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# **Annual Groundwater Monitoring Report - 2025**

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Dingo Gas Field and Surprise Oil Field

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Palm Valley Gas Field

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# 1 Introduction

Central Petroleum Ltd (CTP) operates four oil and gas fields across the Amadeus Basin in the Northern Territory (NT). The following groundwater monitoring plans (GMPs) were developed to demonstrate that there is *no change in the groundwater quality as a result of activities*:

- DIN-630-PLN-0003: Dingo Gas Field and Surprise Oil Field Groundwater Monitoring Plan
- PVL-630-PLN-0001: Palm Valley Gas Field Groundwater Monitoring Plan

This document has been prepared to satisfy the annual Environmental Management Plan (EMP) reporting requirements of the GMPs for 2025. In accordance with EMP requirements 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.

## 2 Monitoring Scope

Table 1 provides a summary of the scope included in the GMPs and the scope completed during the 2024/25 financial year. The monitoring locations are shown on Figure 1 to Figure 3.

The pre-wet season monitoring was mostly undertaken in October 2024 and the end of wet season monitoring was mostly undertaken in May and June 2025. DLPE granted an extension of time for the monitoring to be undertaken in June. Actual dates are included with the chemistry results in Appendix A.


Deviations from the GMP scopes included:

- 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; and
  - A water level could not be measured in RN007292 and RN018732 because they could not be accessed.
- 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
  - Field water quality parameters could not be measured at RN018851 because of equipment failure.

**Table 1 Groundwater monitoring locations and scope**

| Field       | Location                     | Water Quality |     | Water Level |     | Wellhead Pressure |     | Field Water Quality and Photograph |     |
|-------------|------------------------------|---------------|-----|-------------|-----|-------------------|-----|------------------------------------|-----|
|             |                              | October       | May | October     | May | October           | May | October                            | May |
| 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                     |               |     | ✓           | ✓   |                   |     |                                    |     |
|             | RN014165                     |               |     | ✓           | ✓   |                   |     |                                    |     |
|             | RN018706                     |               |     | ✓           | ✓   |                   |     |                                    |     |
|             | RN018707                     |               |     | ✓           | ✓   |                   |     |                                    |     |
|             | RN018708                     |               |     | ✓           | ✓   |                   |     |                                    |     |

\* Datum = GD94

|   |              |   |                     |
|---|--------------|---|---------------------|
|  | Not in scope |  | Partially completed |
|  | 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 2024/25 financial 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. A duplicate sample was however not collected in the May 2025 monitoring event from the Dingo field.

Quality assurance results 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 2026 annual report.

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

- In October 2024:
  - Gross Alpha exceeded the ANZECC (2000) livestock guideline value (0.5 Bq/L) in RN011831 (0.6 Bq/L) and RN006503 (0.75 Bq/L). These bores are in the Dingo and Palm Valley GMP areas respectively.
  - Gross Beta (excluding k-40) exceeded the ANZECC (2000) livestock guideline value (0.5 Bq/L) in RN018851 (0.52 Bq/L) in the Surprise oil field.
- In May 2025:
  - Gross Beta (excluding k-40) exceeded the ANZECC (2000) livestock guideline value (0.5 Bq/L) in RN018851 (0.76 Bq/L) in the Surprise oil 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.

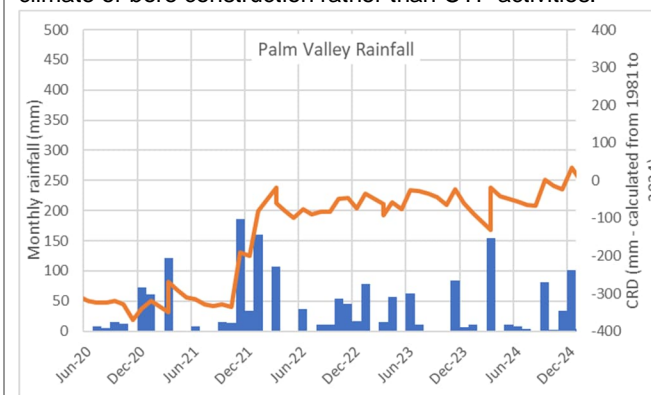
The trends identified by the Mann-Kendall test are summarised in Table 2 below. Observations with respect to the total dissolved solids trends have been included. Total dissolved solids (TDS) provides an indication of the overall water quality. Despite the trends, none of these parameters exceed the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

**Table 2 Parameter trends**

| Field    | Location | Parameter                          | Trend direction | Trend description   | Comments  |
|----------|----------|------------------------------------|-----------------|---|---|
| Surprise | RN018851 | Field Electrical conductivity (EC) | Falling         | The EC was effectively stable between May 2021 and May 2022. It declined from ~1,410 $\mu\text{S}/\text{cm}$ to 1,233 $\mu\text{S}/\text{cm}$ in October 2022 before rising to 1,284 $\mu\text{S}/\text{cm}$ in October 2023 and then falling to its minimum reported value of 1,139 $\mu\text{S}/\text{cm}$ in May 2024. Field EC has not been measured during the current reporting period. | 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 $\mu\text{S}/\text{cm}$ . The trends are attributed to natural variation, potentially affected by the lack of use and insufficient purging of the bore prior to sample collection.  |
|          |          | Sulphate                           | Rising          | The sulphate concentration was effectively stable from May 2021 to October 2022 at ~114 mg/L. It has then has gradually risen to a maximum of 129 mg/L in May 2025.   |   |
| 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, and since declined further to 0.49 Bq/L in May 2025.   | 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.<br><br>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.<br><br>The groundwater chemistry trends from this bore are attributed to natural variation. |
|          |          | Chloride                           | Rising          | Chloride concentrations were roughly stable from May 2021 to June 2024, at ~250 mg/L. In October 2024, the concentration increased to 306 mg/L and then increased to 334 mg/L in May 2025.  |   |
|          |          | Nitrite                            | Falling         | Nitrite concentrations varied between 0.1 mg/L and 0.4 mg/L from May 2022 to October 2024. The most recent sample (May 2025) reported 0.02 mg/L.  |   |
|          |          | Fluoride                           | Rising          | Fluoride concentrations were relatively stable between May 2021 and May 2023 at ~1.1 mg/L. From October 2023 onward, the reported fluoride concentration has been 1.2 mg/L.   |   |
|          |          | Calcium                            | Falling         | Calcium concentrations were 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, and since declined further to 42 mg/L in May 2025.   |   |
|          |          | 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.  |   |

| Field       | Location | Parameter               | Trend direction | Trend description   | Comments  |
|-------------|----------|-------------------------|-----------------|---|---|
|             |          | Silica                  | Rising          | There has been a gradual rise in the silica concentration from 16.8 mg/L in May 2021 to 19.7 mg/L in October 2024, with a marginal decline to 19.5 mg/L in Ma 2025.   |   |
|             |          | Zinc                    | Falling         | The concentration of zinc in the initial sample collected rom this bore was 0.105 mg/L. It declined from that concentration in May 2021 to 0.16 mg/L in May 2023. It has remained around 0.02 mg/L since, with he most recent concentration (May 2025) reported as 0.024 mg/L |   |
| Palm Valley | RN006503 | Electrical conductivity | Falling         | The EC was relatively stable from May 2021 to May 2022. It then dropped and effectively remained consistent at ~1,350 µS/cm until October 2024. It declined significantly in May 2025 to 745 µS/cm.   | 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.<br>The bore was initially recorded as dry, but later started flowing very slightly. Observations of the water level during |
|             |          | pH (Laboratory)         | Falling         | There was a gradual long-term decline in laboratory measured pH until May 2024, when it reached a minimum of 7.65. It has since increased to ~7.97 in the current reporting period.   |   |

| Field | Location | Parameter                            | Trend direction | Trend description  | Comments   |
|-------|----------|--------------------------------------|-----------------|--|--|
|       |          | 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 2022 it was reported as less than 1.5 mg/L and has been reported <LOR from May 2023 to May 2025. | <p>CP monitoring activities show some fluctuation, estimated in the order of 0.5 m, with unobservable flow.</p> <p>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.</p> <p>The decline in concentrations ~October 2023 may be related to a recharge event associated with above average rainfall in late 2021/ early 2022.</p> <p>It is considered likely the observed trends are related to climate or bore construction rather than CTP activities.</p> |
|       | RN012024 | pH (laboratory)                      | Falling         | There has been a gradual long-term decline in laboratory measured pH from around 8.2 in 2021/2022 to around 7.7 from October 2023 onwards.   | <p>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 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</p>  |
|       |          | 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. It declined to 1,210 µS/cm in May 2025   |  |
|       |          | Total dissolved solids               | Rising          | The TDS trend mimics the EC trend.   |  |



| Field | Location | Parameter | Trend direction | Trend description   | Comments  |
|-------|----------|-----------|-----------------|---|---|
|       |          | Chloride  | Rising          | The chloride trend has been less consistent, but similar to EC. It has gradually risen from 137 mg/L in May 2021 to a maximum of 201 mg/L in October 2024. The May 2025 concentration was 174 mg/L.   | and associated major ion concentrations are related to climate or bore construction rather than CTP activities. |
|       |          | 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. It has since declined to 90 mg/L in May 2025. |   |
|       |          | Zinc      | Rising          | Prior to 2024 the zinc concentration was ~LOR. In May 2024 the concentration increased rapidly to 0.02 mg/L but has declined to 0.006 mg/L in May 2025.   |   |

### 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 2021-2025 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 concentrations 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](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/](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](https://depws.nt.gov.au/_data/assets/pdf_file/0006/726585/betaloo-groundwater-monitoring-report.pdf)).

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. RN011831 exhibits a declining trend in Gross Alpha concentration.

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 in the 2024/2025 financial year.

## 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 then declined marginally to 125.46 m below top of casing as measured in October 2024. The May 2025 water level was measured at 64.6 m below top of casing. This value is likely to be erroneous, caused by faulty monitoring equipment.;
- At Surprise the water level trends are variable, with RN018398 and RN018851 generally 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, with gradual water level recession thereafter as rainfall has reduced. The water level in RN018851 dropped rapidly from 10.4 m in October 2024 to 14.7 m in May 2025.

This magnitude of change in water level is not unprecedented in this bore as the first water level measured was 14.6 m.; 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. It was reported to be dry in May 2025. 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. It increased marginally again to May 2025;
- The Johnstone West 1 pressure declined between April 2021 and October 2021, but has since recovered and has shown a very gradual decline from ~2,000 kPa) from October 2021 to 1,890 kPa in May 2025; 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 valve at the test point. The pressure increased to 270 kPa in May 2025.

## 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 are often dry whereas Lower Oasis and Spring No. 9 have consistently contained water over the nine monitoring events. The number of dry events are included in the tabulated results included in Appendix A.

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. In May 2025, there were thick algal mats across much of the water surface in Spring No 9.

## 7 Conclusions

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

## 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

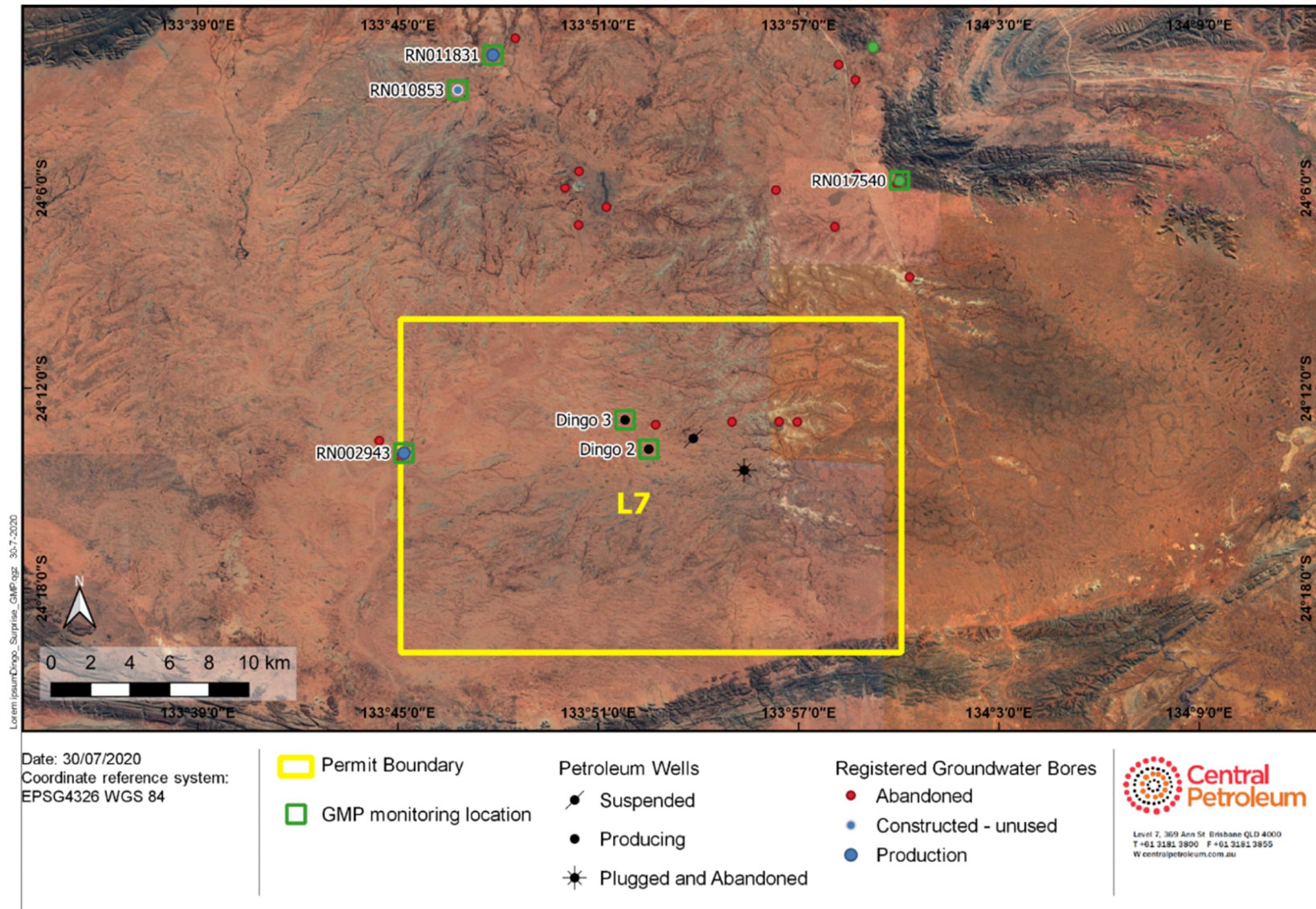


Figure 2 Groundwater monitoring locations relative to permit boundary – Surprise Oil Field

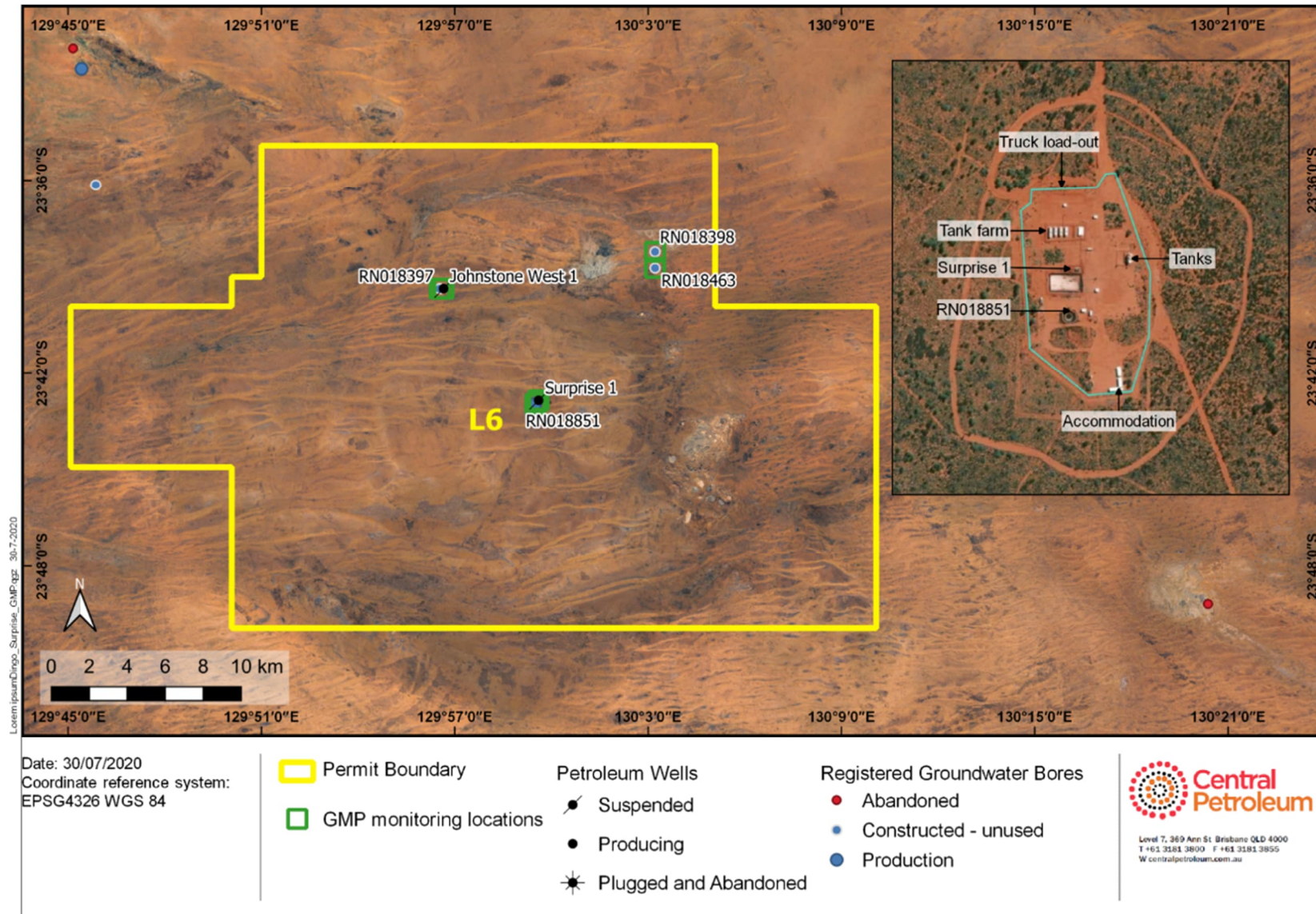
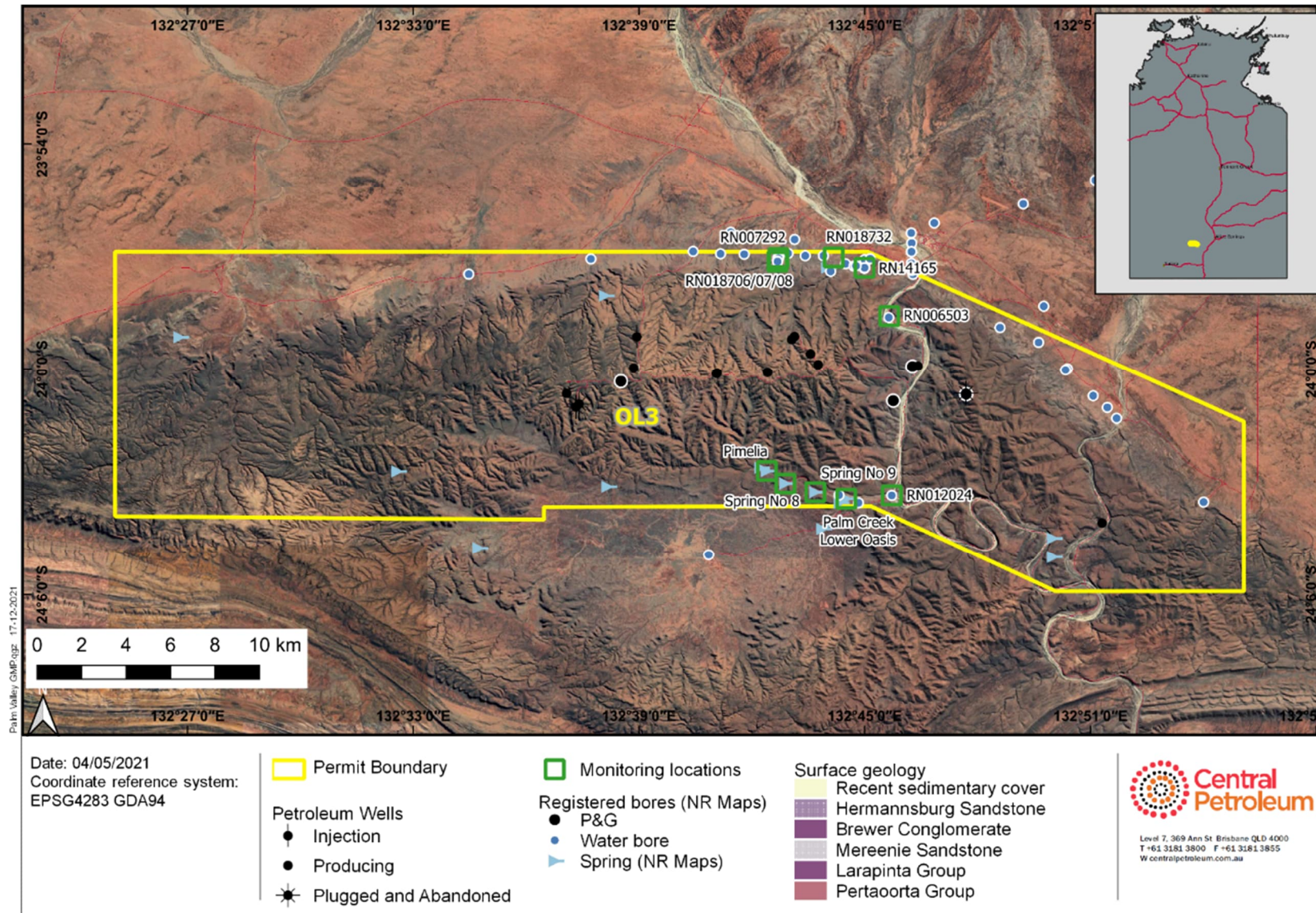


Figure 3 Groundwater monitoring locations relative to permit boundary – Palm Valley Gas Field



## **Appendix A - Water Quality and Quality Control Results**

| Monitoring Event:                    |         | Oct-2024                   |          | Field      | Dingo/Surprise |            |             | Palm Valley |                        |                              |                              |                |  |
|--------------------------------------|---------|----------------------------|----------|------------|----------------|------------|-------------|-------------|------------------------|------------------------------|------------------------------|----------------|--|
|                                      |         | ANZECC (2000)<br>Livestock | Location | RN011831   | RN002943       | RN018851   | RN006503    | RN012024    | Palm Creek Lower Oasis | Palm Valley Area Spring No 8 | Palm Valley Area Spring No 9 | Pimelia Spring |  |
|                                      |         |                            | Date     | 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        | 1230       | Bore collapsed | 11399      | 1315        | 1315        | 2130                   | Dry                          | 6340                         | Dry            |  |
| pH                                   | pH Unit | -                          | 0.01     | 6.9        | Bore collapsed | 6.8        | 7.11        | 7.11        | 9.06                   | Dry                          | 9.06                         | Dry            |  |
| Temperature                          | °C      | -                          | 0.1      | 24         | Bore collapsed | 28.3       | 27.4        | 27.4        | 31.2                   | Dry                          | 30.7                         | Dry            |  |
| General Parameters                   |         |                            |          |            |                |            |             |             |                        |                              |                              |                |  |
| pH (laboratory)                      | pH Unit | -                          | 0.01     | 8.29       | -              | -          | 7.95        | 7.72        | -                      | -                            | -                            | -              |  |
| Electrical conductivity (laboratory) | µS/cm   | -                          | 1        | 1520       | -              | -          | 1580        | 1370        | -                      | -                            | -                            | -              |  |
| Total dissolved solids <sup>1</sup>  | mg/L    | 4000                       | 1        | 988        | -              | -          | 1030        | 890         | -                      | -                            | -                            | -              |  |
| Total suspended solids               | mg/L    | -                          | 1        | 3          | -              | -          | 4           | <LOR        | -                      | -                            | -                            | -              |  |
| Gross alpha                          | Bq/L    | 0.5                        | 0.05     | <b>0.6</b> | -              | -          | <b>0.75</b> | 0.34        | -                      | -                            | -                            | -              |  |
| Gross beta                           | Bq/L    | -                          | 0.1      | 0.6        | -              | -          | 0.47        | 0.18        | -                      | -                            | -                            | -              |  |
| Gross beta activity - 40K            | Bq/L    | -                          | 0.1      | 0.12       | -              | -          | 0.15        | <LOR        | -                      | -                            | -                            | -              |  |
| Gross beta (excluding k-40)          | Bq/L    | 0.5                        | 0.1      | 0.48       | -              | -          | 0.32        | -           | -                      | -                            | -                            | -              |  |
| Major Anions and Cations             |         |                            |          |            |                |            |             |             |                        |                              |                              |                |  |
| Bicarbonate                          | mg/L    | -                          | 1        | 298        | -              | -          | 269         | 378         | -                      | -                            | -                            | -              |  |
| Carbonate                            | mg/L    | -                          | 1        | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Chloride                             | mg/L    | -                          | 1        | 306        | -              | -          | 265         | 201         | -                      | -                            | -                            | -              |  |
| Sulphate                             | mg/L    | 1000                       | 1        | 125        | -              | -          | 275         | 98          | -                      | -                            | -                            | -              |  |
| Nitrate                              | mg/L    | 400                        | 0.01     | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Nitrite                              | mg/L    | 30                         | 0.01     | 0.11       | -              | -          | <LOR        | 7.49        | -                      | -                            | -                            | -              |  |
| Fluoride                             | mg/L    | 2                          | 0.1      | 1.2        | -              | -          | <LOR        | 0.7         | -                      | -                            | -                            | -              |  |
| Sodium                               | mg/L    | -                          | 1        | 145        | -              | -          | 127         | 122         | -                      | -                            | -                            | -              |  |
| Potassium                            | mg/L    | -                          | 1        | 16         | -              | -          | 11          | 6           | -                      | -                            | -                            | -              |  |
| Calcium                              | mg/L    | 1000                       | 1        | 58         | -              | -          | 119         | 72          | -                      | -                            | -                            | -              |  |
| Magnesium                            | mg/L    | -                          | 1        | 60         | -              | -          | 48          | 58          | -                      | -                            | -                            | -              |  |
| Iron                                 | mg/L    | -                          | 0.05     | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Hydrocarbons                         |         |                            |          |            |                |            |             |             |                        |                              |                              |                |  |
| TRH: C6-C10                          | µg/L    | -                          | 20       | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| TRH: >C10-C40                        | µg/L    | -                          | 100      | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Benzene                              | µg/L    | -                          | 1        | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Toluene                              | µg/L    | -                          | 2        | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Ethylbenzene                         | µg/L    | -                          | 2        | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Total Xylenes                        | µg/L    | -                          | 2        | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Naphthalene                          | µg/L    | -                          | 1        | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| PAH Suite                            | µg/L    | -                          | 0.5      | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Dissolved Gases                      |         |                            |          |            |                |            |             |             |                        |                              |                              |                |  |
| Methane                              | µg/L    | -                          | 10       | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Ethane                               | µg/L    | -                          | 10       | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Propane                              | µg/L    | -                          | 10       | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Dissolved Metals/metalloids          |         |                            |          |            |                |            |             |             |                        |                              |                              |                |  |
| Chromium                             | mg/L    | 1                          | 0.001    | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Copper <sup>2</sup>                  | mg/L    | 1                          | 0.001    | <LOR       | -              | -          | <LOR        | 0.003       | -                      | -                            | -                            | -              |  |
| Lead                                 | mg/L    | 0.1                        | 0.001    | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Manganese                            | mg/L    | -                          | 0.001    | <LOR       | -              | -          | 0.072       | <LOR        | -                      | -                            | -                            | -              |  |
| Mercury                              | mg/L    | 0.002                      | 0.0001   | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Silver                               | mg/L    | -                          | 0.001    | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Arsenic                              | mg/L    | 0.5                        | 0.001    | <LOR       | -              | -          | <LOR        | 0.002       | -                      | -                            | -                            | -              |  |
| Barium                               | mg/L    | -                          | 0.001    | 0.077      | -              | -          | 0.315       | 0.074       | -                      | -                            | -                            | -              |  |
| Boron                                | mg/L    | 5                          | 0.05     | 0.3        | -              | -          | 0.11        | 0.38        | -                      | -                            | -                            | -              |  |
| Cadmium                              | mg/L    | 0.01                       | 0.0001   | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Lithium                              | mg/L    | -                          | 0.001    | 0.012      | -              | -          | 0.069       | 0.015       | -                      | -                            | -                            | -              |  |
| Selenium                             | mg/L    | 0.02                       | 0.01     | <LOR       | -              | -          | <LOR        | <LOR        | -                      | -                            | -                            | -              |  |
| Silica                               | mg/L    | -                          | 0.05     | 19.7       | -              | -          | 21          | 43.5        | -                      | -                            | -                            | -              |  |
| Strontium                            | mg/L    | -                          | 0.001    | 0.682      | -              | -          | 2.91        | 0.362       | -                      | -                            | -                            | -              |  |
| Zinc                                 | mg/L    | 20                         | 0.005    | 0.014      | -              | -          | 0.013       | 0.017       | -                      | -                            | -                            | -              |  |

1, 2 - guideline value for beef cattle

0.5

Guideline value exceeded

-

Not analysed

| Monitoring Event: May-2025           |         | Field                   | Dingo/Surprise |              |                |              | Palm Valley |                        |                              |                              |                |       |
|--------------------------------------|---------|-------------------------|----------------|--------------|----------------|--------------|-------------|------------------------|------------------------------|------------------------------|----------------|-------|
|                                      |         | Location                | RN011831       | RN002943     | RN018851       | RN006503     | RN012024    | Palm Creek Lower Oasis | Palm Valley Area Spring No 8 | Palm Valley Area Spring No 9 | Pimelia Spring |       |
|                                      |         | Date                    | 17/6/2025      | 17/6/2025    | 13/5/2025      | 13/5/2025    | 13/5/2025   | 13/5/2025              | 13/5/2025                    | 13/5/2025                    | 13/5/2025      |       |
|                                      |         | ANZECC (2000) Livestock |                |              |                |              |             |                        |                              |                              |                |       |
| Field Parameters                     | Units   | LOR                     |                |              |                |              |             |                        |                              |                              |                |       |
| Electrical conductivity              | µS/cm   | -                       | 1              | Not measured | Bore collapsed | Not measured | 1075        | 1036                   | 873.2                        | 429.8                        | 1450           | 744.9 |
| pH                                   | pH Unit | -                       | 0.01           | Not measured | Bore collapsed | Not measured | 8.88        | 7.69                   | 8.8                          | 9.55                         | 9.6            | 9.52  |
| Temperature                          | °C      | -                       | 0.1            | Not measured | Bore collapsed | Not measured | 23.8        | 19.9                   | 18.8                         | 21.2                         | 23.5           | 20.7  |
| <b>General Parameters</b>            |         |                         |                |              |                |              |             |                        |                              |                              |                |       |
| pH (laboratory)                      | pH Unit | -                       | 0.01           | 8.49         | -              | 7.87         | 7.98        | 7.73                   | -                            | -                            | -              | -     |
| Electrical conductivity (laboratory) | µS/cm   | -                       | 1              | 1630         | -              | 1390         | 1450        | 1210                   | -                            | -                            | -              | -     |
| Total dissolved solids <sup>1</sup>  | mg/L    | 4000                    | 1              | 1060         | -              | 904          | 942         | 786                    | -                            | -                            | -              | -     |
| Total suspended solids               | mg/L    | -                       | 1              | 2            | -              | 3            | 9           | <LOR                   | -                            | -                            | -              | -     |
| Gross alpha                          | Bq/L    | 0.5                     | 0.05           | 0.49         | -              | 0.35         | 0.5         | 0.24                   | -                            | -                            | -              | -     |
| Gross beta                           | Bq/L    | -                       | 0.1            | 0.6          | -              | 0.98         | 0.44        | 0.43                   | -                            | -                            | -              | -     |
| Gross beta activity - 40K            | Bq/L    | -                       | 0.1            | <LOR         | -              | 0.22         | 0.17        | 0.16                   | -                            | -                            | -              | -     |
| Gross beta (excluding k-40)          | Bq/L    | 0.5                     | 0.1            | -            | -              | <b>0.76</b>  | 0.27        | 0.27                   | -                            | -                            | -              | -     |
| <b>Major Anions and Cations</b>      |         |                         |                |              |                |              |             |                        |                              |                              |                |       |
| Bicarbonate                          | mg/L    | -                       | 1              | 251          | -              | 180          | 239         | 291                    | -                            | -                            | -              | -     |
| Carbonate                            | mg/L    | -                       | 1              | 28           | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Chloride                             | mg/L    | -                       | 1              | 334          | -              | 250          | 217         | 174                    | -                            | -                            | -              | -     |
| Sulphate                             | mg/L    | 1000                    | 1              | 137          | -              | 129          | 275         | 90                     | -                            | -                            | -              | -     |
| Nitrate                              | mg/L    | 400                     | 0.01           | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Nitrite                              | mg/L    | 30                      | 0.01           | 0.02         | -              | 11.2         | 0.02        | 2.09                   | -                            | -                            | -              | -     |
| Fluoride                             | mg/L    | 2                       | 0.1            | 1.2          | -              | 1.1          | <LOR        | 0.5                    | -                            | -                            | -              | -     |
| Sodium                               | mg/L    | -                       | 1              | 192          | -              | 116          | 138         | 84                     | -                            | -                            | -              | -     |
| Potassium                            | mg/L    | -                       | 1              | 20           | -              | 29           | 11          | 9                      | -                            | -                            | -              | -     |
| Calcium                              | mg/L    | 1000                    | 1              | 42           | -              | 67           | 118         | 67                     | -                            | -                            | -              | -     |
| Magnesium                            | mg/L    | -                       | 1              | 70           | -              | 39           | 51          | 47                     | -                            | -                            | -              | -     |
| Iron                                 | mg/L    | -                       | 0.05           | <LOR         | -              | 0.09         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| <b>Hydrocarbons</b>                  |         |                         |                |              |                |              |             |                        |                              |                              |                |       |
| TRH: C6-C10                          | µg/L    | -                       | 20             | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| TRH: >C10-C40                        | µg/L    | -                       | 100            | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Benzene                              | µg/L    | -                       | 1              | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Toluene                              | µg/L    | -                       | 2              | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Ethylbenzene                         | µg/L    | -                       | 2              | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Total Xylenes                        | µg/L    | -                       | 2              | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Naphthalene                          | µg/L    | -                       | 5              | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| PAH Suite                            | µg/L    | -                       | 0.5            | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| <b>Dissolved Gases</b>               |         |                         |                |              |                |              |             |                        |                              |                              |                |       |
| Methane                              | µg/L    | -                       | 10             | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Ethane                               | µg/L    | -                       | 10             | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Propane                              | µg/L    | -                       | 10             | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| <b>Dissolved Metals/metalloids</b>   |         |                         |                |              |                |              |             |                        |                              |                              |                |       |
| Chromium                             | mg/L    | 1                       | 0.001          | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Copper <sup>2</sup>                  | mg/L    | 1                       | 0.001          | 0.002        | -              | <LOR         | <LOR        | 0.002                  | -                            | -                            | -              | -     |
| Lead                                 | mg/L    | 0.1                     | 0.001          | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Manganese                            | mg/L    | -                       | 0.001          | <LOR         | -              | 0.023        | 0.024       | <LOR                   | -                            | -                            | -              | -     |
| Mercury                              | mg/L    | 0.002                   | 0.0001         | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Silver                               | mg/L    | -                       | 0.001          | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Arsenic                              | mg/L    | 0.5                     | 0.001          | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Barium                               | mg/L    | -                       | 0.001          | 0.031        | -              | 0.041        | 0.041       | 0.058                  | -                            | -                            | -              | -     |
| Boron                                | mg/L    | 5                       | 0.05           | 0.32         | -              | 0.47         | 0.09        | 0.19                   | -                            | -                            | -              | -     |
| Cadmium                              | mg/L    | 0.01                    | 0.0001         | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Lithium                              | mg/L    | -                       | 0.001          | 0.015        | -              | 0.008        | 0.039       | 0.021                  | -                            | -                            | -              | -     |
| Selenium                             | mg/L    | 0.02                    | 0.01           | <LOR         | -              | <LOR         | <LOR        | <LOR                   | -                            | -                            | -              | -     |
| Silica                               | mg/L    | -                       | 0.05           | 19.5         | -              | 46.9         | 20.5        | 31.8                   | -                            | -                            | -              | -     |
| Strontium                            | mg/L    | -                       | 0.001          | 0.384        | -              | 0.711        | 0.783       | 0.308                  | -                            | -                            | -              | -     |
| Zinc                                 | mg/L    | 20                      | 0.005          | 0.024        | -              | 0.016        | 0.035       | 0.006                  | -                            | -                            | -              | -     |

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  |
|--------------|-------------------|----------|-------|-----|----------|-------|------|
| Oct-2024     | Electrical Conduc | 1520     | 1490  | 2   | 1370     | 1380  | -0.7 |
| Oct-2024     | Total Dissolved S | 988      | 968   | 2   | 890      | 897   | -0.8 |
| Oct-2024     | Chloride          | 306      | 278   | 9.6 | 201      | 184   | 8.8  |

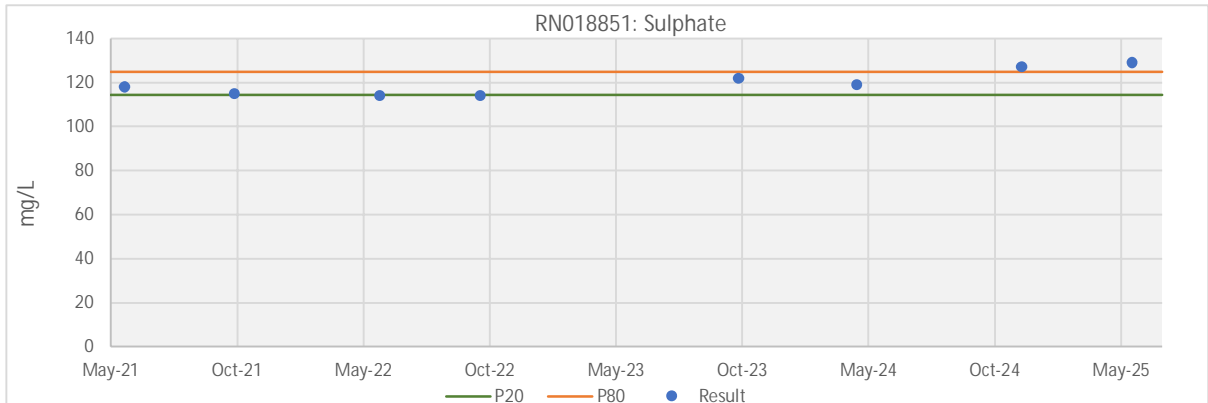
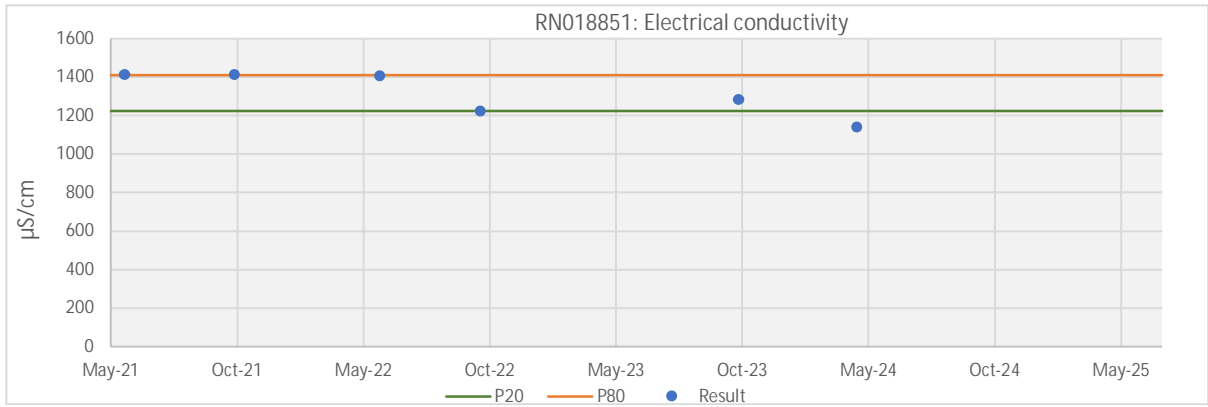
| Sample Event | Parameter               | RN012024 | DUP-P | RPD |
|--------------|-------------------------|----------|-------|-----|
| May-2025     | Electrical Conductivity | 1210     | 1190  | 1.7 |
| May-2025     | Total Dissolved Solids  | 786      | 774   | 1.5 |
| May-2025     | Chloride                | 174      | 168   | 3.5 |

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

| 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           |
| <b>General Parameters</b>            |          |                         |           |             |       |          |       |       |       |                    |
| pH (laboratory)                      | pH Unit  | -                       | 0.01      | 8           | 7.52  | 7.74     | 7.90  | 8.09  | 8.25  | No Trend           |
| Electrical conductivity (laboratory) | µS/cm    | -                       | 1         | 8           | 1270  | 1338     | 1375  | 1412  | 1430  | No Trend           |
| Total dissolved solids               | mg/L     | 4000 (1)                | 1         | 8           | 826   | 870      | 894   | 918   | 930   | No Trend           |
| Total suspended solids               | mg/L     | -                       | 1         | 8           | <LOR  | <LOR     | 2     | 3     | 5     | No Trend           |
| Gross alpha                          | Bq/L     | 0.5                     | 0.05      | 7           | 0.35  | 0.38     | 0.41  | 0.44  | 0.46  | No Trend           |
| Gross beta                           | Bq/L     | -                       | 0.1       | 7           | 0.98  | 1.15     | 1.20  | 1.26  | 1.56  | No Trend           |
| Gross beta activity - 40K            | Bq/L     | -                       | 0.1       | 7           | <LOR  | 0.24     | 0.32  | 0.48  | 0.74  | No Trend           |
| Gross beta (excluding k-40)          | Bq/L     | 0.5                     | 0.1       | 7           | 0.76  | 0.77     | 0.83  | 0.90  | 1.05  | No Trend           |
| <b>Major Anions and Cations</b>      |          |                         |           |             |       |          |       |       |       |                    |
| Bicarbonate                          | mg/L     | -                       | 1         | 8           | 91    | 175      | 187   | 198   | 221   | No Trend           |
| Carbonate                            | mg/L     | -                       | 1         | 8           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Chloride                             | mg/L     | -                       | 1         | 8           | 221   | 226      | 237   | 248   | 250   | No Trend           |
| Sulphate                             | mg/L     | 1000                    | 1         | 8           | 114   | 114      | 119   | 125   | 129   | Rising             |
| Nitrate                              | mg/L     | 400                     | 0.01      | 8           | <LOR  | <LOR     | 0.03  | 0.04  | 0.04  | No Trend           |
| Nitrite                              | mg/L     | 30                      | 0.01      | 8           | 9.67  | 10.18    | 10.70 | 11.06 | 11.20 | No Trend           |
| Fluoride                             | mg/L     | 2                       | 0.1       | 8           | 0.9   | 0.9      | 1.0   | 1.1   | 1.1   | No Trend           |
| Sodium                               | mg/L     | -                       | 1         | 8           | 116   | 125      | 131   | 137   | 144   | No Trend           |
| Potassium                            | mg/L     | -                       | 1         | 8           | 29    | 30       | 31    | 32    | 34    | No Trend           |
| Calcium                              | mg/L     | 1000                    | 1         | 8           | 67    | 69       | 73    | 74    | 94    | No Trend           |
| Magnesium                            | mg/L     | -                       | 1         | 8           | 38    | 39       | 41    | 42    | 43    | No Trend           |
| Iron                                 | mg/L     | -                       | 0.05      | 8           | <LOR  | <LOR     | 0.07  | 0.09  | 0.18  | No Trend           |
| <b>Hydrocarbons</b>                  |          |                         |           |             |       |          |       |       |       |                    |
| 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        | <LOR  | <LOR  | <LOR  | No Trend           |
| PAH Suite                            | µg/L     | -                       | 0.5       | 8           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| <b>Dissolved Gases</b>               |          |                         |           |             |       |          |       |       |       |                    |
| 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           |
| <b>Dissolved Metals/metalloids</b>   |          |                         |           |             |       |          |       |       |       |                    |
| Chromium                             | mg/L     | 1                       | 0.001     | 8           | <LOR  | <LOR     | <LOR  | 0.002 | 0.002 | 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           | 0.014 | 0.015    | 0.020 | 0.027 | 0.090 | 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           | 0.041 | 0.044    | 0.046 | 0.056 | 0.071 | No Trend           |
| Boron                                | mg/L     | 5                       | 0.05      | 8           | 0.42  | 0.48     | 0.50  | 0.53  | 0.58  | No Trend           |
| Cadmium                              | mg/L     | 0.01                    | 0.0001    | 8           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Lithium                              | mg/L     | -                       | 0.001     | 8           | 0.008 | 0.008    | 0.009 | 0.010 | 0.012 | No Trend           |
| Selenium                             | mg/L     | 0.02                    | 0.01      | 8           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Silica                               | mg/L     | -                       | 0.05      | 8           | 41.40 | 47.46    | 48.45 | 49.22 | 49.80 | No Trend           |
| Strontium                            | mg/L     | -                       | 0.001     | 8           | 0.704 | 0.731    | 0.777 | 0.816 | 0.859 | No Trend           |
| Zinc                                 | mg/L     | 20                      | 0.005     | 8           | <LOR  | 0.012    | 0.015 | 0.035 | 0.043 | No Trend           |

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

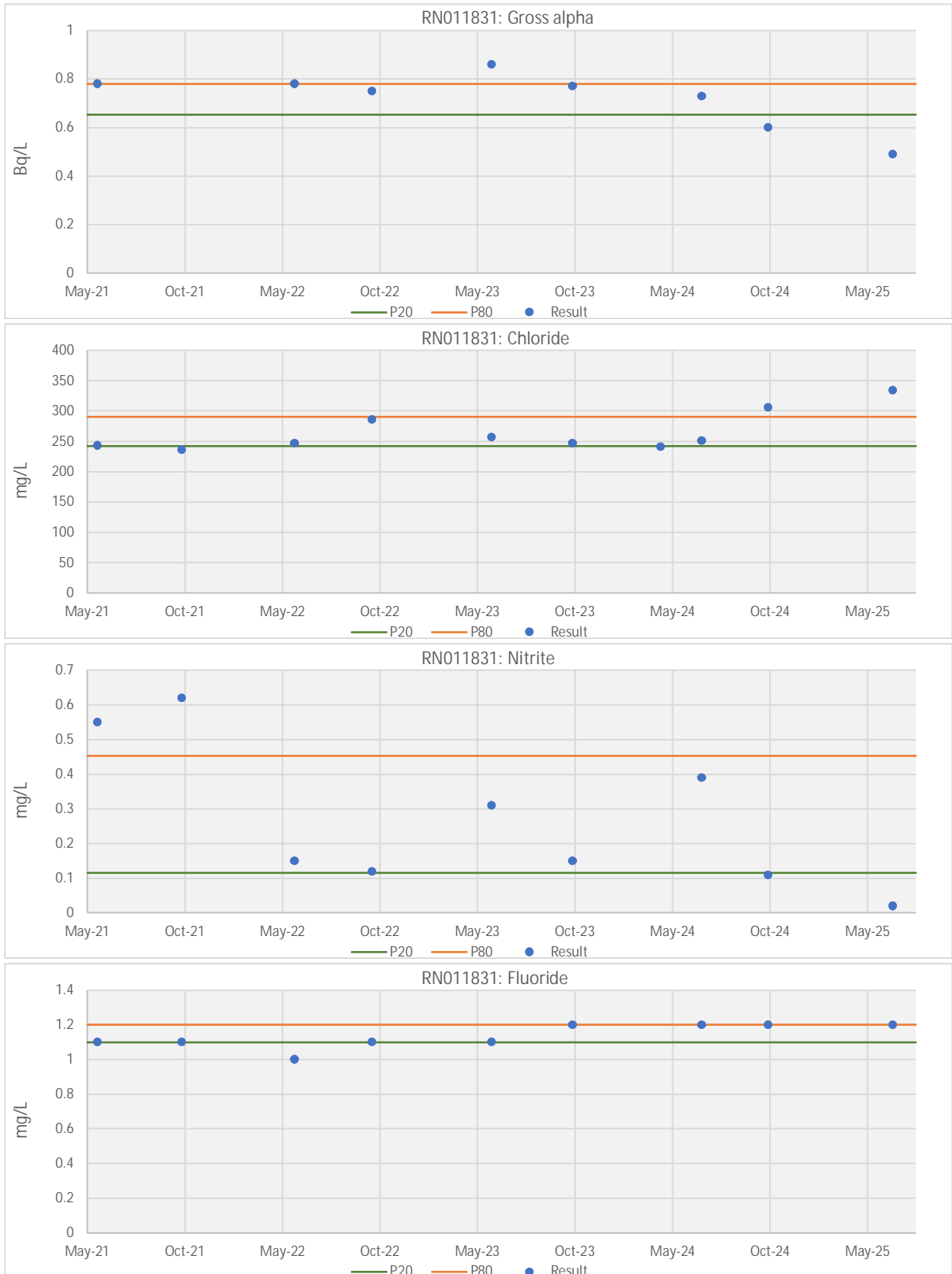
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|------|----------------------------------|
| 0.5  | Guideline value exceeded         |
| -    | Not analysed                     |
| <LOR | Less than the limit of reporting |

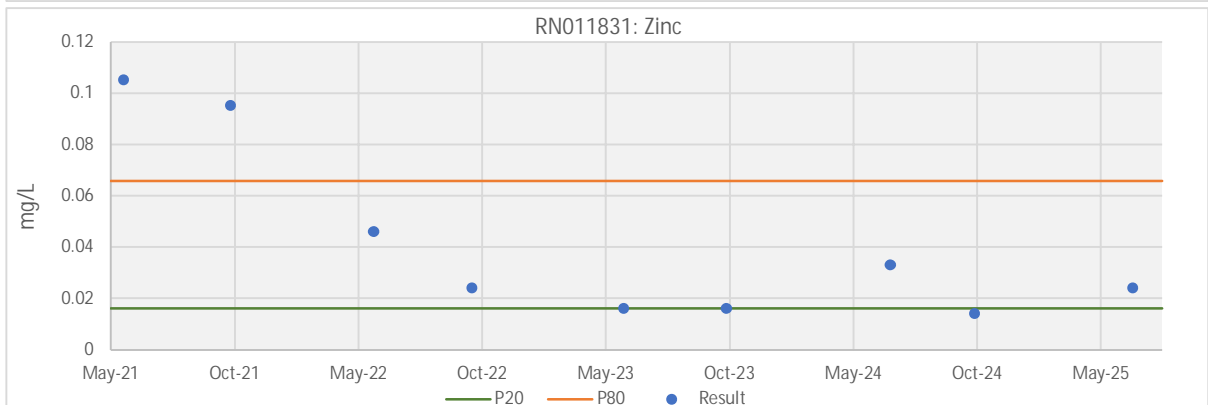
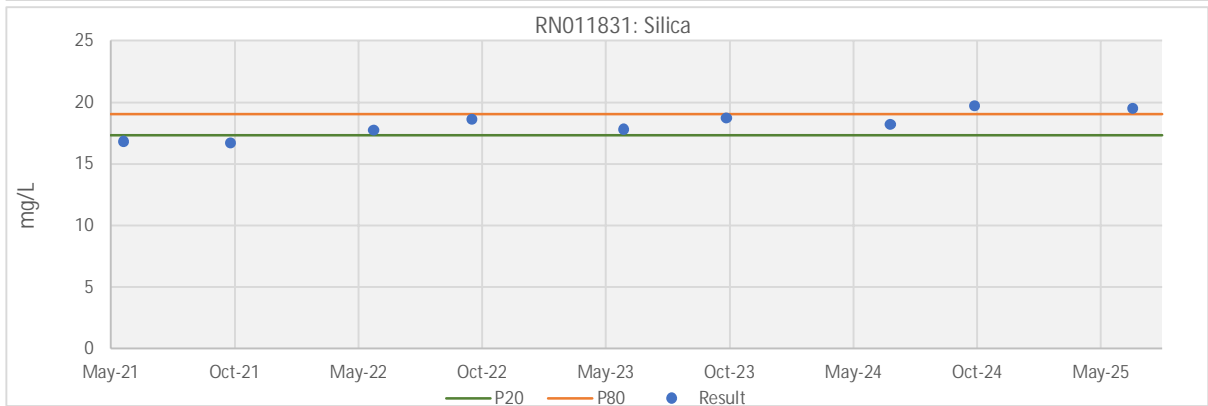
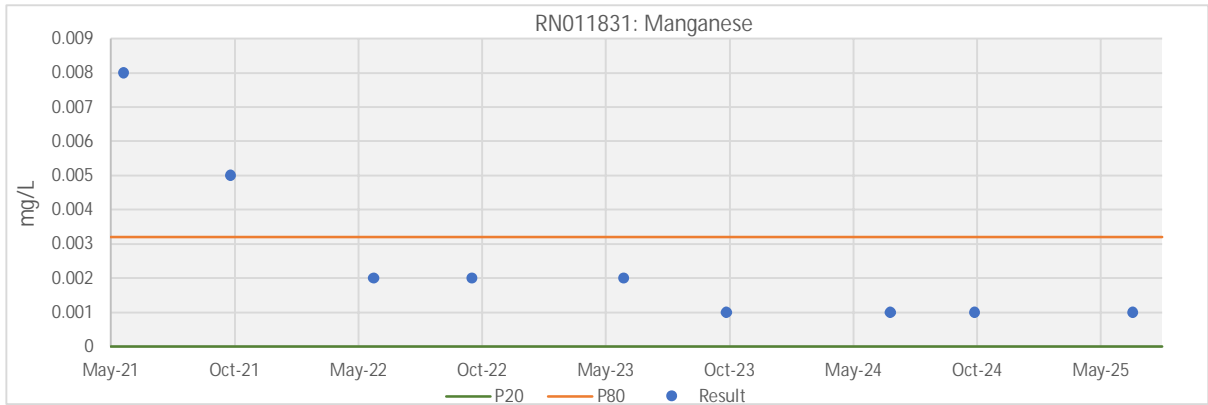
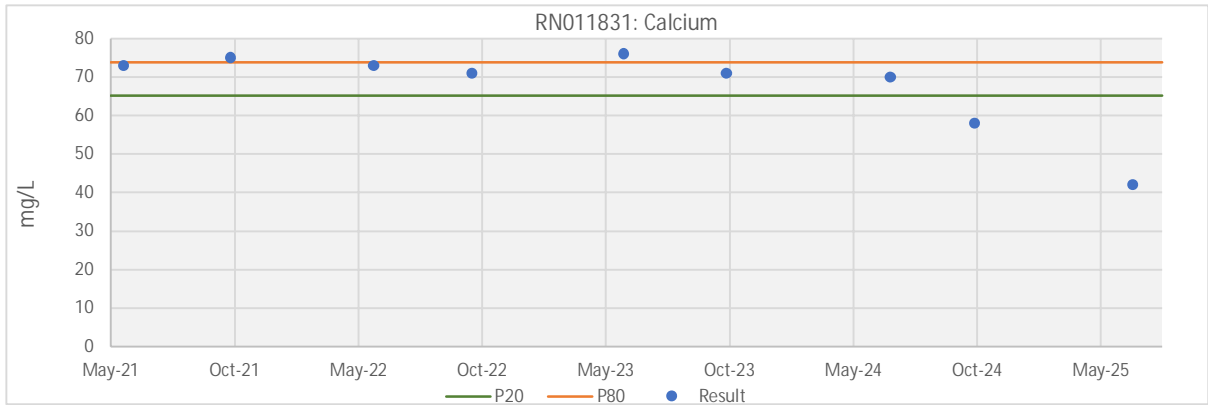


| Field                                | Dingo   | Location:               |        |             | RN011831 |       |       |       |       |                    |
|--------------------------------------|---------|-------------------------|--------|-------------|----------|-------|-------|-------|-------|--------------------|
| 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           |
| <b>General Parameters</b>            |         |                         |        |             |          |       |       |       |       |                    |
| pH (laboratory)                      | pH Unit | -                       | 0.01   | 9           | 7.97     | 8.17  | 8.29  | 8.42  | 8.49  | No Trend           |
| Electrical conductivity (laboratory) | µS/cm   | -                       | 1      | 10          | 1350     | 1414  | 1475  | 1520  | 1630  | No Trend           |
| Total dissolved solids               | mg/L    | 4000 (1)                | 1      | 10          | 878      | 919   | 959   | 988   | 1060  | No Trend           |
| Total suspended solids               | mg/L    | -                       | 1      | 9           | <LOR     | <LOR  | <LOR  | 3     | 5     | No Trend           |
| Gross alpha                          | Bq/L    | 0.5                     | 0.05   | 8           | 0.49     | 0.65  | 0.76  | 0.78  | 0.86  | Falling            |
| Gross beta                           | Bq/L    | -                       | 0.1    | 8           | 0.55     | 0.59  | 0.62  | 0.64  | 1.49  | No Trend           |
| Gross beta activity - 40K            | Bq/L    | -                       | 0.1    | 8           | <LOR     | <LOR  | 0.12  | 0.17  | 1.09  | No Trend           |
| Gross beta (excluding k-40)          | Bq/L    | 0.5                     | 0.1    | 8           | 0.40     | 0.44  | 0.49  | 0.50  | 0.52  | No Trend           |
| <b>Major Anions and Cations</b>      |         |                         |        |             |          |       |       |       |       |                    |
| Bicarbonate                          | mg/L    | -                       | 1      | 9           | 251      | 270   | 292   | 311   | 319   | No Trend           |
| Carbonate                            | mg/L    | -                       | 1      | 9           | <LOR     | <LOR  | <LOR  | 15    | 28    | No Trend           |
| Chloride                             | mg/L    | -                       | 1      | 10          | 236      | 243   | 249   | 290   | 334   | Rising             |
| Sulphate                             | mg/L    | 1000                    | 1      | 9           | 105      | 110   | 121   | 124   | 137   | No Trend           |
| Nitrate                              | mg/L    | 400                     | 0.01   | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| Nitrite                              | mg/L    | 30                      | 0.01   | 9           | 0.02     | 0.12  | 0.15  | 0.45  | 0.62  | Falling            |
| Fluoride                             | mg/L    | 2                       | 0.1    | 9           | 1.0      | 1.1   | 1.1   | 1.2   | 1.2   | Rising             |
| Sodium                               | mg/L    | -                       | 1      | 9           | 130      | 138   | 145   | 148   | 192   | No Trend           |
| Potassium                            | mg/L    | -                       | 1      | 9           | 15       | 15    | 16    | 16    | 20    | No Trend           |
| Calcium                              | mg/L    | 1000                    | 1      | 9           | 42       | 65    | 71    | 74    | 76    | Falling            |
| Magnesium                            | mg/L    | -                       | 1      | 9           | 53       | 59    | 61    | 63    | 70    | No Trend           |
| Iron                                 | mg/L    | -                       | 0.05   | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| <b>Hydrocarbons</b>                  |         |                         |        |             |          |       |       |       |       |                    |
| TRH: C6-C10                          | µg/L    | -                       | 20     | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| TRH: >C10-C40                        | µg/L    | -                       | 100    | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| Benzene                              | µg/L    | -                       | 1      | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| Toluene                              | µg/L    | -                       | 2      | 9           | <LOR     | <LOR  | <LOR  | <LOR  | 4     | No Trend           |
| Ethylbenzene                         | µg/L    | -                       | 2      | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| Total Xylenes                        | µg/L    | -                       | 2      | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| Naphthalene                          | µg/L    | -                       | 5      | 9           | 1        | 1     | <LOR  | <LOR  | <LOR  | No Trend           |
| PAH Suite                            | µg/L    | -                       | 0.5    | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| <b>Dissolved Gases</b>               |         |                         |        |             |          |       |       |       |       |                    |
| 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           |
| <b>Dissolved Metals/metalloids</b>   |         |                         |        |             |          |       |       |       |       |                    |
| Chromium                             | mg/L    | 1                       | 0.001  | 9           | <LOR     | <LOR  | <LOR  | 0.002 | 0.003 | No Trend           |
| Copper                               | mg/L    | 1 (2)                   | 0.001  | 9           | <LOR     | <LOR  | <LOR  | 0.002 | 0.003 | No Trend           |
| Lead                                 | mg/L    | 0.1                     | 0.001  | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| Manganese                            | mg/L    | -                       | 0.001  | 9           | <LOR     | <LOR  | 0.002 | 0.003 | 0.008 | Falling            |
| Mercury                              | mg/L    | 0.002                   | 0.0001 | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| Silver                               | mg/L    | -                       | 0.001  | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| Arsenic                              | mg/L    | 0.5                     | 0.001  | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| Barium                               | mg/L    | -                       | 0.001  | 9           | 0.031    | 0.060 | 0.072 | 0.078 | 0.080 | No Trend           |
| Boron                                | mg/L    | 5                       | 0.05   | 9           | 0.25     | 0.26  | 0.30  | 0.32  | 0.64  | No Trend           |
| Cadmium                              | mg/L    | 0.01                    | 0.0001 | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| Lithium                              | mg/L    | -                       | 0.001  | 9           | 0.011    | 0.012 | 0.012 | 0.015 | 0.024 | No Trend           |
| Selenium                             | mg/L    | 0.02                    | 0.01   | 9           | <LOR     | <LOR  | <LOR  | <LOR  | <LOR  | No Trend           |
| Silica                               | mg/L    | -                       | 0.05   | 9           | 16.70    | 17.34 | 18.20 | 19.02 | 19.70 | Rising             |
| Strontium                            | mg/L    | -                       | 0.001  | 9           | 0.384    | 0.700 | 0.750 | 0.771 | 0.825 | No Trend           |
| Zinc                                 | mg/L    | 20                      | 0.005  | 9           | 0.014    | 0.016 | 0.024 | 0.066 | 0.105 | Falling            |

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

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

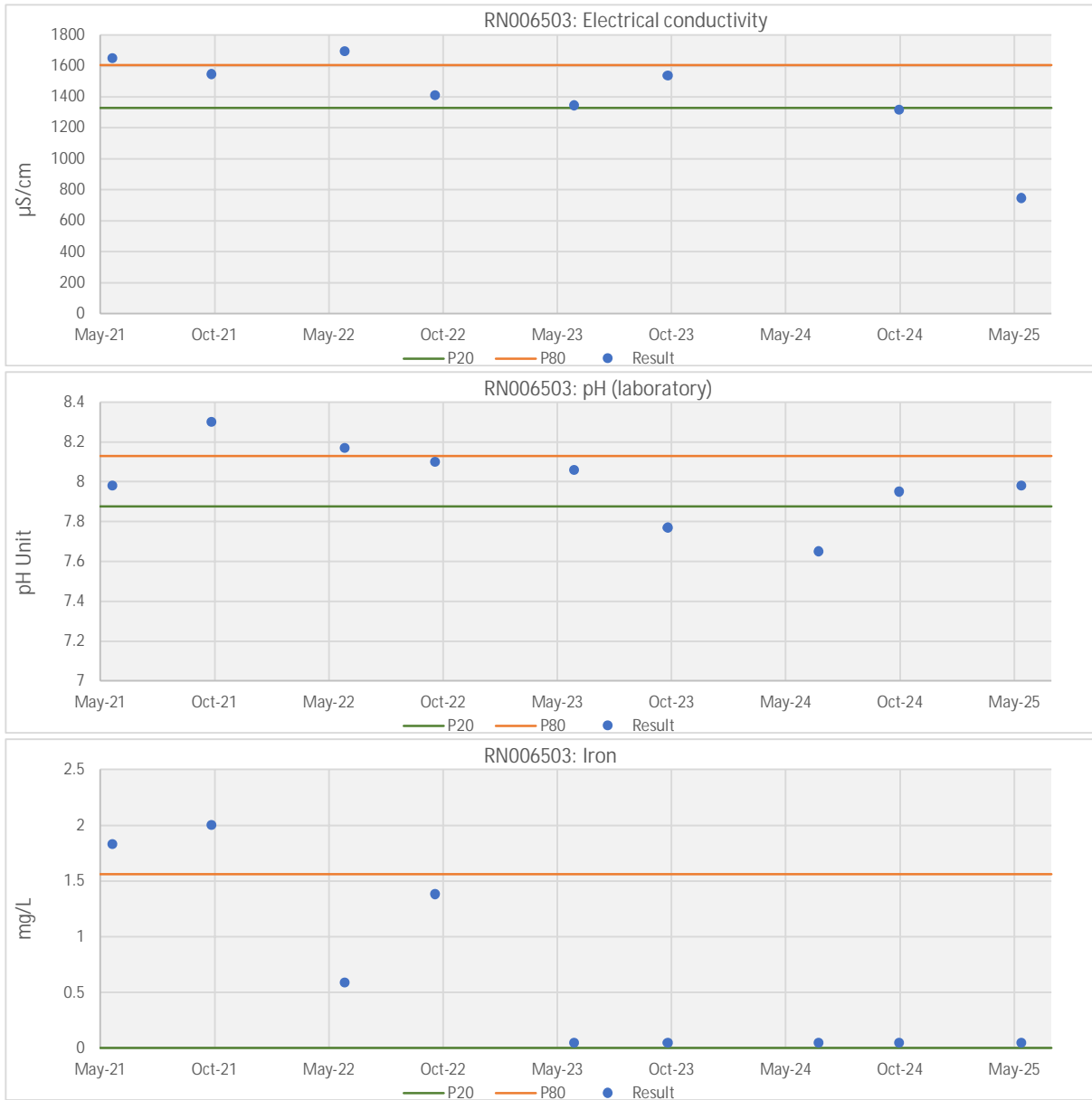




| Field                                |         | Palm Valley             |        | Location:   |       | RN006503 |       |       |       |                    |
|--------------------------------------|---------|-------------------------|--------|-------------|-------|----------|-------|-------|-------|--------------------|
| Field Parameters                     | Units   | ANZECC (2000) Livestock | LOR    | No. Samples | Min   | P20      | P50   | P80   | Max   | Mann-Kendall Trend |
| Electrical conductivity              | µS/cm   | -                       | 1      | 8           | 1075  | 1327     | 1474  | 1607  | 1693  | Falling            |
| pH                                   | pH Unit | -                       | 0.01   | 8           | 6.93  | 7.11     | 7.18  | 7.57  | 8.88  | No Trend           |
| Temperature                          | °C      | -                       | 0.1    | 7           | 22.0  | 23.8     | 24.2  | 25.3  | 27.4  | No Trend           |
| <b>General Parameters</b>            |         |                         |        |             |       |          |       |       |       |                    |
| pH (laboratory)                      | pH Unit | -                       | 0.01   | 9           | 7.65  | 7.88     | 7.98  | 8.13  | 8.30  | Falling            |
| Electrical conductivity (laboratory) | µS/cm   | -                       | 1      | 9           | 1400  | 1434     | 1580  | 1648  | 1690  | No Trend           |
| Total dissolved solids               | mg/L    | 4000 (1)                | 1      | 9           | 910   | 932      | 1030  | 1070  | 1100  | No Trend           |
| Total suspended solids               | mg/L    | -                       | 1      | 9           | 3     | 4        | 9     | 25    | 39    | No Trend           |
| Gross alpha                          | Bq/L    | 0.5                     | 0.05   | 8           | 0.50  | 0.62     | 0.70  | 0.81  | 1.81  | No Trend           |
| Gross beta                           | Bq/L    | -                       | 0.1    | 8           | 0.44  | 0.44     | 0.50  | 0.63  | 1.42  | No Trend           |
| Gross beta activity - 40K            | Bq/L    | -                       | 0.1    | 8           | <LOR  | 0.14     | 0.19  | 0.35  | 1.00  | No Trend           |
| Gross beta (excluding k-40)          | Bq/L    | 0.5                     | 0.1    | 8           | 0.26  | 0.28     | 0.32  | 0.34  | 0.42  | No Trend           |
| <b>Major Anions and Cations</b>      |         |                         |        |             |       |          |       |       |       |                    |
| Bicarbonate                          | mg/L    | -                       | 1      | 9           | 217   | 237      | 258   | 273   | 276   | No Trend           |
| Carbonate                            | mg/L    | -                       | 1      | 9           | <LOR  | <LOR     | <LOR  | <LOR  | 3     | No Trend           |
| Chloride                             | mg/L    | -                       | 1      | 9           | 196   | 201      | 228   | 261   | 274   | No Trend           |
| Sulphate                             | mg/L    | 1000                    | 1      | 9           | 246   | 251      | 272   | 277   | 285   | No Trend           |
| Nitrate                              | mg/L    | 400                     | 0.01   | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Nitrite                              | mg/L    | 30                      | 0.01   | 9           | <LOR  | <LOR     | <LOR  | 0.02  | 0.45  | No Trend           |
| Fluoride                             | mg/L    | 2                       | 0.1    | 9           | <LOR  | <LOR     | <LOR  | <LOR  | 0.2   | No Trend           |
| Sodium                               | mg/L    | -                       | 1      | 9           | 127   | 133      | 139   | 149   | 154   | No Trend           |
| Potassium                            | mg/L    | -                       | 1      | 9           | 9     | 10       | 11    | 11    | 15    | No Trend           |
| Calcium                              | mg/L    | 1000                    | 1      | 9           | 108   | 115      | 118   | 123   | 130   | No Trend           |
| Magnesium                            | mg/L    | -                       | 1      | 9           | 46    | 48       | 51    | 53    | 56    | No Trend           |
| Iron                                 | mg/L    | -                       | 0.05   | 9           | <LOR  | <LOR     | <LOR  | 1.56  | 2.00  | Falling            |
| <b>Hydrocarbons</b>                  |         |                         |        |             |       |          |       |       |       |                    |
| TRH: C6-C10                          | µg/L    | -                       | 20     | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| TRH: >C10-C40                        | µg/L    | -                       | 100    | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Benzene                              | µg/L    | -                       | 1      | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Toluene                              | µg/L    | -                       | 2      | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Ethylbenzene                         | µg/L    | -                       | 2      | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Total Xylenes                        | µg/L    | -                       | 2      | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Naphthalene                          | µg/L    | -                       | 5      | 9           | 1     | 1        | <LOR  | <LOR  | <LOR  | No Trend           |
| PAH Suite                            | µg/L    | -                       | 0.5    | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| <b>Dissolved Gases</b>               |         |                         |        |             |       |          |       |       |       |                    |
| 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           |
| <b>Dissolved Metals/metalloids</b>   |         |                         |        |             |       |          |       |       |       |                    |
| Chromium                             | mg/L    | 1                       | 0.001  | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Copper                               | mg/L    | 1 (2)                   | 0.001  | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Lead                                 | mg/L    | 0.1                     | 0.001  | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Manganese                            | mg/L    | -                       | 0.001  | 9           | 0.011 | 0.040    | 0.054 | 0.076 | 0.088 | No Trend           |
| Mercury                              | mg/L    | 0.002                   | 0.0001 | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Silver                               | mg/L    | -                       | 0.001  | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Arsenic                              | mg/L    | 0.5                     | 0.001  | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Barium                               | mg/L    | -                       | 0.001  | 9           | 0.041 | 0.053    | 0.066 | 0.133 | 0.315 | No Trend           |
| Boron                                | mg/L    | 5                       | 0.05   | 9           | 0.08  | 0.09     | 0.11  | 0.12  | 0.14  | No Trend           |
| Cadmium                              | mg/L    | 0.01                    | 0.0001 | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Lithium                              | mg/L    | -                       | 0.001  | 9           | 0.039 | 0.045    | 0.056 | 0.076 | 0.100 | No Trend           |
| Selenium                             | mg/L    | 0.02                    | 0.01   | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Silica                               | mg/L    | -                       | 0.05   | 9           | 20.10 | 20.26    | 20.50 | 21.12 | 21.30 | No Trend           |
| Strontium                            | mg/L    | -                       | 0.001  | 9           | 0.783 | 0.939    | 1.210 | 2.130 | 3.270 | No Trend           |
| Zinc                                 | mg/L    | 20                      | 0.005  | 9           | <LOR  | <LOR     | 0.011 | 0.013 | 0.035 | No Trend           |

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

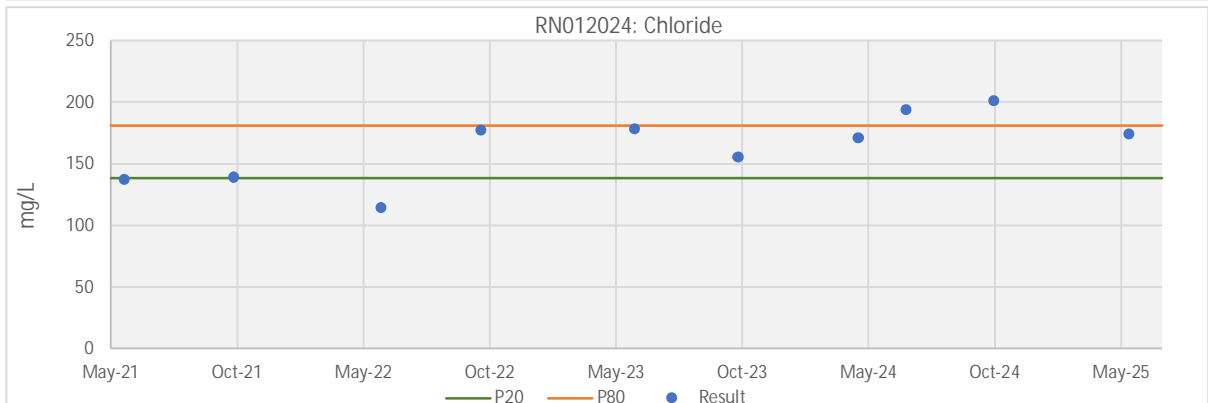
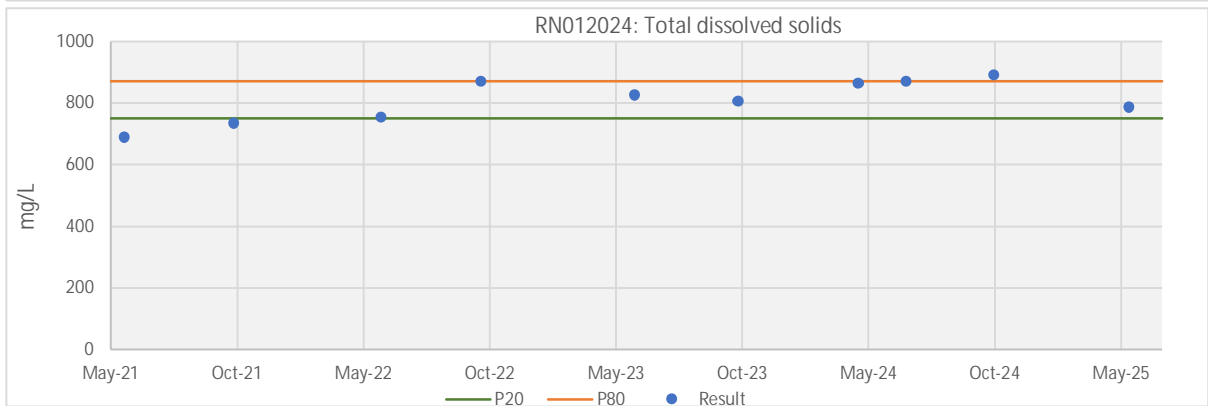
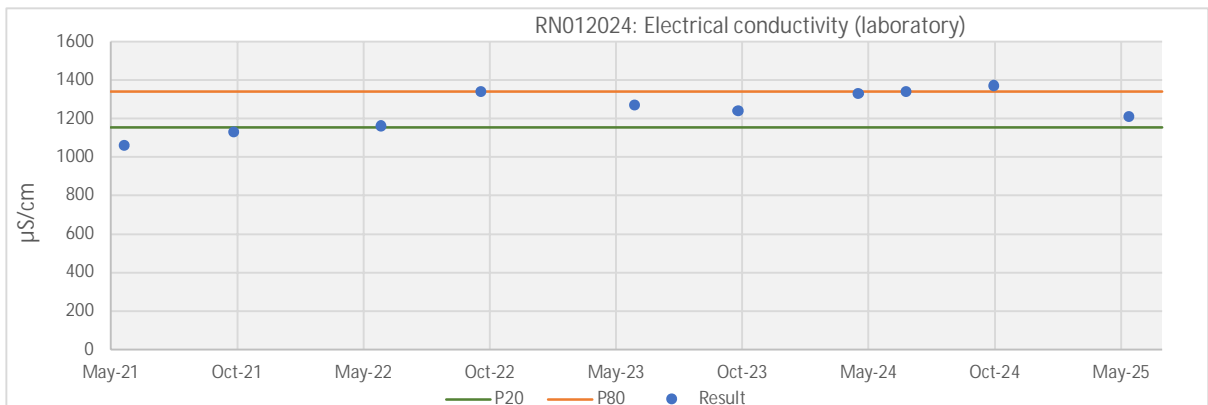
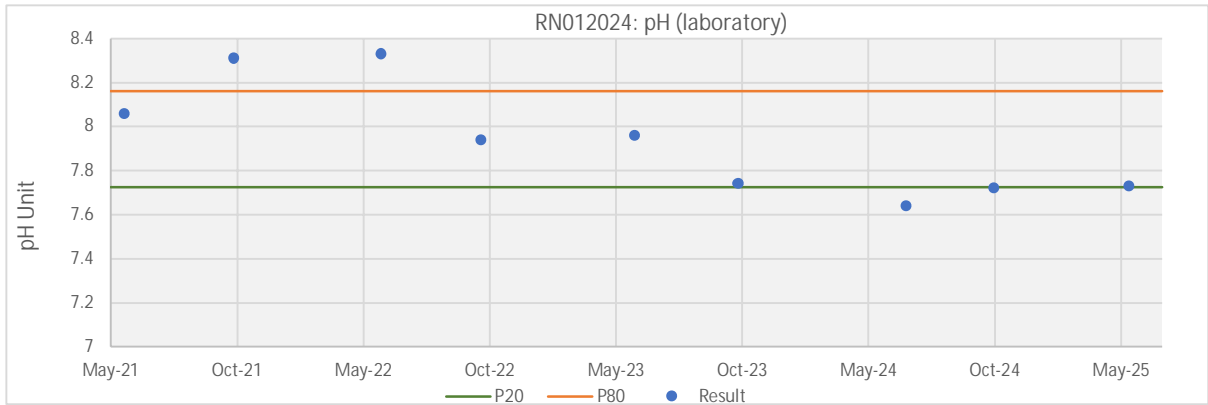
|      |                                  |
|------|----------------------------------|
| 0.5  | Guideline value exceeded         |
| -    | Not analysed                     |
| <LOR | Less than the limit of reporting |

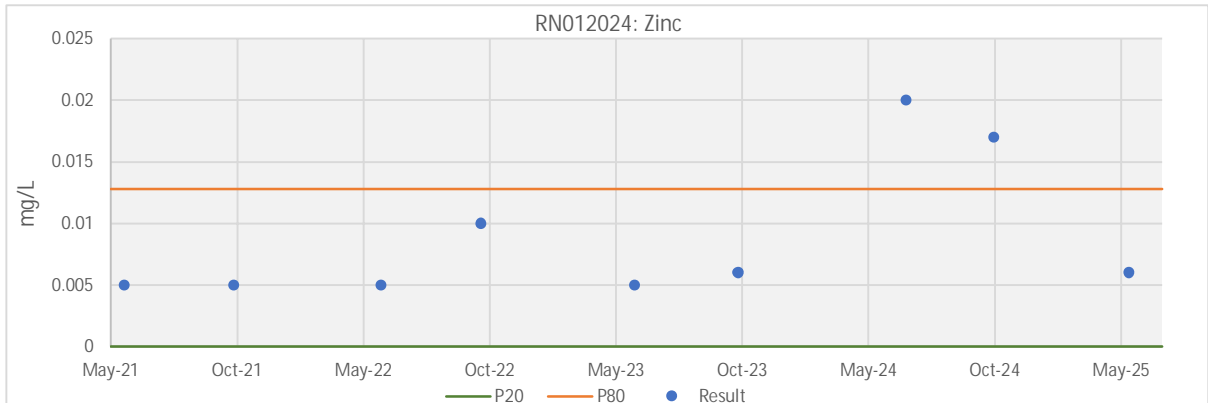
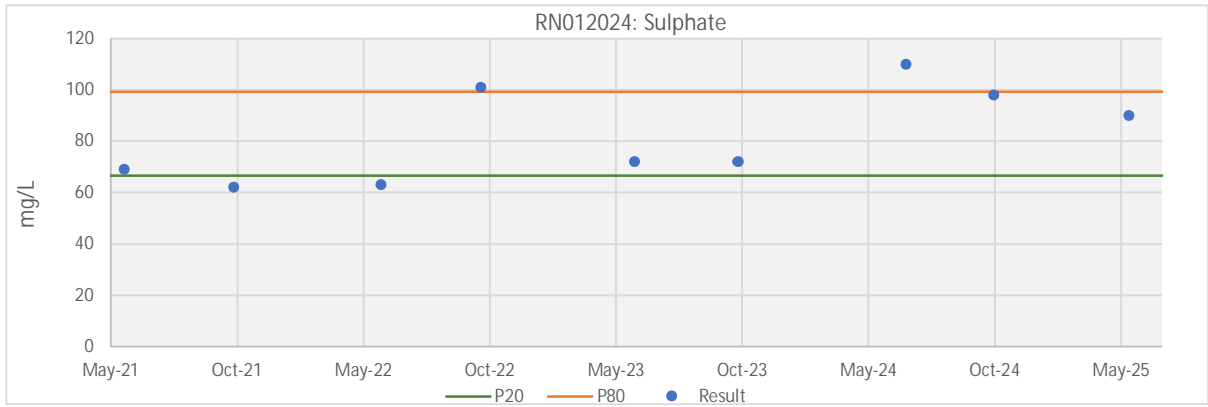


| Field                                |         | Palm Valley             |        | Location:   |       | RN012024 |       |       |       |                    |
|--------------------------------------|---------|-------------------------|--------|-------------|-------|----------|-------|-------|-------|--------------------|
| Field Parameters                     | Units   | ANZECC (2000) Livestock | LOR    | No. Samples | Min   | P20      | P50   | P80   | Max   | Mann-Kendall Trend |
| Electrical conductivity              | µS/cm   | -                       | 1      | 9           | 1036  | 1080     | 1167  | 1237  | 1315  | Falling            |
| pH                                   | pH Unit | -                       | 0.01   | 9           | 6.99  | 7.07     | 7.11  | 7.35  | 7.69  | No Trend           |
| Temperature                          | °C      | -                       | 0.1    | 9           | 19.9  | 25.0     | 25.9  | 26.4  | 27.4  | No Trend           |
| <b>General Parameters</b>            |         |                         |        |             |       |          |       |       |       |                    |
| pH (laboratory)                      | pH Unit | -                       | 0.01   | 9           | 7.64  | 7.73     | 7.94  | 8.16  | 8.33  | Falling            |
| Electrical conductivity (laboratory) | µS/cm   | -                       | 1      | 10          | 1060  | 1154     | 1255  | 1340  | 1370  | No Trend           |
| Total dissolved solids               | mg/L    | 4000 (1)                | 1      | 10          | 689   | 750      | 816   | 871   | 890   | No Trend           |
| Total suspended solids               | mg/L    | -                       | 1      | 9           | <LOR  | <LOR     | <LOR  | <LOR  | 5     | No Trend           |
| Gross alpha                          | Bq/L    | 0.5                     | 0.05   | 8           | 0.24  | 0.27     | 0.33  | 0.34  | 0.38  | No Trend           |
| Gross beta                           | Bq/L    | -                       | 0.1    | 8           | 0.18  | 0.22     | 0.26  | 0.38  | 1.09  | No Trend           |
| Gross beta activity - 40K            | Bq/L    | -                       | 0.1    | 8           | <LOR  | <LOR     | <LOR  | 0.15  | 0.93  | No Trend           |
| Gross beta (excluding k-40)          | Bq/L    | 0.5                     | 0.1    | 8           | 0.08  | 0.12     | 0.16  | 0.17  | 0.27  | No Trend           |
| <b>Major Anions and Cations</b>      |         |                         |        |             |       |          |       |       |       |                    |
| Bicarbonate                          | mg/L    | -                       | 1      | 9           | 291   | 300      | 315   | 373   | 378   | No Trend           |
| Carbonate                            | mg/L    | -                       | 1      | 9           | <LOR  | <LOR     | <LOR  | 2     | 7     | No Trend           |
| Chloride                             | mg/L    | -                       | 1      | 10          | 114   | 139      | 173   | 181   | 201   | No Trend           |
| Sulphate                             | mg/L    | 1000                    | 1      | 9           | 62    | 67       | 72    | 99    | 110   | No Trend           |
| Nitrate                              | mg/L    | 400                     | 0.01   | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Nitrite                              | mg/L    | 30                      | 0.01   | 9           | 2.09  | 2.43     | 4.60  | 7.69  | 8.75  | No Trend           |
| Fluoride                             | mg/L    | 2                       | 0.1    | 9           | 0.5   | 0.6      | 0.6   | 0.7   | 0.7   | No Trend           |
| Sodium                               | mg/L    | -                       | 1      | 9           | 78    | 85       | 98    | 120   | 122   | No Trend           |
| Potassium                            | mg/L    | -                       | 1      | 9           | 6     | 6        | 6     | 7     | 9     | No Trend           |
| Calcium                              | mg/L    | 1000                    | 1      | 9           | 67    | 71       | 75    | 84    | 86    | No Trend           |
| Magnesium                            | mg/L    | -                       | 1      | 9           | 47    | 53       | 58    | 65    | 68    | No Trend           |
| Iron                                 | mg/L    | -                       | 0.05   | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | Falling            |
| <b>Hydrocarbons</b>                  |         |                         |        |             |       |          |       |       |       |                    |
| TRH: C6-C10                          | µg/L    | -                       | 20     | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| TRH: >C10-C40                        | µg/L    | -                       | 100    | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Benzene                              | µg/L    | -                       | 1      | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Toluene                              | µg/L    | -                       | 2      | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Ethylbenzene                         | µg/L    | -                       | 2      | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Total Xylenes                        | µg/L    | -                       | 2      | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Naphthalene                          | µg/L    | -                       | 5      | 9           | 1     | 1        | <LOR  | <LOR  | <LOR  | No Trend           |
| PAH Suite                            | µg/L    | -                       | 0.5    | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| <b>Dissolved Gases</b>               |         |                         |        |             |       |          |       |       |       |                    |
| 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           |
| <b>Dissolved Metals/metalloids</b>   |         |                         |        |             |       |          |       |       |       |                    |
| Chromium                             | mg/L    | 1                       | 0.001  | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Copper                               | mg/L    | 1 (2)                   | 0.001  | 9           | <LOR  | 0.002    | 0.002 | 0.004 | 0.009 | No Trend           |
| Lead                                 | mg/L    | 0.1                     | 0.001  | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Manganese                            | mg/L    | -                       | 0.001  | 9           | <LOR  | <LOR     | <LOR  | <LOR  | 0.020 | No Trend           |
| Mercury                              | mg/L    | 0.002                   | 0.0001 | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Silver                               | mg/L    | -                       | 0.001  | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Arsenic                              | mg/L    | 0.5                     | 0.001  | 9           | <LOR  | <LOR     | 0.002 | 0.002 | 0.003 | No Trend           |
| Barium                               | mg/L    | -                       | 0.001  | 9           | 0.053 | 0.060    | 0.062 | 0.073 | 0.315 | No Trend           |
| Boron                                | mg/L    | 5                       | 0.05   | 9           | 0.19  | 0.20     | 0.28  | 0.37  | 0.39  | No Trend           |
| Cadmium                              | mg/L    | 0.01                    | 0.0001 | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Lithium                              | mg/L    | -                       | 0.001  | 9           | 0.015 | 0.016    | 0.017 | 0.020 | 0.031 | No Trend           |
| Selenium                             | mg/L    | 0.02                    | 0.01   | 9           | <LOR  | <LOR     | <LOR  | <LOR  | <LOR  | No Trend           |
| Silica                               | mg/L    | -                       | 0.05   | 9           | 29.60 | 31.52    | 42.70 | 43.64 | 48.70 | No Trend           |
| Strontium                            | mg/L    | -                       | 0.001  | 9           | 0.308 | 0.334    | 0.367 | 0.399 | 1.520 | No Trend           |
| Zinc                                 | mg/L    | 20                      | 0.005  | 9           | <LOR  | <LOR     | 0.006 | 0.013 | 0.020 | No Trend           |

(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: |             | Palm Creek Lower Oasis |      |      |      |      |      |
|-------------------------|---------|-----------|-------------|------------------------|------|------|------|------|------|
| Field Parameters        | Units   | LOR       | No. Samples | No Dry Events          | Min  | P20  | P50  | P80  | Max  |
| Electrical conductivity | µS/cm   | 1         | 9           | 0                      | 11   | 545  | 1187 | 1792 | 3100 |
| pH                      | pH Unit | 0.01      | 9           | 0                      | 7.70 | 7.83 | 8.12 | 8.70 | 9.06 |
| Temperature             | °C      | 0.1       | 9           | 0                      | 17.0 | 19.5 | 22.3 | 28.3 | 31.2 |

| Field: Palm Valley      |         | Location: |             | Palm Valley Area Spring No 8 |      |      |      |      |      |
|-------------------------|---------|-----------|-------------|------------------------------|------|------|------|------|------|
| Field Parameters        | Units   | LOR       | No. Samples | No Dry Events                | Min  | P20  | P50  | P80  | Max  |
| Electrical conductivity | µS/cm   | 1         | 5           | 4                            | 168  | 377  | 529  | 1273 | 1527 |
| pH                      | pH Unit | 0.01      | 5           | 4                            | 8.37 | 8.87 | 9.01 | 9.13 | 9.55 |
| Temperature             | °C      | 0.1       | 5           | 4                            | 19.0 | 19.3 | 20.7 | 22.7 | 28.6 |

| Field: Palm Valley      |         | Location: |             | Palm Valley Area Spring No 9 |      |      |      |      |      |
|-------------------------|---------|-----------|-------------|------------------------------|------|------|------|------|------|
| Field Parameters        | Units   | LOR       | No. Samples | No Dry Events                | Min  | P20  | P50  | P80  | Max  |
| Electrical conductivity | µS/cm   | 1         | 9           | 0                            | 761  | 1016 | 1450 | 5656 | 7740 |
| pH                      | pH Unit | 0.01      | 9           | 0                            | 8.50 | 8.82 | 9.19 | 9.42 | 9.61 |
| Temperature             | °C      | 0.1       | 9           | 0                            | 19.2 | 21.4 | 23.5 | 27.7 | 30.7 |

| Field: Palm Valley      |         | Location: |             | Pimelia Spring |      |      |      |      |      |
|-------------------------|---------|-----------|-------------|----------------|------|------|------|------|------|
| Field Parameters        | Units   | LOR       | No. Samples | No Dry Events  | Min  | P20  | P50  | P80  | Max  |
| Electrical conductivity | µS/cm   | 1         | 5           | 4              | 176  | 631  | 848  | 1432 | 3290 |
| pH                      | pH Unit | 0.01      | 5           | 4              | 7.76 | 8.43 | 8.69 | 8.98 | 9.52 |
| Temperature             | °C      | 0.1       | 5           | 4              | 20.7 | 20.9 | 23.1 | 24.4 | 29.2 |

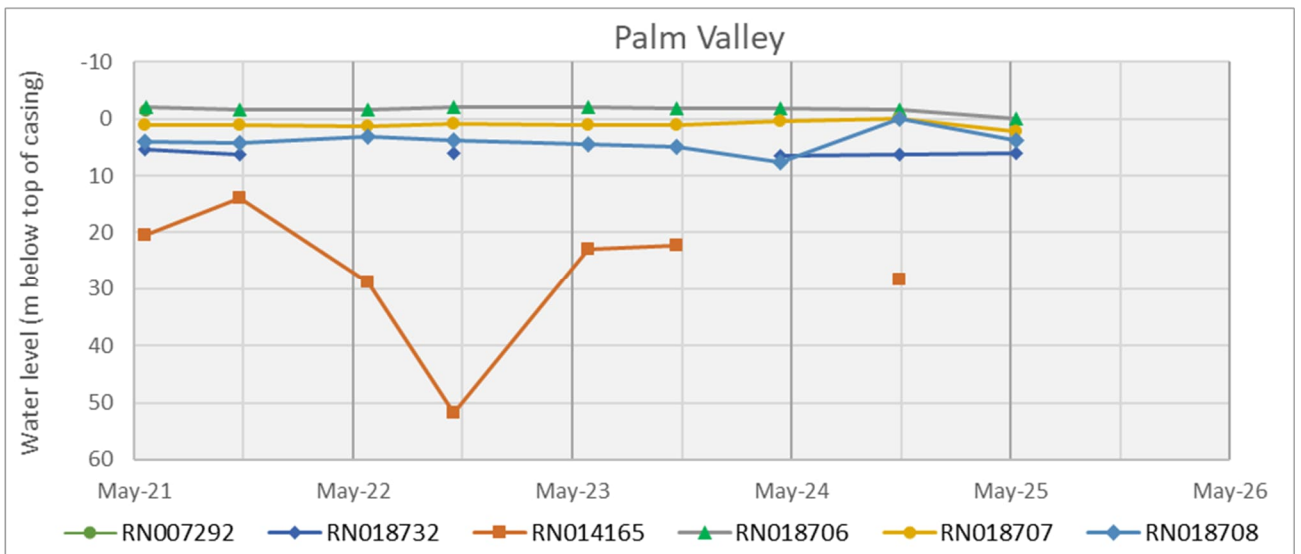
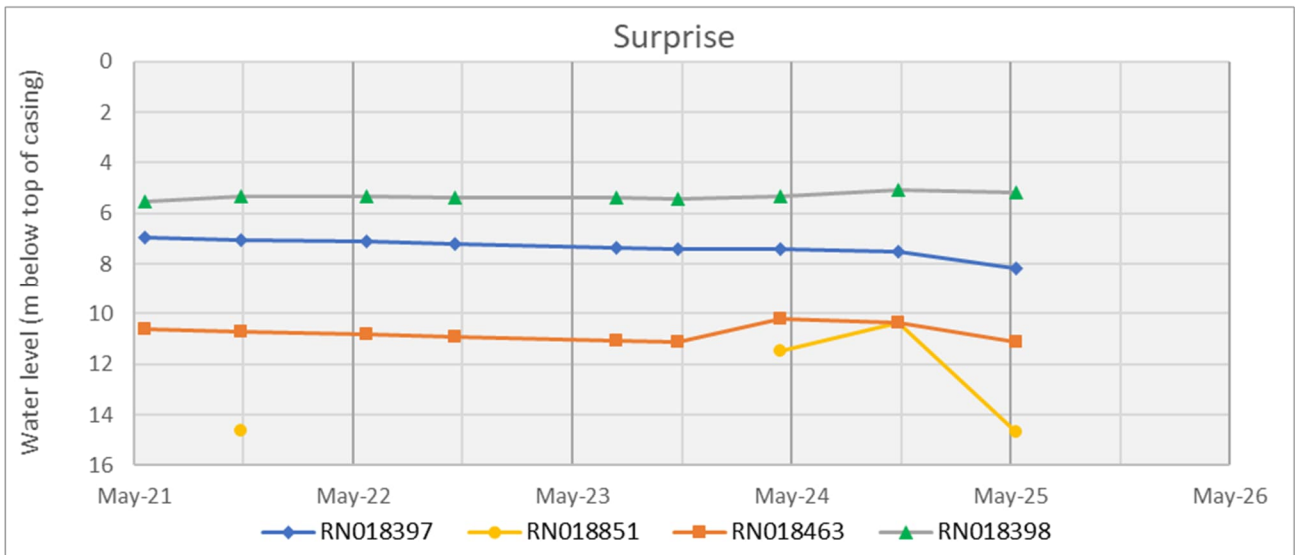
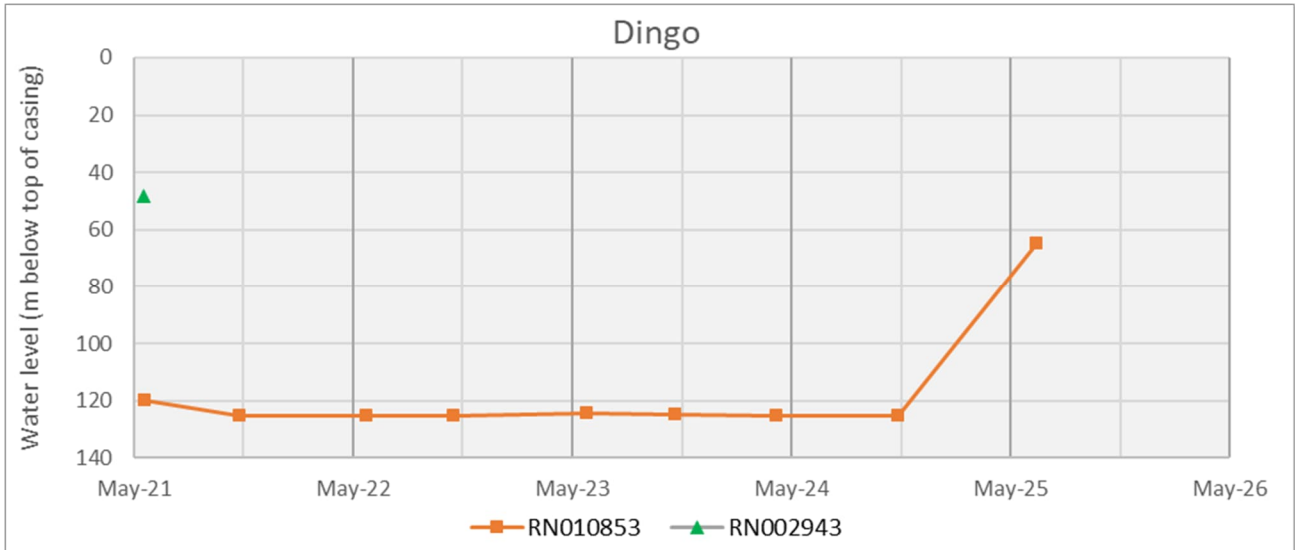
## **Appendix C - Water Level and Wellhead Pressure Monitoring**

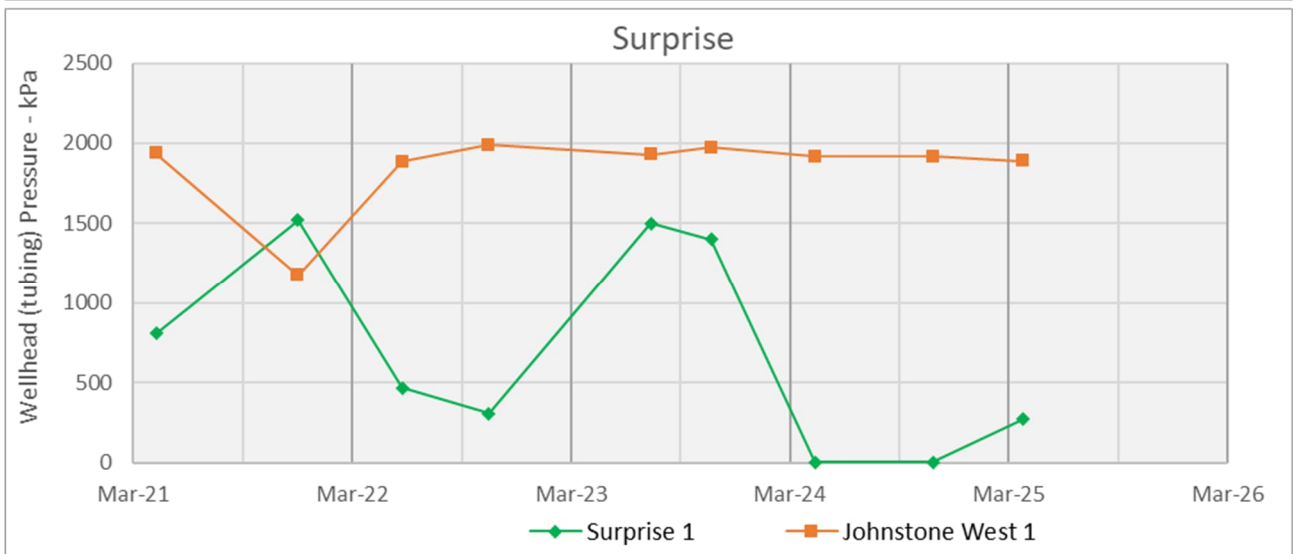
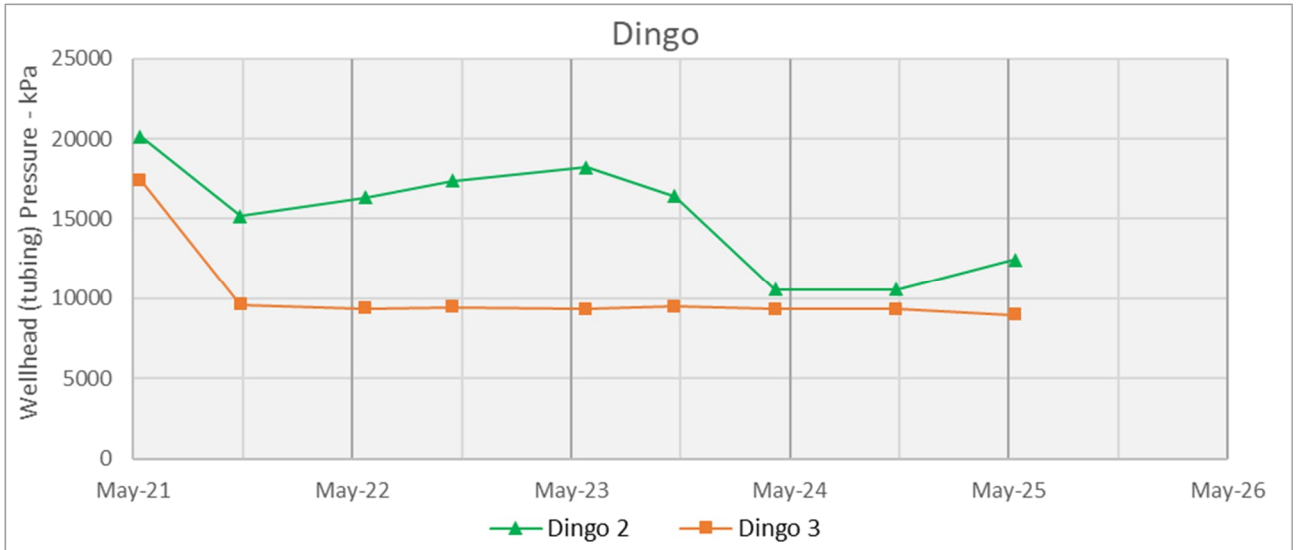
| Dingo       | RN002943       |                         | RN010853   |            | RN017540       |                   |            |            |            |            |            |      |
|-------------|----------------|-------------------------|------------|------------|----------------|-------------------|------------|------------|------------|------------|------------|------|
|             | 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               |            |            |            |            |            |      |
| 17/06/2025  | Bore collapsed | 17/06/2025              | 64.6       | 17/06/2025 | Bore collapsed |                   |            |            |            |            |            |      |
| Surprise    | RN018851       |                         | RN018397   |            | RN018463       |                   | RN018398   |            |            |            |            |      |
|             | 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       |            |            |            |      |
| 13/05/2025  | 14.7           | 13/05/2025              | 8.2        | 13/05/2025 | 11.1           | 13/05/2025        | 5.2        |            |            |            |            |      |
| Palm Valley | RN007292       |                         | RN018732   |            | RN014165       |                   | RN018706   |            | RN018707   |            | RN018708   |      |
|             | 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 | -1.73      | 30/10/2024 | 0          | 30/10/2024 | 0    |
| 13/05/2025  | 17.95          | 13/05/2025              | 5.95       | 13/05/2025 | Dry            | 13/05/2025        | 0          | 13/05/2025 | 2.3        | 13/05/2025 | 3.85       |      |

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

| Dingo      | Dingo 2    |            | Dingo 3          |       |
|------------|------------|------------|------------------|-------|
|            | 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  |
| 15/05/2025 | 12432      | 15/05/2025 | 8968             |       |
| Surprise   | Surprise 1 |            | Johnstone West 1 |       |
|            | 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  |
| 28/03/2025 | 270        | 28/03/2025 | 1889             |       |

Wellhead pressure measured in kPa





## **Appendix D – Photographs of Springs**

**Palm Creek Lower Oasis**

**October 2024**



**May 2025**



Palm Valley Area Spring No 8

October 2024



May 2025



Palm Valley Area Spring No 9

October 2024

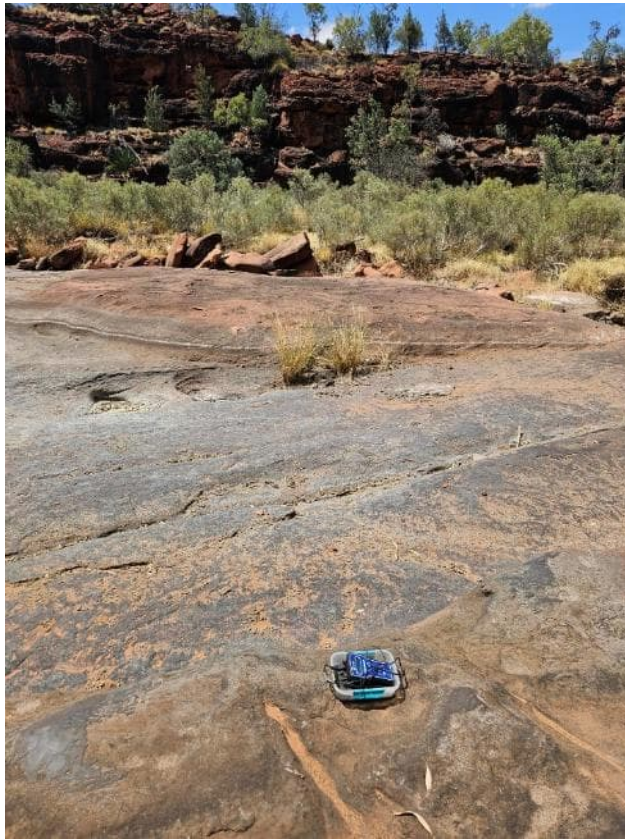


May 2025



Pimelia Spring

October 2024



May 2025

