Copper D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lead D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lithium D	mg/L	0.001	0.082	0.096	0.099	0.09	0.09	0.093	0.094	0.094	0.091	0.096	0.095	0.091	0.099	0.091	0.091	0.091	0.091
	Manganese D	mg/L	0.001	0.116	0.202	0.16	0.166	0.141	0.158	0.176	0.155	0.197	0.166	0.133	0.125	0.133	0.124	0.111	0.092	0.092
	Selenium D	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Silver D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Strontium D	mg/L	0.001	0.521	0.475	0.457	0.452	0.469	0.502	0.5	0.499	0.454	0.44	0.441	0.486	0.474	0.462	0.478	0.471	0.471
	Zinc D	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005
	Boron D	mg/L	0.01	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
	Iron D	mg/L	0.05	4.11	3.01	4.57	6.21	2.82	6.17	6.89	4.93	6.26	3.96	2.85	2.69	4.19	4.07	1.84	1.84	1.84
	Arsenic T	mg/L	0.001	<0.001	<0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Barium T	mg/L	0.001	0.078	0.195	0.176	0.158	0.142	0.138	0.142	0.138	0.142	0.138	0.142	0.138	0.142	0.138	0.142	0.138	0.138
	Cadmium T	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Chromium T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Copper T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lead T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lithium T	mg/L	0.001	0.09	0.057	0.096	0.052	0.051	0.053	0.054	0.056	0.053	0.054	0.048	0.046	0.05	0.055	0.048	0.05	0.048
	Manganese T	mg/L	0.001	0.124	0.206	0.178	0.165	0.153	0.168	0.177	0.164	0.223	0.181	0.145	0.143	0.146	0.123	0.123	0.122	0.122
	Selenium T	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Silver T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Strontium T	mg/L	0.01	0.51	0.463	0.458	0.511	0.496	0.527	0.528	0.522	0.516	0.47	0.467	0.51	0.492	0.482	0.486	0.482	0.482
	Zinc T	mg/L	0.005	<0.005	0.021	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Boron T	mg/L	0.05	0.1	0.12	0.11	0.12	0.11	0.12	0.12	0.11	0.11	0.15	0.1	0.11	0.12	0.1	0.11	0.12	0.12
	Iron T	mg/L	0.05	4.22	3.61	5.29	4.67	4.92	6.06	6.83	4.93	6.26	3.96	2.85	2.69	4.19	4.07	1.84	1.84	1.84
	Mercury D	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Mercury T	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Reactive Silica	mg/L	0.05	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
	Fluoride	mg/L	0.1	0.8	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5
	Nitrite as N	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Nitrate as N	mg/L	0.01	0.06	0.06	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Nitrite + Nitrate as N	mg/L	0.01	0.06	0.06	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Total Anions	meq/L	0.01	12.8	13.7	10.1	13	12.8	12	13	12.7	12.6	12.6	10.9	12.7	11.9	12.3	12.3	12.1	11.5
	Total Cations	meq/L	0.01	11.6	11.3	11.1	11.3	12.1	12.1	12.1	12.9	12.7	11.6	10.8	11.5	11.8	11.7	11.7	11.7	11.7

CARPENTARIA 2

Category	CHEMICAL NAME	RESULT UNIT	LIMIT OF DETECTION	3/11/2021	14/11/2021	17/11/2021	21/11/2021	24/11/2021	28/11/2021	1/12/2021	8/12/2021	9/01/2022	26/01/2022	9/02/2022	23/02/2022	9/03/2022	23/03/2022	6/04/2022	17/07/2022	
General, anions, cations and metal	pH - Lab	pH Unit	0.01	7.51	7.43	7.43	7.03	7.55	7.58	7.49	7.27	7.64	7.33	7.44	7.5	7.62	7.24	7.06	7.4	
	Electrical Conductivity @ 25°C	µS/cm	1	1120	1110	1100	1070	1090	1100	1090	1040	1110	1080	1060	1110	1120	1040	1060	1120	
	Total Dissolved Solids @180°C	mg/L	10	717	600	582	814	790	716	748	792	748	698	700	791	756	689	708	678	
	Suspended Solids (SS)	mg/L	1	---	1	<1	1	<1	<1	<1	<1	1	5	2	2	3	2	2	<1	
	Gross beta	Bq/L	0.10	0.3	0.31	0.36	0.31	0.31	0.32	0.27	0.27	0.31	0.3	0.25	0.3	0.34	---	0.21	0.31	0.32
	Hydroxide Alkalinity as CaCO3	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Carbonate Alkalinity as CaCO3	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Bicarbonate Alkalinity as CaCO3	mg/L	1	493	484	390	497	490	369	492	496	482	470	486	482	464	474	478	455	455
	Total Alkalinity as CaCO3	mg/L	1	493	484	390	497	490	369	492	496	482	470	486	482	464	474	478	455	455
	Sulfate as SO4 2-	mg/L	1	80	92	83	83	81	85	84	85	122	77	83	85	83	84	84	83	86
	Chloride	mg/L	1	60	57	52	59	53	61	60	54	56	55	52	61	57	62	55	60	60
	Calcium D	mg/L	1	128	123	120	124	117	126	140	130	127	108	144	143	131	134	141	123	123
	Magnesium D	mg/L	1	48	46	44	47	44	48	50	47	50	43	52	50	49	52	48	50	50
	Sodium D	mg/L	1	42	36	35	37	35	38	39	38	40	34	45	39	38	40	38	38	38
	Potassium D	mg/L	1	7	7	7	8	7	8	8	8	8	8	6	9	9	8	8	10	7
	Calcium T	mg/L	1	129	130	129	132	126	141	132	133	132	154	130	135	143	136	135	123	123
	Magnesium T	mg/L	1	54	48	48	50	48	51	50	50	50	58	48	51	50	54	50	52	52
	Sodium T	mg/L	1	37	40	37	39	38	39	41	40	38	46	39	40	40	41	39	40	40
	Potassium T	mg/L	1	6	8	8	8	8	8	9	8	8	8	9	8	8	9	8	8	7
	Arsenic D	mg/L	0.001	<0.001	<0.001	0.001	0.004	<0.001	<0.001	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Barium D	mg/L	0.001	0.087	0.28	0.272	0.227	0.151	0.168	0.158	0.119	0.099	0.092	0.111	0.106	0.108	0.101	0.092	0.084	0.084
	Cadmium D	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Chromium D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Copper D	mg/L	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lead D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lithium D	mg/L	0.001	0.038	0.042	0.037	0.044	0.037	0.038	0.042	0.039	0.043	0.032	0.041	0.04	0.04	0.041	0.043	0.044	0.044
	Manganese D	mg/L	0.001	0.007	0.457	0.407	0.367	0.26	0.25	0.228	0.177	0.098	0.109	0.134	0.114	0.117	0.104	0.086	0.007	0.007
	Selenium D	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Silver D	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Strontium D	mg/L	0.001	0.494	0.493	0.47	0.431	0.461	0.506	0.512	0.498	0.487	0.432	0.519	0.499	0.488	0.472	0.513	0.499	0.499
	Zinc D	mg/L	0.005	0.007	0.006	0.006	0.01	<0.005	0.006	<0.005	0.006	<0.005	0.005	0.007	<0.005	0.007	0.006	0.007	0.007	0.007
	Boron D	mg/L	0.05	0.1	0.11	0.1	0.11	0.1	0.1	0.11	0.1	0.11	0.1	0.13	0.11	0.09	0.12	0.1	0.13	0.13
	Iron D	mg/L	0.05	0.33	0.78	0.76	0.9	0.31	0.82	0.92	0.2	<0.05	0.62	1.03	0.35	1	1.02	0.32	<0.05	<0.05
	Arsenic T	mg/L	0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Barium T	mg/L	0.001	0.085	0.294	0.307	0.254	0.166	0.193	0.164	0.124	0.113	0.129	0.11	0.104	0.118	0.104	0.091	0.086	0.086
	Cadmium T	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Chromium T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Copper T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001
	Lead T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lithium T	mg/L	0.001	0.042	0.042	0.042	0.04	0.039	0.051	0.043	0.043	0.044	0.038	0.04	0.043	0.038	0.043	0.038	0.039	0.041
	Manganese T	mg/L	0.001	0.007	0.47	0.452	0.389	0.288	0.277	0.235	0.199	0.113	0.158	0.13	0.111	0.113	0.099	0.089	0.007	0.007
	Selenium T	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Silver T	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Strontium T	mg/L	0.001	0.526	0.526	0.509	0.533	0.493	0.557	0.538	0.51	0.544	0.602	0.479	0.496	0.567	0.508	0.506	0.522	0.522
	Zinc T	mg/L	0.005	0.009	0.007	0.006	0.006	0.006	0.007	0.006	0.007	0.006	0.009	0.007	0.007	0.008	0.007	0.006	0.008	0.008
	Boron T	mg/L	0.05	0.1	0.12	0.11	0.12	0.12	0.12	0.13	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.12
	Iron T	mg/L	0.05	0.42	1.53	1.13	1.2	0.47	1.27	1.23	0.34	0.94	2.96	2.7	0.72	2.32	3.13	1.34	<0.05	<0.05
	Mercury D	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Mercury T	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Reactive Silica	mg/L	0.05	39.1	29.1	29.5	31.4	30.5	31.8	30.7	30.4	29.6	31.1	30.3	29.9	30.8	30	31.2	31.2	31.2
Fluoride	mg/L	0.1	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	0.4	0.4	0.4	
Nitrite as N	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Nitrate as N	mg/L	0.01	0.08	0.02	0.02	0.03	0.03	0.02	0.03	0.04	0.04	0.03	0.03	0.04	0.04	0.07	0.03	0.03	0.07	
Nitrite + Nitrate as N	mg/L	0.01	0.08	0.02	0.02	0.03	0.03	0.02	0.03	0.04	0.04	0.03	0.03	0.04	0.04	0.07	0.03	0.03	0.07	
Total Anions	meq/L	0.01	13.2	13.2	11	13.3	13	10.9	13.3	13.2	13.8	12.5	12.9	13.1	12.6	13	12.8	12.6	12.6	
Total Cations	meq/L	0.01	12.3	11.7	11.3	11.9	11.2	13	12.2	12.4	11.6	10.6	13.6	13.2	12.4	12.9	12.9	12.1	12.1	
Ionic Balance	%	0.																		