Annual Groundwater Monitoring Report - 2024

Dingo Gas Field and Surprise Oil Field

Mereenie Oil and Gas Field

Palm Valley Gas Field

Contents

1 Introduction

Central Petroleum Ltd (CTP) operates four oil and gas fields across the Amadeus Basin in the Northern Territory (NT). Conditions of approval of Environmental Management Plans (EMPs) for the field operations required the development of groundwater monitoring plans (GMPs) to demonstrate that there is *no change in the groundwater quality as a result of activities.* The following plans were submitted to the NT Government in accordance with the EMP conditions:

- DIN-630-PLN-0003: Dingo Gas Field and Surprise Oil Field Groundwater Monitoring Plan
- 9900-630-PLN-0002: Mereenie Oil and Gas Field Groundwater Monitoring Plan

In addition, CTP proactively developed the following:

- PVL-630-PLN-0001: Palm Valley Gas Field Groundwater Monitoring Plan

This document has been prepared to satisfy the annual EMP reporting requirements of the GMPs for the 2024 calendar year. In accordance with EMP requirements (for example from the Mereenie EMPs) for an interpretative report of groundwater quality, this report includes:

- identification of any change to groundwater quality or level attributable to conduct of the regulated activity and discussion of the significance of and cause of any such change;
- interpretation of any statistical outliers observed from baseline measured values for each of the analytes listed in Table 6 of the Code;
- a summary of the results including descriptive statistics;
- discussion of any trends observed.

CTP will also submit EMP Anniversary Groundwater Reports to satisfy the conditions of the relevant approvals (i.e. 90 days following the EMP approval date).

2 Monitoring Scope

The monitoring locations are shown on Figure 1 to Figure 4. Table 1 provides a summary of the scope included in the GMPs and the scope completed during the 2024 calendar year.

The end of wet season monitoring was mostly undertaken in April 2024 and the pre-wet season monitoring was mostly undertaken in October 2024. Actual dates are included with the chemistry results in Appendix A.

Deviations from the GMP scopes included:

- In May 2024, the following items were not or partially completed:
  - A sample was not collected from RN002943 as the pump was removed and the bore was found to be dry; and
  - Water levels could not be measured in RN007292 and RN018732 because they could not be accessed.
- In October 2024, the following items were not completed:
  - A sample was not collected from RN002943 as the pump was removed and the bore was found to be dry;
  - A sample was not collected from RN017657 as the bore was not operational; and

– A water level could not be measured in RN007292 and RN01873 because they could not be accessed.

Due to complications with bore pumps and sample transport to labs there were unexpected delays obtaining the second samples from site.

Table 1 Groundwater monitoring locations and scope

Field	Location	Water Quality		Water Level		Wellhead Pressure		Field Water Quality and Photograph	
		May	October	May	October	May	October	May	October
Mereenie	RN004620	✓	✓						
	RN018955	✓	✓						
	RN017898	✓	✓						
	RN013861	✓	✓						
	RN017657	×	×						
Dingo	Dingo 2					✓	✓		
	Dingo 3					✓	✓		
	RN002943	✓	✓	✓	✓				
	RN010853	✓	✓	✓	✓				
	RN011831	✓	✓	✓	✓				
	RN017540			✓	✓				
Surprise	Surprise 1					✓	✓		
	Johnstone West 1					✓	✓		
	RN018851	✓	✓	✓	✓				
	RN018397			✓	✓				
	RN018463			✓	✓				
	RN018398			✓	✓				
Palm Valley	Palm Creek Lower Oasis							✓	✓
	Palm Valley Area Spring No 8							✓	✓
	Palm Valley Area Spring No 9							✓	✓
	Pimelia Spring							✓	✓
	RN006503	✓	✓						
	RN012024	✓	✓						
	RN007292			×	×				
	RN018732			✓	✓				
	RN14165			×	✓				
	RN018706			✓	✓				
	RN018707			✓	✓				
	RN018708			✓	✓				

* Datum = GD94

Not in scope

✓ Completed

✓ Partially completed

× Not completed

3 Water quality monitoring results

The water quality monitoring suite is consistent with Table 6 of the Code of Practice: Onshore Petroleum Activities in the Northern Territory (NTG, 2019).

Water quality monitoring results for the 2024 calendar year are provided in Appendix A.

Quality of the laboratory results is assured, in addition to NATA accredited laboratory internal quality control checks, through the collection of field blind duplicates and calculation of relative percentage differences between primary and duplicate samples. Duplicate samples were however not collected in the April 2024 monitoring event.

Quality assurance results for the October 2024 event are provided in Appendix A. These show good agreement between the primary and duplicate samples (relative percentage differences (RPDs) <30%), therefore the laboratory analyses have acceptable repeatability.

3.1 Comparison with performance criteria

In accordance with the GMPs, the ANZECC (2000) livestock values have been used as interim performance standards while sufficient data is accumulated to develop site-specific performance standards. DES (2021) suggests that a minimum of eight samples are required to develop site-specific performance standards. Eight monitoring events have now been undertaken for most monitoring locations. Site specific performance standards will be developed for the 2025 annual report.

The results of the monitoring are tabulated in Appendix A and have identified the following exceedances of the interim performance standards:

- In May 2024:
  - Gross Alpha exceeded the ANZECC (2000) livestock guideline value (0.5 Bq/L) in RN013861 (1.29 Bq/L), RN011831 (0.73 Bq/L) and RN006503 (0.63 Bq/L). These bores are in Mereenie, Dingo and Palm Valley GMP areas respectively.
  - Gross Beta (excluding k-40) exceeded the ANZECC (2000) livestock guideline value (0.5 Bq/L) inRN004620 (0.52 Bq/L) and RN011831 (0.84 Bq/L). These bores are located at the Mereenie gas field and the Surprise oil field respectively.
  - Sulphate exceeded the exceeded the ANZECC (2000) livestock guideline value (1,000 mg/L) in RN013861 (1,370 mg/L). This bore is located in the Mereenie field.
- In October 2024:
  - Gross Alpha exceeded the ANZECC (2000) livestock guideline value (0.5 Bq/L) in RN013861 (1.21 Bq/L), RN011831 (0.6 Bq/L) and RN006503 (0.75 Bq/L). These bores are in Mereenie, Dingo and Palm Valley GMP areas respectively.
  - Gross Beta (excluding k-40) exceeded the ANZECC (2000) livestock guideline value (0.5 Bq/L) inRN004620 (0.61 Bq/L) and RN011831 (0.52 Bq/L). These bores are located at the Mereenie gas field and the Surprise oil field respectively.
  - Sulphate exceeded the ANZECC (2000) livestock guideline value (1,000 mg/L) in RN013861 (1,690 mg/L). This bore is located in the Mereenie field.

3.2 Trend analysis

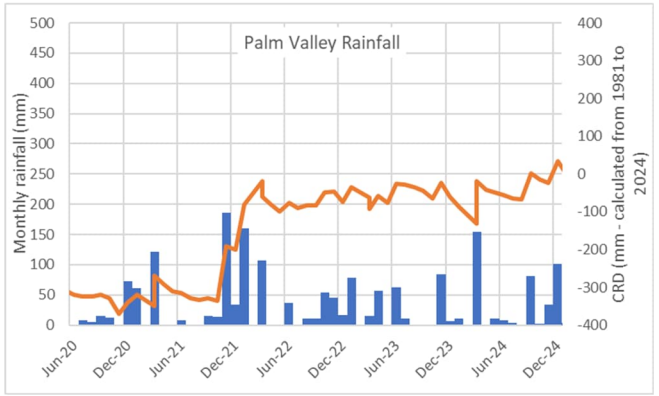
A Mann-Kendall test for trend has been performed for all bores and all chemical parameters where there are three or more results. The output of the Mann-Kendall test is included in the bore-by-bore statistical summaries provided as Appendix B. Where the Mann-Kendall test identified a trend (either rising or falling), a timeseries graph of the data was prepared. These graphs are also included in Appendix B.

The trends identified by the Mann-Kendall test are summarised in Table 2 below. Observations with respect to the total dissolved solids trends have been included. Total dissolved solids (TDS) provides an indication of the overall water quality. Despite the trends, none of these parameters exceed the performance criteria.

Table 2 Parameter trends

Field	Location	Parameter	Trend direction	Trend description	Comments
Mereenie	RN004620	Electrical conductivity	Falling	Gradual decline in electrical conductivity from a maximum of 1,320 µS/cm in May 2021 to the current value of 1,095 µS/cm.	RN004620 is one of the oldest water supply bores in the Mereenie field. The falling trends indicate a general improvement in water quality. Despite the rising trend in the zinc concentration, the absolute concentration is approximately three orders of magnitude less than ANZECC 2000 livestock drinking water guideline value.
		pH (laboratory)	Falling	Some longer term cyclicity apparent in the field measured pH, but with overall gradual long term decline.	
		Gross alpha	Falling	Rising trend in gross alpha over 2021/2022, but with subsequent drop in concentration. The 2024 results were roughly equal to the 20th percentile of the results.	
		Magnesium	Rising	Increase in magnesium concentration from a minimum of 37 mg/L to 42 mg/L in October 2022. The concentration has then been reported at either 41 mg/L or 42 mg/L since.	
		Iron	Falling	Concentrations reported between 0.12 mg/L and 0.2 mg/L through 2021 and 2022 but have since been <LOR.	
		Zinc	Rising	Between May 2021 and October 2023 (inclusive) the zinc concentration was less than 0.02 mg/L. In May 2024 it rose to 0.027 mg/L but subsequently reduced to 0.022 mg/L in October 2022.	
	RN018955	Zinc	Rising	No trend in the zinc concentration between May 2021 and May 2023 inclusive. Rising trend since October 2023, with October 2024 reporting the maximum concentration of 0.122 mg/L	RN018955 is located in the West Mereenie field. The increasing trend in only one parameter alludes to natural occurrences or variability or laboratory introduced variability
	RN017898	Field Electrical conductivity	Falling	Decline in electrical conductivity (EC) from 475 µS/cm in May 2021 to 382 µS/cm October 2024.	RN017898 is regularly used to supply water to site operations. Observed trends suggest a marginal improvement in groundwater quality from this bore. Laboratory chemistry data from the Bore Report reported electrical conductivity of 445 µS/cm which is very similar to the median of the values reported (441 µS/cm). The trends are attributed to natural variation.
		pH (laboratory)	Falling	Some longer term cyclicity apparent in the laboratory measured pH, but with overall gradual long term decline. October 2024 reported lowest pH on record – pH 7.	
		Gross beta	Falling	Decline in gross beta from 0.98 Bq/L in May 2021 to a minimum of 0.61 Bq/l in May 2023. Report at 0.66 Bq/L in October 2024.	

Field	Location	Parameter	Trend direction	Trend description	Comments
		Potassium	Falling	The reported potassium concentration has varied between 12 mg/L and 14 mg/L between My 2021 and October 2024. While there appears to be a gradual decline in concentration, this is likely to be due to laboratory or natural variation.	
	RN013861	pH (laboratory)	Falling	Gradual long-term decline in laboratory measured pH, although relatively stable since October 2023.	RN013861 is located in the East Mereenie field and is in regular use. The trends in only a small number of parameters alludes to natural variability or laboratory introduced variability
		Zinc	Rising	Gradual rising zinc concentration from <LOR in 2021 to a maximum of 0.021 mg/L in October 2023, but subsequently falling to 0.017 mg/L.	
Surprise	RN018851	Field Electrical conductivity (EC)	Falling	The EC was effectively stable between May 2021 and May 2022. It declined from ~1,410 µS/cm to 1,233 µS/cm in October 2022 before rising to 1,284 µS/cm in October 2023 and then falling to its minimum reported value of 1,139 µS/cm in May 2024.	This bore is located at the Surprise oil field, which has been shut-in since August 2015. The bore is rarely used. The electrical conductivity as measured by the driller was 1,530 µS/cm. The trends are attributed to natural variation, potentially affected by the lack of use and insufficient purging of the bore prior to sample collection.
		Nitrite	Falling	Longer term declining trend in nitrite concentrations, with October 2024 reporting the minimum value (9.67 mg/L).	
		Magnesium	Rising	The magnesium concentration has gradually risen from 38 mg/L in May 2021 to a maximum of 43 mg/L in May 2024 and 42 mg/L in October 2024.	
Dingo	RN011831	Gross alpha	Falling	The gross alpha concentration remained relatively stable between May 2021 and May 2024 inclusive, with a median concentration of 0.78 Bq/L over that period. In October 2024 the concentration was reported as 0.6 Bq/L.	This is a stock bore that is regularly used. It was originally drilled to 373 m and was then deepened to 433 m in 1978. A hydrogeologist's log from the Statement of Bore (SoB) identifies the screened formation as the Hermannsburg Sandstone. The SoB. includes several sets of chemistry results. The most recent data was from 1987 when the total dissolved solids (TDS) (gravimetric) was reported as 880 mg/L, however the maximum reported TDS was 980 mg/L in 1978. The most recent (October 2024) sample reported 988 mg/L TDS. The groundwater chemistry trends from this bore are attributed to natural variation.
		Fluoride	Rising	There was a rising in the fluoride concentration from 1.1 mg/L prior to October 2023 to 1.2 mg/L from October 2023 through 2024.	
		Calcium	Falling	Calcium shows a similar trend to Gross alpha. It was relatively consistent from May 2021 to May 2024, with a medium concentration of 73 mg/L over that period. In October 2024 the concentration fell to 58 mg/L.	
		Manganese	Falling	The May 2021 reported manganese concentration was 0.008 mg/L. It declined relatively rapidly to 0.002 mg/L in May 2022 and then decline to 0.001 mg/L in October 2023 where it has remained since.	
		Silica	Rising	There has been a gradual rise in the silica concentration from 16.8 mg/L in May 2021 to 18.7 mg/L in October 2024.	

Field	Location	Parameter	Trend direction	Trend description	Comments
Palm Valley	RN006503	Electrical conductivity	Falling	The EC was relatively stable from May 2021 to May 2022. It then dropped and has effectively remained consistent	RN006503 was drilled to ~487 m in 1969 as an exploration water supply bore for the Hermannsburg Misson, but is now used for stock watering. The bore was cased to ~30 m and open hole below. The bore was initially recorded as dry, but later started flowing very slightly. Observations of the water level during CP monitoring activities show some fluctuation, estimated in the order of 0.5 m, with unobservable flow. A sample record from the Statement of Bore from 1991 reported 800 mg/L TDS. All concentrations of other analytes which were analysed in 1991 were less than the concentrations reported during CTP monitoring activities. The decline in concentrations ~October 2023 may be related to a recharge event associated with above average rainfall in late 2021/ early 2022. It is considered likely that the increasing TDS and associated concentrations are related to climate or bore construction rather than CTP activities. 
		pH (Laboratory)	Falling	Gradual long-term decline in laboratory measured pH, although relatively stable since October 2023.	
		Bicarbonate	Rising	The pre-May 2023 median concentration was 255 mg/L, however from May 2023 the concentration has been reported in 269-276 mg/L range.	
		Chloride	Rising	Chloride shows similar trends to other parameters, starting at 196 mg/L in May 2021 and rising to a maximum of 274 mg/L in October 2023. The concentration dropped in May 2024 to 203 mg/L, but rose to 265 in October 2024.	
		Iron	Falling	Iron's trend does not follow the other parameters. Its initial concentration was 1.83 mg/L which rose to 2 mg/L in October 2021. In 2022it was reported as less than 1.5 mg/L and has been reported <LOR from May 2023 to October 2024.	
	RN012024	pH (laboratory)	Falling	Gradual long-term decline in laboratory measured pH, although relatively stable since October 2023.	RN012024 is located in the Finke Gorge National Park and is used to supply water to the camp site. Records are ambiguous but it appears that the bore was originally drilled to 34 m in 1978, but then deepened to 67.2 m in 1994. Historical water quality information available from NR Maps
		Electrical conductivity (laboratory)	Rising	The EC has gradually risen from a minimum of 1,167 µS/cm in May 2021 to a maximum of 1,315 µS/cm in October 2024.	

Field	Location	Parameter	Trend direction	Trend description	Comments
		Total dissolved solids	Rising	The TDS trend mimics the EC trend.	indicates that prior to 1994, the EC was in the order of 1,500 µS/cm but decreased to ~1,000 µS/cm when the bore was deepened. It is considered likely that the increasing salinity and associated major ion concentrations are related to climate or bore construction rather than CTP activities.
		Chloride	Rising	The chloride trend has been less consistent than EC, but has gradually risen from 137 mg/L in May 2021 to 201 mg/L in October 2024.	
		Sulphate	Rising	The sulphate concentration was generally around 70 mg/L prior to 2024, except in October 2022 when it was reported at 101 mg/L. In 2024, the sulphate concentration was reported at 110 mg/L in May 2024 and 98 mg/L in October 2024.	
		Sodium	Rising	The sodium concentration shows the same pattern as sulphate. In May 2021 it was reportedly 78 mg/L, and was reported at 122 mg/L in October 2024.	
		Zinc	Rising	Prior to 2024 the zinc concentration was ~LOR. In 2024 the concentration increased rapidly to >0.015 mg/L.	

3.3 Exceedance investigations

The following investigation was undertaken in accordance with the exceedance response framework regarding the Gross Alpha and Gross Beta exceedances reported in the 2021-2024 sample results:

- Exceedances of the interim performance standards of Gross Alpha and Gross Beta are consistent with historical exceedances reported in previous Groundwater Monitoring Reports.
- Gross alpha and gross beta levels in excess of the guideline values are not uncommon across the Northern Territory, for example:
  - Power and Water Corporation report that roughly 50% of the communities sampled exceed the radiological guidelines (https://www.powerwater.com.au/__data/assets/pdf_file/0026/26774/2018-Power-and-Water-Drinking-Water-Quality-Report.pdf).
  - Alice Springs, Borroloola and Pine Creek have had exceedances of the guideline values for gross alpha and gross beta from their water supply bores (https://water.australianmap.net/physical_chemical/radionuclides-other-beta-and-gamma-emitting/).
  - The values observed in the CTP groundwater monitoring program are roughly equal to the values reported by the NTG (https://depws.nt.gov.au/__data/assets/pdf_file/0006/726585/betaloo-groundwater-monitoring-report.pdf).

With the exception of RN006503 in the Palm Valley GMP area, none of the bores with Gross Alpha and Gross Beta exceedances of their interim performance standards show rising trends in the concentrations of these parameters which may suggest a new source of a contaminant. It was considered likely that the trends are due to natural occurrences and variability. The rising trend of Gross Beta in RN006503 is considered to be most likely related to climatic drivers that affect aquifer conditions or the effects of the bore construction, such as partial collapse of the open hole, leading to different zones within the aquifer supply different proportions of water to the bore.

The repeated exceedance of the sulphate concentration in RN013861 was investigated during 2023 and 2024, with the following findings:

- RN013861 was drilled to 213 m in 1984. The Statement of Bore (SoB) for indicates a small supply was encountered at 70 mbgl, which was effectively cased off in the construction of the bore, however the annulus was not cemented.
- Chemistry records from the SoB identify the TDS as 614 mg/L (by summation) and the sulphate concentration as 192 mg/L in 1984. Only one set of analytical results is available prior to 2013.
- CTP has monitoring records from RN013861 from 2013 to 2015. The TDS ranged from 2,300 mg/L to 2,900 mg/L and sulphate ranged from 1,620 mg/L to 2,000 mg/L
- RN016889, drilled in 1996, is located within 20 m of RN013861. It was drilled to 71.5 m with a reported TDS of 5,010 mg/L and sulphate concentration of 250 mg/L. These concentrations are considered likely to represent the groundwater quality in the shallower aquifer.

- The increased salinity (as measured by TDS) in RN013861 may be due to inter-aquifer leakage either through the bore annulus or through compromised casing. The source of the sulphate remains unknown.
- CTP will continue to investigate the cause of the sulphate exceedance.

Statistically significant trends, as determined by the Mann-Kendall test for trend and identified in Table 2, are believed to be due to natural variability.

No further investigations or response actions have been performed since the 2023 report was prepared.

4 Water level monitoring

Water level monitoring data is tabulated in Appendix C and timeseries graphs are also provided. These data identify:

- Two of the bores at Dingo are dry and or blocked;
- At Dingo, the water level in RN010853 declined by 5.5 m between the May and October 2021. From October 2021 and through 2022 the water level was relatively stable at approximately 125.35 m below top of casing but has since declined marginally to 125.46 m below top of casing as measured in October 2024;
- At Surprise the water level trends are variable, with RN018398 and RN018851 rising over the period of monitoring and RN018397 falling. RN018463 and RN018398 showed more rapid rises between October 2023 and May 2024 suggesting rainfall recharge; and
- At Palm Valley, the water levels have generally been relatively stable, except for RN014165 which shows a significant decline in water level of over 30 m between October 2021 and October 2022. During 2023, the water level recovered by roughly 28 m to around 22 m below top of casing but was measured at 28.3 m below top of casing in October 2024. These water level responses are most likely related to pumping of the Power and Water Corporation borefield in which the bores that are monitored are situated.

5 Wellhead pressure monitoring

Wellhead pressure monitoring data is tabulated in Appendix C and timeseries graphs are also provided. These data identify:

- Significant reductions in wellhead (tubing) pressures in Dingo 2 and Dingo 3 from May to October 2021. The Dingo 3 tubing pressure was stable from October 2021 through October 2024. The Dingo 2 tubing pressure gradually rose over the period October 2021 to May 2023, and then decreased between May 2023 and May 2024;
- The Johnstone West 1 pressure declined between April 2021 and October 2021, but has since recovered and has remained relatively consistent (~2,000 kPa) from October 2021 to October 2024; and
- There was a significant increase in tubing pressure in Surprise 1 between April 2021 and October 2021. The measured pressures in 2022 were significantly lower, but in 2023 they increased to a similar magnitude (~1,500 kPa) as October 2021. There was a dramatic drop in tubing pressure in the 2024 sampling event at Surprise 1 down to 4 kPa however this has been attributed to a blocked needle vale at the test point and is currently being rectified.

6 Springs Monitoring

The scope of the monitoring for Palm Valley Gas Field includes the monitoring of condition of four spring vents in the Finke Gorge National Park. This includes the collection of field water qualities and photographs of the springs.

Field water quality results are included in the tables in Appendix A.

Photographs of each of the spring pools are included in Appendix D.

Most notably Pimelia Spring and Spring No. 8 were dry in October 2021, May 2022, October 2023 and October 2024. All the springs had associated pools in the May 2021, October 2022, May 2023 and April 2024 monitoring events.

Fish were observed in the Palm Creek Lower Oasis spring in March and October 2022 and May 2023, however the pool was almost dried out in October 2023 and October 2024 with no fish recorded. In Spring No 9, fish were observed in May 2022 and May 2023, but not in the October field visits. Algae and aquatic plants were noted in Spring No 9 April 2024.

7 Conclusions

There is no evidence of a change in the groundwater quality due to CTP's activities at Dingo, Surprise, Mereenie or Palm Valley.

An elevated sulphate concentration in RN013861 at Mereenie is still under investigation.

8 References

ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 1, The Guidelines. Australian and New Zealand Environment and Conservation Council (ANZECC) & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ), 2000.

DES (2021) Using monitoring data to assess groundwater quality and potential environmental impacts. Version 2. Department of Environment and Science (DES), Queensland Government, Brisbane.

NTG (2019) Code of Practice: Onshore Petroleum Activities in the Northern Territory. Department of Environment and Natural Resources, Department of Primary Industry and Resources. Northern Territory Government. 31 May 2019.

Figure 1 Groundwater monitoring locations relative to permit boundary – Dingo Gas Field

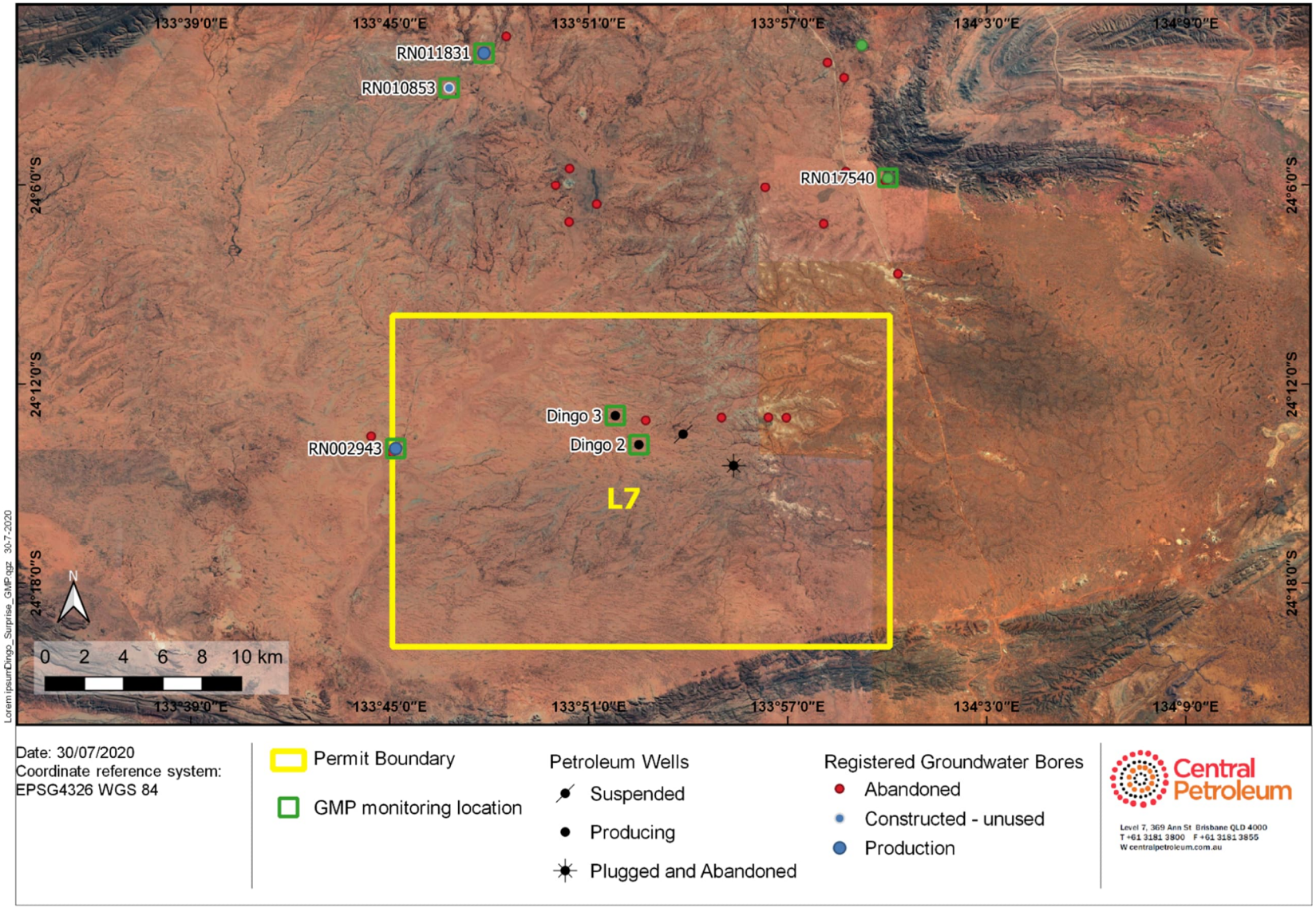


Figure 2 Groundwater monitoring locations relative to permit boundary – Surprise Oil Field

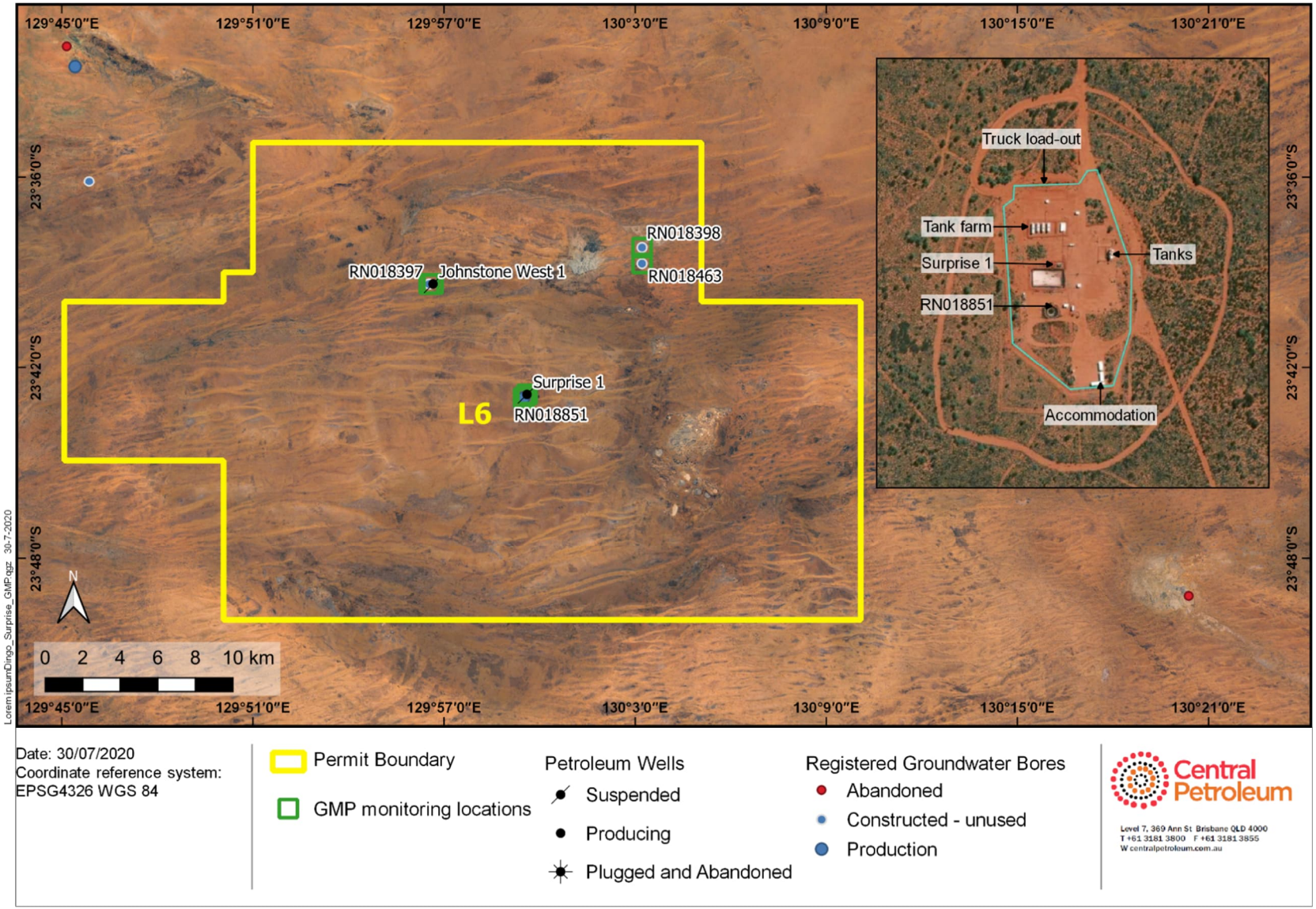


Figure 3 Groundwater monitoring locations relative to permit boundary – Mereenie Oil and Gas Field

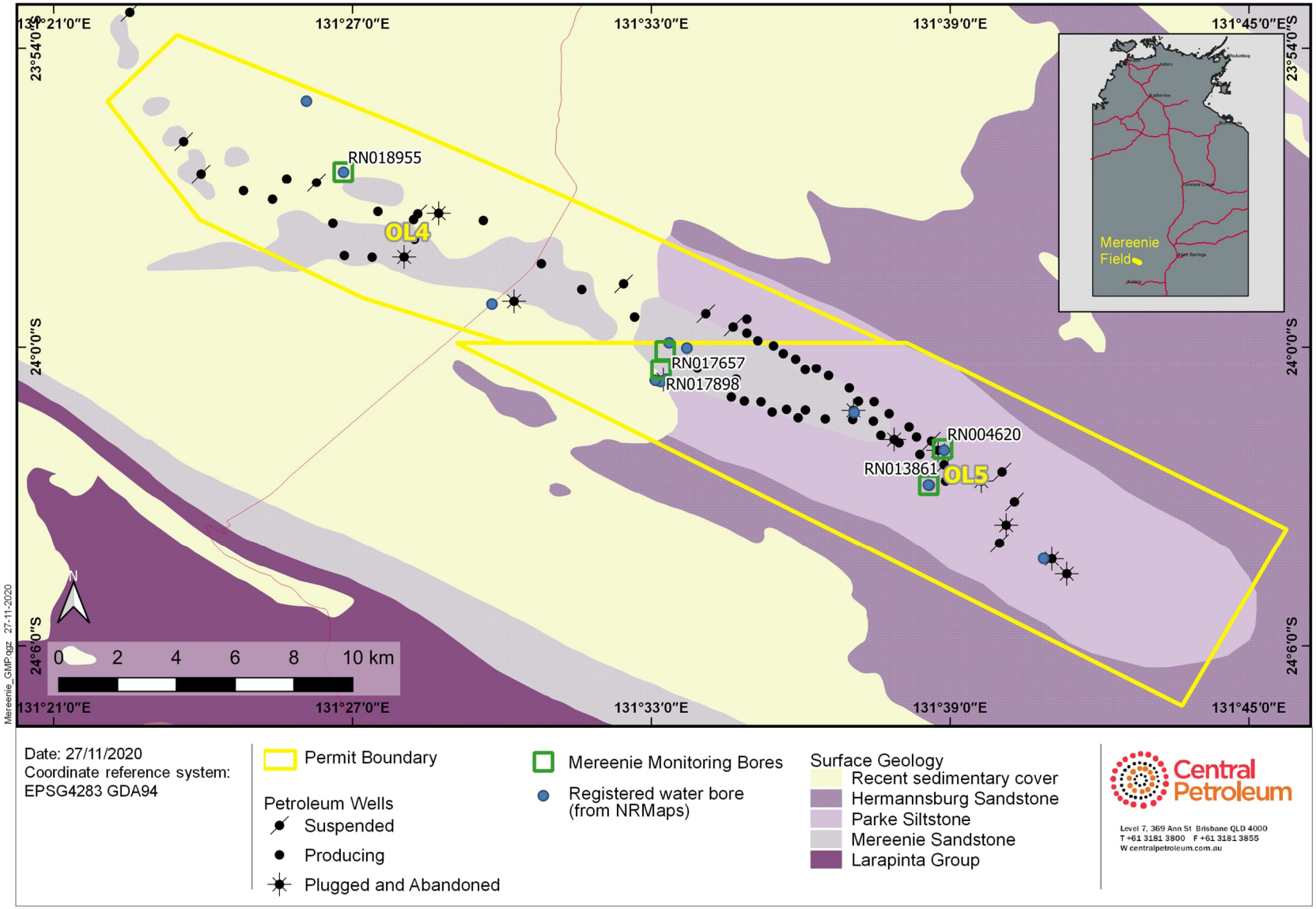
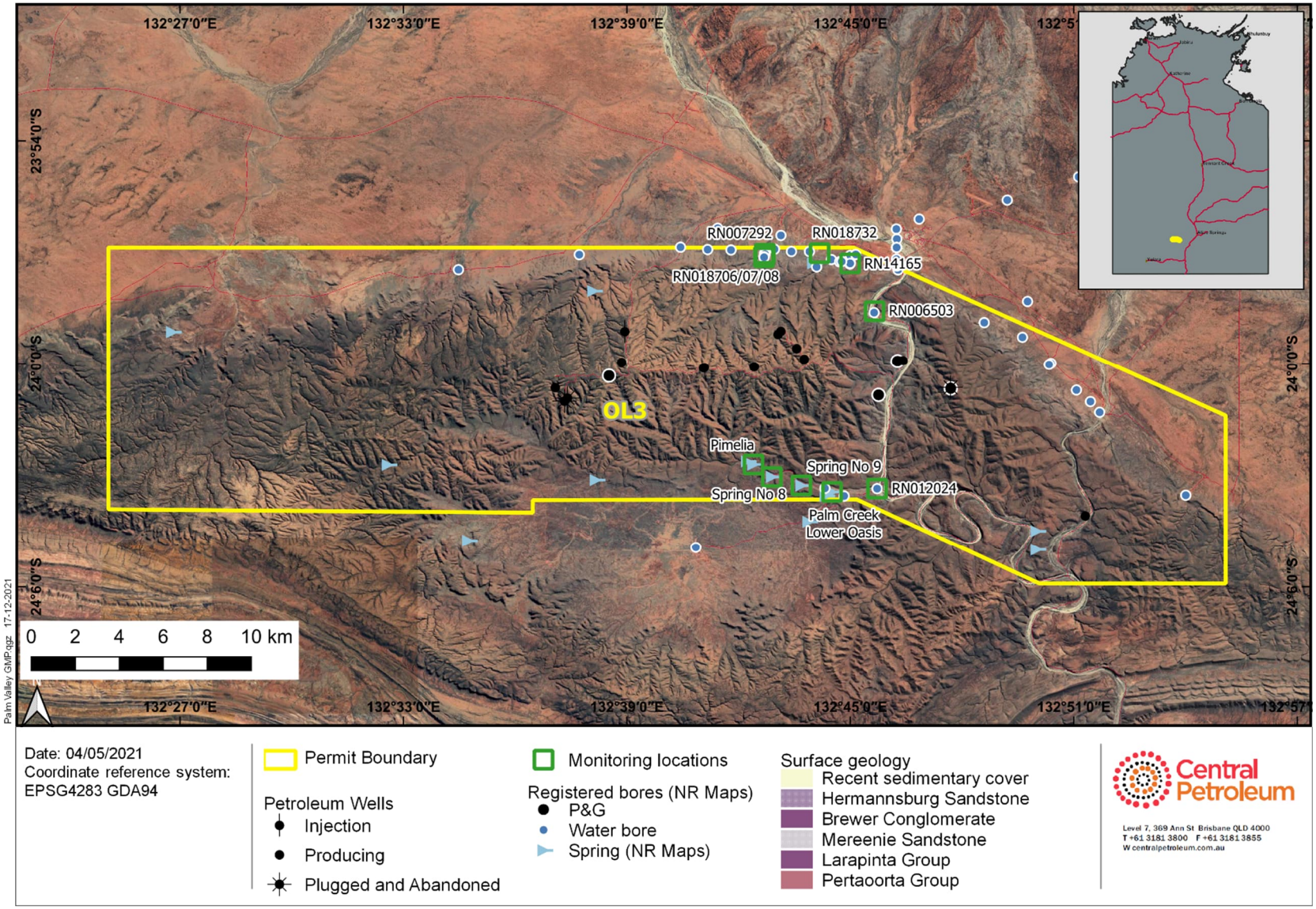


Figure 4 Groundwater monitoring locations relative to permit boundary – Palm Valley Gas Field



Appendix A - Water Quality and Quality Control Results

Monitoring Event:	May-2024		Field	Mereenie					Dingo/Surprise			Palm Valley					
		ANZECC (2000) Livestock	Location	RN004620	RN018955	RN017898	RN013861	RN017657	RN011831	RN002943	RN018851	RN006503	RN012024	Palm Creek Lower Oasis	Palm Valley Area Spring No 8	Palm Valley Area Spring No 9	Pimelia Spring
			Date	10/4/2024	10/4/2024	10/4/2024	10/4/2024	10/4/2024	25/6/2024	9/4/2024	14/4/2024	14/4/2024	16/4/2024	14/4/2024	14/4/2024	14/4/2024	14/4/2024
Field Parameters	**Units**		**LOR**														
Electrical conductivity	µS/cm	-	1	1092	359	378	3040	Not operational	1230	Dry	1139	1247	1095	10.76	529.1	828.9	847.5
pH	pH Unit	-	0.01	6.73	6.87	7.67	7	Not operational	6.9	Dry	6.8	7.3	7.07	8.11	9.03	9.61	8.69
Temperature	°C	-	0.1	25.9	25.5	22.9	26.7	Not operational	24	Dry	28.3	24.8	25.2	20	19.4	19.2	23.1
General Parameters																	
pH (laboratory)	pH Unit	-	0.01	7.48	7.53	7.25	7.65	-	7.97	-	7.68	7.65	7.64	-	-	-	-
Electrical conductivity (laboratory)	µS/cm	-	1	1280	422	463	3750	-	1350	-	1420	1410	1340	-	-	-	-
Total dissolved solids[1]	mg/L	4000	1	832	274	301	2440	-	878	-	923	916	871	-	-	-	-
Total suspended solids	mg/L	-	1	<LOR	5	<LOR	<LOR	-	<LOR	-	3	3	<LOR	-	-	-	-
Gross alpha	Bq/L	0.5	0.05	0.18	0.2	0.18	**1.29**	-	**0.73**	-	0.37	**0.63**	0.28	-	-	-	-
Gross beta	Bq/L	-	0.1	0.82	0.85	0.68	0.56	-	0.55	-	1.16	0.44	0.27	-	-	-	-
Gross beta activity - 40K	Bq/L	-	0.1	0.24	0.55	0.36	0.32	-	<LOR	-	0.32	0.13	<LOR	-	-	-	-
Gross beta (excluding k-40)	Bq/L	0.5	0.1	**0.58**	0.3	0.32	0.24	-	-	-	**0.84**	0.31	-	-	-	-	-
Major Anions and Cations																	
Bicarbonate	mg/L	-	1	122	57	58	228	-	309	-	189	276	377	-	-	-	-
Carbonate	mg/L	-	1	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Chloride	mg/L	-	1	245	68	65	483	-	251	-	250	203	194	-	-	-	-
Sulphate	mg/L	1000	1	156	31	41	**1370**	-	119	-	119	285	110	-	-	-	-
Nitrate	mg/L	400	0.01	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	0.03	<LOR	<LOR	-	-	-	-
Nitrite	mg/L	30	0.01	1.73	0.46	1.96	<LOR	-	0.39	-	10.5	<LOR	6.02	-	-	-	-
Fluoride	mg/L	2	0.1	0.5	0.5	0.6	0.8	-	1.2	-	1.1	0.2	0.7	-	-	-	-
Sodium	mg/L	-	1	128	43	51	179	-	140	-	137	132	121	-	-	-	-
Potassium	mg/L	-	1	23	12	12	9	-	16	-	32	9	7	-	-	-	-
Calcium	mg/L	1000	1	57	12	12	514	-	70	-	69	110	84	-	-	-	-
Magnesium	mg/L	-	1	42	11	12	145	-	59	-	43	48	66	-	-	-	-
Iron	mg/L	-	0.05	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Hydrocarbons																	
TRH: C6-C10	µg/L	-	20	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
TRH: >C10-C40	µg/L	-	100	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Benzene	µg/L	-	1	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Toluene	µg/L	-	2	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Ethylbenzene	µg/L	-	2	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Total Xylenes	µg/L	-	2	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Naphthalene	µg/L	-	5	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
PAH Suite	µg/L	-	0.5	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Dissolved Gases																	
Methane	µg/L	-	10	<LOR	<LOR	<LOR	37	-	-	-	<LOR	-	-	-	-	-	-
Ethane	µg/L	-	10	<LOR	<LOR	<LOR	<LOR	-	-	-	<LOR	-	-	-	-	-	-
Propane	µg/L	-	10	<LOR	<LOR	<LOR	<LOR	-	-	-	<LOR	-	-	-	-	-	-
Dissolved Metals/metalloids																	
Chromium	mg/L	1	0.001	<LOR	<LOR	<LOR	<LOR	-	0.003	-	<LOR	<LOR	<LOR	-	-	-	-
Copper[2]	mg/L	1	0.001	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	0.004	-	-	-	-
Lead	mg/L	0.1	0.001	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Manganese	mg/L	-	0.001	0.029	0.145	<LOR	0.117	-	<LOR	-	0.022	0.05	0.02	-	-	-	-
Mercury	mg/L	0.002	0.0001	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Silver	mg/L	-	0.001	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Arsenic	mg/L	0.5	0.001	<LOR	<LOR	<LOR	0.002	-	<LOR	-	<LOR	<LOR	0.002	-	-	-	-
Barium	mg/L	-	0.001	0.037	0.042	0.077	0.03	-	0.08	-	0.058	0.066	0.315	-	-	-	-
Boron	mg/L	5	0.05	0.26	0.2	0.25	0.4	-	0.25	-	0.52	0.08	0.33	-	-	-	-
Cadmium	mg/L	0.01	0.0001	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Lithium	mg/L	-	0.001	0.01	<LOR	<LOR	0.08	-	0.011	-	0.008	0.044	0.031	-	-	-	-
Selenium	mg/L	0.02	0.01	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Silica	mg/L	-	0.05	16.3	13.1	13.9	22.4	-	18.2	-	48.6	21.3	43.7	-	-	-	-
Strontium	mg/L	-	0.001	0.496	0.141	0.147	5.74	-	0.712	-	0.704	0.958	1.52	-	-	-	-
Zinc	mg/L	20	0.005	0.027	0.028	0.021	0.017	-	0.033	-	0.043	<LOR	0.02	-	-	-	-

1, 2 - guideline value for beef cattle

0.5 Guideline value exceeded

\- Not analysed

Monitoring Event: Oct-2024			Field	Mereenie					Dingo/Surprise			Palm Valley					
		ANZECC (2000) Livestock	Location	RN004620	RN018955	RN017898	RN013861	RN017657	RN011831	RN002943	RN018851	RN006503	RN012024	Palm Creek Lower Oasis	Palm Valley Area Spring No 8	Palm Valley Area Spring No 9	Pimelia Spring
			Date	31/10/2024	31/10/2024	31/10/2024	31/10/2024	31/10/2024	25/6/2024	28/10/2024	29/10/2024	30/10/2024	30/10/2024	30/10/2024	30/10/2024	30/10/2024	30/10/2024
Field Parameters	**Units**		**LOR**														
Electrical conductivity	µS/cm	-	1	1095	327.6	381.8	2660	Not operational	1230	Bore collapsed	11399	1315	1315	2130	Dry	6340	Dry
pH	pH Unit	-	0.01	6.84	6.96	6.75	6.99	Not operational	6.9	Bore collapsed	6.8	7.11	7.11	9.06	Dry	9.06	Dry
Temperature	°C	-	0.1	26.1	29	28.8	26.9	Not operational	24	Bore collapsed	28.3	27.4	27.4	31.2	Dry	30.7	Dry
General Parameters																	
pH (laboratory)	pH Unit	-	0.01	7.53	7.03	7	7.48	-	8.29	-	7.83	7.95	7.72	-	-	-	-
Electrical conductivity (laboratory)	µS/cm	-	1	1320	368	438	3130	-	1520	-	1360	1580	1370	-	-	-	-
Total dissolved solids[1]	mg/L	4000	1	858	239	285	2030	-	988	-	884	1030	890	-	-	-	-
Total suspended solids	mg/L	-	1	5	<LOR	<LOR	<LOR	-	3	-	<LOR	4	<LOR	-	-	-	-
Gross alpha	Bq/L	0.5	0.05	0.17	0.45	0.31	**1.21**	-	**0.6**	-	0.41	**0.75**	0.34	-	-	-	-
Gross beta	Bq/L	-	0.1	0.86	0.89	0.66	0.48	-	0.6	-	1.27	0.47	0.18	-	-	-	-
Gross beta activity - 40K	Bq/L	-	0.1	0.25	0.57	0.29	0.2	-	0.12	-	0.51	0.15	<LOR	-	-	-	-
Gross beta (excluding k-40)	Bq/L	0.5	0.1	**0.61**	0.32	0.37	0.28	-	0.48	-	**0.76**	0.32	-	-	-	-	-
Major Anions and Cations																	
Bicarbonate	mg/L	-	1	116	48	58	210	-	298	-	221	269	378	-	-	-	-
Carbonate	mg/L	-	1	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Chloride	mg/L	-	1	242	60	72	84	-	306	-	246	265	201	-	-	-	-
Sulphate	mg/L	1000	1	153	38	43	**1690**	-	125	-	127	275	98	-	-	-	-
Nitrate	mg/L	400	0.01	0.12	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Nitrite	mg/L	30	0.01	1.26	0.58	1.74	<LOR	-	0.11	-	9.67	<LOR	7.49	-	-	-	-
Fluoride	mg/L	2	0.1	0.5	0.5	0.7	0.9	-	1.2	-	0.9	<LOR	0.7	-	-	-	-
Sodium	mg/L	-	1	127	38	47	136	-	145	-	126	127	122	-	-	-	-
Potassium	mg/L	-	1	24	11	12	8	-	16	-	30	11	6	-	-	-	-
Calcium	mg/L	1000	1	56	10	11	514	-	58	-	94	119	72	-	-	-	-
Magnesium	mg/L	-	1	42	9	11	105	-	60	-	42	48	58	-	-	-	-
Iron	mg/L	-	0.05	<LOR	<LOR	<LOR	0.12	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Hydrocarbons																	
TRH: C6-C10	µg/L	-	20	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
TRH: >C10-C40	µg/L	-	100	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Benzene	µg/L	-	1	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Toluene	µg/L	-	2	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Ethylbenzene	µg/L	-	2	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Total Xylenes	µg/L	-	2	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Naphthalene	µg/L	-	1	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
PAH Suite	µg/L	-	0.5	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Dissolved Gases																	
Methane	µg/L	-	10	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Ethane	µg/L	-	10	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Propane	µg/L	-	10	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Dissolved Metals/metalloids																	
Chromium	mg/L	1	0.001	0.006	0.004	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Copper[2]	mg/L	1	0.001	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	0.003	-	-	-	-
Lead	mg/L	0.1	0.001	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Manganese	mg/L	-	0.001	0.004	0.01	0.065	0.083	-	<LOR	-	0.09	0.072	<LOR	-	-	-	-
Mercury	mg/L	0.002	0.0001	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Silver	mg/L	-	0.001	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Arsenic	mg/L	0.5	0.001	<LOR	<LOR	<LOR	0.003	-	<LOR	-	<LOR	<LOR	0.002	-	-	-	-
Barium	mg/L	-	0.001	0.05	0.081	0.367	0.019	-	0.077	-	0.071	0.315	0.074	-	-	-	-
Boron	mg/L	5	0.05	0.27	0.2	0.25	0.45	-	0.3	-	0.49	0.11	0.38	-	-	-	-
Cadmium	mg/L	0.01	0.0001	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Lithium	mg/L	-	0.001	0.011	<LOR	0.043	0.053	-	0.012	-	0.012	0.069	0.015	-	-	-	-
Selenium	mg/L	0.02	0.01	<LOR	<LOR	<LOR	<LOR	-	<LOR	-	<LOR	<LOR	<LOR	-	-	-	-
Silica	mg/L	-	0.05	16.6	14.9	14.8	24.5	-	19.7	-	41.4	21	43.5	-	-	-	-
Strontium	mg/L	-	0.001	0.52	0.125	3.69	6.15	-	0.682	-	0.812	2.91	0.362	-	-	-	-
Zinc	mg/L	20	0.005	0.022	0.122	0.023	0.017	-	0.014	-	0.042	0.013	0.017	-	-	-	-

1, 2 - guideline value for beef cattle

0.5 Guideline value exceeded

\- Not analysed

Sample Event	Parameter	RN011831	DUP-D	RPD	RN012024	DUP-P	RPD	RN013861	DUP-M	RPD
Oct-2024	Electrical Conductivity	1520	1490	2	1370	1380	-0.7	3130	3110	0.6
Oct-2024	Total Dissolved Solids	988	968	2	890	897	-0.8	2030	2020	0.5
Oct-2024	Chloride	306	278	9.6	201	184	8.8	84	80	4.9

Appendix B – Bore-by-bore summary statistics and timeseries graphs

Field	Mereenie		Location:				RN013861			
Field Parameters	**Units**	**ANZECC (2000) Livestock**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**	**Mann-Kendall Trend**
Electrical conductivity	µS/cm	-	1	7	2660	2854	3040	3416	3680	No Trend
pH	pH Unit	-	0.01	7	6.65	6.88	6.99	7.33	7.70	No Trend
Temperature	°C	-	0.1	7	25.0	25.5	26.2	26.9	28.9	No Trend
General Parameters										
pH (laboratory)	pH Unit	-	0.01	7	7.48	7.51	7.71	8.12	8.18	Falling
Electrical conductivity (laboratory)	µS/cm	-	1	7	3040	3114	3190	3522	3750	No Trend
Total dissolved solids	mg/L	4000 (1)	1	7	1980	2022	2070	2290	2440	No Trend
Total suspended solids	mg/L	-	1	7	<LOR	<LOR	<LOR	<LOR	5	No Trend
Gross alpha	Bq/L	0.5	0.05	6	1.21	1.21	1.30	1.33	1.41	No Trend
Gross beta	Bq/L	-	0.1	5	0.48	0.49	0.53	0.54	0.56	No Trend
Gross beta activity - 40K	Bq/L	-	0.1	6	0.19	0.20	0.29	0.31	0.32	No Trend
Gross beta (excluding k-40)	Bq/L	0.5	0.1	5	0.22	0.24	0.24	0.28	0.30	No Trend
Major Anions and Cations										
Bicarbonate	mg/L	-	1	7	202	203	208	213	228	No Trend
Carbonate	mg/L	-	1	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Chloride	mg/L	-	1	7	68	87	121	380	483	No Trend
Sulphate	mg/L	1000	1	7	1300	1426	1680	1688	1710	No Trend
Nitrate	mg/L	400	0.01	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Nitrite	mg/L	30	0.01	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Fluoride	mg/L	2	0.1	7	0.7	0.8	0.8	0.9	0.9	No Trend
Sodium	mg/L	-	1	7	136	142	147	157	179	No Trend
Potassium	mg/L	-	1	7	8	8	8	9	9	No Trend
Calcium	mg/L	1000	1	7	514	518	535	567	578	No Trend
Magnesium	mg/L	-	1	7	105	109	112	134	145	No Trend
Iron	mg/L	-	0.05	7	<LOR	0.13	0.26	0.37	0.69	Falling
Hydrocarbons										
TRH: C6-C10	µg/L	-	20	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
TRH: >C10-C40	µg/L	-	100	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Benzene	µg/L	-	1	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Toluene	µg/L	-	2	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethylbenzene	µg/L	-	2	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Total Xylenes	µg/L	-	2	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Naphthalene	µg/L	-	5	7	1	1	<LOR	<LOR	<LOR	No Trend
PAH Suite	µg/L	-	0.5	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Gases										
Methane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	37	No Trend
Ethane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Propane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Metals/metalloids										
Chromium	mg/L	1	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Copper	mg/L	1 (2)	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lead	mg/L	0.1	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Manganese	mg/L	-	0.001	7	0.083	0.087	0.091	0.114	0.174	No Trend
Mercury	mg/L	0.002	0.0001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silver	mg/L	-	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Arsenic	mg/L	0.5	0.001	7	0.002	0.002	0.003	0.003	0.003	No Trend
Barium	mg/L	-	0.001	7	0.018	0.020	0.023	0.031	0.044	No Trend
Boron	mg/L	5	0.05	7	0.30	0.39	0.43	0.45	0.50	No Trend
Cadmium	mg/L	0.01	0.0001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lithium	mg/L	-	0.001	7	0.045	0.054	0.066	0.078	0.100	No Trend
Selenium	mg/L	0.02	0.01	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silica	mg/L	-	0.05	7	22.20	22.46	23.10	24.06	24.50	No Trend
Strontium	mg/L	-	0.001	7	5.500	5.822	6.250	6.508	6.740	No Trend
Zinc	mg/L	20	0.005	7	<LOR	0.006	0.014	0.017	0.021	Rising

(1),(2) - guideline value for beef cattle

0.5	Guideline value exceeded
-	Not analysed
<LOR	Less than the limit of reporting

Field	Mereenie		Location:	RN017657					
Field Parameters	**Units**	**ANZECC (2000) Livestock**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**	**Mann-Kendall Trend**
Electrical conductivity	µS/cm	-	1	4	855	886	929	4308	9343	No Trend
pH	pH Unit	-	0.01	4	6.77	6.94	7.13	7.25	7.31	No Trend
Temperature	°C	-	0.1	4	24.4	24.4	25.0	26.5	28.1	No Trend
General Parameters										
pH (laboratory)	pH Unit	-	0.01	4	7.50	7.67	7.91	8.04	8.06	No Trend
Electrical conductivity (laboratory)	µS/cm	-	1	4	900	907	926	942	945	No Trend
Total dissolved solids	mg/L	4000 (1)	1	4	585	590	602	612	614	No Trend
Total suspended solids	mg/L	-	1	4	<LOR	<LOR	<LOR	3	5	No Trend
Gross alpha	Bq/L	0.5	0.05	3	0.35	0.36	0.37	0.41	0.44	No Trend
Gross beta	Bq/L	-	0.1	3	0.81	0.85	0.90	1.07	1.18	No Trend
Gross beta activity - 40K	Bq/L	-	0.1	3	0.23	0.27	0.32	0.55	0.70	No Trend
Gross beta (excluding k-40)	Bq/L	0.5	0.1	3	0.48	0.52	0.58	0.58	0.58	No Trend
Major Anions and Cations										
Bicarbonate	mg/L	-	1	4	91	94	97	98	98	No Trend
Carbonate	mg/L	-	1	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Chloride	mg/L	-	1	4	165	170	174	176	179	No Trend
Sulphate	mg/L	1000	1	4	90	91	92	96	100	No Trend
Nitrate	mg/L	400	0.01	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Nitrite	mg/L	30	0.01	4	1.42	1.48	1.53	1.54	1.55	No Trend
Fluoride	mg/L	2	0.1	4	0.4	0.5	0.5	0.5	0.5	No Trend
Sodium	mg/L	-	1	4	88	89	94	98	98	No Trend
Potassium	mg/L	-	1	4	18	18	19	19	19	No Trend
Calcium	mg/L	1000	1	4	38	38	39	40	42	No Trend
Magnesium	mg/L	-	1	4	27	28	29	30	32	No Trend
Iron	mg/L	-	0.05	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Hydrocarbons										
TRH: C6-C10	µg/L	-	20	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
TRH: >C10-C40	µg/L	-	100	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Benzene	µg/L	-	1	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Toluene	µg/L	-	2	4	<LOR	<LOR	<LOR	2	3	No Trend
Ethylbenzene	µg/L	-	2	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Total Xylenes	µg/L	-	2	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Naphthalene	µg/L	-	5	4	1	1	3	<LOR	<LOR	No Trend
PAH Suite	µg/L	-	0.5	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Gases										
Methane	µg/L	-	10	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethane	µg/L	-	10	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Propane	µg/L	-	10	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Metals/metalloids										
Chromium	mg/L	1	0.001	4	0.003	0.004	0.004	0.004	0.005	No Trend
Copper	mg/L	1 (2)	0.001	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lead	mg/L	0.1	0.001	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Manganese	mg/L	-	0.001	4	0.003	0.004	0.004	0.004	0.004	No Trend
Mercury	mg/L	0.002	0.0001	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silver	mg/L	-	0.001	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Arsenic	mg/L	0.5	0.001	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Barium	mg/L	-	0.001	4	0.047	0.048	0.052	0.066	0.083	No Trend
Boron	mg/L	5	0.05	4	0.20	0.21	0.23	0.25	0.26	No Trend
Cadmium	mg/L	0.01	0.0001	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lithium	mg/L	-	0.001	4	0.003	0.003	0.003	0.004	0.005	No Trend
Selenium	mg/L	0.02	0.01	4	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silica	mg/L	-	0.05	4	15.70	15.76	15.85	16.06	16.30	No Trend
Strontium	mg/L	-	0.001	4	0.332	0.337	0.342	0.355	0.372	No Trend
Zinc	mg/L	20	0.005	4	0.007	0.011	0.014	0.027	0.046	No Trend

(1),(2) - guideline value for beef cattle

0.5	Guideline value exceeded
-	Not analysed
<LOR	Less than the limit of reporting

Field	Mereenie		Location:	RN017898					
Field Parameters	**Units**	**ANZECC (2000) Livestock**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**	**Mann-Kendall Trend**
Electrical conductivity	µS/cm	-	1	8	378	381	416	453	475	Falling
pH	pH Unit	-	0.01	8	6.38	6.63	6.98	7.28	7.67	No Trend
Temperature	°C	-	0.1	8	21.0	22.4	26.4	27.5	28.8	No Trend
General Parameters										
pH (laboratory)	pH Unit	-	0.01	8	7.00	7.17	7.30	7.49	7.92	Falling
Electrical conductivity (laboratory)	µS/cm	-	1	8	434	436	441	455	463	No Trend
Total dissolved solids	mg/L	4000 (1)	1	8	282	283	287	296	301	No Trend
Total suspended solids	mg/L	-	1	8	<LOR	<LOR	<LOR	2	5	No Trend
Gross alpha	Bq/L	0.5	0.05	7	0.13	0.18	0.23	0.41	0.43	No Trend
Gross beta	Bq/L	-	0.1	6	0.61	0.66	0.68	0.77	0.98	Falling
Gross beta activity - 40K	Bq/L	-	0.1	7	0.17	0.23	0.35	0.37	0.61	No Trend
Gross beta (excluding k-40)	Bq/L	0.5	0.1	6	0.32	0.37	0.38	0.42	0.51	No Trend
Major Anions and Cations										
Bicarbonate	mg/L	-	1	8	54	55	58	58	60	No Trend
Carbonate	mg/L	-	1	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Chloride	mg/L	-	1	8	52	61	66	70	72	No Trend
Sulphate	mg/L	1000	1	8	39	41	42	43	43	No Trend
Nitrate	mg/L	400	0.01	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Nitrite	mg/L	30	0.01	8	1.37	1.57	1.64	1.71	1.96	No Trend
Fluoride	mg/L	2	0.1	8	0.6	0.6	0.6	0.6	0.7	No Trend
Sodium	mg/L	-	1	8	47	49	51	54	56	No Trend
Potassium	mg/L	-	1	8	12	12	13	14	14	Falling
Calcium	mg/L	1000	1	8	11	11	12	13	13	No Trend
Magnesium	mg/L	-	1	8	11	11	12	12	12	No Trend
Iron	mg/L	-	0.05	8	<LOR	<LOR	<LOR	<LOR	0.06	No Trend
Hydrocarbons										
TRH: C6-C10	µg/L	-	20	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
TRH: >C10-C40	µg/L	-	100	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Benzene	µg/L	-	1	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Toluene	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethylbenzene	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Total Xylenes	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Naphthalene	µg/L	-	5	8	1	1	3	<LOR	<LOR	No Trend
PAH Suite	µg/L	-	0.5	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Gases										
Methane	µg/L	-	10	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethane	µg/L	-	10	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Propane	µg/L	-	10	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Metals/metalloids										
Chromium	mg/L	1	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Copper	mg/L	1 (2)	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lead	mg/L	0.1	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Manganese	mg/L	-	0.001	8	<LOR	0.001	0.005	0.011	0.065	No Trend
Mercury	mg/L	0.002	0.0001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silver	mg/L	-	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Arsenic	mg/L	0.5	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Barium	mg/L	-	0.001	8	0.065	0.079	0.089	0.113	0.367	No Trend
Boron	mg/L	5	0.05	8	0.16	0.21	0.25	0.27	0.28	No Trend
Cadmium	mg/L	0.01	0.0001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lithium	mg/L	-	0.001	8	<LOR	<LOR	<LOR	0.004	0.043	No Trend
Selenium	mg/L	0.02	0.01	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silica	mg/L	-	0.05	8	13.60	13.84	14.20	14.68	15.00	No Trend
Strontium	mg/L	-	0.001	8	0.145	0.151	0.163	0.274	3.690	No Trend
Zinc	mg/L	20	0.005	8	<LOR	0.015	0.022	0.028	0.038	No Trend

(1),(2) - guideline value for beef cattle

0.5	Guideline value exceeded
-	Not analysed
<LOR	Less than the limit of reporting

Field	Surprise		Location:				RN018851			
Field Parameters	**Units**	**ANZECC (2000) Livestock**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**	**Mann-Kendall Trend**
Electrical conductivity	µS/cm	-	1	6	1139	1223	1345	1412	1413	Falling
pH	pH Unit	-	0.01	6	6.71	6.79	6.87	6.97	7.01	No Trend
Temperature	°C	-	0.1	6	10.0	25.1	27.9	28.5	28.8	No Trend
General Parameters										
pH (laboratory)	pH Unit	-	0.01	7	7.52	7.71	7.93	8.10	8.25	No Trend
Electrical conductivity (laboratory)	µS/cm	-	1	7	1270	1334	1360	1416	1430	No Trend
Total dissolved solids	mg/L	4000 (1)	1	7	826	867	884	920	930	No Trend
Total suspended solids	mg/L	-	1	7	<LOR	<LOR	<LOR	3	5	No Trend
Gross alpha	Bq/L	0.5	0.05	6	0.37	0.41	0.42	0.44	0.46	No Trend
Gross beta	Bq/L	-	0.1	6	1.15	1.16	1.22	1.27	1.56	No Trend
Gross beta activity - 40K	Bq/L	-	0.1	6	<LOR	0.31	0.35	0.51	0.74	No Trend
Gross beta (excluding k-40)	Bq/L	0.5	0.1	6	0.76	0.82	0.84	0.92	1.05	No Trend
Major Anions and Cations										
Bicarbonate	mg/L	-	1	7	91	174	189	200	221	No Trend
Carbonate	mg/L	-	1	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Chloride	mg/L	-	1	7	221	226	235	245	250	No Trend
Sulphate	mg/L	1000	1	7	114	114	118	121	127	No Trend
Nitrate	mg/L	400	0.01	7	<LOR	0.01	0.03	0.04	0.04	No Trend
Nitrite	mg/L	30	0.01	7	9.67	10.07	10.60	10.96	11.10	Falling
Fluoride	mg/L	2	0.1	7	0.9	0.9	1.0	1.1	1.1	No Trend
Sodium	mg/L	-	1	7	125	126	133	137	144	No Trend
Potassium	mg/L	-	1	7	30	31	31	32	34	No Trend
Calcium	mg/L	1000	1	7	69	70	73	75	94	No Trend
Magnesium	mg/L	-	1	7	38	39	42	42	43	Rising
Iron	mg/L	-	0.05	7	<LOR	<LOR	0.07	0.09	0.18	No Trend
Hydrocarbons										
TRH: C6-C10	µg/L	-	20	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
TRH: >C10-C40	µg/L	-	100	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Benzene	µg/L	-	1	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Toluene	µg/L	-	2	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethylbenzene	µg/L	-	2	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Total Xylenes	µg/L	-	2	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Naphthalene	µg/L	-	5	7	1	1	<LOR	<LOR	<LOR	No Trend
PAH Suite	µg/L	-	0.5	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Gases										
Methane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Propane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Metals/metalloids										
Chromium	mg/L	1	0.001	7	<LOR	<LOR	<LOR	0.002	0.002	No Trend
Copper	mg/L	1 (2)	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lead	mg/L	0.1	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Manganese	mg/L	-	0.001	7	0.014	0.015	0.018	0.028	0.090	No Trend
Mercury	mg/L	0.002	0.0001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silver	mg/L	-	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Arsenic	mg/L	0.5	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Barium	mg/L	-	0.001	7	0.043	0.045	0.046	0.057	0.071	No Trend
Boron	mg/L	5	0.05	7	0.42	0.49	0.50	0.53	0.58	No Trend
Cadmium	mg/L	0.01	0.0001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lithium	mg/L	-	0.001	7	0.008	0.008	0.009	0.010	0.012	No Trend
Selenium	mg/L	0.02	0.01	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silica	mg/L	-	0.05	7	41.40	48.30	48.60	49.26	49.80	No Trend
Strontium	mg/L	-	0.001	7	0.704	0.762	0.789	0.817	0.859	No Trend
Zinc	mg/L	20	0.005	7	<LOR	0.012	0.014	0.038	0.043	No Trend

(1),(2) - guideline value for beef cattle

0.5	Guideline value exceeded
-	Not analysed
<LOR	Less than the limit of reporting

Field	Mereenie		Location:	RN018955					
Field Parameters	**Units**	**ANZECC (2000) Livestock**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**	**Mann-Kendall Trend**
Electrical conductivity	µS/cm	-	1	6	340	341	354	366	440	No Trend
pH	pH Unit	-	0.01	6	6.34	6.61	6.74	7.02	7.36	No Trend
Temperature	°C	-	0.1	6	23.1	24.3	25.2	25.7	28.3	No Trend
General Parameters										
pH (laboratory)	pH Unit	-	0.01	7	7.03	7.25	7.52	7.55	7.92	No Trend
Electrical conductivity (laboratory)	µS/cm	-	1	7	352	361	368	403	422	No Trend
Total dissolved solids	mg/L	4000 (1)	1	7	229	235	239	262	274	No Trend
Total suspended solids	mg/L	-	1	7	<LOR	<LOR	2	5	5	No Trend
Gross alpha	Bq/L	0.5	0.05	6	0.20	0.26	0.32	0.45	0.46	No Trend
Gross beta	Bq/L	-	0.1	5	0.81	0.84	0.87	0.93	1.07	No Trend
Gross beta activity - 40K	Bq/L	-	0.1	6	0.44	0.45	0.56	0.64	0.77	No Trend
Gross beta (excluding k-40)	Bq/L	0.5	0.1	5	0.30	0.30	0.32	0.37	0.43	No Trend
Major Anions and Cations										
Bicarbonate	mg/L	-	1	7	44	46	48	58	76	No Trend
Carbonate	mg/L	-	1	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Chloride	mg/L	-	1	7	42	54	58	64	68	No Trend
Sulphate	mg/L	1000	1	7	31	34	36	37	38	No Trend
Nitrate	mg/L	400	0.01	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Nitrite	mg/L	30	0.01	7	0.46	0.51	0.53	0.56	0.58	No Trend
Fluoride	mg/L	2	0.1	7	0.5	0.5	0.5	0.5	0.5	No Trend
Sodium	mg/L	-	1	7	38	41	44	46	47	No Trend
Potassium	mg/L	-	1	7	11	11	12	12	12	No Trend
Calcium	mg/L	1000	1	7	10	10	11	12	12	No Trend
Magnesium	mg/L	-	1	7	8	9	10	10	11	No Trend
Iron	mg/L	-	0.05	7	<LOR	<LOR	<LOR	<LOR	0.24	No Trend
Hydrocarbons										
TRH: C6-C10	µg/L	-	20	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
TRH: >C10-C40	µg/L	-	100	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Benzene	µg/L	-	1	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Toluene	µg/L	-	2	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethylbenzene	µg/L	-	2	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Total Xylenes	µg/L	-	2	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Naphthalene	µg/L	-	5	7	1	1	<LOR	<LOR	<LOR	No Trend
PAH Suite	µg/L	-	0.5	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Gases										
Methane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Propane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Metals/metalloids										
Chromium	mg/L	1	0.001	7	<LOR	<LOR	0.004	0.006	0.006	No Trend
Copper	mg/L	1 (2)	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lead	mg/L	0.1	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Manganese	mg/L	-	0.001	7	0.007	0.007	0.010	0.050	0.145	No Trend
Mercury	mg/L	0.002	0.0001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silver	mg/L	-	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Arsenic	mg/L	0.5	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Barium	mg/L	-	0.001	7	0.026	0.031	0.039	0.064	0.081	No Trend
Boron	mg/L	5	0.05	7	0.12	0.16	0.20	0.22	0.22	No Trend
Cadmium	mg/L	0.01	0.0001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lithium	mg/L	-	0.001	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Selenium	mg/L	0.02	0.01	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silica	mg/L	-	0.05	7	13.10	14.00	14.30	14.76	14.90	No Trend
Strontium	mg/L	-	0.001	7	0.125	0.131	0.133	0.139	0.143	No Trend
Zinc	mg/L	20	0.005	7	<LOR	0.006	0.014	0.027	0.122	Rising

(1),(2) - guideline value for beef cattle

0.5	Guideline value exceeded
-	Not analysed
<LOR	Less than the limit of reporting

Field	Mereenie		Location:				RN004620			
Field Parameters	**Units**	**ANZECC (2000) Livestock**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**	**Mann-Kendall Trend**
Electrical conductivity	µS/cm	-	1	8	1072	1093	1127	1285	1390	Falling
pH	pH Unit	-	0.01	8	6.52	6.69	6.88	7.02	7.08	No Trend
Temperature	°C	-	0.1	8	25.0	25.5	26.0	27.5	27.9	No Trend
General Parameters										
pH (laboratory)	pH Unit	-	0.01	8	7.48	7.58	7.77	7.90	8.14	Falling
Electrical conductivity (laboratory)	µS/cm	-	1	8	1230	1274	1280	1300	1320	No Trend
Total dissolved solids	mg/L	4000 (1)	1	8	800	828	832	845	858	No Trend
Total suspended solids	mg/L	-	1	8	<LOR	<LOR	<LOR	5	5	No Trend
Gross alpha	Bq/L	0.5	0.05	7	0.13	0.17	0.22	0.31	0.32	Falling
Gross beta	Bq/L	-	0.1	6	0.82	0.82	0.84	0.89	0.92	No Trend
Gross beta activity - 40K	Bq/L	-	0.1	7	<LOR	0.11	0.24	0.27	0.29	No Trend
Gross beta (excluding k-40)	Bq/L	0.5	0.1	6	0.58	0.61	0.68	0.72	0.75	No Trend
Major Anions and Cations										
Bicarbonate	mg/L	-	1	8	112	116	119	125	128	No Trend
Carbonate	mg/L	-	1	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Chloride	mg/L	-	1	8	221	235	246	250	265	No Trend
Sulphate	mg/L	1000	1	8	150	152	155	156	159	No Trend
Nitrate	mg/L	400	0.01	8	<LOR	<LOR	<LOR	<LOR	0.12	No Trend
Nitrite	mg/L	30	0.01	8	1.12	1.30	1.41	1.50	1.73	No Trend
Fluoride	mg/L	2	0.1	8	0.5	0.5	0.5	0.5	0.5	No Trend
Sodium	mg/L	-	1	8	122	125	128	131	136	No Trend
Potassium	mg/L	-	1	8	23	23	23	24	24	No Trend
Calcium	mg/L	1000	1	8	56	57	59	59	61	No Trend
Magnesium	mg/L	-	1	8	37	39	41	42	42	Rising
Iron	mg/L	-	0.05	8	<LOR	<LOR	0.09	0.18	0.20	Falling
Hydrocarbons										
TRH: C6-C10	µg/L	-	20	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
TRH: >C10-C40	µg/L	-	100	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Benzene	µg/L	-	1	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Toluene	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethylbenzene	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Total Xylenes	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Naphthalene	µg/L	-	5	8	1	1	3	<LOR	<LOR	No Trend
PAH Suite	µg/L	-	0.5	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Gases										
Methane	µg/L	-	10	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethane	µg/L	-	10	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Propane	µg/L	-	10	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Metals/metalloids										
Chromium	mg/L	1	0.001	8	<LOR	0.002	0.003	0.005	0.007	No Trend
Copper	mg/L	1 (2)	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lead	mg/L	0.1	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Manganese	mg/L	-	0.001	8	0.002	0.004	0.008	0.012	0.029	No Trend
Mercury	mg/L	0.002	0.0001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silver	mg/L	-	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Arsenic	mg/L	0.5	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Barium	mg/L	-	0.001	8	0.034	0.035	0.037	0.043	0.050	No Trend
Boron	mg/L	5	0.05	8	0.22	0.24	0.26	0.27	0.29	No Trend
Cadmium	mg/L	0.01	0.0001	8	<LOR	<LOR	<LOR	<LOR	0.00	No Trend
Lithium	mg/L	-	0.001	8	0.009	0.010	0.011	0.012	0.013	No Trend
Selenium	mg/L	0.02	0.01	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silica	mg/L	-	0.05	8	15.70	16.30	16.40	16.90	17.20	No Trend
Strontium	mg/L	-	0.001	8	0.496	0.516	0.528	0.550	0.586	No Trend
Zinc	mg/L	20	0.005	8	0.015	0.015	0.019	0.021	0.027	Rising

(1),(2) - guideline value for beef cattle

0.5	Guideline value exceeded
-	Not analysed
<LOR	Less than the limit of reporting

Field	Palm Valley		Location:		RN006503					
Field Parameters	**Units**	**ANZECC (2000) Livestock**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**	**Mann-Kendall Trend**
Electrical conductivity	µS/cm	-	1	7	1315	1358	1537	1627	1693	Falling
pH	pH Unit	-	0.01	7	6.93	7.11	7.15	7.24	7.78	No Trend
Temperature	°C	-	0.1	6	22.0	24.0	24.3	25.5	27.4	No Trend
General Parameters										
pH (laboratory)	pH Unit	-	0.01	8	7.65	7.84	8.02	8.14	8.30	Falling
Electrical conductivity (laboratory)	µS/cm	-	1	8	1400	1446	1580	1662	1690	No Trend
Total dissolved solids	mg/L	4000 (1)	1	8	910	940	1030	1080	1100	No Trend
Total suspended solids	mg/L	-	1	8	3	4	12	28	39	No Trend
Gross alpha	Bq/L	0.5	0.05	7	0.62	0.63	0.75	0.83	1.81	No Trend
Gross beta	Bq/L	-	0.1	7	0.44	0.45	0.53	0.64	1.42	No Trend
Gross beta activity - 40K	Bq/L	-	0.1	7	<LOR	0.13	0.20	0.35	1.00	No Trend
Gross beta (excluding k-40)	Bq/L	0.5	0.1	7	0.26	0.30	0.32	0.35	0.42	No Trend
Major Anions and Cations										
Bicarbonate	mg/L	-	1	8	217	242	264	273	276	Rising
Carbonate	mg/L	-	1	8	<LOR	<LOR	<LOR	<LOR	3	No Trend
Chloride	mg/L	-	1	8	196	200	239	262	274	Rising
Sulphate	mg/L	1000	1	8	246	250	263	278	285	No Trend
Nitrate	mg/L	400	0.01	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Nitrite	mg/L	30	0.01	8	<LOR	<LOR	<LOR	0.02	0.45	No Trend
Fluoride	mg/L	2	0.1	8	<LOR	<LOR	<LOR	<LOR	0.2	No Trend
Sodium	mg/L	-	1	8	127	132	141	150	154	No Trend
Potassium	mg/L	-	1	8	9	10	11	11	15	No Trend
Calcium	mg/L	1000	1	8	108	113	119	124	130	No Trend
Magnesium	mg/L	-	1	8	46	48	50	53	56	No Trend
Iron	mg/L	-	0.05	8	<LOR	<LOR	0.32	1.65	2.00	Falling
Hydrocarbons										
TRH: C6-C10	µg/L	-	20	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
TRH: >C10-C40	µg/L	-	100	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Benzene	µg/L	-	1	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Toluene	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethylbenzene	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Total Xylenes	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Naphthalene	µg/L	-	5	8	1	1	3	<LOR	<LOR	No Trend
PAH Suite	µg/L	-	0.5	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Gases										
Methane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Propane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Metals/metalloids										
Chromium	mg/L	1	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Copper	mg/L	1 (2)	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lead	mg/L	0.1	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Manganese	mg/L	-	0.001	8	0.011	0.051	0.058	0.079	0.088	No Trend
Mercury	mg/L	0.002	0.0001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silver	mg/L	-	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Arsenic	mg/L	0.5	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Barium	mg/L	-	0.001	8	0.052	0.054	0.074	0.142	0.315	No Trend
Boron	mg/L	5	0.05	8	0.08	0.09	0.11	0.13	0.14	No Trend
Cadmium	mg/L	0.01	0.0001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lithium	mg/L	-	0.001	8	0.044	0.047	0.063	0.079	0.100	No Trend
Selenium	mg/L	0.02	0.01	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silica	mg/L	-	0.05	8	20.10	20.24	20.55	21.18	21.30	No Trend
Strontium	mg/L	-	0.001	8	0.910	0.966	1.390	2.390	3.270	No Trend
Zinc	mg/L	20	0.005	8	<LOR	<LOR	0.008	0.013	0.014	No Trend

(1),(2) - guideline value for beef cattle

0.5	Guideline value exceeded
-	Not analysed
<LOR	Less than the limit of reporting

Field	Dingo		Location:		RN011831					
Field Parameters	**Units**	**ANZECC (2000) Livestock**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**	**Mann-Kendall Trend**
Electrical conductivity	µS/cm	-	1	7	1230	1259	1364	1501	1930	No Trend
pH	pH Unit	-	0.01	7	6.69	6.93	7.35	7.43	7.76	No Trend
Temperature	°C	-	0.1	7	13.6	18.4	24.0	27.2	27.7	No Trend
General Parameters										
pH (laboratory)	pH Unit	-	0.01	8	7.97	8.11	8.29	8.36	8.44	No Trend
Electrical conductivity (laboratory)	µS/cm	-	1	9	1350	1408	1470	1514	1520	No Trend
Total dissolved solids	mg/L	4000 (1)	1	9	878	915	956	984	988	No Trend
Total suspended solids	mg/L	-	1	8	<LOR	<LOR	<LOR	4	5	No Trend
Gross alpha	Bq/L	0.5	0.05	7	0.60	0.73	0.77	0.78	0.86	Falling
Gross beta	Bq/L	-	0.1	7	0.55	0.59	0.63	0.64	1.49	No Trend
Gross beta activity - 40K	Bq/L	-	0.1	7	<LOR	0.10	0.12	0.19	1.09	No Trend
Gross beta (excluding k-40)	Bq/L	0.5	0.1	7	0.40	0.44	0.48	0.50	0.52	No Trend
Major Anions and Cations										
Bicarbonate	mg/L	-	1	8	265	276	295	312	319	No Trend
Carbonate	mg/L	-	1	8	<LOR	<LOR	<LOR	8	20	No Trend
Chloride	mg/L	-	1	9	236	242	247	269	306	No Trend
Sulphate	mg/L	1000	1	8	105	108	120	124	125	No Trend
Nitrate	mg/L	400	0.01	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Nitrite	mg/L	30	0.01	8	0.11	0.13	0.23	0.49	0.62	No Trend
Fluoride	mg/L	2	0.1	8	1.0	1.1	1.1	1.2	1.2	Rising
Sodium	mg/L	-	1	8	130	136	143	145	153	No Trend
Potassium	mg/L	-	1	8	15	15	16	16	17	No Trend
Calcium	mg/L	1000	1	8	58	70	72	74	76	Falling
Magnesium	mg/L	-	1	8	53	58	61	62	64	No Trend
Iron	mg/L	-	0.05	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Hydrocarbons										
TRH: C6-C10	µg/L	-	20	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
TRH: >C10-C40	µg/L	-	100	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Benzene	µg/L	-	1	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Toluene	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	4	No Trend
Ethylbenzene	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Total Xylenes	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Naphthalene	µg/L	-	5	8	1	1	3	<LOR	<LOR	No Trend
PAH Suite	µg/L	-	0.5	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Gases										
Methane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Propane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Metals/metalloids										
Chromium	mg/L	1	0.001	8	<LOR	<LOR	<LOR	0.002	0.003	No Trend
Copper	mg/L	1 (2)	0.001	8	<LOR	<LOR	<LOR	0.002	0.003	No Trend
Lead	mg/L	0.1	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Manganese	mg/L	-	0.001	8	<LOR	<LOR	0.002	0.004	0.008	Falling
Mercury	mg/L	0.002	0.0001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silver	mg/L	-	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Arsenic	mg/L	0.5	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Barium	mg/L	-	0.001	8	0.054	0.066	0.073	0.078	0.080	No Trend
Boron	mg/L	5	0.05	8	0.25	0.26	0.29	0.31	0.64	No Trend
Cadmium	mg/L	0.01	0.0001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lithium	mg/L	-	0.001	8	0.011	0.012	0.012	0.015	0.024	No Trend
Selenium	mg/L	0.02	0.01	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silica	mg/L	-	0.05	8	16.70	17.16	18.00	18.66	19.70	Rising
Strontium	mg/L	-	0.001	8	0.682	0.724	0.753	0.773	0.825	No Trend
Zinc	mg/L	20	0.005	8	0.014	0.016	0.029	0.075	0.105	Falling

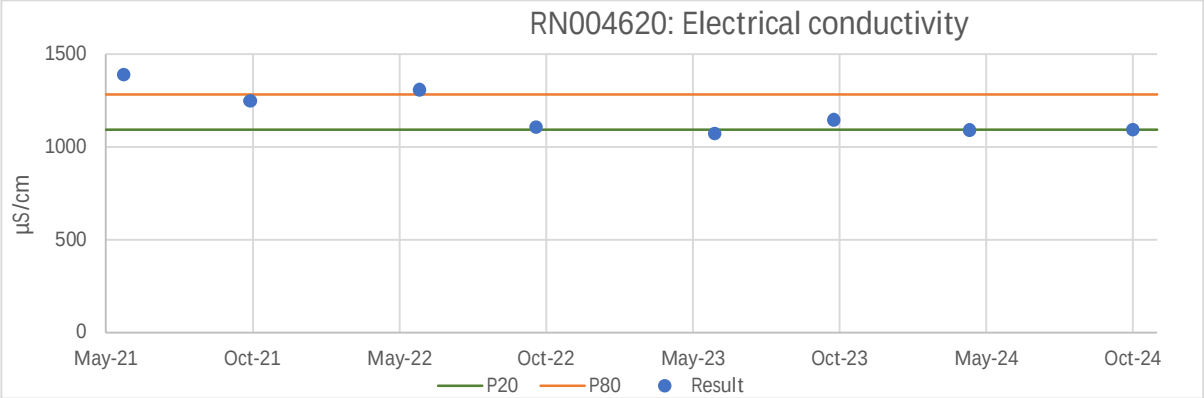
(1),(2) - guideline value for beef cattle

0.5	Guideline value exceeded
-	Not analysed
<LOR	Less than the limit of reporting

Field	Palm Valley	Location:		RN012024						
Field Parameters	**Units**	**ANZECC (2000) Livestock**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**	**Mann-Kendall Trend**
Electrical conductivity	µS/cm	-	1	8	1057	1114	1172	1262	1315	No Trend
pH	pH Unit	-	0.01	8	6.99	7.06	7.10	7.31	7.37	No Trend
Temperature	°C	-	0.1	8	24.8	25.3	25.9	26.6	27.4	No Trend
General Parameters										
pH (laboratory)	pH Unit	-	0.01	8	7.64	7.73	7.95	8.21	8.33	Falling
Electrical conductivity (laboratory)	µS/cm	-	1	9	1060	1148	1270	1340	1370	Rising
Total dissolved solids	mg/L	4000 (1)	1	9	689	746	826	871	890	Rising
Total suspended solids	mg/L	-	1	8	<LOR	<LOR	<LOR	<LOR	5	No Trend
Gross alpha	Bq/L	0.5	0.05	7	0.26	0.29	0.33	0.34	0.38	No Trend
Gross beta	Bq/L	-	0.1	7	0.18	0.22	0.25	0.29	1.09	No Trend
Gross beta activity - 40K	Bq/L	-	0.1	7	<LOR	<LOR	<LOR	0.12	0.93	No Trend
Gross beta (excluding k-40)	Bq/L	0.5	0.1	7	0.08	0.12	0.15	0.17	0.17	No Trend
Major Anions and Cations										
Bicarbonate	mg/L	-	1	8	295	306	318	374	378	No Trend
Carbonate	mg/L	-	1	8	<LOR	<LOR	<LOR	3	7	No Trend
Chloride	mg/L	-	1	9	114	138	171	184	201	Rising
Sulphate	mg/L	1000	1	8	62	65	72	100	110	Rising
Nitrate	mg/L	400	0.01	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Nitrite	mg/L	30	0.01	8	2.42	3.15	5.31	7.80	8.75	No Trend
Fluoride	mg/L	2	0.1	8	0.5	0.6	0.6	0.7	0.7	No Trend
Sodium	mg/L	-	1	8	78	87	100	120	122	Rising
Potassium	mg/L	-	1	8	6	6	6	7	7	No Trend
Calcium	mg/L	1000	1	8	69	73	77	85	86	No Trend
Magnesium	mg/L	-	1	8	50	55	60	66	68	No Trend
Iron	mg/L	-	0.05	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Hydrocarbons										
TRH: C6-C10	µg/L	-	20	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
TRH: >C10-C40	µg/L	-	100	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Benzene	µg/L	-	1	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Toluene	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethylbenzene	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Total Xylenes	µg/L	-	2	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Naphthalene	µg/L	-	5	8	1	1	3	<LOR	<LOR	No Trend
PAH Suite	µg/L	-	0.5	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Gases										
Methane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Ethane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Propane	µg/L	-	10	7	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Dissolved Metals/metalloids										
Chromium	mg/L	1	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Copper	mg/L	1 (2)	0.001	8	<LOR	0.002	0.003	0.004	0.009	No Trend
Lead	mg/L	0.1	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Manganese	mg/L	-	0.001	8	<LOR	<LOR	<LOR	<LOR	0.020	No Trend
Mercury	mg/L	0.002	0.0001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silver	mg/L	-	0.001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Arsenic	mg/L	0.5	0.001	8	<LOR	<LOR	0.002	0.002	0.003	No Trend
Barium	mg/L	-	0.001	8	0.053	0.061	0.063	0.073	0.315	No Trend
Boron	mg/L	5	0.05	8	0.19	0.22	0.31	0.37	0.39	No Trend
Cadmium	mg/L	0.01	0.0001	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Lithium	mg/L	-	0.001	8	0.015	0.015	0.017	0.020	0.031	No Trend
Selenium	mg/L	0.02	0.01	8	<LOR	<LOR	<LOR	<LOR	<LOR	No Trend
Silica	mg/L	-	0.05	8	29.60	33.70	43.10	43.66	48.70	No Trend
Strontium	mg/L	-	0.001	8	0.327	0.348	0.369	0.408	1.520	No Trend
Zinc	mg/L	20	0.005	8	<LOR	<LOR	0.006	0.014	0.020	Rising

(1),(2) - guideline value for beef cattle

0.5	Guideline value exceeded
-	Not analysed
<LOR	Less than the limit of reporting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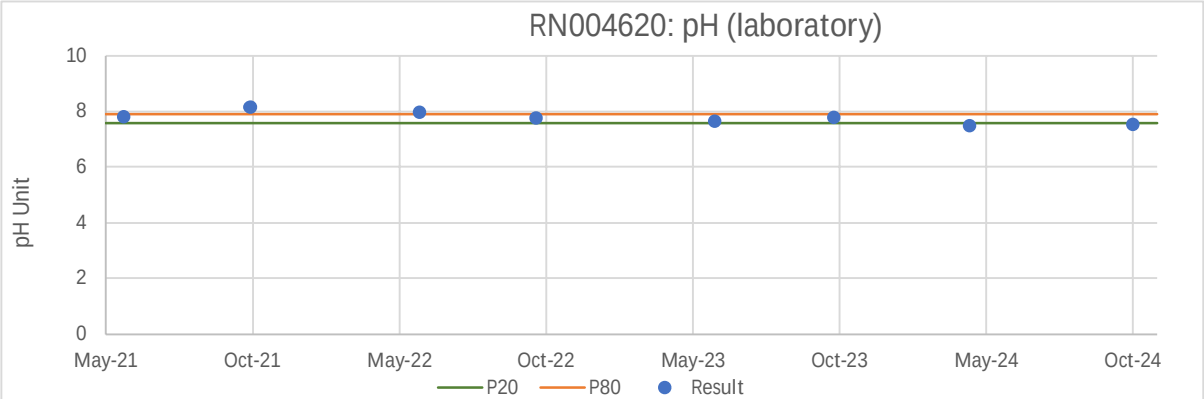
P20
P80
Result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Oct-22
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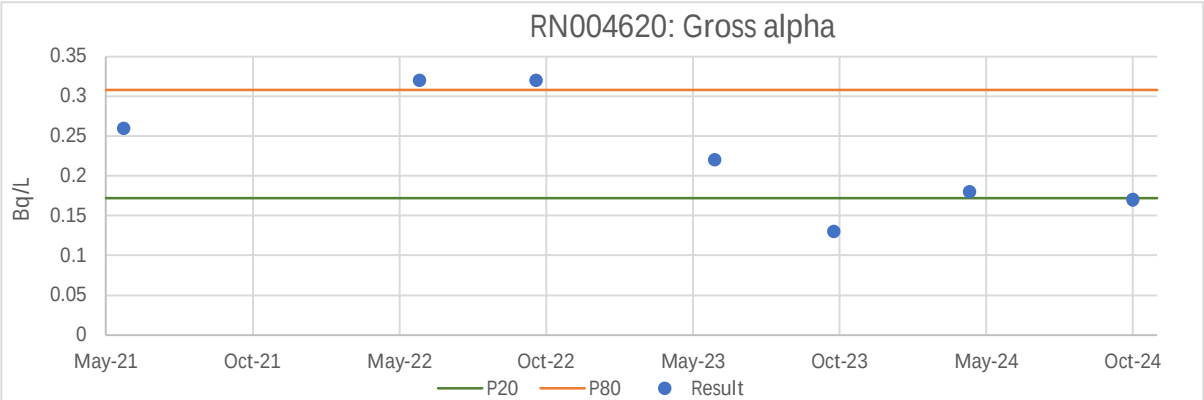
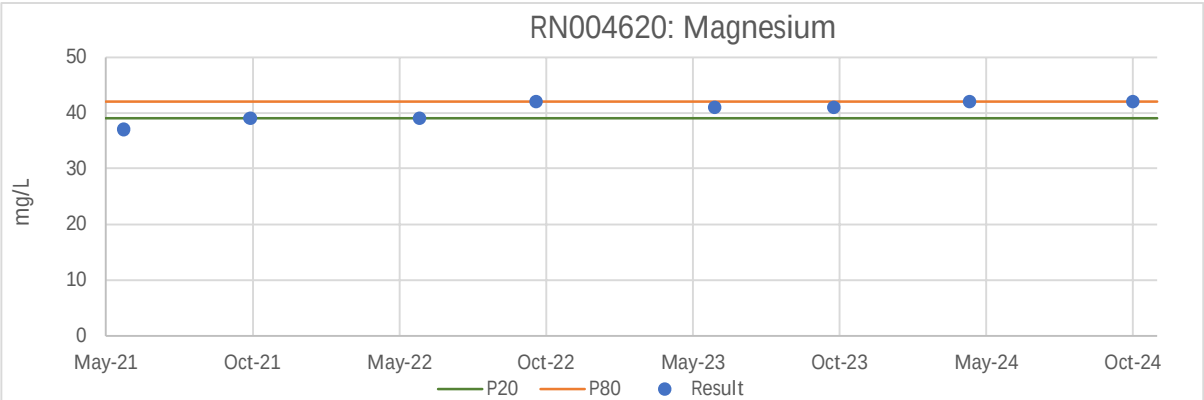
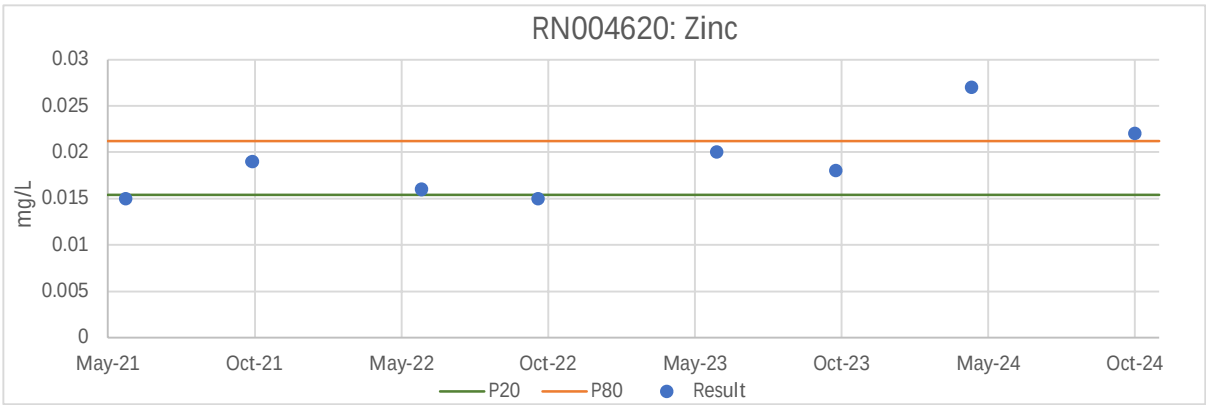
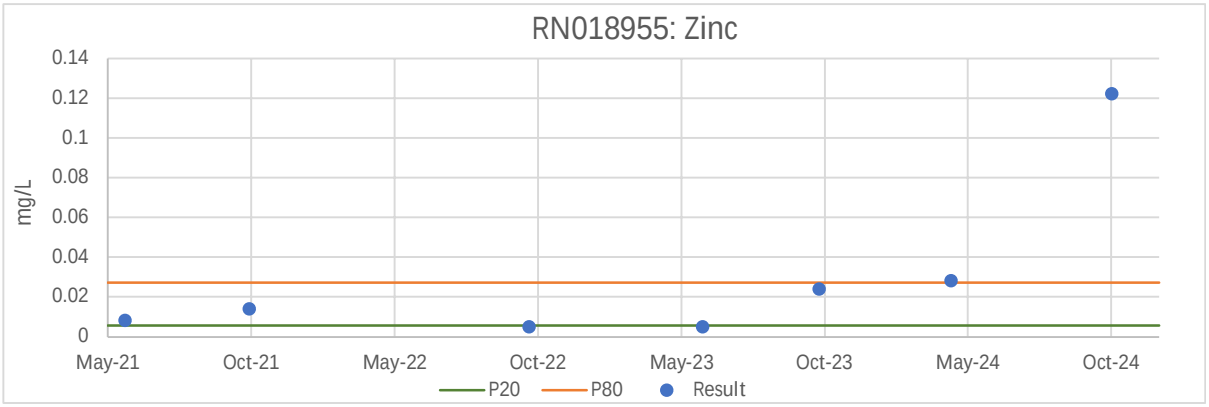
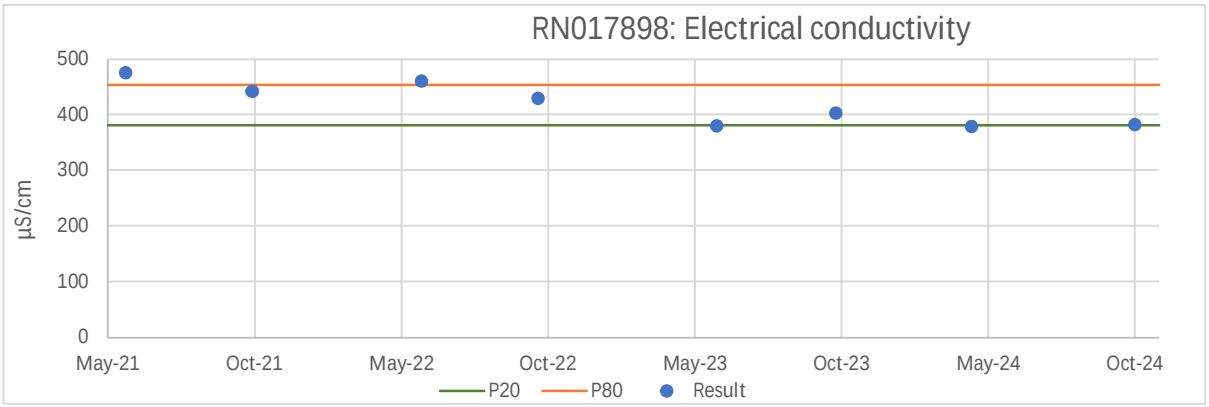
P20
P80
Result

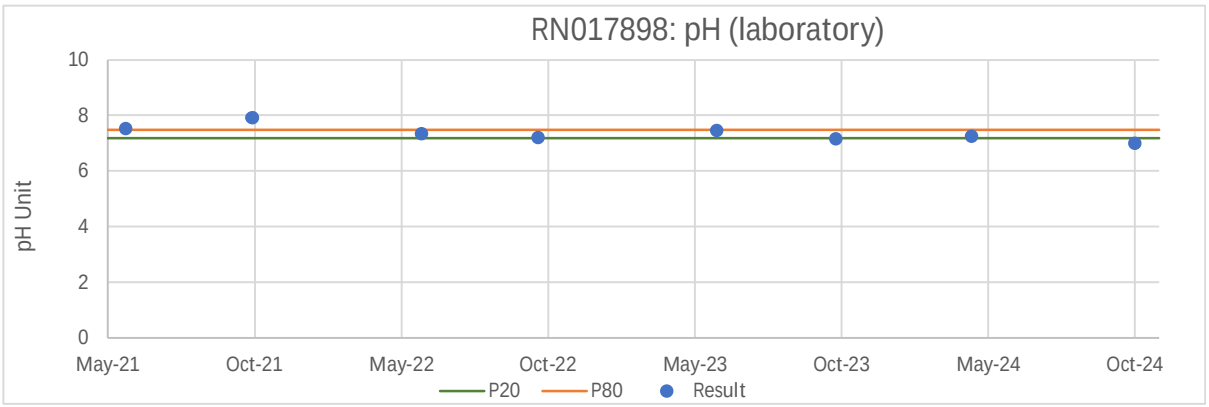

RN004620: Gross alpha
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Bq/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

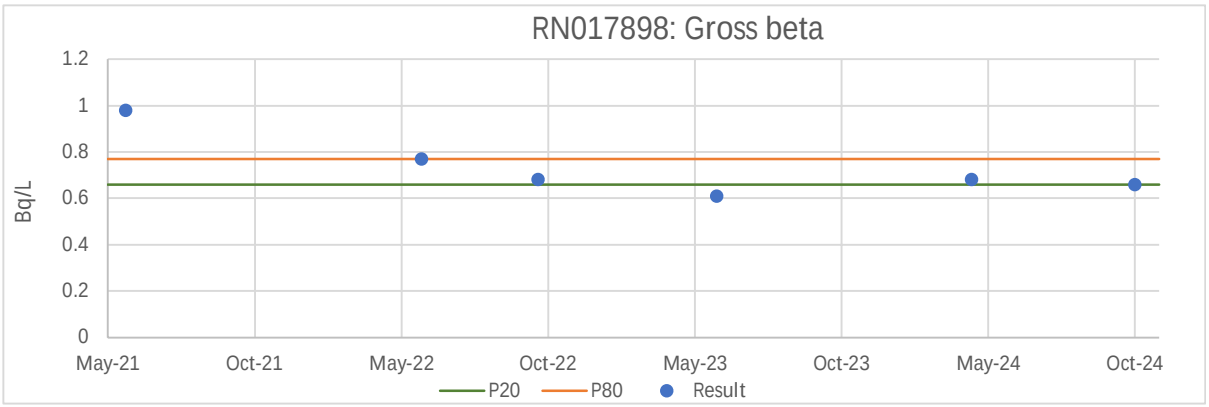

RN004620: Magnesium
50
40
30
20
10
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

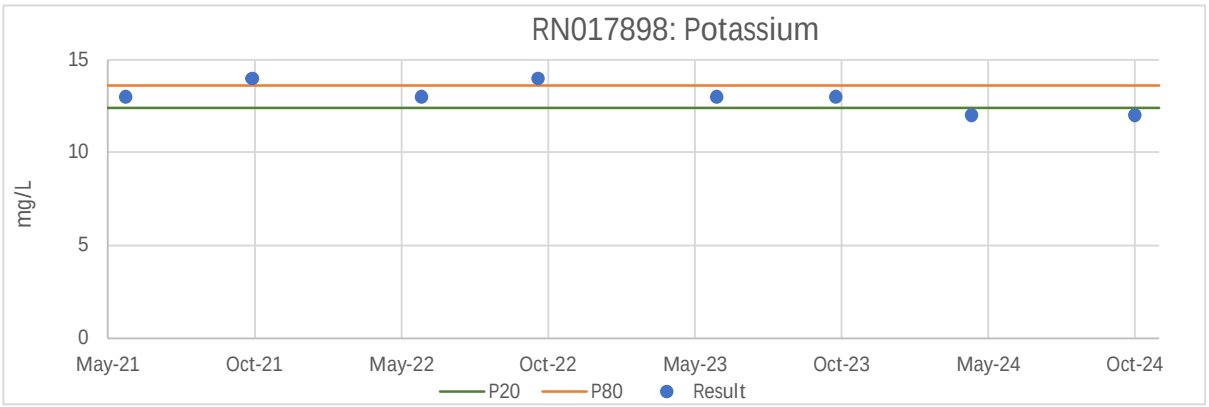

RN004620: Zinc
mg/L
0.03
0.025
0.02
0.015
0.01
0.005
0
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

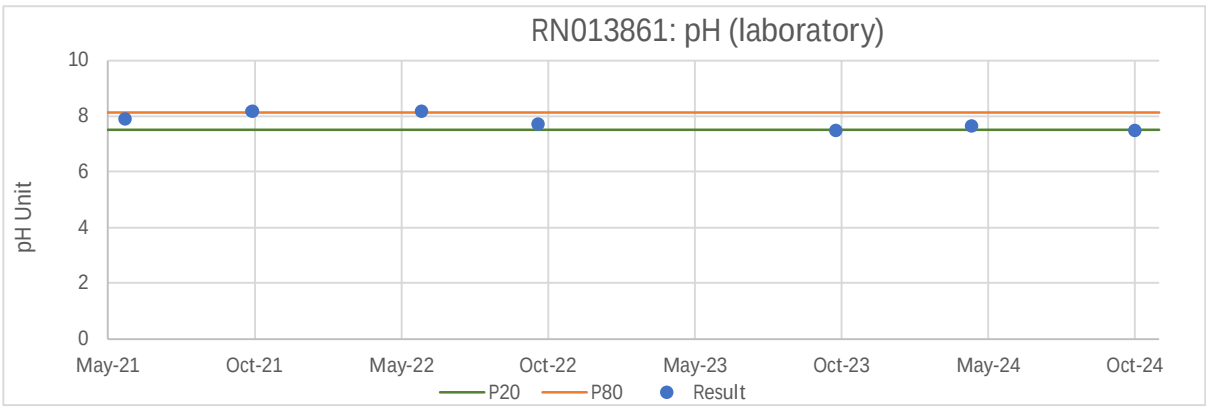

RN018955: Zinc
mg/L
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

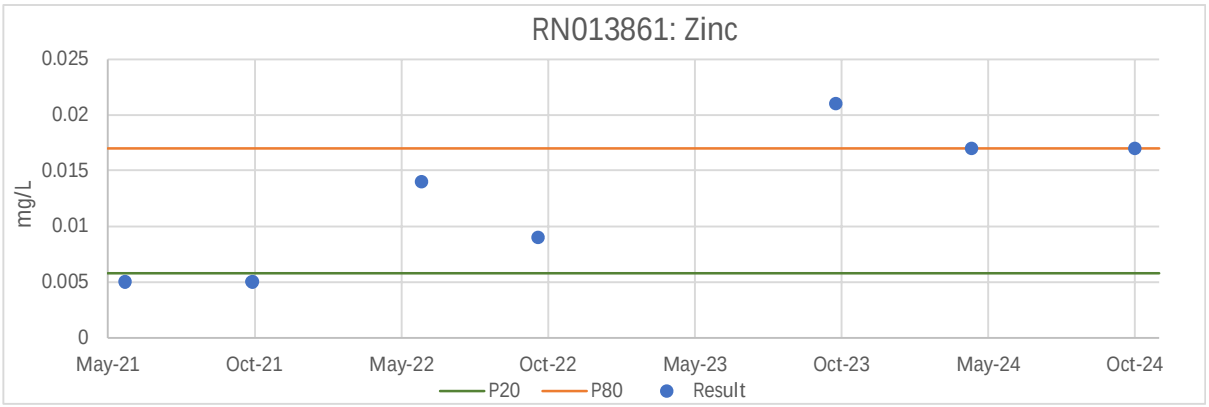

RN017898: Electrical conductivity
µS/cm
500
400
300
200
100
0
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

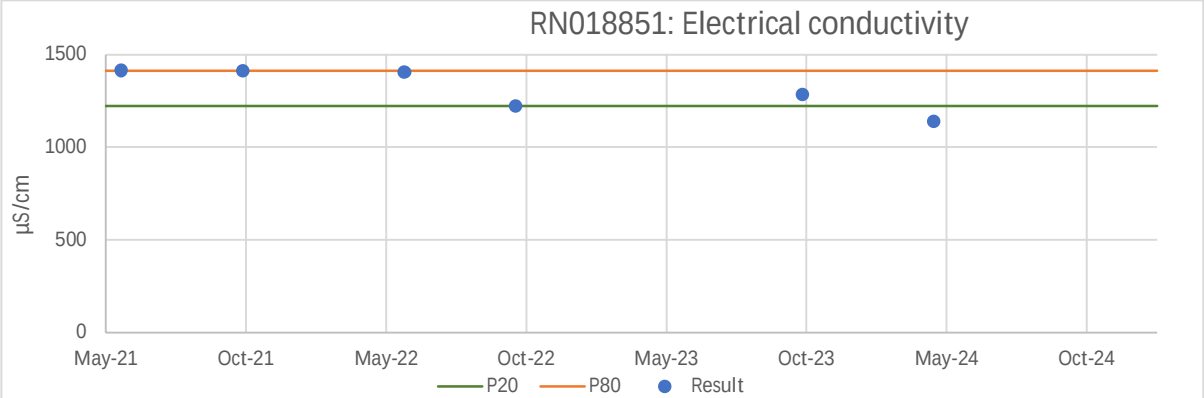

RN017898: pH (laboratory)
pH Unit
10
8
6
4
2
0
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

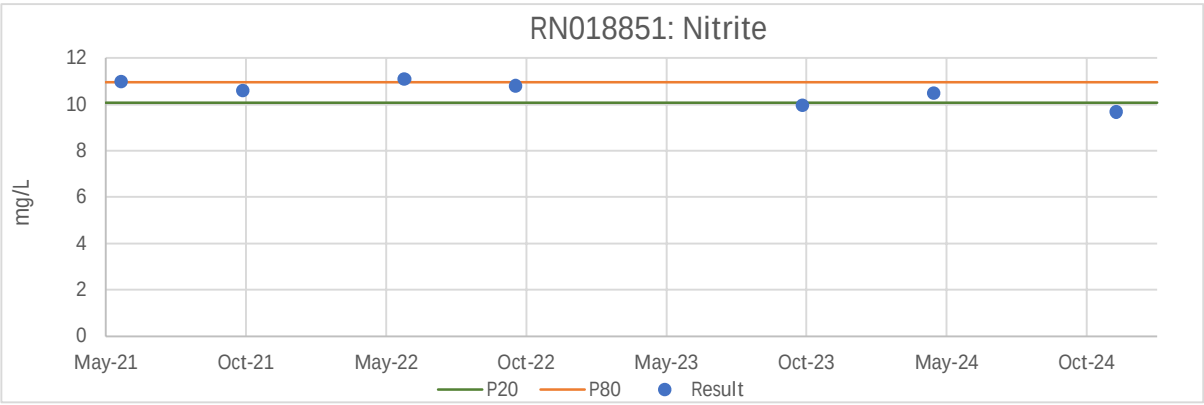

RN017898: Gross beta
Bq/L
1.2
1
0.8
0.6
0.4
0.2
0
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

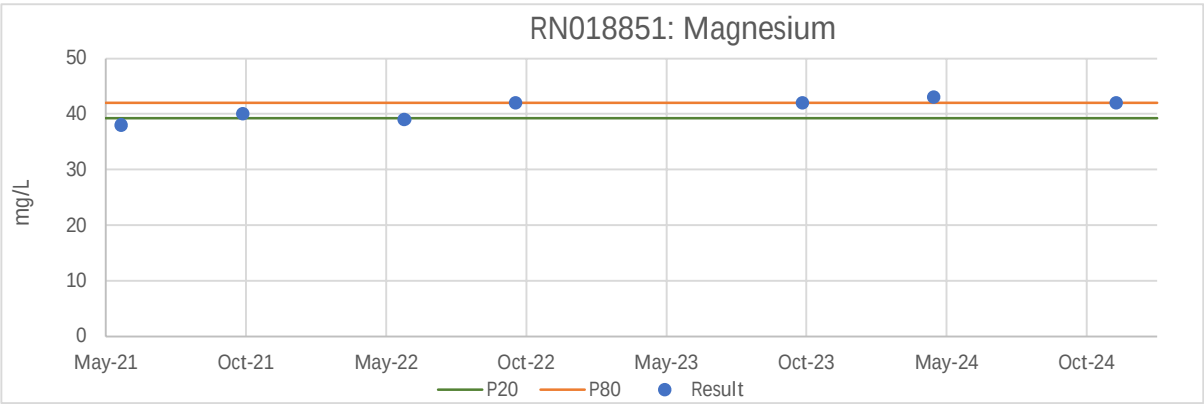

RN017898: Potassium
mg/L
15
10
5
0
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

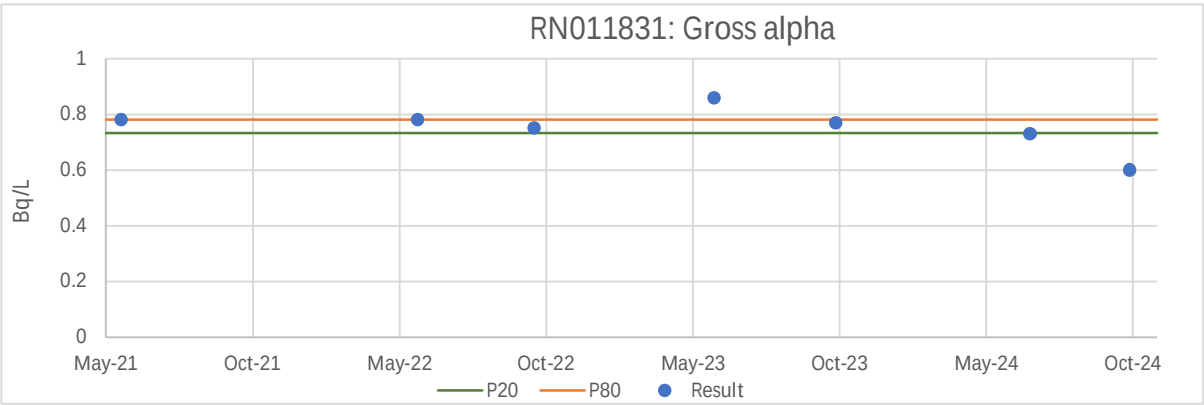

RN013861: pH (laboratory)
pH Unit
10
8
6
4
2
0
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

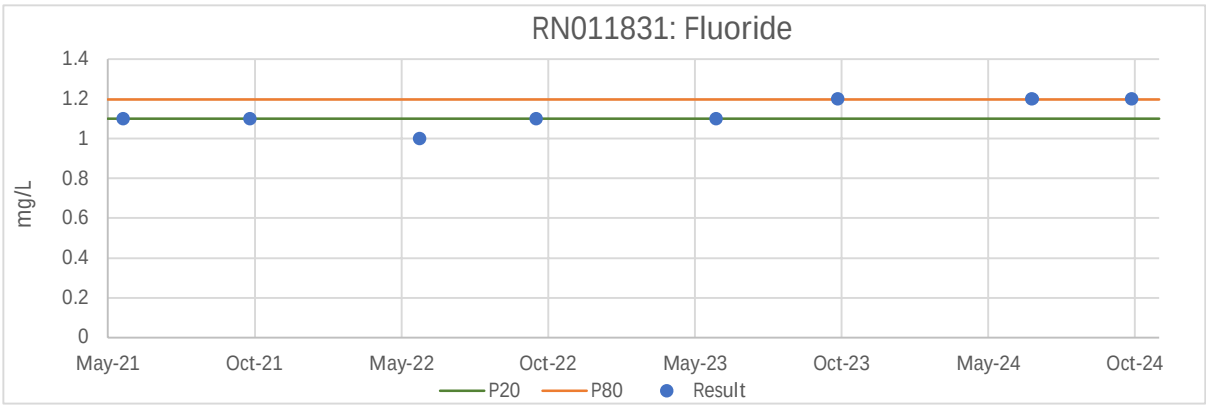

RN013861: Zinc
mg/L
0.025
0.02
0.015
0.01
0.005
0
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

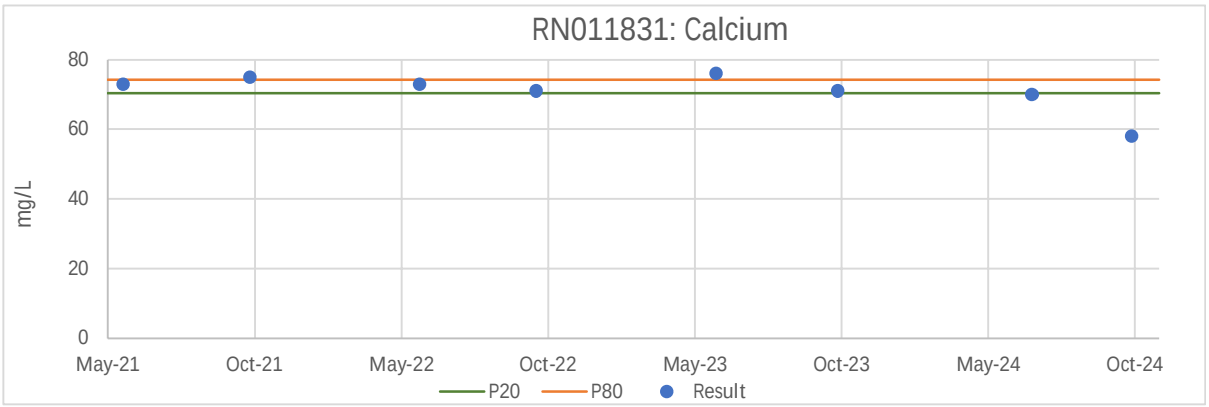

RN018851: Electrical conductivity
1500
1000
500
0
µS/cm
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

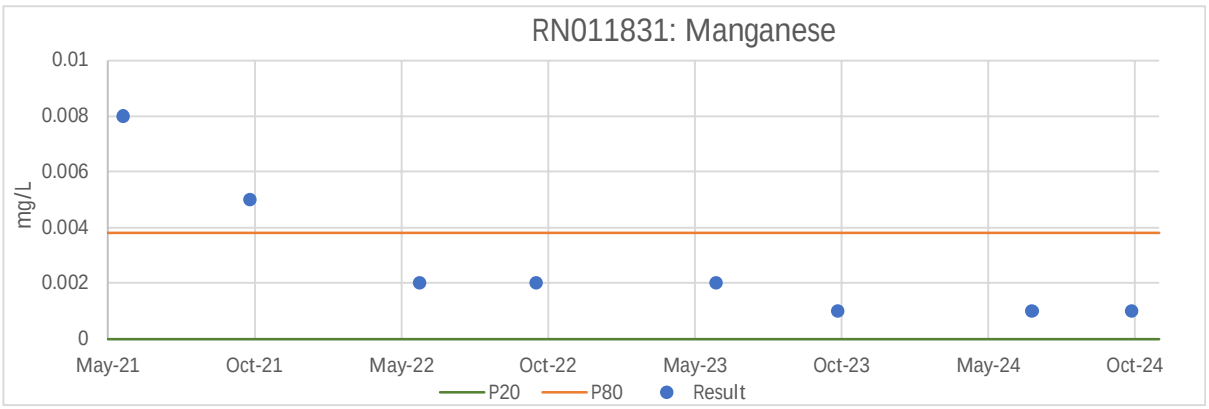

RN018851: Nitrite
12
10
8
6
4
2
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

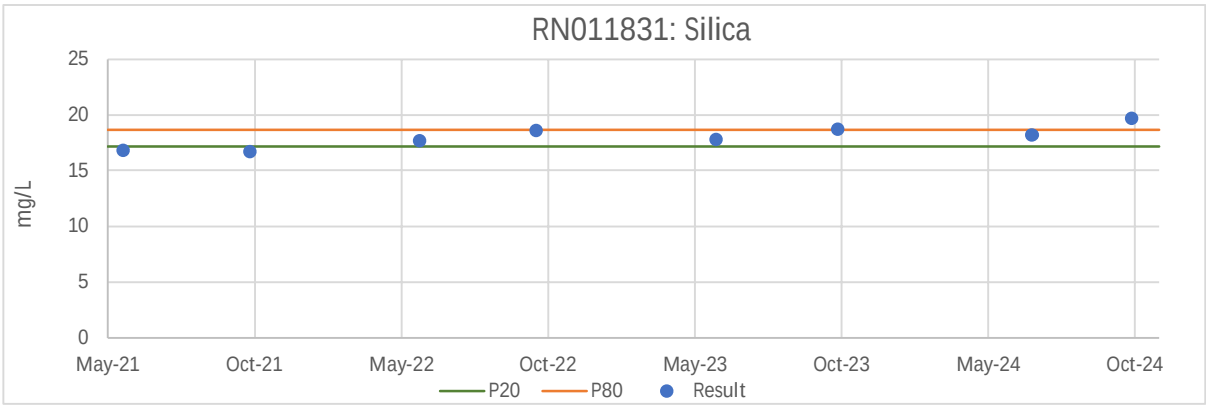

RN018851: Magnesium
50
40
30
20
10
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

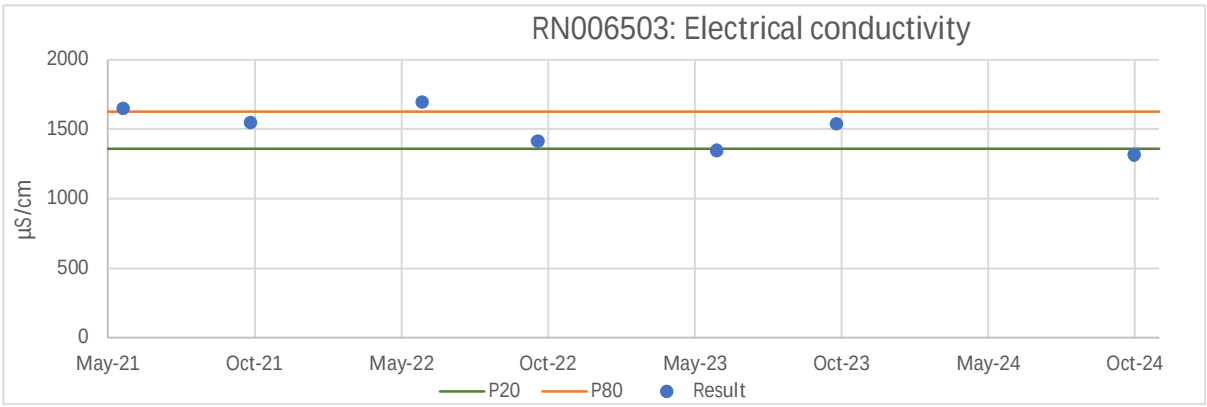

RN011831: Gross alpha
1
0.8
0.6
0.4
0.2
0
Bq/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

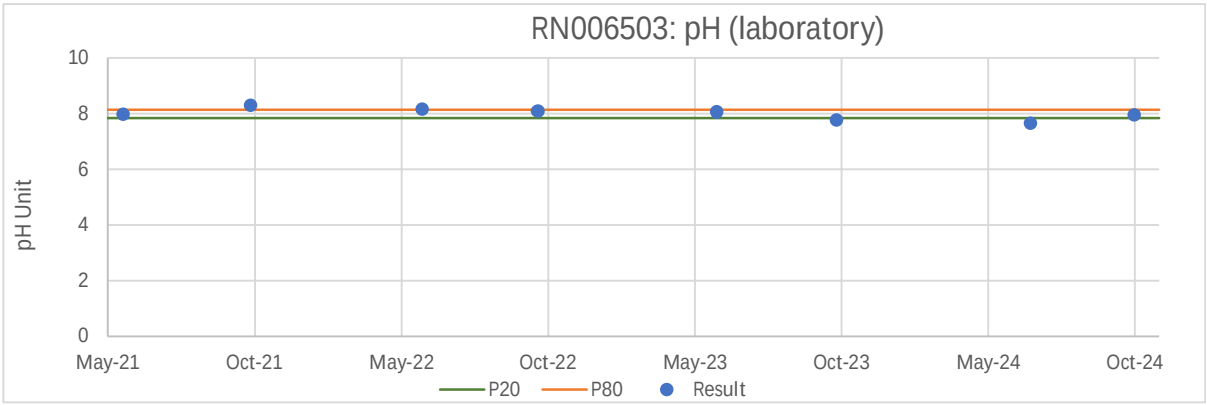

RN011831: Fluoride
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

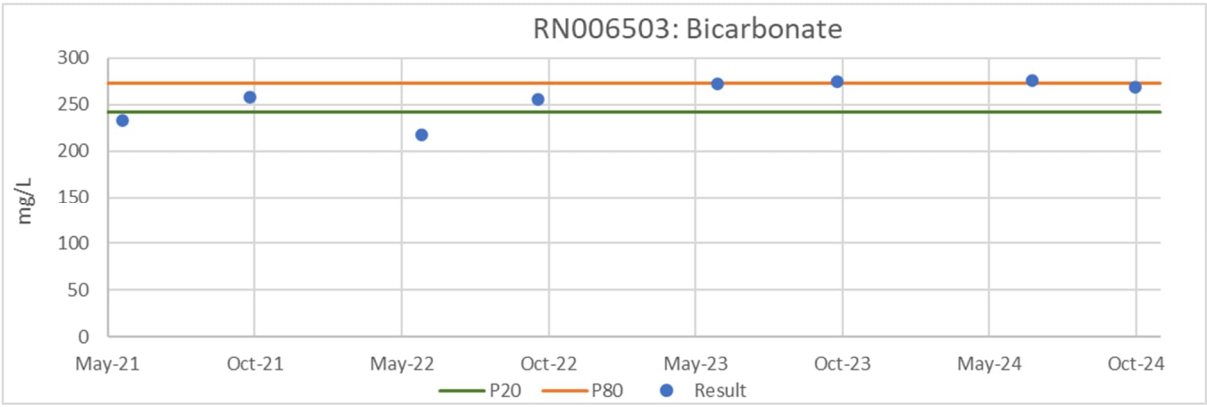

RN011831: Calcium
80
60
40
20
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

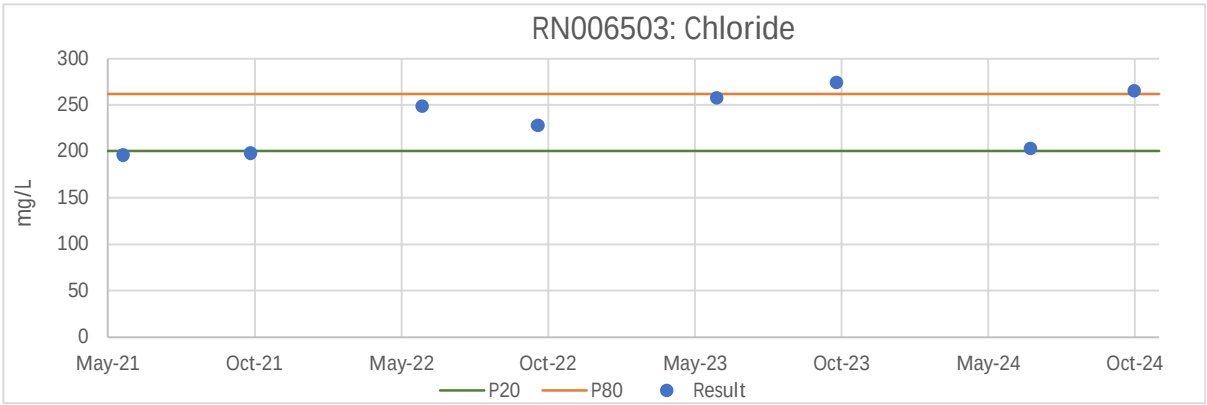

RN011831: Manganese
0.01
0.008
0.006
0.004
0.002
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

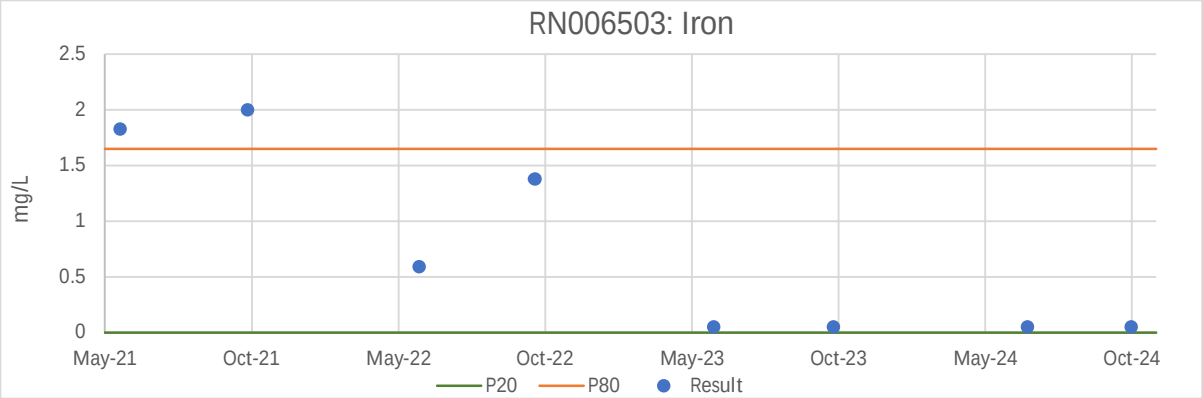

RN011831: Silica
25
20
15
10
5
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

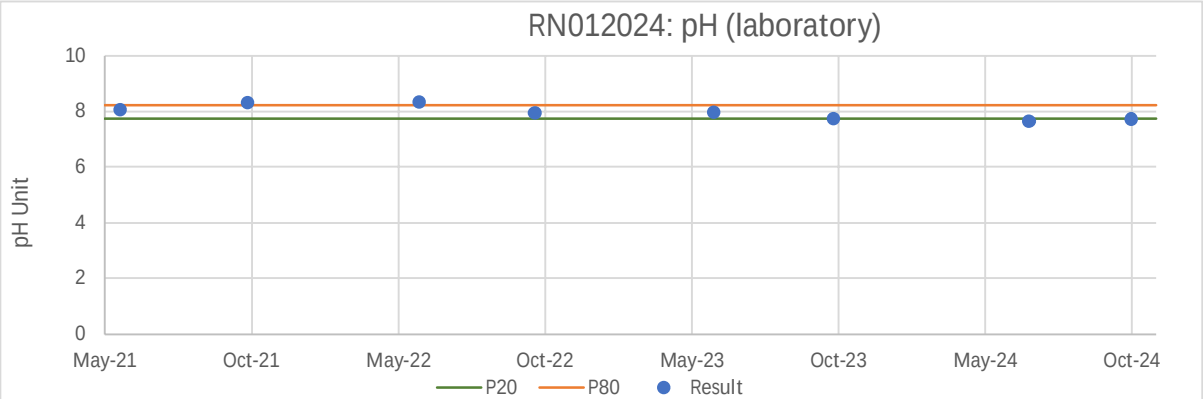

RN006503: Electrical conductivity
2000
1500
1000
500
0
µS/cm
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

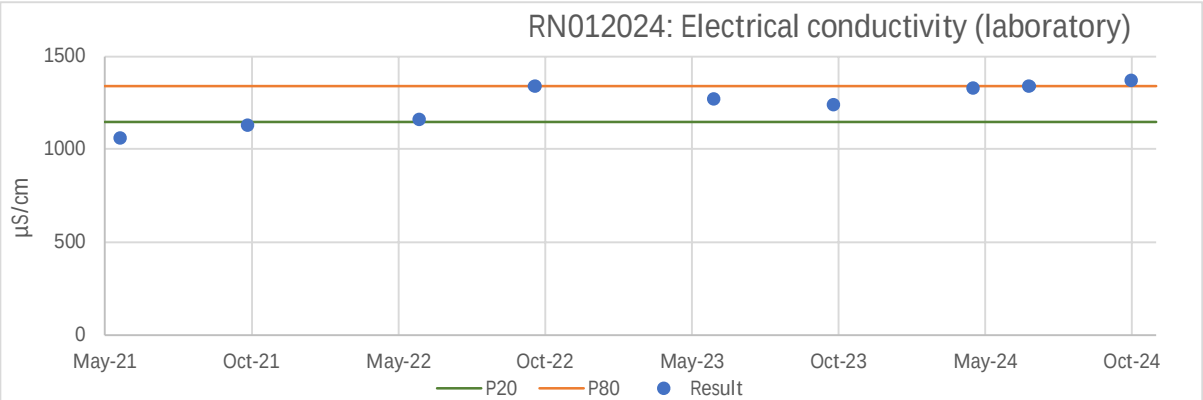

RN006503: pH (laboratory)
10
8
6
4
2
0
pH Unit
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

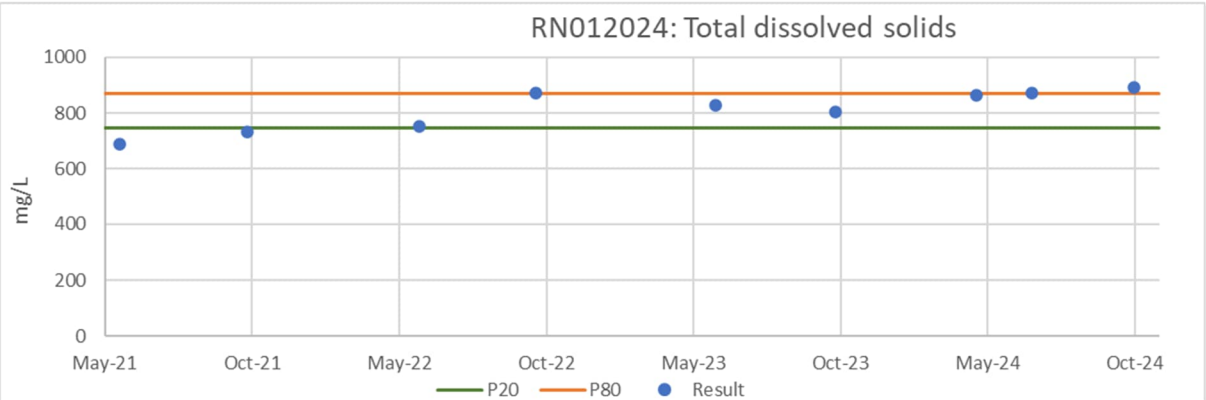

RN006503: Bicarbonate
300
250
200
150
100
50
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

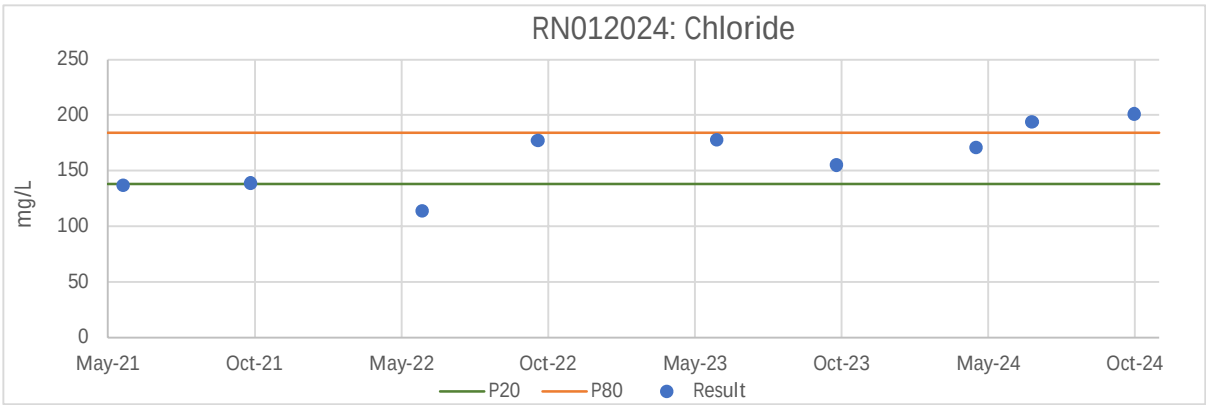

RN006503: Chloride
300
250
200
150
100
50
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

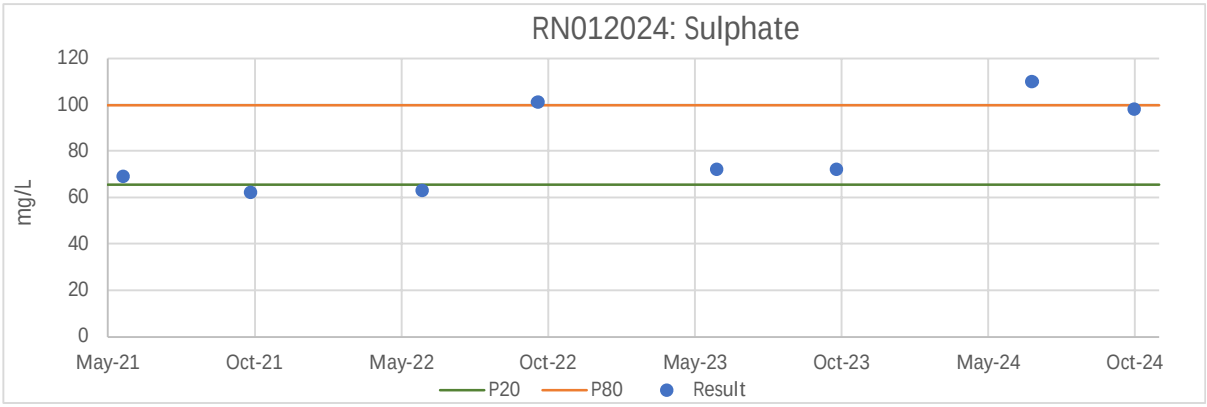

RN006503: Iron
mg/L
2.5
2
1.5
1
0.5
0
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

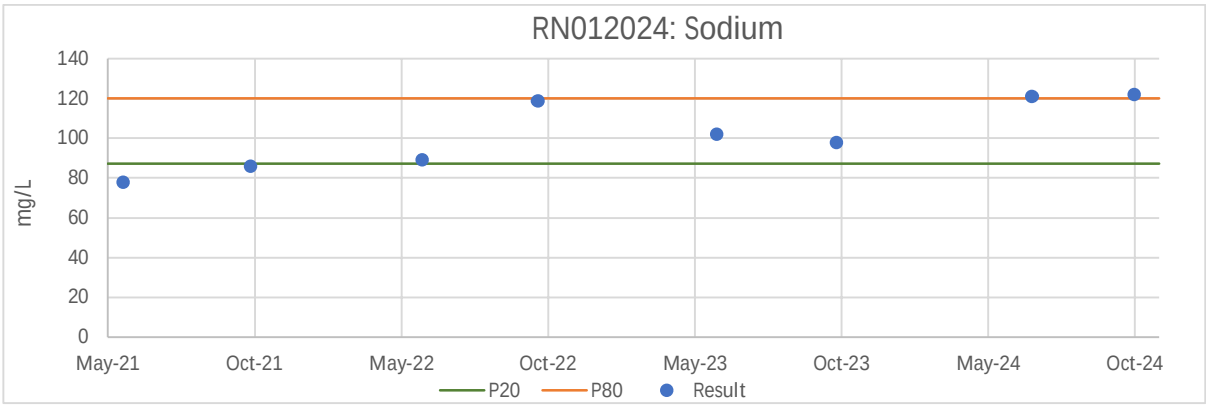

RN012024: pH (laboratory)
pH Unit
10
8
6
4
2
0
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

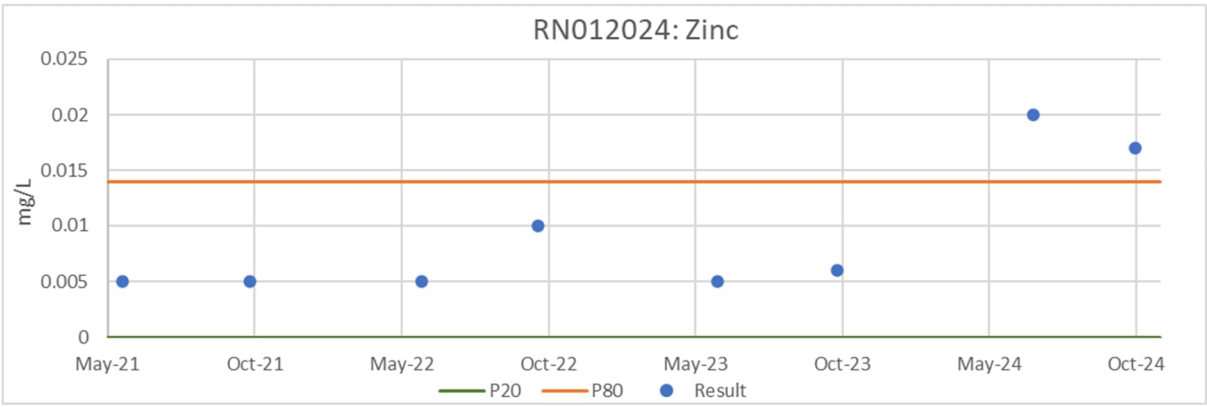

RN012024: Electrical conductivity (laboratory)
µS/cm
1500
1000
500
0
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result


RN012024: Total dissolved solids
mg/L
1000
800
600
400
200
0
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result


RN012024: Chloride
250
200
150
100
50
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result


RN012024: Sulphate
120
100
80
60
40
20
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result


RN012024: Sodium
140
120
100
80
60
40
20
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result


RN012024: Zinc
0.025
0.02
0.015
0.01
0.005
0
mg/L
May-21
Oct-21
May-22
Oct-22
May-23
Oct-23
May-24
Oct-24
P20
P80
Result

Field: Palm Valley		Location:	Palm Creek Lower Oasis					
Field Parameters	**Units**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**
Electrical conductivity	µS/cm	1	8	11	485	1266	1904	3100
pH	pH Unit	0.01	8	7.70	7.82	8.12	8.59	9.06
Temperature	°C	0.1	8	17.0	20.4	22.7	29.2	31.2

Field: Palm Valley		Location:	Palm Valley Area Spring No 8					
Field Parameters	**Units**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**
Electrical conductivity	µS/cm	1	4	168	385	869	1336	1527
pH	pH Unit	0.01	4	8.37	8.75	9.01	9.02	9.03
Temperature	°C	0.1	4	19.0	19.2	20.1	23.9	28.6

Field: Palm Valley		Location:	Palm Valley Area Spring No 9					
Field Parameters	**Units**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**
Electrical conductivity	µS/cm	1	8	761	953	2299	5884	7740
pH	pH Unit	0.01	8	8.50	8.76	9.13	9.26	9.61
Temperature	°C	0.1	8	19.2	21.2	23.0	27.8	30.7

Field: Palm Valley		Location:	Pimelia Spring					
Field Parameters	**Units**	**LOR**	**No. Samples**	**Min**	**P20**	**P50**	**P80**	**Max**
Electrical conductivity	µS/cm	1	4	176	579	907	1896	3290
pH	pH Unit	0.01	4	7.76	8.26	8.65	8.75	8.84
Temperature	°C	0.1	4	21.0	22.3	23.2	25.6	29.2

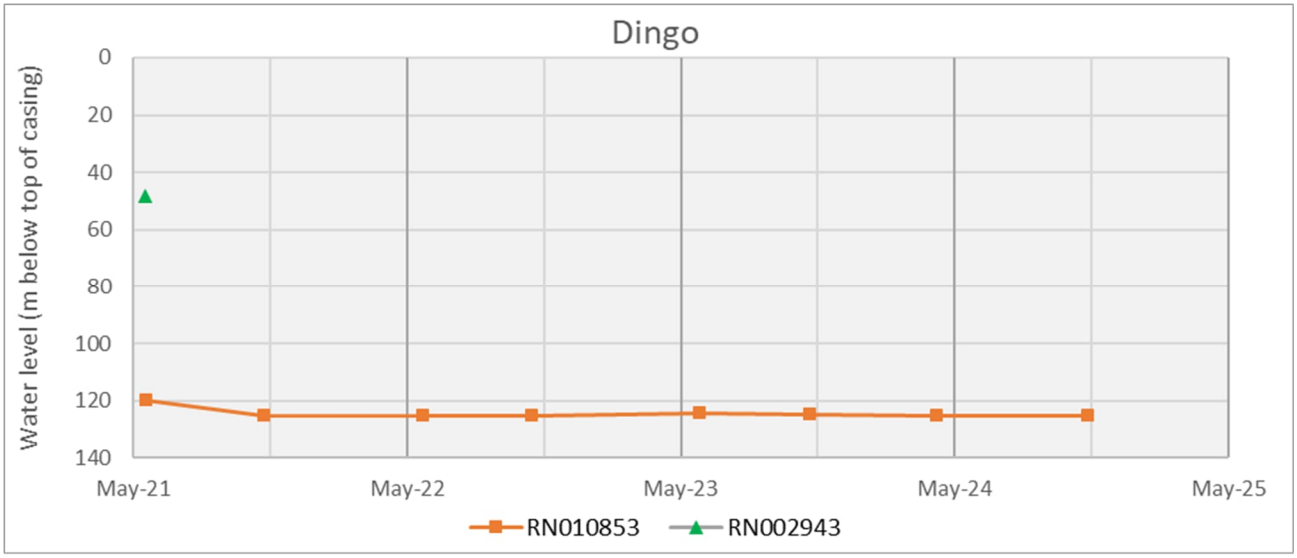
Appendix C - Water Level and Wellhead Pressure Monitoring

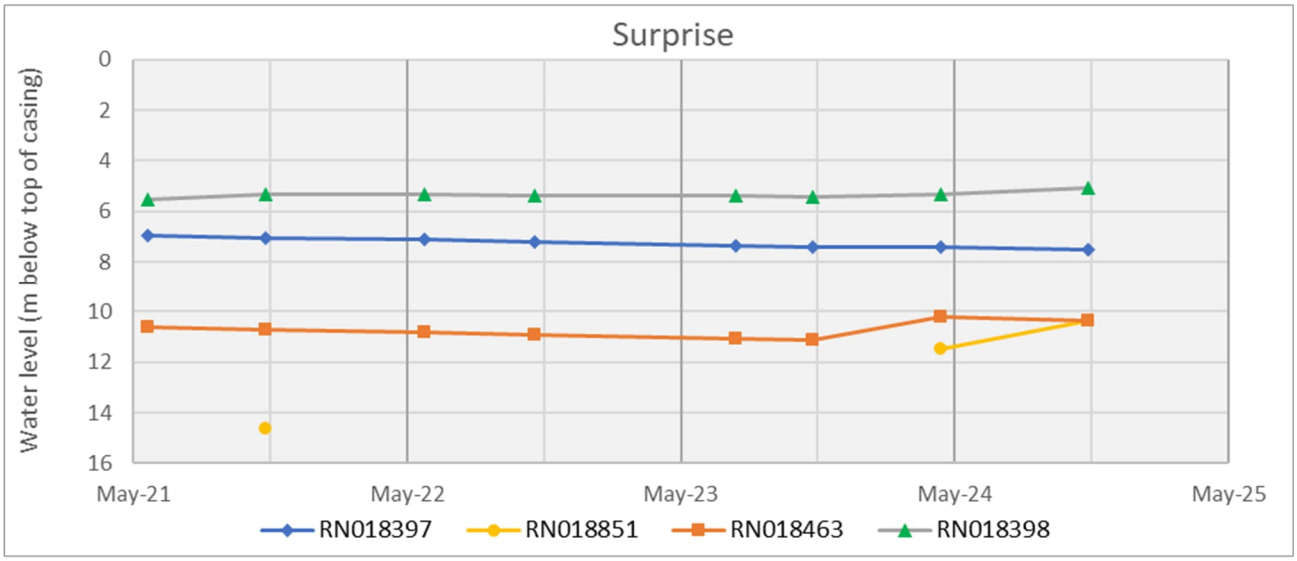
	RN002943		RN010853		RN017540							
Dingo	18/05/2021	48.09	19/05/2021	119.74	18/05/2021	Blocked at 97.13m						
	24/10/2021	dry at 50.6m	24/10/2021	125.33	24/10/2021	dry at 54m						
	24/05/2022	Dry at 51m	24/05/2022	125.38	24/05/2022	Dry at 29.6m						
	16/10/2022	Dry at 51m	16/10/2022	125.34	16/10/2022	Dry at 28.2m						
	28/05/2023	Bore collapsed	28/05/2023	124.5	28/05/2023	Bore collapsed						
	23/10/2023	Bore collapsed	23/10/2023	124.8	23/10/2023	Bore collapsed						
	9/04/2024	Dry	9/04/2024	125.44	9/04/2024	No access						
	28/10/2024	Bore collapsed	28/10/2024	125.46	28/10/2024	Dry						
	RN018851		RN018397		RN018463		RN018398					
Surprise	20/05/2021	No Access	20/05/2021	6.94	20/05/2021	10.595	20/05/2021	5.525				
	26/10/2021	14.62	26/10/2021	7.04	26/10/2021	10.7	26/10/2021	5.31				
	25/05/2022	Not measured	25/05/2022	7.1	25/05/2022	10.82	25/05/2022	5.34				
	17/10/2022	Not measured	19/10/2022	7.2	19/10/2022	10.91	19/10/2022	5.38				
	15/07/2023	Not measured	15/07/2023	7.35	15/07/2023	11.06	15/07/2023	5.38				
	26/10/2023	Not measured	26/10/2023	7.4	26/10/2023	11.14	26/10/2023	5.43				
	14/04/2024	11.46	14/04/2024	7.42	14/04/2024	10.23	14/04/2024	5.31				
	29/10/2024	10.38	29/10/2024	7.5	29/10/2024	10.38	29/10/2024	5.08				
	RN007292		RN018732		RN014165		RN018706		RN018707		RN018708	
Palm Valley	21/05/2021	-1.43	20/05/2021	5.45	20/05/2021	20.56	21/05/2021	-2.14	20/05/2021	1.03	20/05/2021	3.92
	25/10/2021	No access (subartesian)	25/10/2021	6.15	25/10/2021	14.02	25/10/2021	-1.63	25/10/2021	1.01	25/10/2021	4.27
	27/05/2022	No access	27/05/2022	No access	27/05/2022	28.73	27/05/2022	-1.6	27/05/2022	1.2	27/05/2022	3.16
	18/10/2022	Locked	18/10/2022	5.97	18/10/2022	51.84	18/10/2022	-2	18/10/2022	0.73	18/10/2022	3.8
	29/05/2023	No access	29/05/2023	No access	29/05/2023	23.05	29/05/2023	-2.03	29/05/2023	1	29/05/2023	4.4
	25/10/2023	No access	25/10/2023	No access	25/10/2023	22.15	25/10/2023	-1.93	25/10/2023	1.1	25/10/2023	4.8
	14/04/2024	No access	14/04/2024	6.5	14/04/2024	Fused closed	14/04/2024	-1.93	14/04/2024	0.29	14/04/2024	7.6
	30/10/2024	No access	30/10/2024	6.17	30/10/2024	28.26	30/10/2024	-1.734694	30/10/2024	0	30/10/2024	0

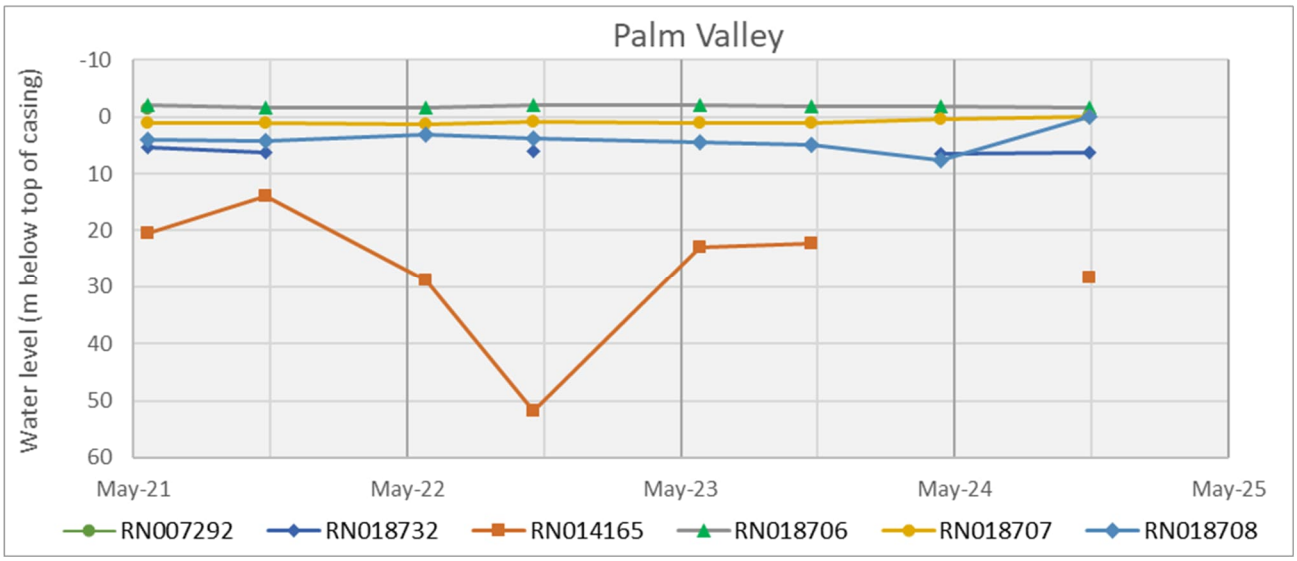
Water level measured as meters below reference point. Negative denotes artesian conditions

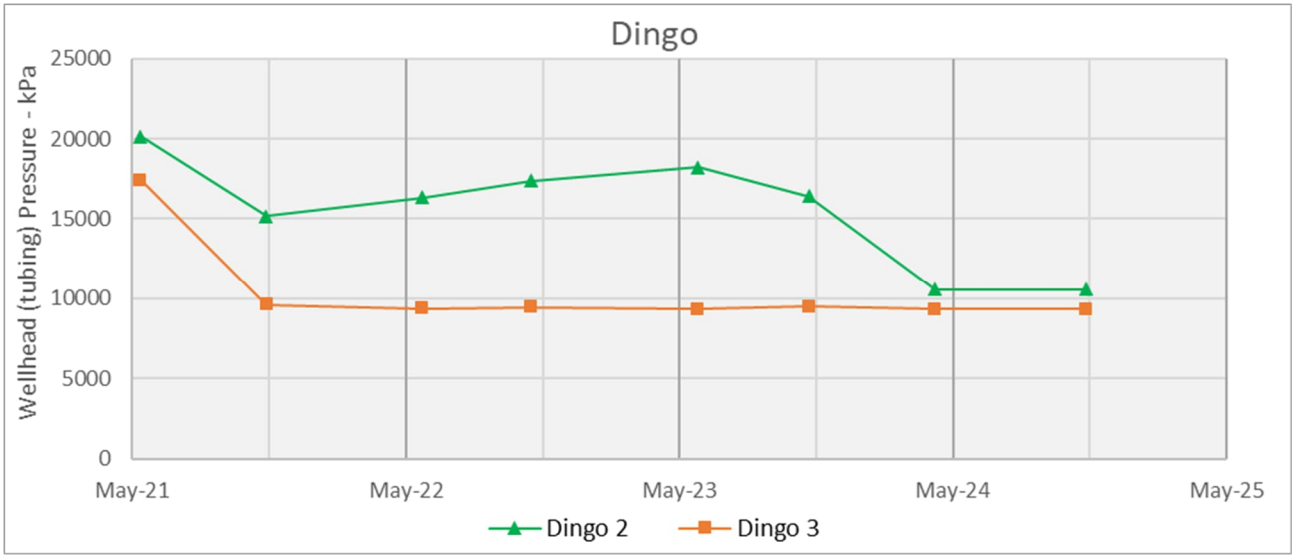
	Dingo 2		Dingo 3	
Dingo	12/05/2021	20159	12/05/2021	17408
	27/10/2021	15165	28/10/2021	9610
	24/05/2022	16343	24/05/2022	9350
	16/10/2022	17364	16/10/2022	9463
	28/05/2023	18200	28/05/2023	9312
	23/10/2023	16423	23/10/2023	9471
	9/04/2024	10560	9/04/2024	9312
	28/10/2024	10560	28/10/2024	9312
	Surprise 1		Johnstone West 1	
Surprise	8/04/2021	810	8/04/2021	1938
	1/12/2021	1520	1/12/2021	1175
	25/05/2022	468	25/05/2022	1885
	16/10/2022	308	16/10/2022	1991
	15/07/2023	1501	15/07/2023	1931
	23/10/2023	1402	23/10/2023	1973
	14/04/2024	4	14/04/2024	1916
	29/10/2024	4	29/10/2024	1916

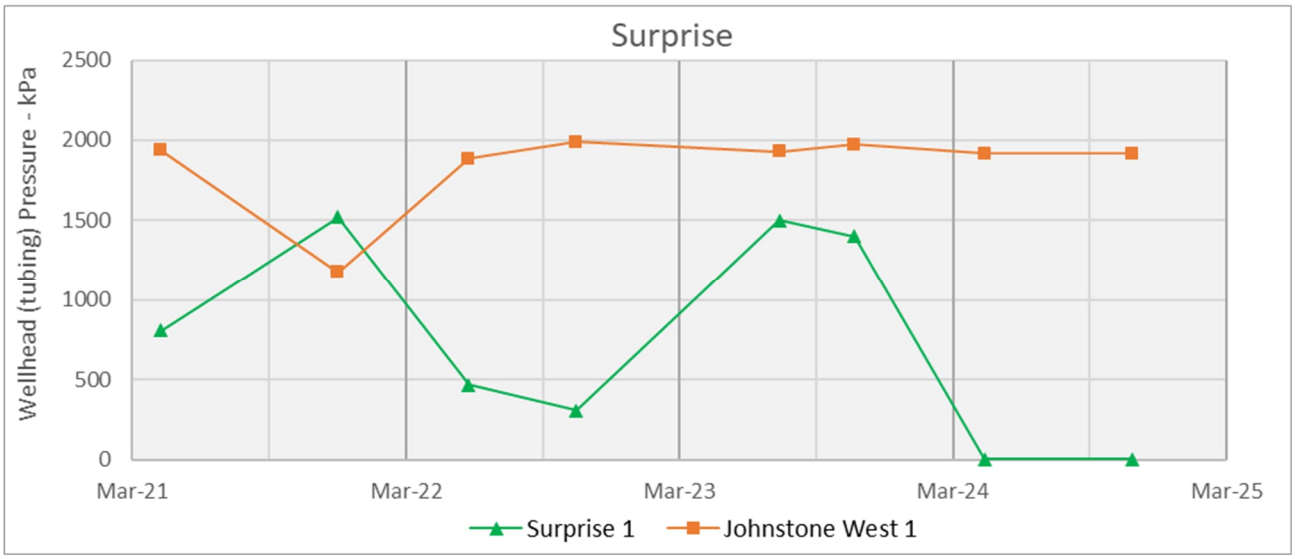
Wellhead pressure measured in kPa


Dingo
Water level (m below top of casing)
0
20
40
60
80
100
120
140
May-21
May-22
May-23
May-24
May-25
RN010853
RN002943


Surprise
Water level (m below top of casing)
0
2
4
6
8
10
12
14
16
May-21
May-22
May-23
May-24
May-25
RN018397
RN018851
RN018463
RN018398


Palm Valley
Water level (m below top of casing)
-10
0
10
20
30
40
50
60
May-21
May-22
May-23
May-24
May-25
RN007292
RN018732
RN014165
RN018706
RN018707
RN018708


Dingo
Wellhead (tubing) Pressure - kPa
25000
20000
15000
10000
5000
0
May-21
May-22
May-23
May-24
May-25
Dingo 2
Dingo 3


Surprise
Wellhead (tubing) Pressure - kPa
2500
2000
1500
1000
500
0
Mar-21
Mar-22
Mar-23
Mar-24
Mar-25
Surprise 1
Johnstone West 1

Appendix D – Photographs of Springs

Palm Creek Lower Oasis
April 2024

October 2024


Palm Valley Area Spring No 8
April 2024

October 2024


Palm Valley Area Spring No 9
May 2024

October 2024


Pimelia Spring
April 2024

October 2024