

Genesis Minerals Limited

**Triennial Groundwater Monitoring
Review for GWL 169901
July 2022 – June 2025**

Mount Morgans Gold Operation


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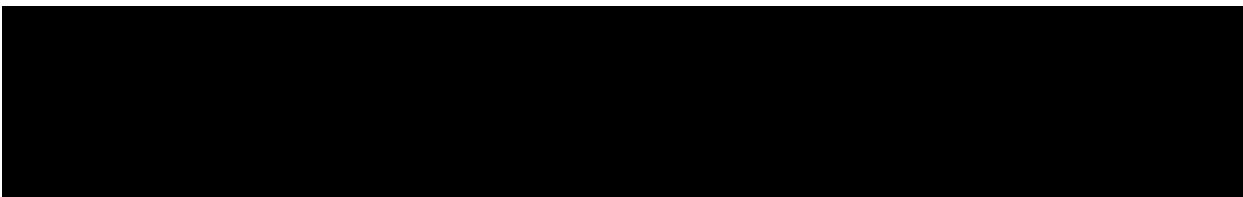
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1. INTRODUCTION

Genesis Minerals Limited (including wholly owned subsidiary Mount Morgans WA Mining Pty Ltd), hereinafter referred to as "**the Licensee**", owns and operates the Mount Morgans Gold Operation (**MMGO**), which was acquired from Dacian Gold Limited (**Dacian**) in November 2023. The MMGO is in the northeastern goldfields of Western Australia, approximately 30 km southwest of Laverton, and is centred around the historic Westralia open pit, developed in the late 1980s, with subsequent development of several open pits and underground operations.

The MMGO includes two main mining areas, Westralia and Jupiter (**Figure 1-1**). Jupiter includes a production borefield, open pit, process plant, tailings storage facility (**TSF**), workshop and administration facilities, while Westralia includes an underground operation, accommodation village and workshop/ administration facilities.

The Department of Water and Environmental Regulation, hereinafter referred to as "**the Department**", has granted the Licensee two (2) groundwater licences (**GWLs**) pursuant to Section 5C of the Rights in Water and Irrigation Act 1914 (**RIWI Act**), to take 1,400,000 KL/year from the Combined - Fractured Rock West - Fractured Rock Aquifer and 3,500,000 KL/year from the Calcrete Aquifer within the Lake Carey subarea of the Goldfields groundwater management area (**Table 1-1**) for the purposes of mine dewatering, construction, exploration drilling, mineral ore processing, dust suppression, vehicles/machinery wash-down, mining camp, and potable water requirements.

This report pertains solely to the Licensee's Fractured Rock Aquifer allocation licence, GWL 169901(5).

A GWL is governed by a requirement to comply with a groundwater operating strategy (GWOS). In June 2021, the licensee submitted Revision No. 3 (MTM-PLN-411) of their GWOS for the Mount Morgans Gold Operation to the Department.

As part of GWOS Rev No. 3, the Licensee is required to submit an annual groundwater monitoring report (AMR), which provides a factual summary of all monitoring data collected during the water year, or a triennial aquifer review (TAR) every third year. The TAR offers an interpretive assessment of long-term borefield performance and environmental trends over the preceding three years.

This document is prepared in accordance with GWOS Rev No. 3 and the Department's Operational Policy No. 5.12 – Hydrogeological Reporting Associated with a Groundwater Well Licence (DoW, 2009). It represents the Triennial Aquifer Review (TAR) for GWL 169901(5) held by the Mount Morgans Gold Operation for the 2022-25 triennial period, covering the period from 1 July 2022 to 30 June 2025.

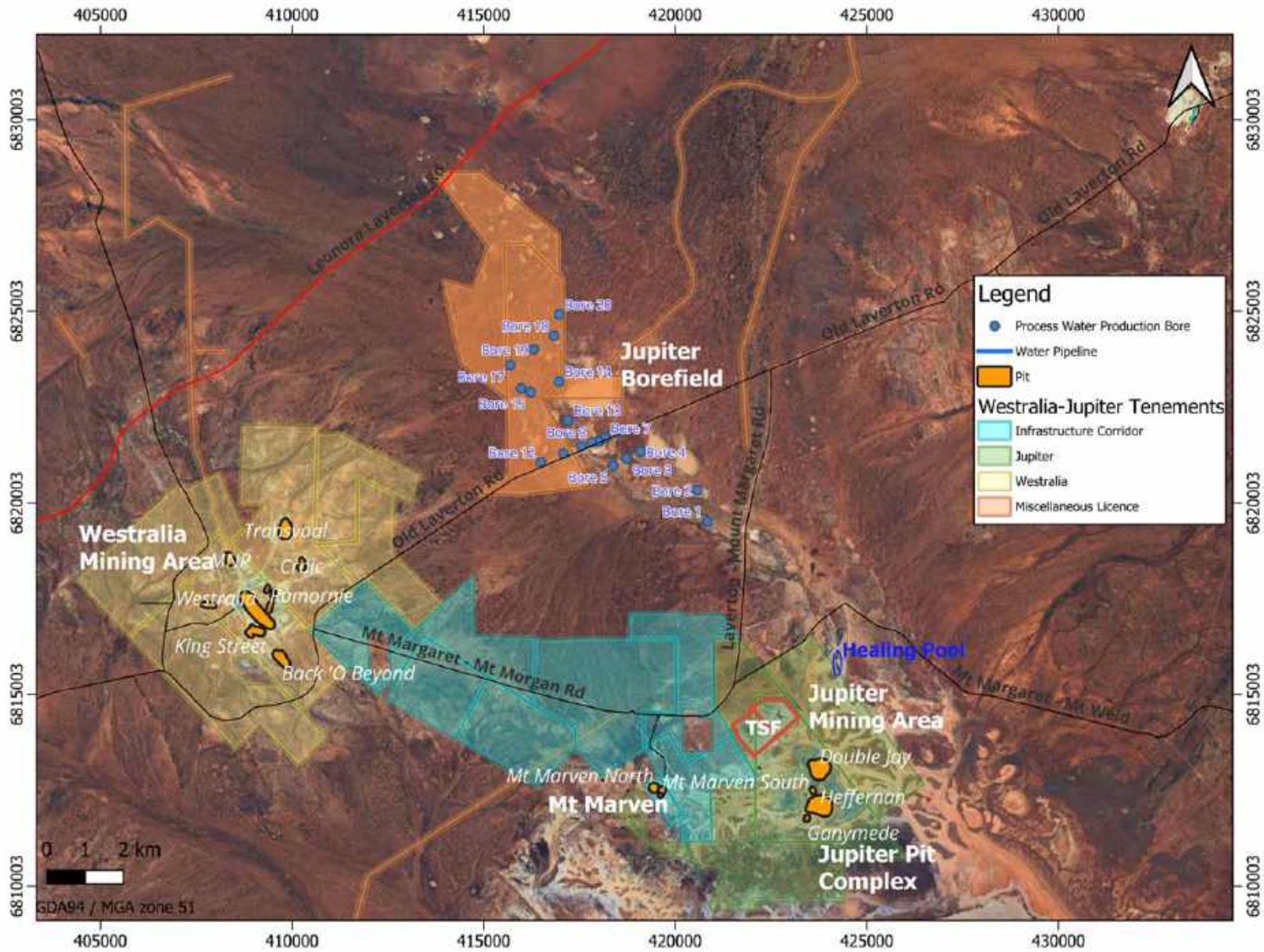


Figure 1-1 Tenement map of the Licensee's MMGO mining areas.

1.1 Water Licences

The Licensee holds two (2) GWLs, each corresponding to specific aquifers, subareas, and mining districts. GWL 169901(5) covers abstraction points from several open pits within the Westralia and Jupiter project areas, while GWL 183915(1) covers production bores in the Jupiter Borefield.

This report pertains only to GWL 169901(5).

Figure 1-2 schematically illustrates the relationship between the mining districts or borefield, and their associated operations. **Table 1-1** provides a summary of all MMGO’s GWLs, focussing on the details related to the Fractured Rock Aquifer licence, which will be reviewed in this report. A copy of GWL 169901(5) is provided in **Appendix A**.

Groundwater drawpoints under this licence include two bores (AB01P and AB02P), along with multiple pits and underground mines. These comprise Heffernan, Double Jay, Ganymede, Mt Marven, and Saddle pits in the Jupiter mining area, as well as Westralia, Transvaal, Craig, King, Sarah, Morgans North, Ramornie, Ramornie North, and Recreation pits in the Westralia mining area.

Water from this GWL is used for a combination of mineral processing, dust suppression, exploratory drilling, and supplying the reverse osmosis (RO) plant for mine camp and facility needs. When excess water is produced from dewatering operations it is discharged into passive (non-active) pits (i.e. Double Jay Pit, Sarah, Ramornie, and King St pits).

Table 1-1 Summary of current groundwater licences at UGP

GMA	Sub-area	Aquifer	GWL	Mining Area	Projects	Volume (kL)	Expiry
Goldfields	Lake Carey	Combined Fractured Rock West - Fractured Rock	169901(5)	Jupiter and Westralia	MMGO	1,400,000	11/9/2027
		Combined Fractured Rock West - Calcrete	183915(1)	Jupiter Borefield		3,500,000	12/9/2027

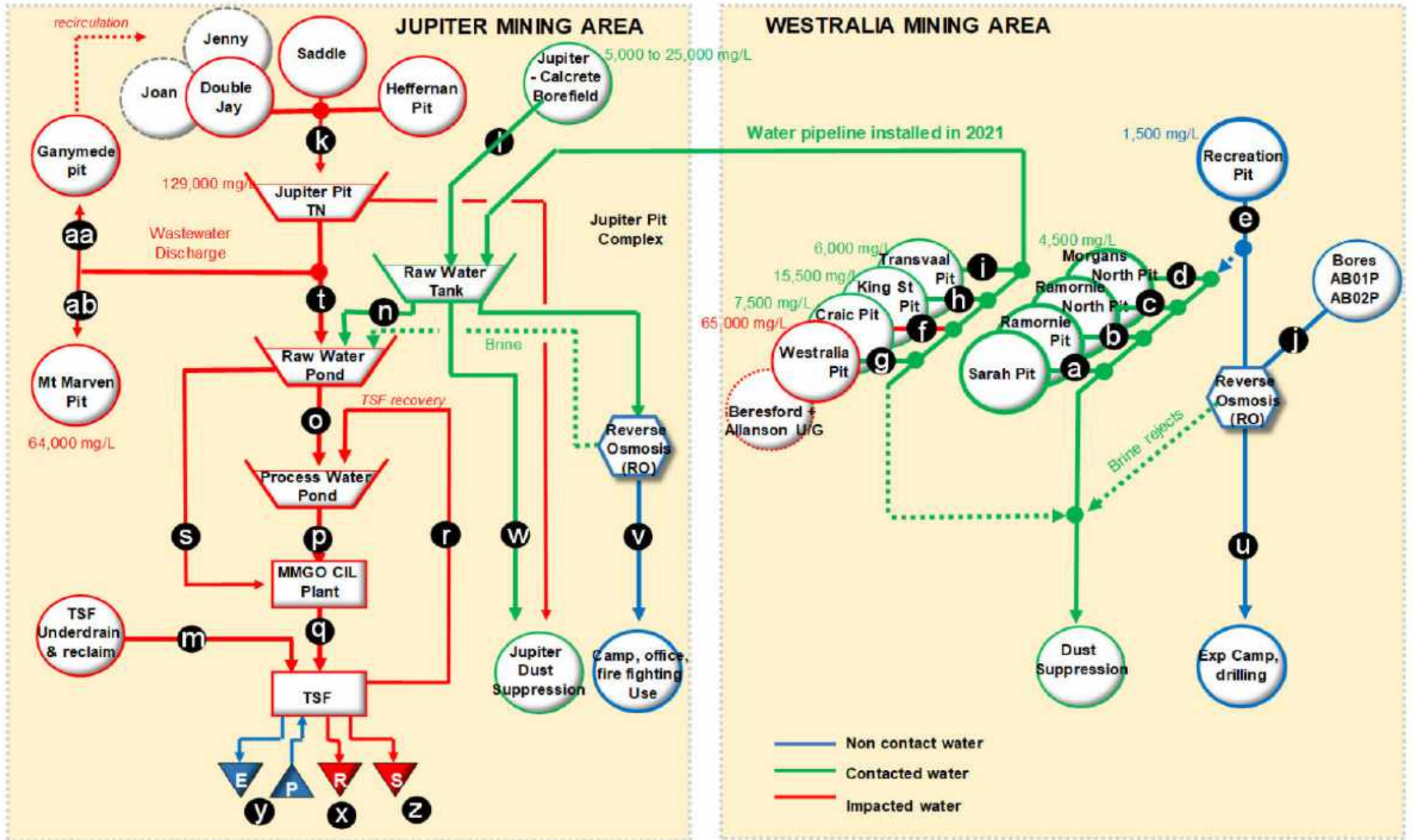


Figure 1-2 MMGO Water Circuit Diagram (Pennington Scott, 2025a)

2. CLIMATE/RAINFALL

Laverton town (Station ID: 012045) and Laverton Aerodrome (Station ID: 012305) are the nearest weather stations to MMGO. The Bureau of Meteorology (**BoM**) has been recording rainfall at these stations since 1900 and 1995, respectively, and temperature has been recorded at Laverton Aerodrome since 1992. Daily Solar Exposure has been recorded at Laverton since 1990. Equivalent evaporation for Laverton has been calculated based on the standard that 2.45 MJ m⁻²/day of mean incoming solar radiation is equivalent to 1 mm/day of evaporation (Allen et al 1998).

The Laverton region is characterised by an arid climate, with hot summers and cool winters. Average maximum temperatures in January reach approximately 35.8°C, while average minimum temperatures in July are about 5.2°C. Rainfall in the area is highly variable, with significant events between January and April often resulting from ex-tropical cyclone depressions tracking southeast across the State. Winter rainfall originates from decaying cold fronts from the southwest, peaking between August and September. Evaporation rates peak during the summer months between November and February.

The long-term average annual rainfall at Laverton is 236.8 mm, while the average annual evaporation is 3,023 mm/year. Recent records from the Laverton Aerodrome Station indicate that the actual annual rainfall for the 2024–25 water year (1 July to 30 June) was 238.6 mm, and the actual annual evaporation was 3,055 mm. **Figure 2-1** shows the monthly rainfall for the 2024–25 water year, compared to the long-term average monthly rainfall and evaporation.

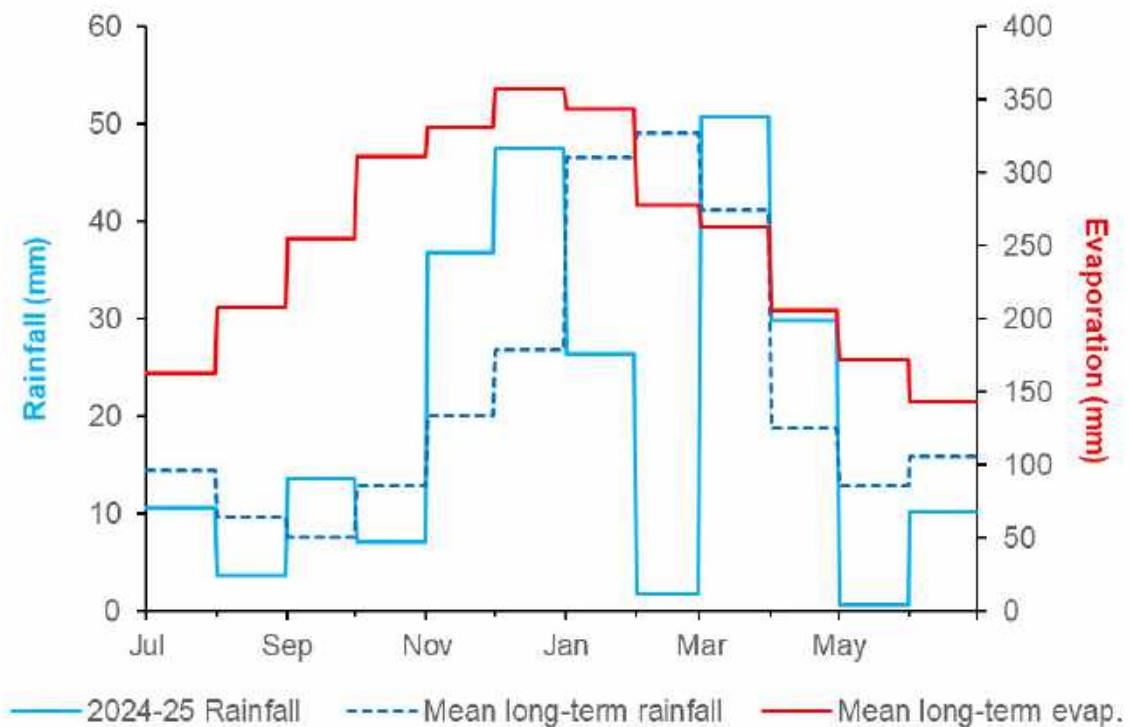


Figure 2-1 Rainfall and evaporation data for the 2024/25 reporting year, derived from the BoM website for Laverton Aerodrome Station.

3. HYDROGEOLOGY

3.1 Geology

A detailed description of the hydrogeological setting for MMGO can be found in Pennington Scott (2025b) and a stratigraphic succession is summarised in **Table 3-1**.

MMGO lies within the Eastern Goldfields Granite–Greenstone Terrane of the Archaean Yilgarn Craton that forms a crystalline basement comprising mostly granitoid and greenstone rocks. Developed over the Yilgarn Craton is an extensive network of palaeovalleys and associated palaeotributaries infilled with Cenozoic deposits of late-Middle Eocene to Quaternary age reaching up to about 120 m thick.

Table 3-1 Stratigraphy in the Operational Area

Era	Period/Epoch	Formation	Unit	Lithology
Cenozoic	Quaternary <i>Pleistocene– Holocene</i> <2.6 Ma	Surficial	Eolian sandplain and dune Lacustrine	Sand Saline, gypsiferous, evaporite deposits
	Neogene Quaternary <i>Late Miocene to Pleistocene</i>	Upper Deposits	Alluvial & colluvial Lacustrine	Clay, silt & sand; Clay
	Neogene <i>Late Oligocene to Miocene</i> (~24 – 5.3 ma)	Perkolilli Shale	Palaeovalley deposits	Clay, silt and sand with calcrete
	Paleogene <i>Late-Middle to Late Eocene</i> (~40–34 Ma)	Werillup Formation	Palaeochannel deposits	Gravel, sand, silt and clay with lignite
Archaean	Neoarchean (2500 – 2800 Ma)	Eastern Goldfields Terrane	Malcolm Greenstone Belt	Mafic igneous, felsic volcanic & siliciclastic rocks

The deepest parts of the palaeovalleys are infilled with fluvial sand and gravel deposits of late Middle Eocene age (~40 Ma) forming paleochannels. These are overlain by lacustrine and paludal (swamp) sediments, including carbonaceous silt, clay, and lignite, which together constitute the Werillup Formation. Above this, the palaeovalleys are further infilled by widespread lacustrine clay and silt deposits of the Perkolilli Shale, dated to the late Oligocene to Miocene (~40–5.3 Ma). Overlying the Perkolilli Shale, or directly overlying weathered bedrock at the palaeovalley margins, are the Upper Deposits, comprising late Neogene to Quaternary (<5.3 Ma) lacustrine, playa, alluvial, and colluvial sediments.

Hot semi-arid to arid conditions during the late Neogene – Quaternary lead to deep physical and chemical weathering and formation of ferricrete (laterite profile) and silcrete upon the land surface, including upper palaeovalley deposits, and widespread development of calcrete within the upper sediments about the lower flanks of the palaeodrainage. Under arid conditions, aeolian sand sheets and dune fields have covered much of the land surface and formation of playas with evaporite deposits in the centre-line of palaeovalleys.

Authigenic alteration has resulted in the development of deep weathering profiles in the bedrock, primarily through processes of chemical weathering and the cementation of materials by iron oxide and silica precipitation throughout much of the Cenozoic era. The progressive breakdown of primary rock minerals and leaching of mobile elements has produced a characteristic vertical weathering sequence, typically transitioning upward from unaltered bedrock to increasingly clay material, dominated by kaolinite and depleted in mobile elements. This weathering profile can be subdivided into several distinct zones, listed in ascending order: saprock, saprolite, pallid zone (comprising either clay-rich or sand-rich material), mottled zone, and an upper residual lateritic horizon. The latter commonly includes ferruginous duricrust and pisolitic gravel, collectively referred to as lateritic residuum (Anand & Paine, 2002). The depth of weathering is highly variable and influenced by lithology, mineralisation, deformation, and topographic setting. The average depth to the base of saprock ranges from approximately 37 metres in ultramafic rocks to 64 metres in felsic rocks, including granites (Anand & Paine, 2002). A typical weathering profile is categorised into three principal units, as illustrated in **Figure 3-1**.

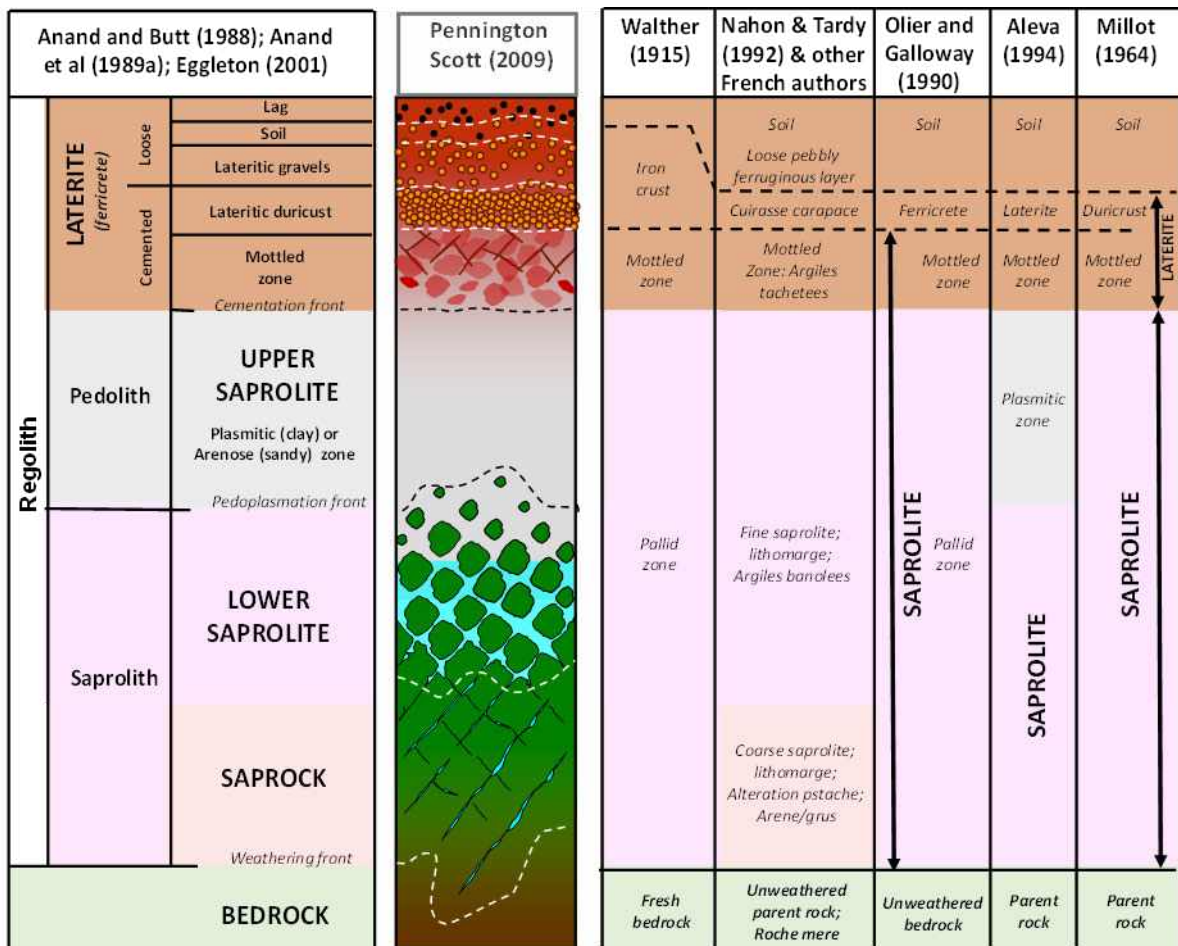


Figure 3-1 A typical saprolite weathering profile (modified from Anand et al. 2002).

The Carey Palaeovalley forms a major feature extending north to south that passes to the east of MMGO and under Lake Carey. Location of the trunk channel is not evident from surface features. Its interpreted extent is based on the electromagnetic survey undertaken for Genesis, seismic traverses and results from exploratory drilling data available from WAMEX as well as the water investigation drilling. **Figure 3-2** presents the interpreted extent and depth of the Carey Palaeovalley. It reaches at least 120 m deep (production bore 24WB01) in the deepest part of the channel. The main part of the channel deeper than about 80 m is generally around 1 km wide, and the deepest portion possibly forms an inset channel up to a few hundred metres wide. The trunk channel is at an elevation of approximately 280 mAHD at the northern margin of Lake Carey, declining from about 300 mAHD at the Laverton – Leonora Road over a distance of about 45 km.

Several palaeotributaries converge within the Carey Palaeovalley in the Water Supply Area. A significant palaeotributary stretches northwest from around 8 km north of the Jupiter Pit Complex, passing east and north of the Jupiter Borefield,. This palaeotributary splits into two branches: the southern branch, known as the McKenzie Well Palaeotributary, is considered the more significant, while the northern branch is referred to as the Fleming Well Palaeotributary.

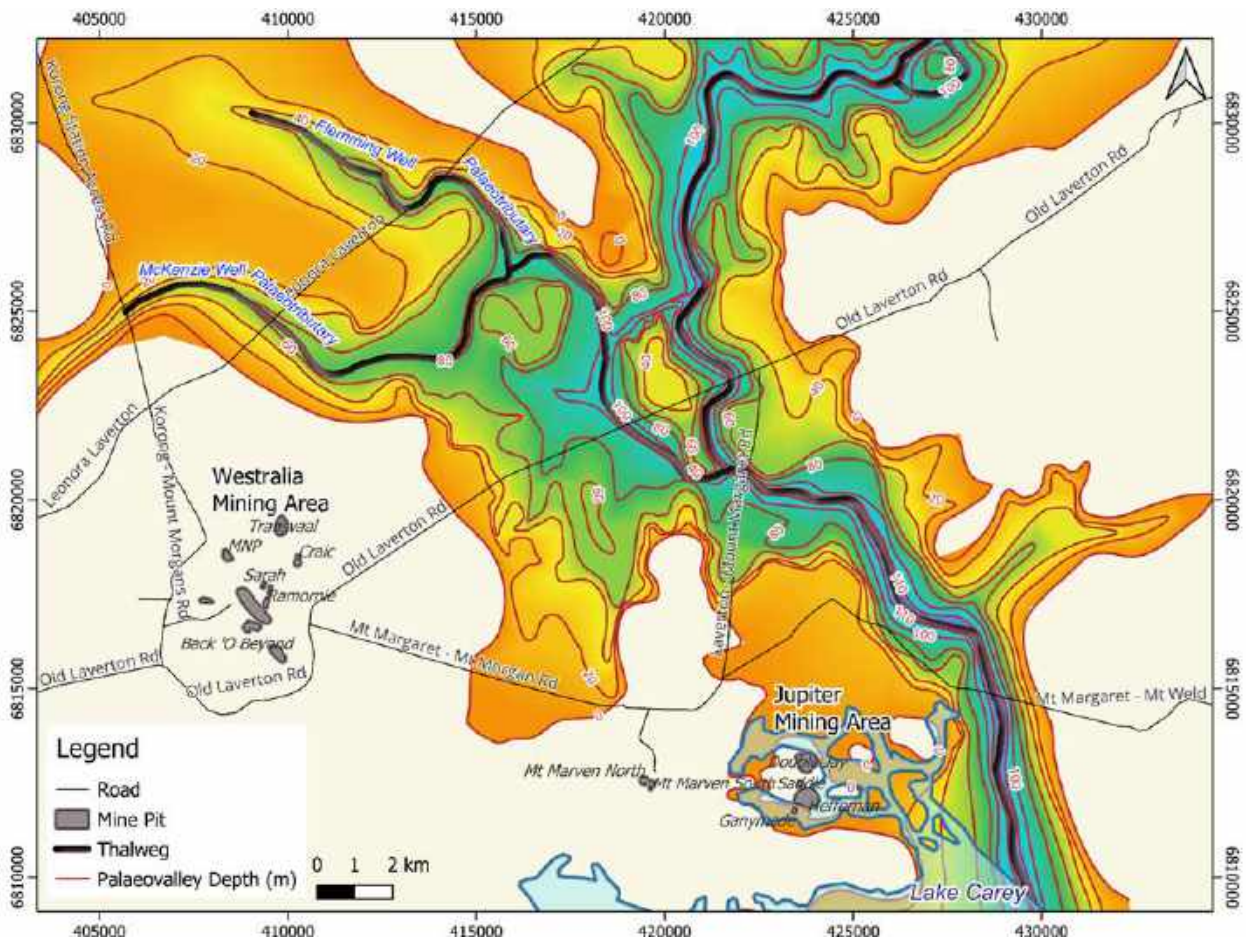


Figure 3-2 Carey palaeovalley extent and depth (from Pennington Scott, 2025b).

3.2 Groundwater Occurrence

Two significant aquifers occur in the palaeovalley sediments, comprising the Upper Deposits through the Carey Palaeodrainage, and the Werillup Formation in the Carey palaeovalley. The aquifer contained in the Upper Deposits is referred to as the Surficial aquifer, and the Werillup Formation forms the Werillup Palaeochannel aquifer. The Perkolilli Shale forms an aquitard between the Surficial aquifer and Werillup Palaeochannel aquifer. Outside the palaeovalleys, the weathered saprolite – saprock profile and fractured bedrock can form minor aquifer units. A hydrogeological summary for the Water Supply Area is presented in Table 3-2.

Table 3-2 Summary of aquifer types and potential yields

Aquifer	Geological unit	Saturated thickness (m)	Bore yield (kL/day)	Aquifer potential	Water quality
Palaeovalley					
Surficial aquifer	Upper Deposits	10	0–500	Low – moderate	Fresh – saline
Perkolilli Shale	Perkolilli Shale	50	-	Aquitard	
Palaeochannel aquifer	Werillup Fm.	45	200–2000	High	Saline-hypersaline
Archean Basement	Upper Saprolite	~50	-	Low	Brackish – saline
	Lower Saprolite – Saprock (transition zone)	~100	0–500	Low – moderate	Brackish – saline

The Surficial aquifer is an unconfined, highly heterogeneous and anisotropic aquifer within the Upper Deposits below the water table. Permeable zones are associated with sand portions in the alluvium, and with cavities that are frequently present within silcrete, calcrete and ferricrete. Calcrete forms a productive aquifer within the palaeovalley system north of Lake Carey, which extends into the Jupiter Borefield where alluvial sand is also present beneath the calcrete.

The Werillup Formation constitutes a productive palaeochannel aquifer referred to as the Werillup Palaeochannel aquifer, situated within the deepest sections of the palaeovalleys. It is confined beneath the Perkolilli Shale aquitard and is laterally and basally bounded by weathered to fresh bedrock. Within the Water Supply Area, the Werillup Palaeochannel Aquifer is present in the subsurface north of Lake Carey, extending beneath the Carey Palaeodrainage. In this region, it attains a maximum thickness of approximately 70 metres in the deepest parts of the palaeovalley. The aquifer also extends westward into the McKenzie Well and Fleming Well palaeotributaries, where aquifer sands ranging from 7 to 14 metres in thickness have been encountered. Operational pumping data from borefields within the Goldfields region indicate that extraction from the palaeochannel aquifer induces vertical leakage from overlying sediments and lateral inflow from adjacent bedrock, both of which contribute appreciable recharge to the aquifer system (Johnson et al., 1999).

4. BOREFIELD DESCRIPTION

Drawpoints listed under GWL 169901(5) (**Table 4-1**) comprise several open pits within both the Westralia and Jupiter project areas, two non-artesian production bores at Westralia, and decommissioned production bores in the historic Jupiter Borefield (formerly the Process Borefield). All production and monitoring bores within the Jupiter Borefield are covered under GWL 183915(1).

4.1 Jupiter Pit Complex

The Archean basement associated with the Jupiter deposit is considered to have a low aquifer potential. The long-term dewatering rate from the Fractured Rock Aquifer at the Jupiter Mining Area, once pit lake storages have been depleted, is projected around 0.3 GL/year (equivalent to 10 L/s) (Pennington Scott, 2025b).

Groundwater from the Jupiter complex is currently extracted from the Saddle Pit, Mt Marven Pit, and Heffernans pit, via in pit sumps, and then released in a turkey's nest outside the pit shell. Groundwater in the palaeodrainage and fractured rock terrain becomes progressively more saline toward Lake Carey, with the Jupiter Pit Complex yielding hypersaline water, including initial salinities of 317,000 mg/L and 297,000 mg/L from the Jenny and Joanne pits, respectively (Pennington Scott, 2025b).

Water from the pits is used for dust suppression around the pit complex, and excess water is sent to Double Jay Pit (Jenny and Joanne) which has historically been a pit lake.

4.2 Westralia Pit Complex

The Archean bedrock within the Westralia area is considered to have low aquifer potential. Dewatering rates for the Westralia Mining Area will be low, around 0.1 GL/year (equivalent to 3 L/s) (Pennington Scott, 2025b).

Groundwater inflows can be managed through in-pit and underground sumps with discharge to existing abandoned open pit excavations.

The Westralia Pit ceased operating in March 2023, albeit that the Licensee is seeking to restart mining in 2027. During the previous operational period, dewatering discharge was sent via the Westralia pipeline to supplement the Jupiter CIL plant process water supply, thereby allowing the mining of the Beresford and Allanson deposits. Excess dewatering was discharged in the Kings Street, Sarah, and Ramornie pits.

Groundwater quality in the Westralia pits ranges from around 1,300 mg/L TDS (in the Recreation Pit) to 30,000 mg/L TDS (in the Ramornie Pit) (Van Beem 2022). However, salinities as high as 64,000 mg/L have been measured in Westralia (Van Beem 2022).

Two existing Westralia bores that historically supplied water to the accommodation village were assessed in 2016 and found to be blocked. Consequently, two new bores, AB01P and AB02P, were drilled adjacent to the original bores. AB02P is no longer in use and only AB01P supplies water to the Mt Morgans village. During the previous operational period (2020–2022), approximately 60,000 kL/year of water was abstracted from AB01P to service the mine camp. Water from AB01P is considered fresh.

Table 4-1 Drawpoints locations and details

GMA	Sub-area	Aq.	GWL	Mine Area	Type	Name/ I.D.	Easting	Northing	Pit Crest (mRL)	Total Depth (mBGL)	Casing Stick up (mAGL)
Goldfields	Lake Carey	Fractured Rock	GWL 169901(5)	Jupiter	Open Pits	Heffernans	423,710	6,812,139	399	-	-
						Double Jay	423,760	6,813,020	400	-	-
						Mt Marven	419,537	6,812,505	409	-	-
						Saddle	423,586	6,812,498	409	-	-
						Ganymede	423,429	6,811,766	400	-	-
				Westralia	Open Pits	Westralia	409,219	6,817,051	-	-	
						Transvaal	409,822	6,819,293	424	-	-
						Recreation	407,817	6,817,337	436	-	-
						Craig	410,248	6,818,328	425	-	-
						King St	409,079	6,816,651	439	-	-
						Sarah	409,352	6,817,749	439	-	-
						Morgans N	408,379	6,818,506	450	-	-
						Ramornie	409,405	6,817,209	441	-	-
						Ramornie N	409,497	6,817,573	436	-	-
						Production	AB01P	407,203	6,817,405	-	86
				AB02P	407,203		6,817,405	-	86	0.58	
				Monitoring	AB01M	407,071	6,817,229	-	44	0.55	
					AB02M	407,119	6,816,864	-	61	0.51	

5. MONITORING COMMITMENTS

Table 5-1 specifies the frequency, locations, and commitments for monitoring, depending on whether individual groundwater drawpoints (e.g., mine sumps or production water bores) and their associated monitoring bores are classified as active or passive.

For compliance purposes, the status of a drawpoint as active or passive in any given month is defined as follows:

ACTIVE: A drawpoint is considered active during any calendar month in which it has been used to abstract water for any purpose. Once classified as active, the drawpoint will remain active until no abstraction has been recorded for three (3) consecutive months.

PASSIVE: A drawpoint is considered passive in a calendar month if it has not been used to abstract water during that month and has not been used for at least three (3) consecutive months prior.

Table 5-1 Monitoring location and frequency for active and passive drawpoints

Activity Status	Monitoring Locations	Abstraction	SWL	Water Quality	
				Suite 1 (Field)	Suite 2 (Full Laboratory)
Active	Dewatering bores/ pit sumps	Monthly	Monthly	Quarterly	Annually
	AB01 Bore	Monthly	Monthly	Quarterly	Annually
	Healing Pool	--	Monthly ¹	Monthly ²	--
Passive	Pit Lakes	--	Twice Yearly	--	Annually

¹ Monitoring of water levels from a set point at the Healing Pool (ideally a staff gauge), and standardised photo monitoring (photograph or series of photographs from the same point(s) at regular intervals), until there is conclusive evidence to demonstrate if the operations are affecting the water levels in the pool.

² A logger should be installed in the pool for at least one-year recording water level, EC and temperature, alternatively monthly visits however this may require monitoring for more than one year to be able to conclusively establish if the operations are affecting the water levels in the pool.

5.1 Monitoring Schedule

This section provides comprehensive details of the monitoring schedule for active and passive pits and bores. As part of the licence conditions detailed in GWOS Rev No. 3, the Licensee is required to follow the groundwater monitoring schedule outlined in **Table 5-2**.

5.1.1 ACTIVE Drawpoints

The following locations are to be monitored for active drawpoints:

- Production bores – are defined as being a production bore used primarily for the purposes of water supply for mining activities;
- Dewatering bores/ pit sumps – are defined as any drawpoint (bore, in-pit or underground sump) that is used primarily for the purpose of dewatering a pit or underground mine;

During active periods, the following monitoring commitments are to be undertaken:

- **Abstraction:** Monthly flow meter readings collected from each active production and dewatering bores/sump.
- **Groundwater levels:** Monthly from all active production and dewatering bores/sumps. If a production bore is pumping at the time of the measurement, the bore is to be turned off, allowing 2-hours thereafter prior to recording a water level; this is a “recovered” water level.
- **Water quality:**
 - **Suite 1 (Field):** Quarterly field electrical conductivity (EC) and pH shall be collected and recorded for all active production and dewatering bores/sumps. Field water quality equipment shall be calibrated at the beginning of each sampling day.
 - **Suite 2 (Full Laboratory):** Annual laboratory analysis from all active production and dewatering bores/sumps comprising pH, EC, TDS, hardness as CaCO₃, total alkalinity, major ions (Ca, K, Mg, Na, HCO₃, CO₃, SO₄, and OH), metals (Al, Fe, Mn, Li, As, Sb, Ba, B, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Zn), silica (SiO₂), ammonia (NH₃), nitrate as nitrogen (NO₃-N), and phosphate (PO₄).

5.1.2 PASSIVE Drawpoints

While water levels in passive pits may be surveyed safely from the bench, the Department of Energy, Mines, Industry Regulation and Safety's (DEMIRS) safety regulations restrict access to passive pits, particularly where the pit slopes are unstable from years of inactivity. For this reason, the collection of water quality parameters (Suite 1 & 2) may not be possible in passive pit lakes.

For passive drawpoints, the following monitoring commitments shall be undertaken:

- **Groundwater levels:** Twice yearly for all pit lakes.
- **Water Quality:**
 - **Suite 2 (Full Laboratory):** Annual laboratory analysis from the pit lakes comprising pH, EC, TDS, hardness as CaCO₃, total alkalinity, major ions (Ca, K, Mg, Na, HCO₃, CO₃, SO₄, and OH), metals (Al, Fe, Mn, Li, As, Sb, Ba, B, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Zn), silica (SiO₂), ammonia (NH₃), nitrate as nitrogen (NO₃-N), and phosphate (PO₄).

Table 5-2 Monitoring schedule for GWL 169901(5)

GMA	Aq.	GWL	Type	Bore I.D.	Status	Monitoring Frequency			
						Abst.n	SWL	Suite 1	Suite 2
Goldfields – Lake Carey	Fractured Rock Aquifer	GWL 169901(5)	Pit Abstraction / Dewatered into	Heffernans Pit	Active	Monthly	Monthly	Quarterly	Annually
				Double Jay Pits	Passive	N/A	Twice/yr	N/A	Annually
				Mt Marven Pit	Active	Monthly	Monthly	Quarterly	Annually
				Saddle Pit	Active	Monthly	Monthly	Quarterly	Annually
				Ganymede Pit	Passive	N/A	Twice/yr	N/A	Annually
				Westralia Pit	Passive	N/A	Twice/yr	N/A	Annually
				Transvaal Pit	Passive	N/A	Twice/yr	N/A	Annually
				Recreation Pit	Passive	N/A	Twice/yr	N/A	Annually
				Craig Pit	Passive	N/A	Twice/yr	N/A	Annually
				King St Pit	Passive	N/A	Twice/yr	N/A	Annually
				Sarah Pit	Passive	N/A	Twice/yr	N/A	Annually
				Morgans North	Passive	N/A	Twice/yr	N/A	Annually
				Ramornie Pit	Passive	N/A	Twice/yr	N/A	Annually
				Ramornie North Pit	Passive	N/A	Twice/yr	N/A	Annually
				Mt Morgans Village Bore AB01	Active	N/A	Monthly	Quarterly	Annually
Healing Pool*	Active	N/A	Monthly	Monthly	N/A				

* Until conclusive evidence demonstrates whether operations are affecting water levels in the Healing Pool

6. LICENCE COMPLIANCE 2024–25

6.1 Relevant GWOS Rev.3 activities in 2024-25

Key water activities for GWL 169901(5) during the 2024–25 review period included:

- **Pit Abstraction/ Dewatering:** Abstraction occurred at the Saddle and Mt Marven pits between November 2024 and June 2025. Dewatering at the Jupiter pit sumps commenced in February 2025 and continued for the remainder of the 2024–25 water year. The abstracted water was primarily used to help meet dust suppression requirements in the mining area, with any excess water directed to passive pits for storage.

Mining operations at Westralia has been under a “Care and Maintenance” status throughout the review period, with no abstraction conducted from any of the Westralia pits during this period.

- **AB01 Bore Abstraction:** Abstraction from bore AB01 remained ongoing, ensuring a consistent water supply for the Mt Morgans community.
- **Healing Pool:** Pennington Scott (2025c) completed a forensic analysis of the Healing Pool, incorporating regular photographic documentation, continuous monitoring of water levels, temperature, and water quality, as well as short- and long-term climatic trend analyses.

6.2 Compliance with the Monitoring Schedule

Figure 6-1 summarises the monitoring compliance against the GWOS Rev No. 3 for all GWLs during the 2024-25 water year, with numbers representing the number of readings collected. For convenience, the chart has been colour coded according to the following key:

Fully Compliant	Data collected in full accordance with the Licence and GWOS Rev. 3
Mostly Compliant	More than or 75% of data collected in accordance with GWOS Rev. 3
Non-Compliant	Failure to collect more than 75% of data, or exceeds a trigger value
Not Applicable	Monitoring not required, or no trigger value has been determined

Table 6-1 Monitoring compliance for GWL 169901(5) during the 2024-25 water year

GWL	Type	Bore I.D.	Status	Monitoring Frequency			Compliance	
				Abst.n	SWL	Suite 1 (Field EC/pH)		Suite 2 (Full Chem)
GWL 169901(5)	Pit Abstraction / Dewatered into	Heffernans Pit	Active	5	2	3	0	Non-Compliant
		Double Jay Pits	Passive	N/A	2	N/A	1	Compliant
		Mt Marven Pit	Active	8	2	2	1	Non-Compliant
		Saddle Pit	Active	8	2	3	1	Non-Compliant
		Ganymede	Passive	N/A	2	N/A	0	Non-Compliant
		Transvaal Pit	Passive	N/A	1	N/A	0	Non-Compliant
		Recreation Pit	Passive	N/A	1	N/A	1	Non-Compliant
		Craig Pit	Passive	N/A	1	N/A	0	Non-Compliant
		King St Pit	Passive	N/A	1	N/A	0	Non-Compliant
		Sarah Pit	Passive	N/A	1	N/A	1	Non-Compliant
		Morgans N	Passive	N/A	1	N/A	1	Non-Compliant
		Ramornie Pit	Passive	N/A	1	N/A	0	Non-Compliant
		Ramornie N Pit	Passive	N/A	1	N/A	1	Non-Compliant
		Mt Morgans Village Bore AB01P	Active	12	10	5	1	Mostly Compliant
	Healing Pool	Active	Conclusive evidence demonstrates operations does not affect the water levels in the pool.					

Although the Licensee was fully compliant with conditions stipulated in GWL 169901 (**Appendix A**), the monitoring commitments outlined in GWOS Rev. 3 were only partially met during the 2024-25 water year, as summarised below:

- **Bore AB01P:** Monitoring was fully compliant with the GWOS Rev. 3 schedule, apart from two missing SWL readings in April and May 2025.
- **Jupiter Pit Complex:** Monthly monitoring of abstraction during active periods was fully compliant. However, several monthly SWL readings and quarterly Suite 1 (field EC and pH) measurements were missed for the active pits. In addition, annual Suite 2 (full chemistry) samples were not collected for the Heffernan's and Ganymede pits.
- **Westralia Pit Complex:** One of the scheduled twice-yearly SWL readings was missed across all passive pits. Annual Suite 2 (full chemistry) samples were also not collected for the Transvaal, Craig, King Street, or Ramornie pits. These omissions were due to geotechnical safety concerns that restricted safe access.
- **Healing Pool:** GWOS Rev. 3 requires photographic, water level, and salinity monitoring of the Healing Pool until conclusive evidence is available regarding potential operational impacts on water levels. Pennington Scott (2025c) concluded that observed variations in water level, thermal stratification, and pool chemistry are driven primarily by long-term natural climatic variability, rather than by direct mining impacts. Accordingly, the monitoring requirements for the Healing Pool have been met, and no further monitoring is required.

6.3 Compliance with GWL Allocation Limits

During the 2024-25 water year, the Licensee recorded monthly flow meter readings for each active pit and production bore, with the data provided in **Appendix B**. Abstraction volumes remained within the licensed allocation limits (**Figure 6-1**). The total annual abstraction was 389,451 kL, representing 27.8% of the total available allocation for GWL169901(5) (**Table 6-2**).

Table 6-2 MMGO's licensed groundwater abstraction for the 2024-25 water year

GWL	Location Description	Allocation kL/year	Usage (kL/year)			% Usage 2024-25	Compliance 2024-25
			2022-23	2023-24	2024-25		
169901 (5)	Jupiter and Westralia mining areas	1,400,000	522,628	11,657	389,451	27.8	Compliant

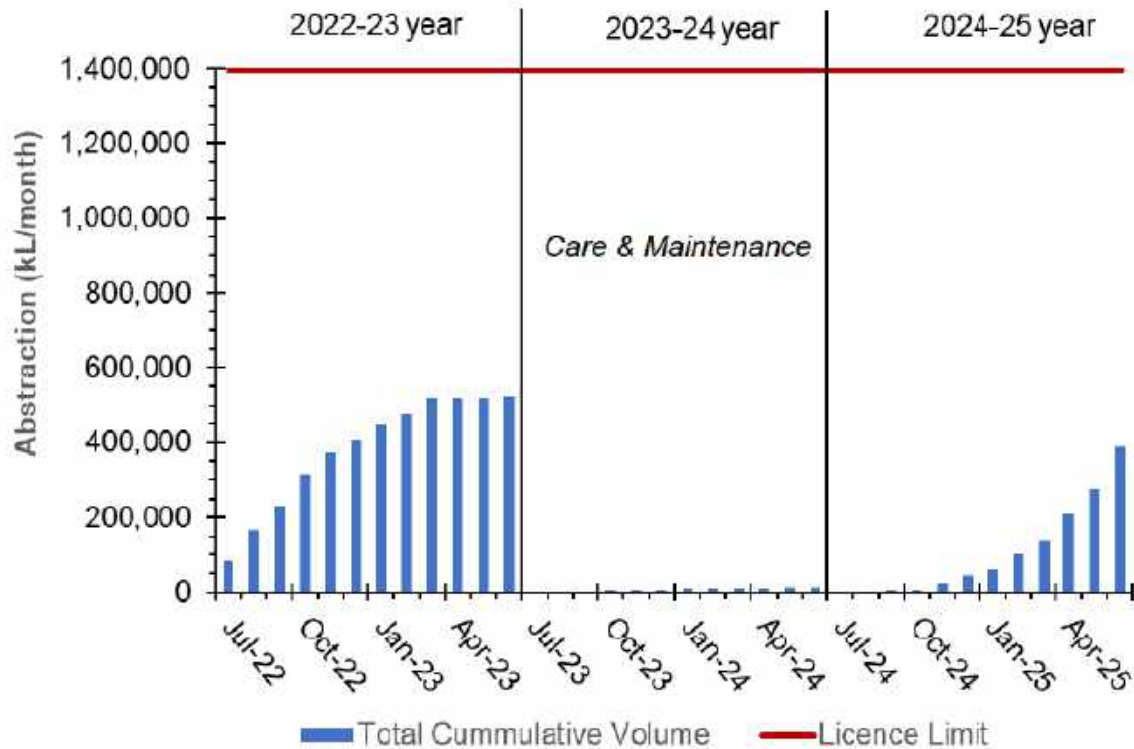


Figure 6-1 Monthly cumulative groundwater abstraction for GWL169901(5), compared to the licence limit.

6.4 Compliance with Laboratory Analysis

Reference to **Table 6-3** shows the Licensee was fully compliant with the monitoring requirements for the laboratory analyses outlined in GWOS Rev. 3 during the 2024–25 water year, apart from the following:

Laboratory EC: None of the required laboratory EC analyses were conducted in any of the active groundwater draw points.

It is important to include laboratory EC in the analytical suite, as it is typically paired with gravimetric TDS analysis to determine the site-specific EC:TDS conversion factor, usually ranging from 0.58 to 0.65, depending on ionic composition and salinity. Relying solely on field EC introduces potential errors due to instrument calibration drift and temperature compensation issues.

Hardness as CaCO₃: This parameter was measured only in two pits (Saddle and Ramornie North) and in bore AB01P, which constitutes a non-compliance. However, the Jupiter pits are acidic, and therefore, alkalinity/hardness would be irrelevant. This omission is therefore not recorded as a non-compliance for the Jupiter pits.

Total Alkalinity: This parameter was not analysed in any of the active groundwater draw points, which constitutes a non-compliance. However, the Jupiter pits are acidic, and therefore, alkalinity/hardness would be irrelevant. This omission is therefore not recorded as a non-compliance for the Jupiter pits.

Bicarbonate and Carbonate: These major ions were measured only in two pits (Saddle and Ramornie North) and in bore AB01P.

Bicarbonate and carbonate are among the eight major ions essential for groundwater ionic characterisation. Bicarbonate cannot be back-calculated from hardness, which only reflects concentrations of calcium and magnesium. Moreover, carbonate rarely exists in isolation at typical groundwater pH levels and is usually present as solid-phase calcium carbonate (CaCO₃). Excluding these ions limits the reliability of geochemical interpretations and reduces the use of the dataset for long-term water quality assessments.

Sulphate (SO₄): This parameter is not currently included in MMGO's GWOS monitoring requirements and therefore does not constitute a non-compliance. Nonetheless, sulphate is one of the eight major ions essential for groundwater ionic characterisation. While some drawpoints are analysed for sulphur, enabling direct calculation of sulphate, this is not consistent across all sites. Pennington Scott recommends that sulphate be included in the Suite 2 analytes.

Cadmium (Cd) and Mercury (Hg): These two analytes were not included in the laboratory analysis for any of the active groundwater drawpoints.

Cadmium and mercury are particularly important to monitor, as they (together with Pb and Cr⁶⁺) are the four metals most commonly associated with bioaccumulation in wildlife and present significant ecological and human health risks even at low concentrations.

Nitrate and Phosphate: These nutrient parameters were analysed only in two pits (Saddle and Ramornie North) and in bore AB01P.

Elevated nitrate levels are commonly observed in the vicinity of active mine sites and tailings storage facilities. This is typically a result of residual ammonium nitrate from blasting activities, which can leach into surrounding groundwater systems.

Aluminium (Al) and Lithium (Li): These parameters were measured only in two pits (Saddle and Ramornie North) and in bore AB01P. Aluminium, although the third most abundant element in the Earth's crust, rarely exceeds 0.1 mg/L in natural waters except under very low pH conditions. Elevated aluminium concentrations may be toxic to fish and other aquatic species, while lithium can be toxic to plants (Hem, 1985). While their inclusion in Suite 2 is not considered critical, their omission nonetheless constitutes a non-compliance.

Barium (Ba), Boron (B), and Molybdenum (Mo): These analytes were not included in the laboratory analysis for any of the active groundwater drawpoints. While these parameters are neither considered acutely toxic nor commonly associated with gold mining and processing, and their inclusion in Suite 2 is not considered critical, their omission nonetheless constitutes a non-compliance.

Table 6-3 Suite 2 (laboratory) monitoring compliance during 2024-25 water year

Group	Analyte	Formula/ Symbol	Units	Compliance
Physico-chemical	EC (lab)		µS/cm	Non-compliant
	pH (lab)			Compliant
	TDS		mg/L	Compliant
	Hardness as CaCO ₃		mg/L	Partially Compliant
	Total Alkalinity		mg/L	Non-compliant
Major ions	Ammonia	NH ₃	mg/L	Compliant
	Bicarbonate	HCO ₃ ⁻	mg/L	Non-compliant
	Calcium	Ca ²⁺	mg/L	Compliant
	Carbonate	CO ₃ ²⁻	mg/L	Non-compliant
	Chloride	Cl ⁻	mg/L	Compliant
	Magnesium	Mg ²⁺	mg/L	Compliant
	Potassium	K ⁺	mg/L	Compliant
	Sodium	Na ⁺	mg/L	Compliant
Minor ions/metals	Aluminium	Al	mg/L	Non-compliant
	Antimony	Sb	mg/L	Compliant
	Arsenic	As	mg/L	Compliant
	Barium	Ba	mg/L	Non-compliant
	Boron	B	mg/L	Non-compliant
	Cadmium	Cd	mg/L	Non-compliant
	Chromium	Cr	mg/L	Compliant
	Copper	Cu	mg/L	Compliant
	Iron	Fe	mg/L	Compliant
	Lead	Pb	mg/L	Compliant
	Lithium	Li	mg/L	Non-compliant
	Manganese	Mn	mg/L	Compliant
	Mercury	Hg	mg/L	Non-compliant
	Molybdenum	Mo	mg/L	Non-compliant
	Nickel	Ni	mg/L	Compliant
	Selenium	Se	mg/L	Compliant
Zinc	Zn	mg/L	Compliant	
Organics	Nitrate	NO ₃ ⁻	mg/L	Non-compliant
	Phosphate	PO ₄ ³⁻	mg/L	Non-compliant
	Silica	SiO ₂	mg/L	Compliant

7. TRIENNIAL AQUIFER REVIEW

This section provides a summary of aquifer trends based on long-term groundwater monitoring data, covering abstraction rates, water levels, and water quality for the Fractured Rock Aquifer licence (GWL 169901(5)) area during the triennial monitoring period from 1 July 2022 to 30 June 2025. Monthly groundwater level readings are detailed in **Appendix C**, while quarterly water quality parameters (pH, EC) are provided in **Appendix D**. Annual laboratory water quality results are available in **Appendix E**.

The observable water trends in GWL 169901(5) are summarised in the subsections below based on the data presented in the Appendices.

7.1 Abstraction Trends

Figure 7-1 presents the monthly total abstraction from the Fractured Rock Aquifer over the 2022–25 triennial period.

A gradual decline in abstraction was observed from July 2022 to March 2023, after which the operation entered a ‘Care and Maintenance’ phase (April 2023 to October 2024), during which no pit abstraction occurred. Abstraction resumed in November 2024 at the Mt Marven and Saddle pits, with a subsequent steady increase in abstraction from the Jupiter pit sumps beginning in February 2025.

Abstraction from bore AB01P remained relatively stable throughout the entire period.

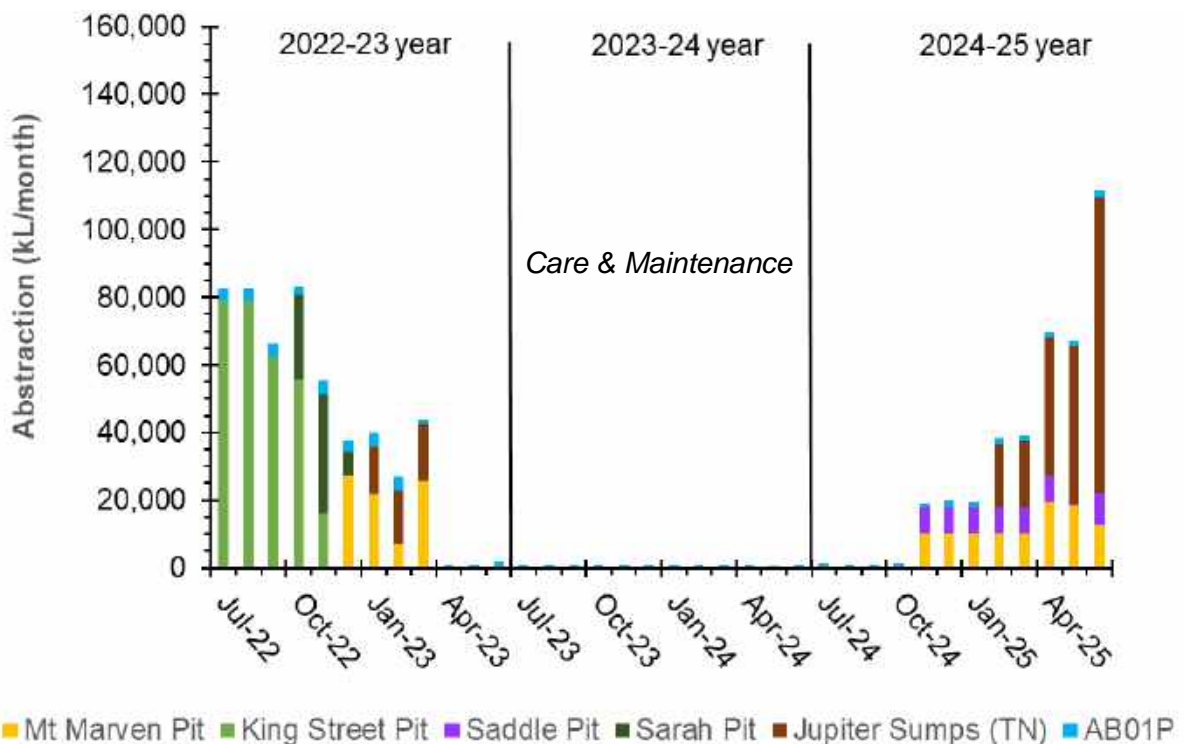


Figure 7-1 Monthly groundwater abstraction for each active pit within GWL169901(5).

7.2 Water Level Trends

Reduced water levels (RLs) for all monitored pits, compared against pit crest elevations and a 5 m freeboard buffer, are presented in **Appendix C**. Over the triennial review period, water levels at both the Jupiter and Westralia pit complexes remained generally stable. The only notable changes were a slight increase in RL at Craig Pit and a decrease at Recreation Pit. Despite these variations, all pits remained well below their respective crests and the 5 m freeboard threshold, with no observed trends suggesting an overflow risk.

Water levels (mBTOC) in Bore AB01P also remained steady throughout the review period (**Figure 7-2**), consistent with ongoing abstraction to supply the Mt Morgans community.

In summary, there is no indication of adverse water level trends that would warrant remedial action.

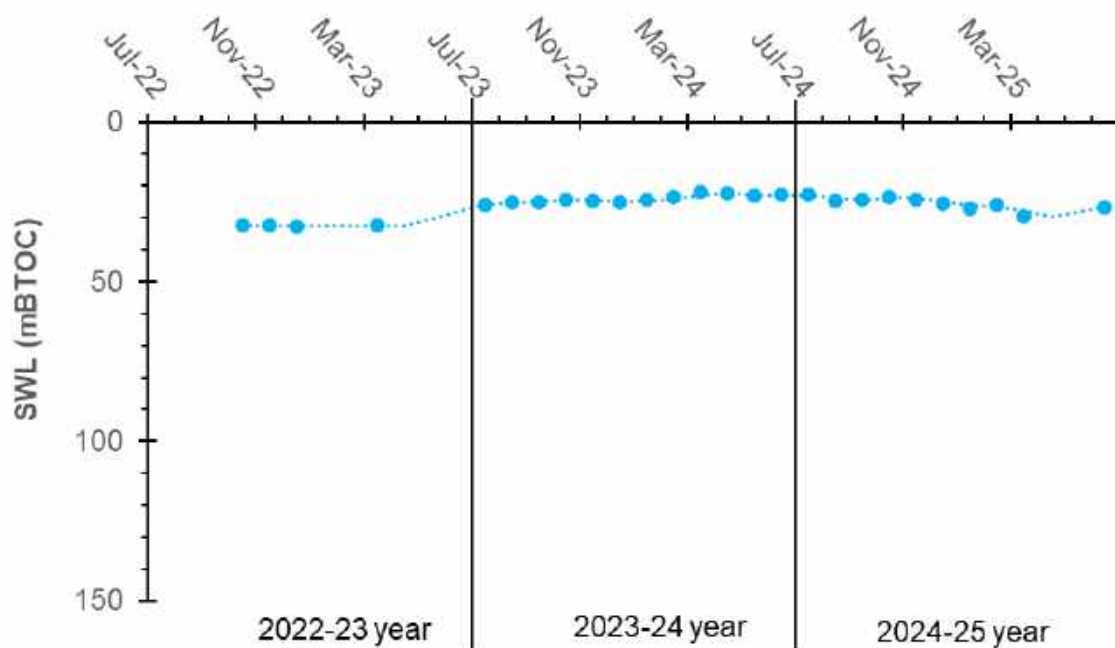


Figure 7-2 Water levels (mBTOC) in Bore AB01P, over the triennial period.

7.3 Water Quality Trends

During the review period, quarterly water quality (field EC and pH) samples were collected from bore AB01P in accordance with the monitoring schedule. However, several of the pit lakes could not be sampled for water quality parameters (Suite 1 and 2) due to restricted access resulting from geotechnical safety concerns associated with pit ramp conditions.

To mitigate access-related safety risks, Genesis has been trialling the use of unmanned aerial vehicles (UAVs), commonly referred to as drones, for pit lake monitoring. While drones can successfully collect small water samples suitable for field EC and pH measurements, they are currently unable to collect the ~1 L (1 kg) of water required for Suite 2 (full chemistry) analysis.

Additionally, drone sampling is limited to surface water only. In meromictic pit lakes, the water column is typically stratified into an upper mixed layer (the mixolimnion) influenced by wind and surface conditions, and a lower, denser saline layer (the monimolimnion) that remains unmixed (Pennington Scott, 2025c). Because drones can only access the surface layer, the samples collected may not be representative of the overall water quality and may be influenced by recent rainfall.

7.3.1 Field EC

Figure 7-3 presents field EC (in $\mu\text{S}/\text{cm}$) monitoring results for the Jupiter pits, while **Figure 7-4** shows EC monitoring for the Westralia pits.

In the Jupiter pits, EC values exhibited greater variability, likely due to fluctuations in rainfall and evaporation affecting the upper mixolimnion. Rainfall dilutes surface water, decreasing salinity, while evaporation (particularly when exceeding rainfall and surface water inflows) concentrates salts, increasing salinity. The EC values in the Westralia pits remained more stable. However, the actual salinity in both pit complexes is expected to be higher than what surface measurements indicate.

For bore AB01P, EC values remained relatively stable throughout the review period, ranging between 1,212 and 1,525 $\mu\text{S}/\text{cm}$ (**Figure 7-5**).

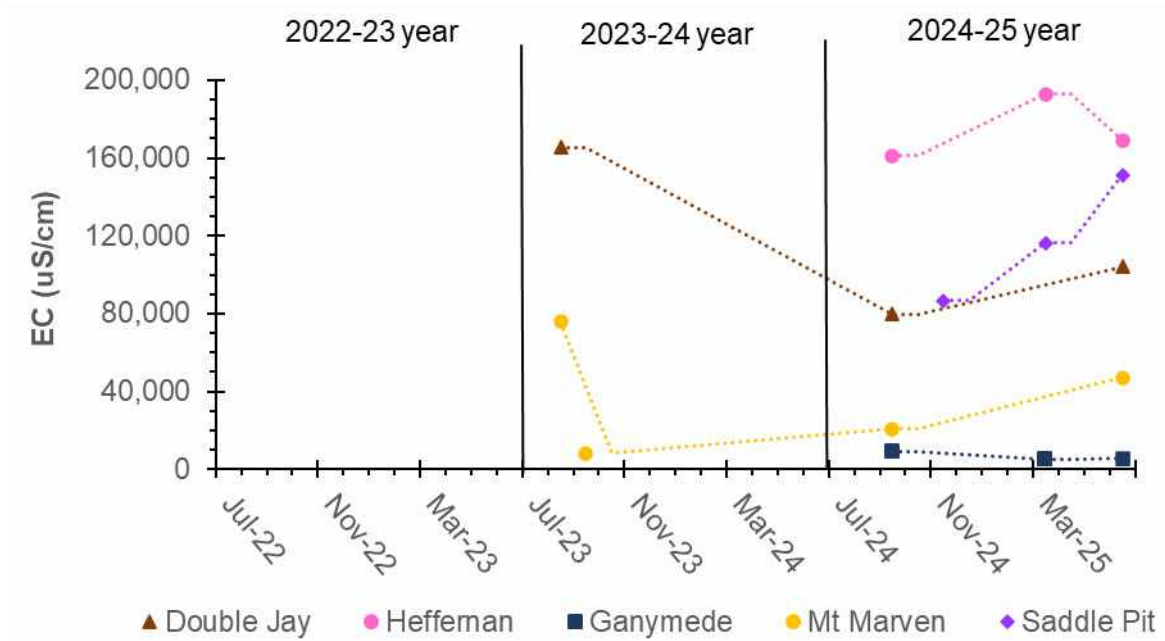


Figure 7-3 Field EC readings for the Jupiter pits, over the triennial period.

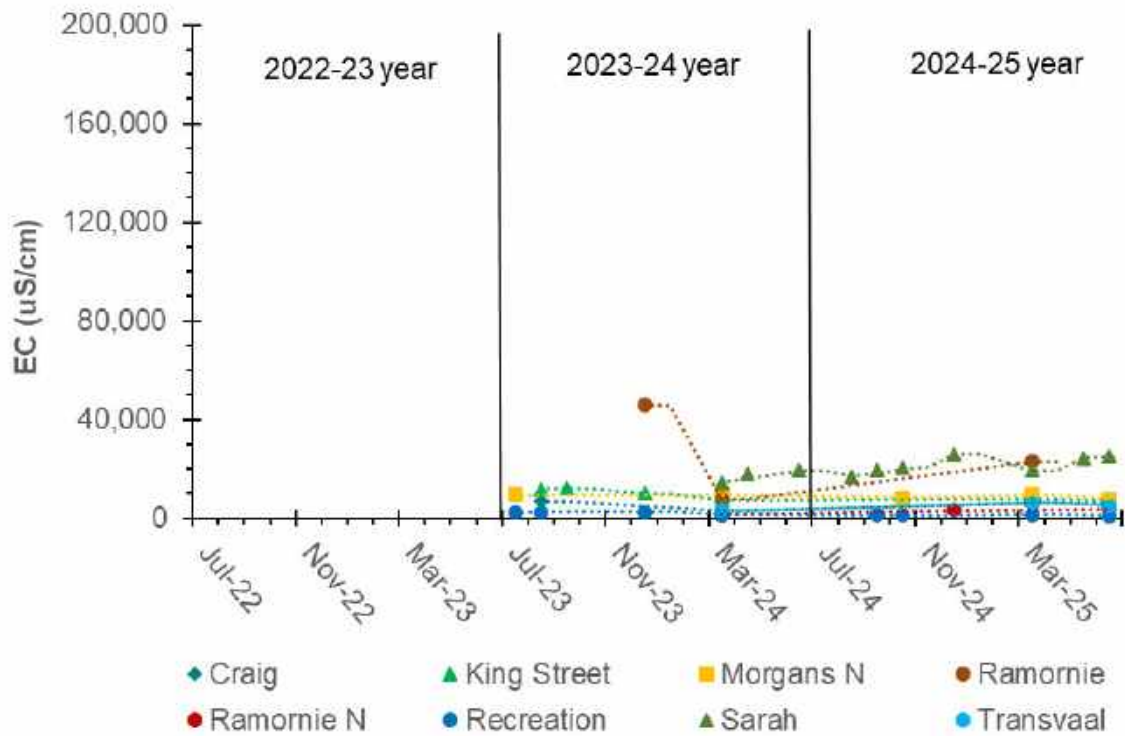


Figure 7-4 Field EC readings for the Westralia pits, over the triennial period.

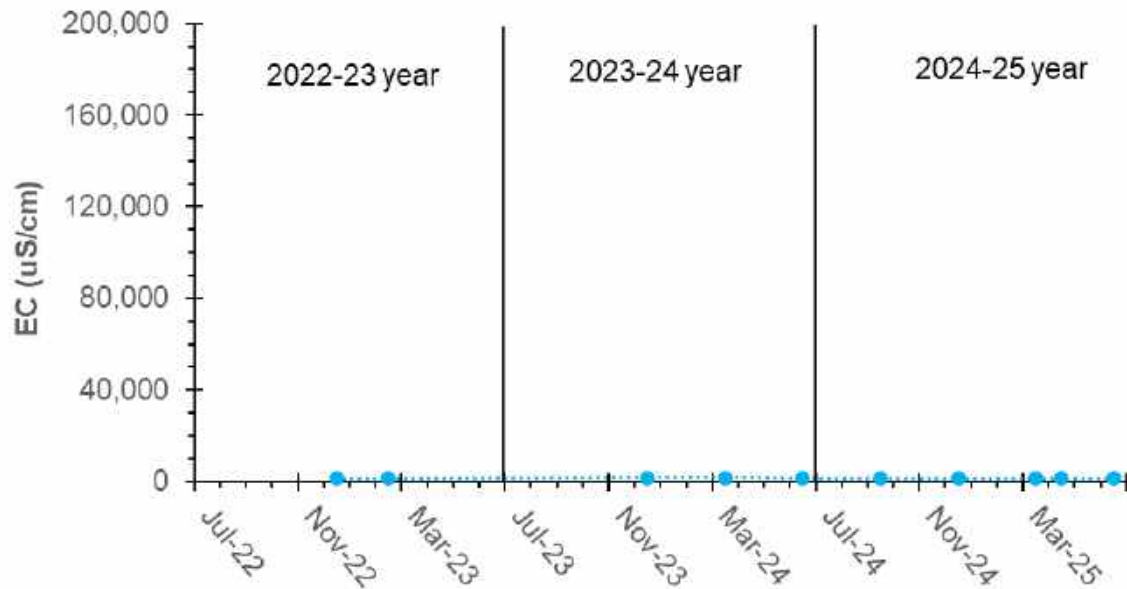


Figure 7-5 Field EC readings for Bore AB01P, over the triennial period.

7.3.2 Field pH

Across the Jupiter pits, pH levels generally remained within the neutral to slightly alkaline range, with most pits recording pH values between approximately 6.2 and 8.3 (**Figure 7-6**). Ganymede and Mt Marven pits exhibited more alkaline conditions, whereas Double Jay, Heffernans, and Saddle pits remained closer to neutral.

In the Westralia pits, pH levels also largely reflected neutral to moderately alkaline conditions. Most pits recorded stable readings, though some variability was observed, including an anomalously low pH of 5.22 recorded at King St Pit in September 2023 (**Figure 7-7**). This reading was not supported by the corresponding laboratory result of 8.05 and is considered an outlier.

Bore AB01P also showed consistent pH conditions throughout the review period, ranging from 7.09 to 8.1, indicative of neutral to slightly alkaline water quality (**Figure 7-8**).

In summary, Pennington Scott has found no evidence of emerging adverse water quality trends that would warrant remedial action.

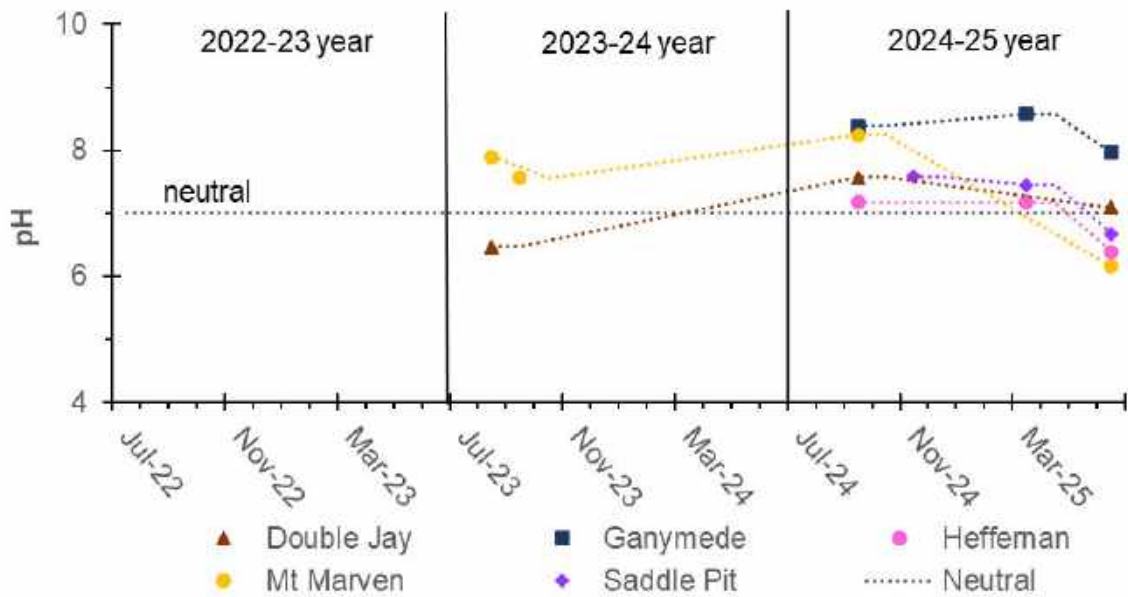


Figure 7-6 Field pH readings for the Jupiter pits, over the triennial period.

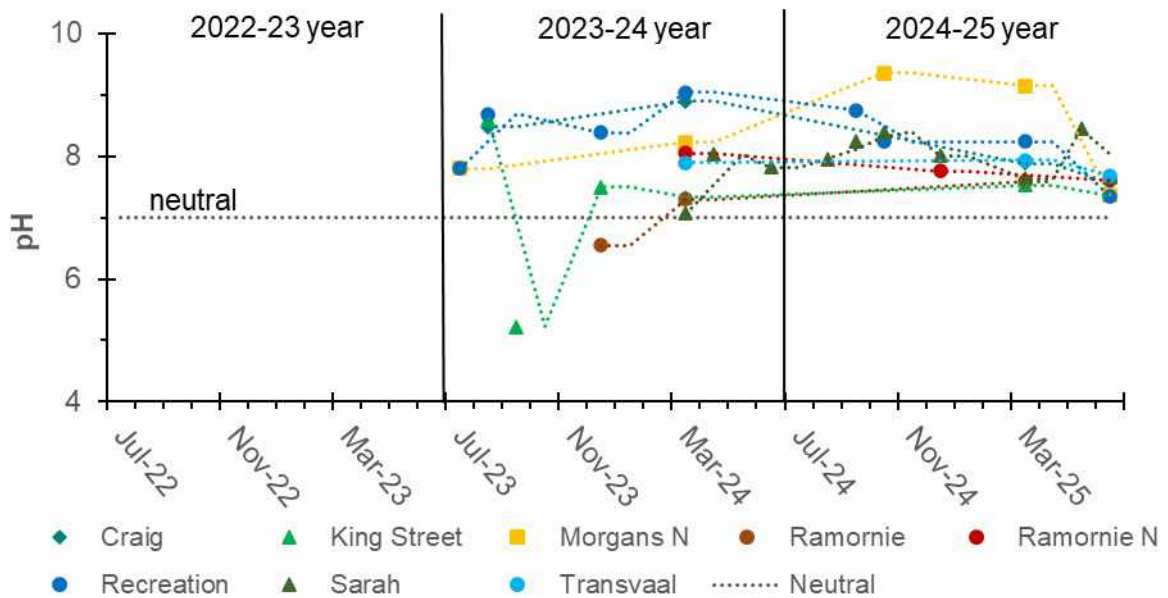


Figure 7-7 Field pH readings for the Westralia pits, over the triennial period.

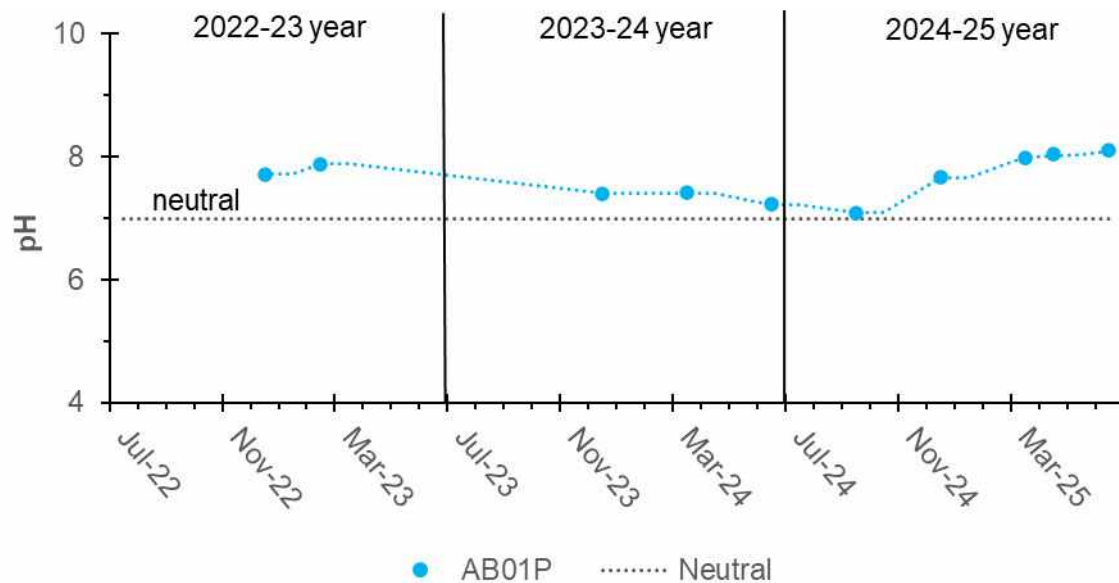


Figure 7-8 Field pH readings for Bore AB01P, over the triennial period.

7.4 Water Efficiency

The Department requires the Licensee to actively pursue improvements in water use efficiency, in alignment with Operational Policy 1.02, "*Policy on Water Conservation/Efficiency Plans*" (DoW 2009a). Water needs and management strategies vary annually, influenced by factors such as dewatering activities, wastewater disposal, and process water demands, all of which are determined by the operational status (active or passive) of the mines or bores during a given water year.

At MMGO, the main source of process water is the Calcrete Aquifer, with the Palaeochannel Aquifer planned for future use. This section specifically addresses water efficiency under the Fractured Rock licence, which covers the Jupiter and Westralia pit complexes and bore AB01P.

The primary water activities, under this licence, include pit dewatering and minor abstraction from bore AB01, which supplies the Mt Morgans village via RO treatment. Abstraction volumes from AB01P are driven by the water demand of the village and the efficiency of the RO treatment plant, while dewatering rates are directly linked to active mining operations.

Given the limited scale of abstraction and the operational nature of dewatering, there is minimal opportunity to further improve water efficiency beyond current practices. Nonetheless, water recovered through dewatering, particularly from the Jupiter pits and in future from Westralia, is reused opportunistically for on-site purposes such as dust suppression and mineral processing.

8. DISCUSSION & RECOMMENDATIONS

The main operational water management trends over the 2024-25 water year were as follows:

- Dewatering continued at active in-pit and underground sumps within the Jupiter mining area. The dewatering discharge was primarily used for dust suppression, with any excess water directed to passive pits for storage.
- Mining operations at Westralia remained under “Care and Maintenance” status, with no abstraction from any of the Westralia pits during this period.
- Abstraction from bore AB01 remained active, ensuring a consistent water supply for the Mt Morgans community.

This report assessed compliance with existing GWL conditions, along with compliance with the monitoring commitments outlined in GWOS Rev. 3 for the 2024-25 water year. This report also reviewed aquifer trends over the 2022-25 triennial period (1 July 2022 to 30 June 2025).

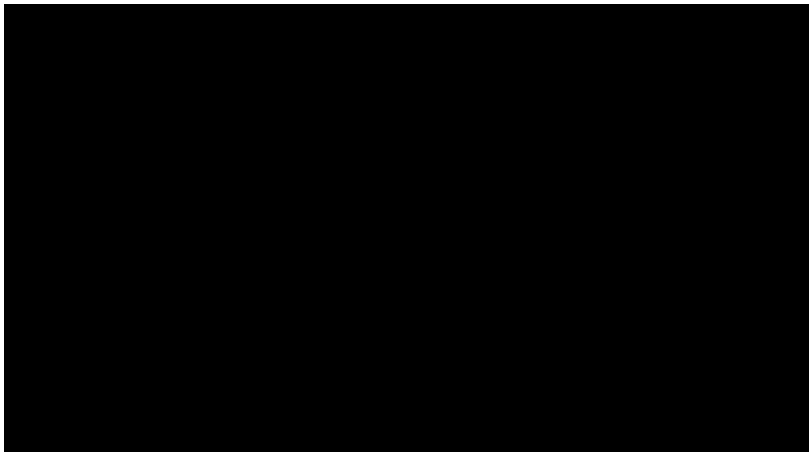
The Licensee was fully compliant with the conditions stipulated in GWL 169901, while the monitoring commitments outlined in GWOS Rev. 3 were only partially met during the 2024-25 water year, as summarised below:

- **Bore AB01P:** Monitoring was fully compliant with the GWOS Rev. 3 schedule, apart from two missing SWL readings in April and May 2025.
- **Jupiter Pit Complex:** Monthly abstraction monitoring was compliant during active periods. However, several monthly SWL readings and quarterly Suite 1 (field EC and pH) measurements were missed for the active pits. In addition, annual Suite 2 (full chemistry) samples were not collected for the Heffernans and Ganymede pits.
- **Westralia Pit Complex:** One of the scheduled twice-yearly SWL readings was missed across all passive pits. Annual Suite 2 (full chemistry) samples were also not collected for the Transvaal, Craig, King Street, or Ramornie pits. These omissions were due to geotechnical safety concerns that restricted safe access.
- **Healing Pool:** As per the GWOS Rev. 3 schedule, monitoring was required only until conclusive evidence was available on whether operations were affecting water levels. A study by Pennington Scott (2025c) concluded that observed variations in water level, thermal stratification, and pool chemistry are primarily the result of long-term natural climatic variability, rather than direct impacts from mining activities.

Genesis has trialled drone-based water sampling to address safety-related access issues at pit lakes. While drones can collect small water samples suitable for field EC and pH measurements, they currently cannot retrieve ~1 L of water required for Suite 2 (full chemistry) analysis. Additionally, drone sampling is limited to surface water, which may not reflect the overall water quality in meromictic pit lakes, where stratification can separate the surface mixolimnion from the deeper, denser monimolimnion. Surface samples may also be influenced by recent rainfall.

Based on the findings in this report, Pennington Scott recommends the following actions:

- Review and update the GWOS to align all MMGO groundwater licences (i.e. the Fractured Rock, Calcrete Aquifer, and the new Palaeochannel Aquifer licence) to the same annual water year (1st July to 30th June). This will enable the submission of a single consolidated annual groundwater monitoring summary, or triennial aquifer review. Pennington Scott is currently progressing amendments to the Licensee's GWOS for MMGO.
- Revise the GWOS monitoring schedule to remove Suite 1 (field EC and pH) and Suite 2 (full chemistry) sampling requirements for passive pits, particularly where geotechnical concerns prohibit safe access, as per DEMIRS safety regulations.
- Ensure SWL recordings are undertaken monthly for all active drawpoints and twice-yearly for all passive pit lakes. This can be done safely from the bench.
- Amend the laboratory chain of custody forms to include the following Suite 2 analytes specified in the GWOS that were previously missed, such as Laboratory EC, Hardness as CaCO₃, Total Alkalinity, Bicarbonate (HCO₃⁻), Carbonate (CO₃²⁻), Hydroxide (OH⁻), Aluminium (Al), Barium (Ba), Boron (B), Cadmium (Cd), Lithium (Li), Mercury (Hg), Molybdenum (Mo), Nitrate (NO₃), and Phosphate (PO₄). Also, add Sulphate (SO₄) to the monitoring parameters.



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Appendix A

Groundwater Licence

File No: RF6029



Government of Western Australia
 Department of Water and Environmental Regulation

Page 1 of 2

Instrument No. GWL169901(6)

LICENCE TO TAKE WATER

Granted by the Minister under section 5C of the Rights in Water and Irrigation Act 1914

Licensee(s)	Mt Morgans WA Mining Pty Ltd		
Description of Water Resource	Goldfields Combined - Fractured Rock West - Fractured Rock	Annual Water Entitlement	1,400,000kL
Location of Water Source	M 39/236, M 39/18, M 39/228, M 39/248, M 39/261, L 39/57, M 39/282, M 39/264, M 39/273, M 39/304, M 39/305, M 39/395 - Mt Morgan Gold Project		

Authorised Activities	Taking of water for	Location of Activity
	Dust Suppression for mining purposes	M 39/236, M 39/18, M 39/228, M 39/248, M 39/261, L 39/57, M 39/282, M 39/264, M 39/273, M 39/304, M 39/305, M 39/395 - Mt Morgan Gold Project M39/36
	Exploratory drilling operations	M 39/236, M 39/18, M 39/228, M 39/248, M 39/261, L 39/57, M 39/282, M 39/264, M 39/273, M 39/304, M 39/305, M 39/395 - Mt Morgan Gold Project M39/36
	General campsite purposes	M 39/236, M 39/18, M 39/228, M 39/248, M 39/261, L 39/57, M 39/282, M 39/264, M 39/273, M 39/304, M 39/305, M 39/395 - Mt Morgan Gold Project M39/36
	Mineral ore processing and other mining purposes	M 39/236, M 39/18, M 39/228, M 39/248, M 39/261, L 39/57, M 39/282, M 39/264, M 39/273, M 39/304, M 39/305, M 39/395 - Mt Morgan Gold Project M39/36
	Mining vehicles and equipment washdown activities	M 39/236, M 39/18, M 39/228, M 39/248, M 39/261, L 39/57, M 39/282, M 39/264, M 39/273, M 39/304, M 39/305, M 39/395 - Mt Morgan Gold Project M39/36
	Potable Water Supply purposes	M 39/236, M 39/18, M 39/228, M 39/248, M 39/261, L 39/57, M 39/282, M 39/264, M 39/273, M 39/304, M 39/305, M 39/395 - Mt Morgan Gold Project M39/36
Duration of Licence	From 8 September 2017 to 7 September 2027	

This Licence is subject to the following terms, conditions and restrictions:

1. The volume of all water taken under this licence must be metered using an approved meter fitted to each drawpoint.
2. The annual water year for water taken under this licence is defined as 1 July to 30 June.
3. The licensee must not, in any water year, take more water than the annual water entitlement specified in this licence.
4. Every 12 Months the licensee shall provide to the Department of Water and Environmental Regulation a Groundwater Monitoring Summary for the preceding water year. The first report is due 01/10/2018.

This Licence is granted subject to the Rights in Water and Irrigation Regulations 2000.

File No: RF6029



Government of Western Australia
Department of Water and Environmental Regulation

Page 2 of 2

Instrument No. GWL169901(6)

LICENCE TO TAKE WATER

Granted by the Minister under section 5C of the Rights in Water and Irrigation Act 1914

This Licence is subject to the following terms, conditions and restrictions:

5. Unless otherwise approved by the Department of Water and Environmental Regulation, all meter readings must be recorded annually via the Department of Water and Environmental Regulation's 'Water Online Portal' or on an approved Department of Water and Environmental Regulation 'Meter Water Use Card'. The meter readings must be reported via the 'Water Online Portal' or submitted via a completed 'Meter Water Use Card' to the Department of Water and Environmental Regulation every 12 Months, commencing 07/07/2018.

End of terms, conditions and restrictions

This Licence is granted subject to the Rights in Water and Irrigation Regulations 2000.

Appendix B

Abstraction Data

Table B1-1 Monthly flow meter readings (kL/month) of the active drawpoints, for the 2022–25 triennial period

	Jupiter Sumps (TN)	Mt Marven Pit	Saddle Pit	King Street Pit	Sarah Pit	AB01P
May-22	0	0	0	78,722	0	3,938
Jun-22	0	0	0	78,722	0	3,938
Jul-22	0	0	0	62,492	0	3,938
Aug-22	0	0	0	55,869	24,960	2,207
Sep-22	0	0	0	15,933	35,470	4,210
Oct-22	0	27,390	0	0	7,000	3,451
Nov-22	13,910	21,720	0	1	0	4,295
Dec-22	16,150	6,940	0	2	0	4,000
Jan-23	17,140	25,490	0	3	0	1,000
Feb-23	0	0	0	0	0	1,000
Mar-23	0	0	0	0	0	1,000
Apr-23	0	0	0	0	0	1,737
May-23	0	0	0	0	0	1,000
Jun-23	0	0	0	0	0	1,000
Jul-23	0	0	0	0	0	1,000
Aug-23	0	0	0	0	0	1,000
Sep-23	0	0	0	0	0	1,000
Oct-23	0	0	0	0	0	1,000
Nov-23	0	0	0	0	0	1,000
Dec-23	0	0	0	0	0	1,000
Jan-24	0	0	0	0	0	1,000
Feb-24	0	0	0	0	0	1,000
Mar-24	0	0	0	0	0	597
Apr-24	0	0	0	0	0	1,060
May-24	0	0	0	0	0	1,477
Jun-24	0	0	0	0	0	1,128
Jul-24	0	0	0	0	0	992
Aug-24	0	0	0	0	0	1,275
Sep-24	0	10,000	8,000	0	0	1,067
Oct-24	0	10,000	8,000	0	0	1,737
Nov-24	0	10,000	8,000	0	0	1,384
Dec-24	18,660	10,000	8,000	0	0	1,600
Jan-25	19,550	10,000	8,000	0	0	1,500
Feb-25	40,760	19,630	8,000	0	0	1,500
Mar-25	46,620	18,330	800	0	0	1,500
Apr-25	87,500	12,821	9,301	0	0	2,319

Appendix C

Groundwater Level Readings

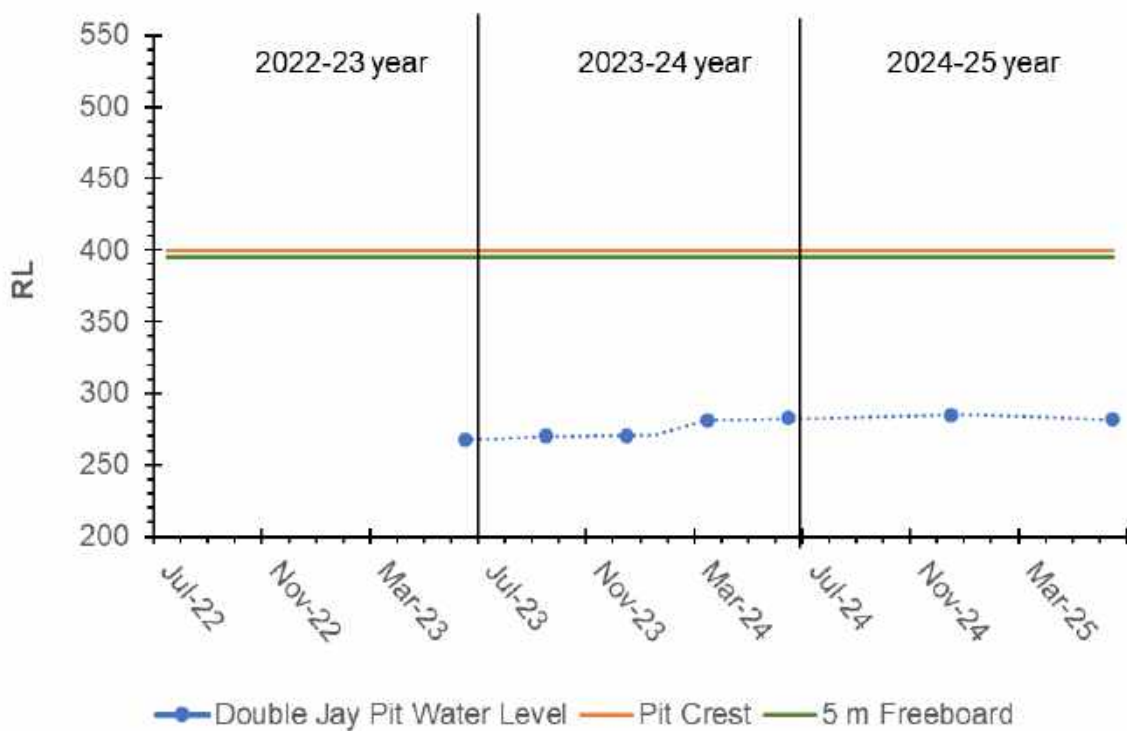
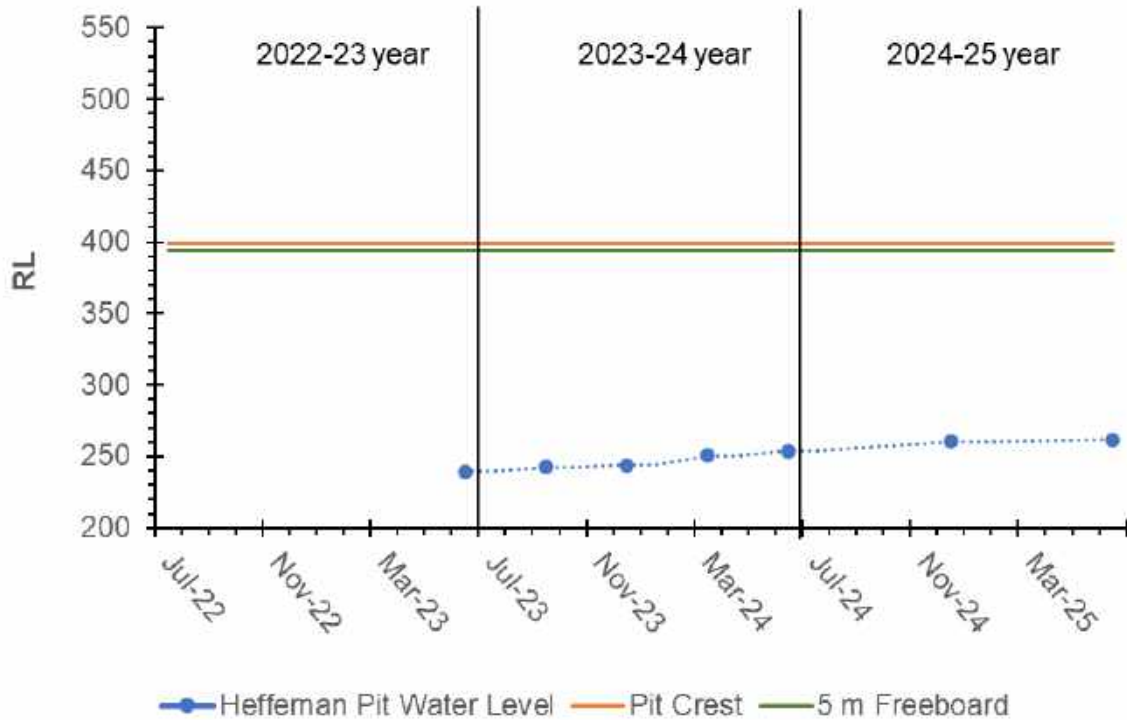
Table C1-1 Monthly SWL readings (mBTC) of bore AB01P, for the 2022–25 triennial period

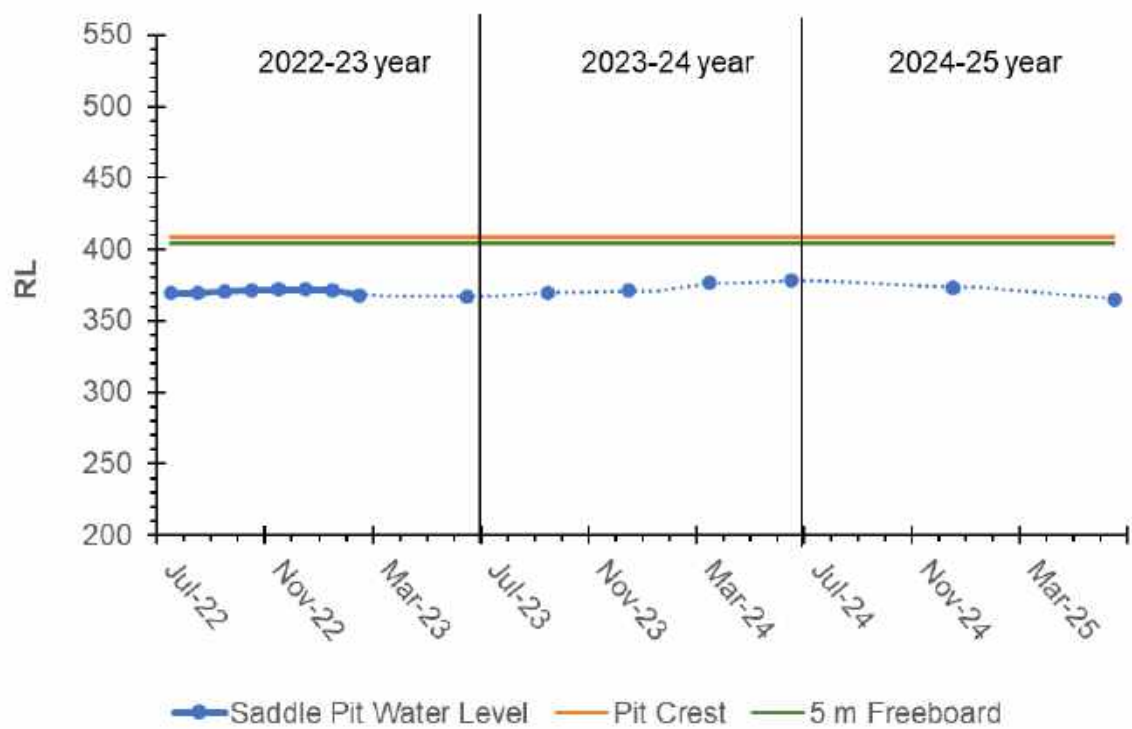
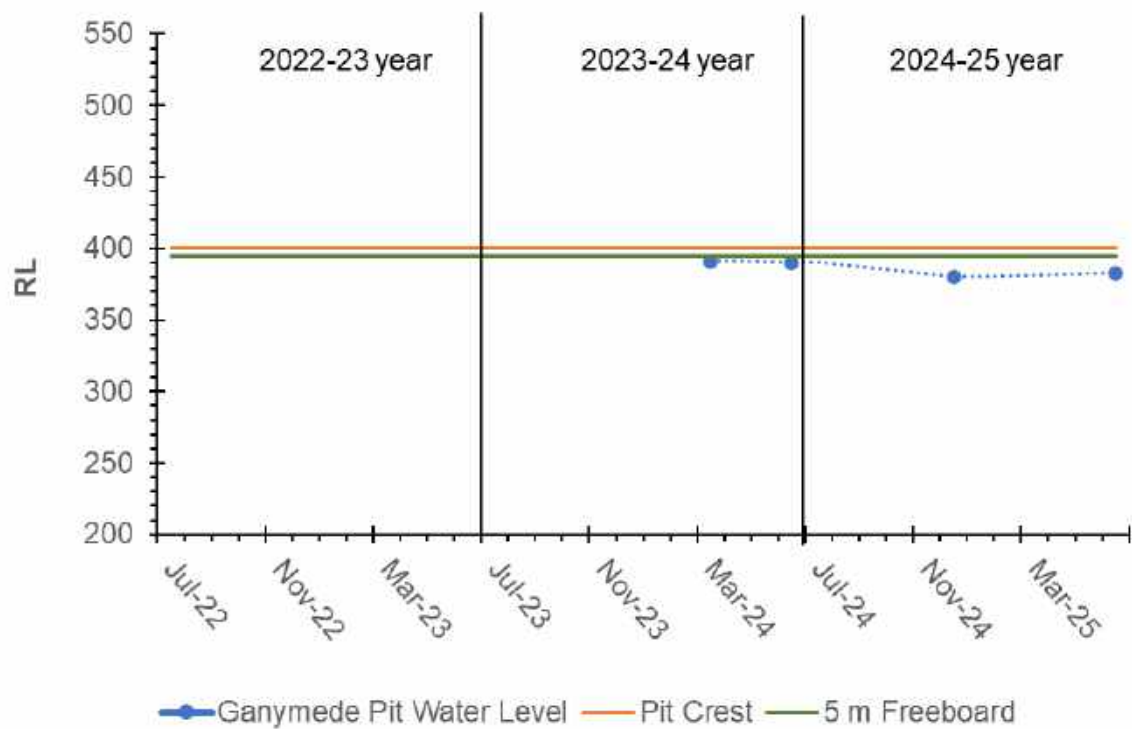
	AB01P
May-22	-
Jun-22	-
Jul-22	-
Aug-22	32.37
Sep-22	32.36
Oct-22	32.66
Nov-22	-
Dec-22	-
Jan-23	32.36
Feb-23	-
Mar-23	-
Apr-23	-
May-23	25.75
Jun-23	25.12
Jul-23	24.92
Aug-23	24.40
Sep-23	24.52
Oct-23	25.22
Nov-23	24.40
Dec-23	23.59
Jan-24	21.87
Feb-24	22.18
Mar-24	23.21
Apr-24	22.76
May-24	22.70
Jun-24	24.62
Jul-24	24.25
Aug-24	23.42
Sep-24	24.24
Oct-24	25.64
Nov-24	26.96
Dec-24	25.87
Jan-25	29.58
Feb-25	-
Mar-25	-
Apr-25	26.69

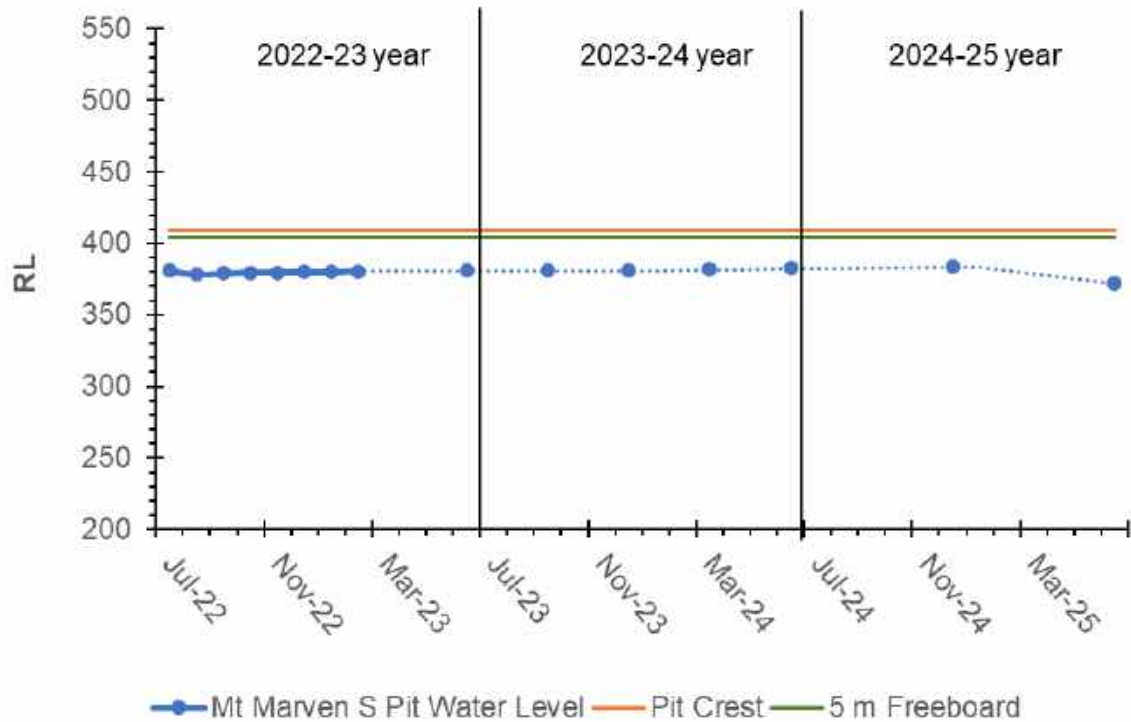
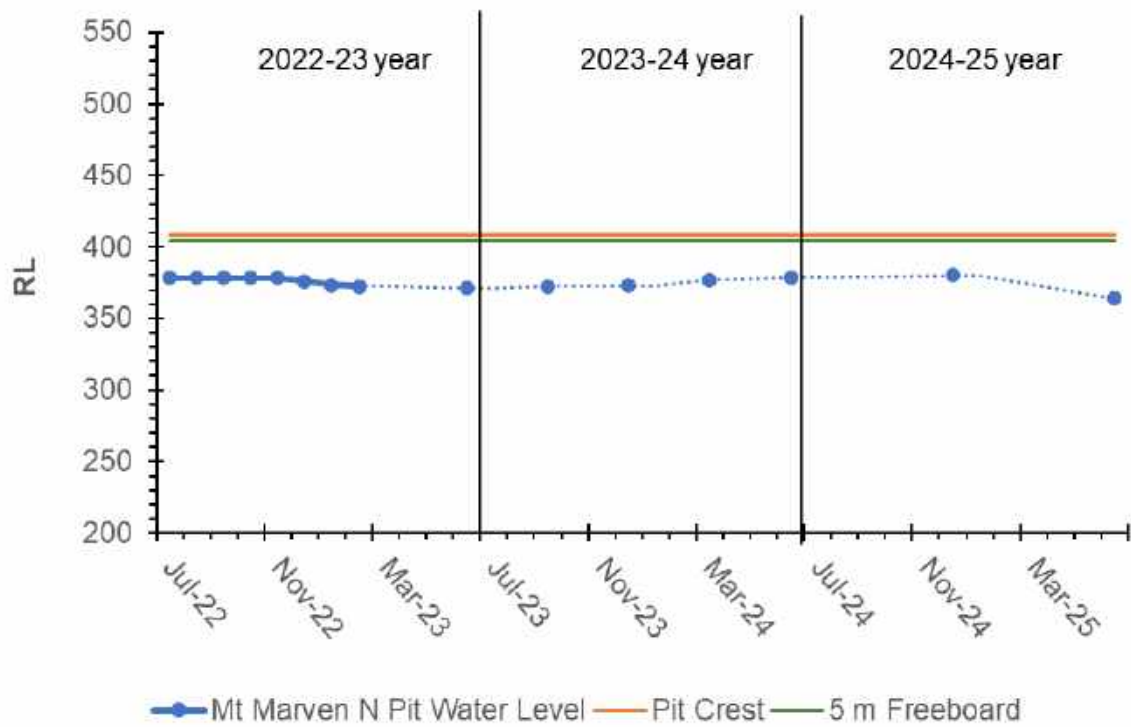
Table C1-2 Monthly SWL readings (mRL) of the pits, for the 2022–25 triennial period

	Heffernan	Double Jay	Ganymede	Mt Marven N	Mt Marven S	Saddle	Craig	King Street	Morgans N	Ramornie	Ramornie N	Recreation	Sarah	Transvaal
Crest	399	400	400	409	409	409	425	439	450	441	436	436	439	424
Jul-22	-	-	-	378.15	380.97	369.64	367.40	399.77	402.66	406.19	417.00	408.92	431.48	318.84
Aug-22	-	-	-	378.18	378.15	369.64	359.35	395.50	403.19	405.60	417.08	408.73	430.85	319.89
Sep-22	-	-	-	378.45	379.15	370.97	360.09	389.23	403.47	405.57	417.75	408.78	429.565	320.39
Oct-22	-	-	-	378.51	379.52	371.48	361.38	370.01	403.58	405.75	416.70	408.69	425.934	320.56
Nov-22	-	-	-	378.53	379.58	371.94	361.55	366.89	403.50	405.79	416.19	408.47	416.845	316.91
Dec-22	-	-	-	376.31	380.12	372.29	361.61	366.14	403.51	405.78	415.40	408.28	413.315	317.29
Jan-23	-	-	-	373.41	380.19	371.60	358.76	367.49	403.51	405.57	414.60	408.05	412.824	311.35
Feb-23	-	-	-	372.61	380.28	367.63	359.47	368.53	403.48	405.40	413.97	407.81	412.793	311.97
Mar-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May-23	-	-	-	-	-	-	359.05	371.35	403.85	405.31	412.80	408.04	412.765	313.96
Jun-23	239.48	268.07	-	371.04	380.77	367.32	360.50	372.93	403.78	404.93	412.07	408.03	412.732	316.86
Jul-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sep-23	242.47	269.95	-	372.30	381.07	381.07	361.04	374.55	403.52	404.73	411.19	407.98	412.423	318.69
Oct-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec-23	244.03	270.77	-	373.02	381.05	381.05	361.23	375.76	402.90	404.10	410.20	407.46	-	319.97
Jan-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar-24	250.72	281.17	391.12	376.81	381.81	381.81	365.58	-	404.50	405.67	419.40	415.66	415.758	325.69
Apr-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun-24	253.83	282.60	390.09	378.73	382.44	382.44	365.72	382.77	404.36	405.86	417.01	415.25	416.278	327.25
Jul-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sep-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec-24	260.52	285.10	380.20	380.04	383.40	383.40	-	-	-	-	-	-	-	-
Jan-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun-25	261.84	281.89	382.76	363.80	372.08	365.45	405.36	385.57	404.69	414.44	414.44	370.21	416.305	331.84

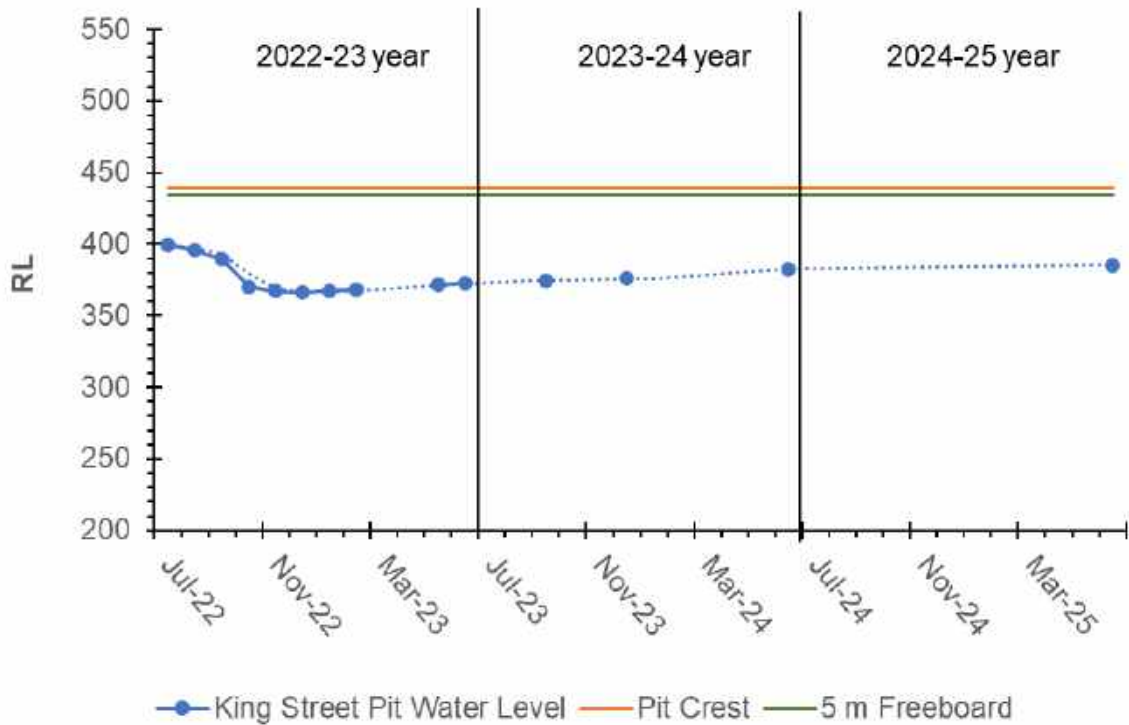
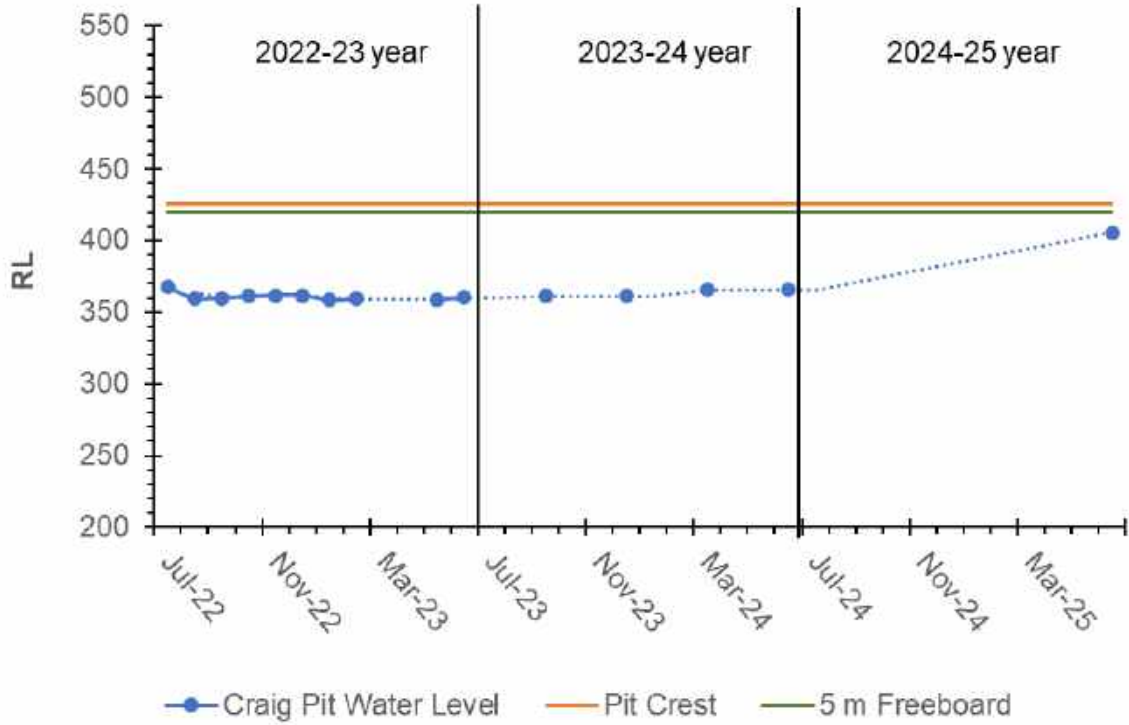
Jupiter Pit Water Levels (mRL)

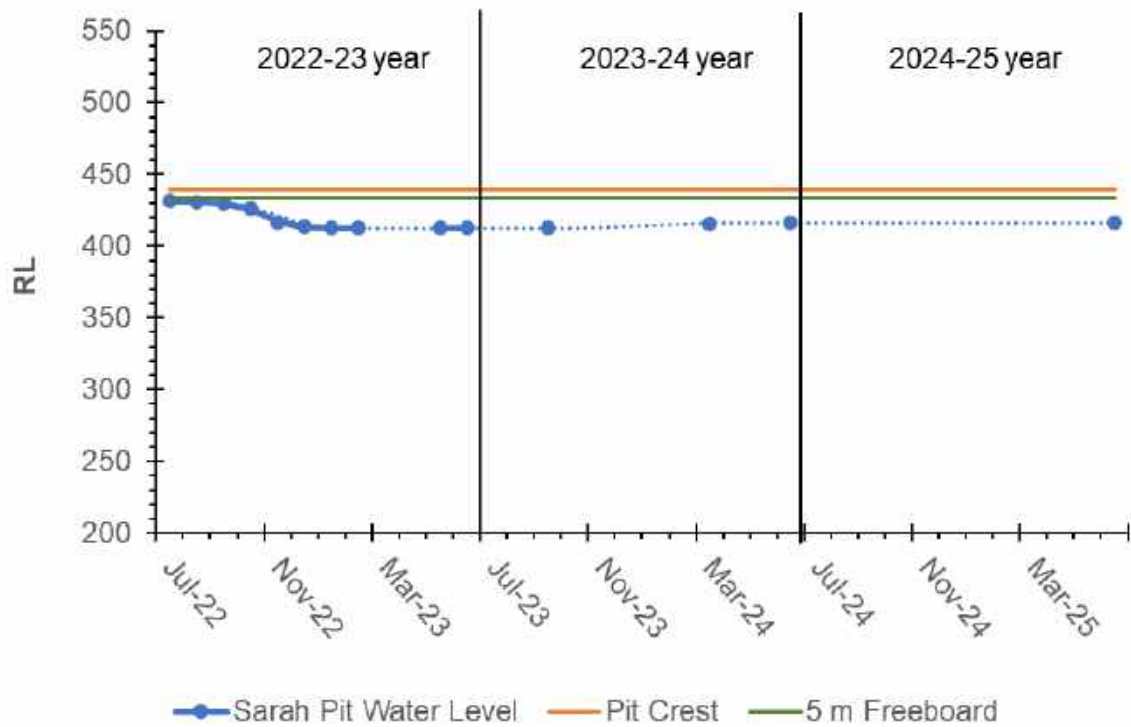
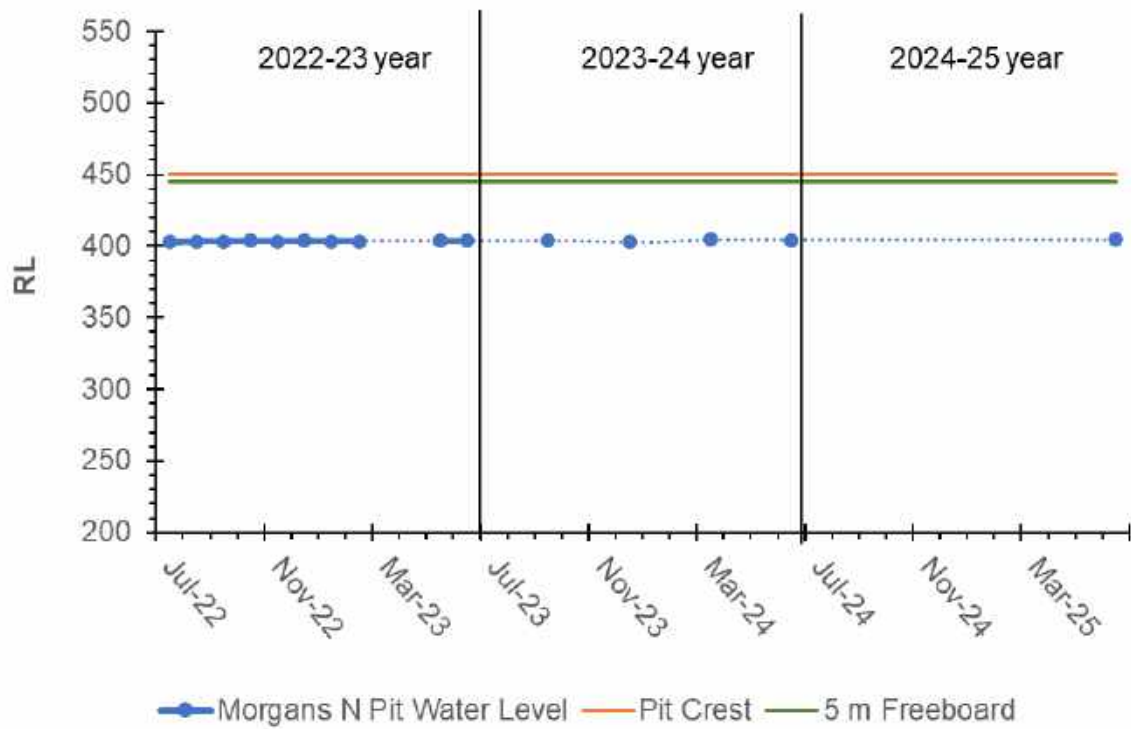


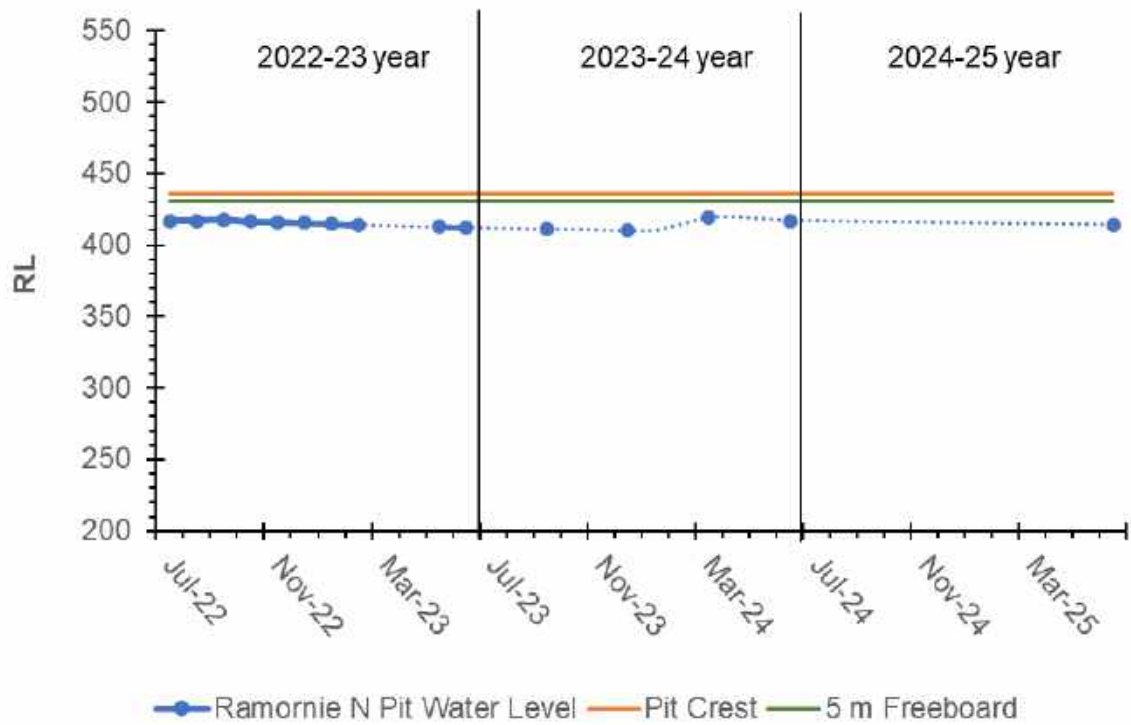
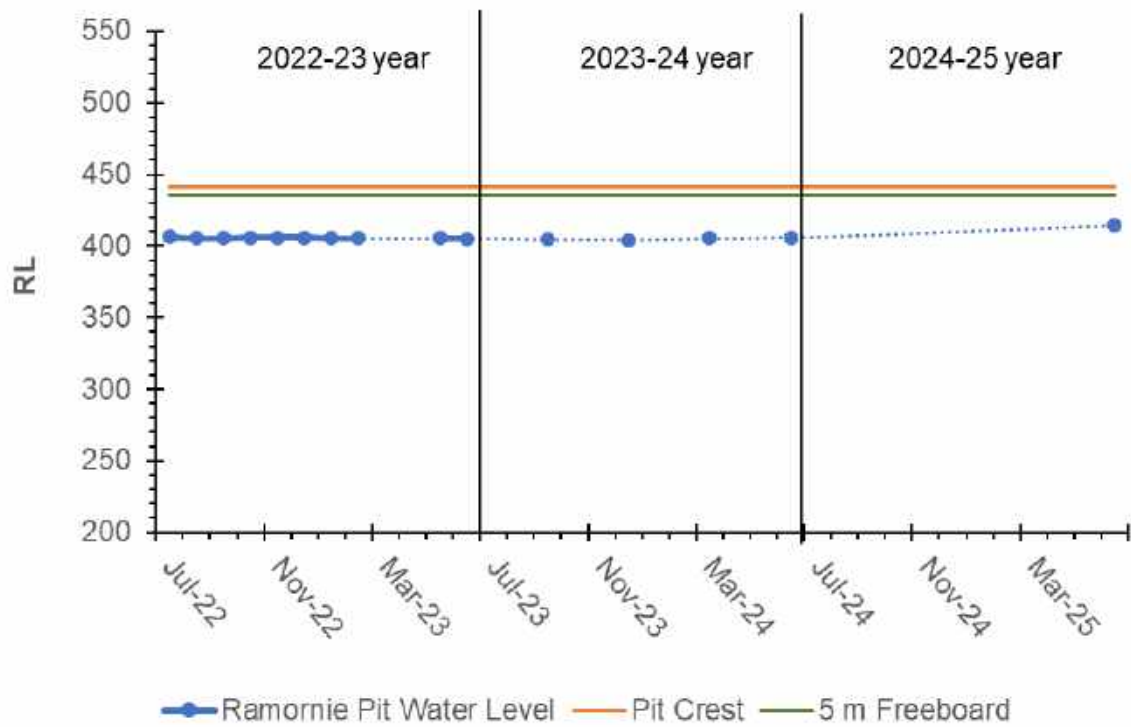


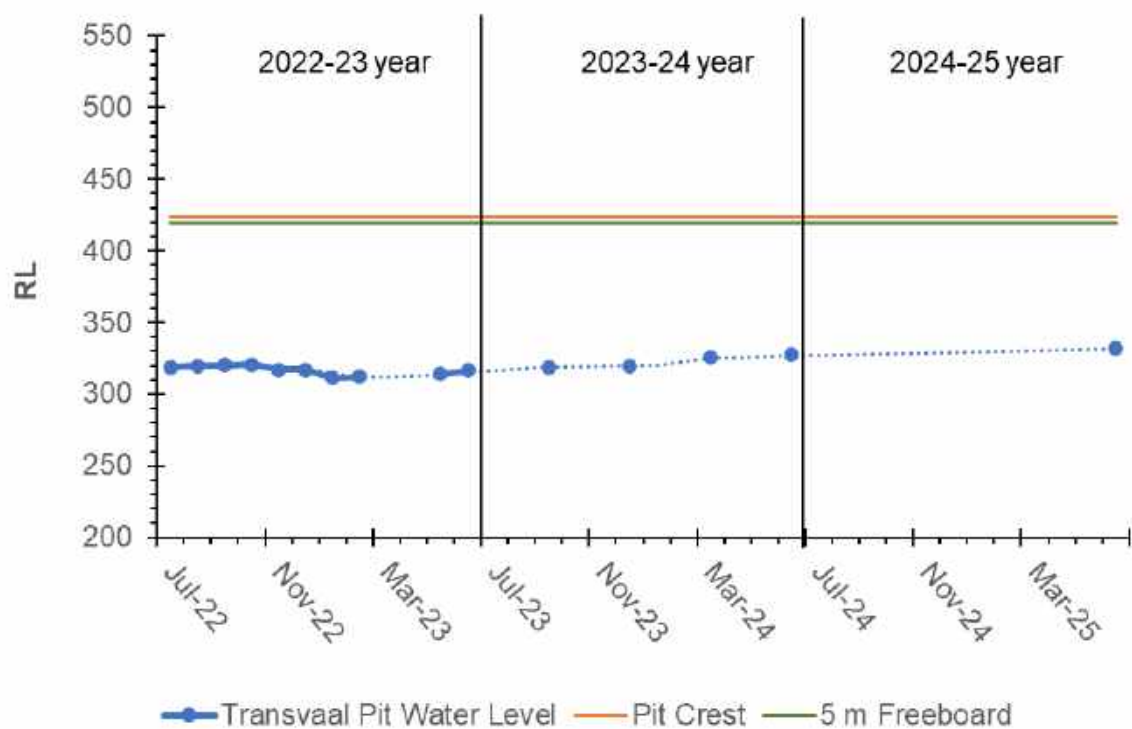
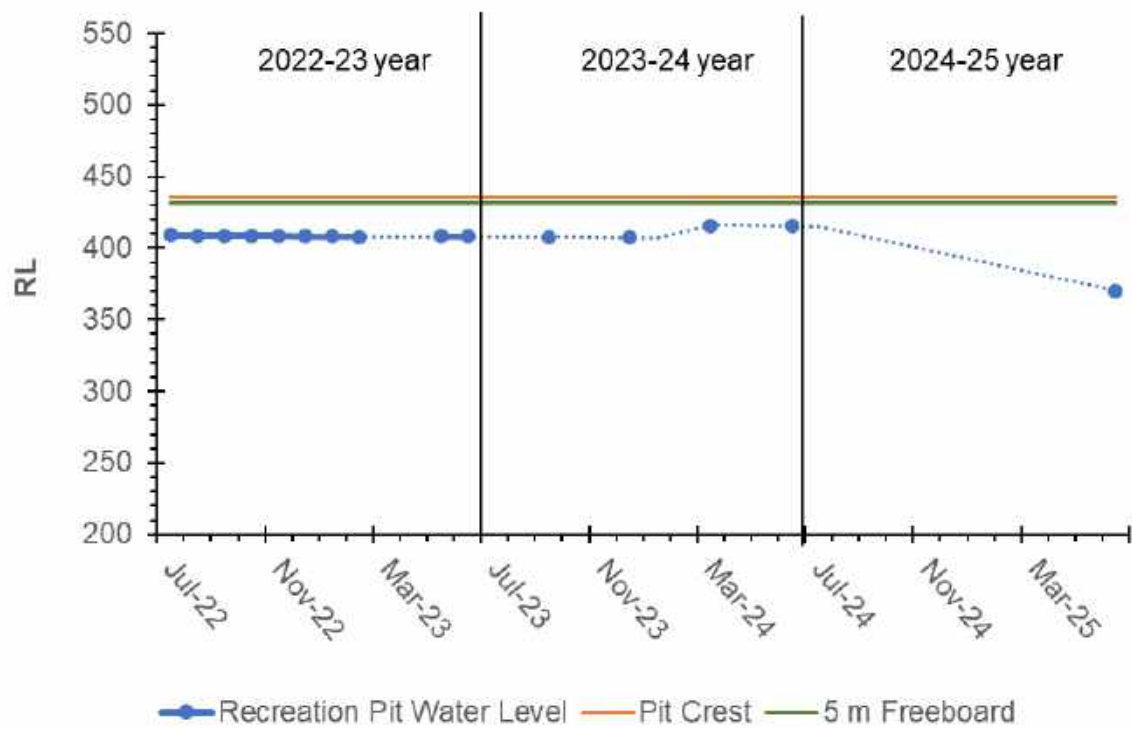


Westralia Pit Water Levels (mRL)









Appendix D

Suite 1 Water Quality Data

Table D1-1 Quarterly EC readings (µS/cm) of all drawpoints (active and passive), for the 2022–25 triennial period

	Heffernan	Double Jay	Ganymede	Mt Marven	Saddle	Craig	King Street	Morgans N	Ramornie	Ramornie N	Recreation	Sarah	Transvaal	AB01P
Jul-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sep-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec-22	-	-	-	-	-	-	-	-	-	-	-	-	-	1,419
Jan-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb-23	-	-	-	-	-	-	-	-	-	-	-	-	-	1,372
Mar-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jul-23	-	-	-	-	-	-	-	9,620	-	-	2,260	-	-	-
Aug-23	-	165,400	-	75,900	-	6,980	11,930	-	-	-	2,480	-	-	-
Sep-23	-	-	-	8,100	-	-	12,070	-	-	-	-	-	-	-
Oct-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec-23	-	-	-	-	-	-	9,910	-	45,800	-	2,530	-	-	1,485
Jan-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar-24	-	-	-	-	-	3,119	7,410	9,490	7,560	1,497	1,333	14,430	3,190	1,525
Apr-24	-	-	-	-	-	-	-	-	-	-	-	17,850	-	-
May-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun-24	-	-	-	-	-	-	-	-	-	-	-	19,500	-	1,212
Jul-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug-24	-	-	-	-	-	-	-	-	-	-	-	16,920	-	-
Sep-24	161,300	79,800	8,800	20,700	-	-	-	-	-	-	1,255	19,360	-	1,289
Oct-24	-	-	-	-	-	-	-	8,260	-	-	1,287	20,600	-	-
Nov-24	-	-	-	-	86,800	-	-	-	-	-	-	-	-	-
Dec-24	-	-	-	-	-	-	-	-	-	3,240	-	25,800	-	1,335
Jan-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar-25	192,800	-	4,840	-	116,500	6,450	7,610	9,420	23,100	-	1,444	19,410	6,020	1,399
Apr-25	-	-	-	-	-	-	-	-	-	-	-	-	-	1,379
May-25	-	-	-	-	-	-	-	-	-	-	-	24,250	-	-
Jun-25	169,000	104,100	5,520	47,100	151,200	5,860	6,550	7,560	-	3,810	943	25,300	5,100	1,256

Table D1-2 Quarterly pH readings of all drawpoints (active and passive), for the 2022–25 triennial period

	Heffernan	Double Jay	Ganymede	Mt Marven	Saddle	Craig	King Street	Morgans N	Ramornie	Ramornie N	Recreation	Sarah	Transvaal	AB01P
Jul-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sep-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec-22	-	-	-	-	-	-	-	-	-	-	-	-	-	7.72
Jan-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb-23	-	-	-	-	-	-	-	-	-	-	-	-	-	7.88
Mar-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jul-23	-	-	-	-	-	-	-	7.80	-	-	7.80	-	-	-
Aug-23	-	6.47	-	7.90	-	8.48	8.60	-	-	-	8.69	-	-	-
Sep-23	-	-	-	7.56	-	-	5.22	-	-	-	-	-	-	-
Oct-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec-23	-	-	-	-	-	-	7.50	-	6.55	-	8.38	-	-	7.40
Jan-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar-24	-	-	-	-	-	8.90	7.33	8.23	7.30	8.05	9.04	7.07	7.89	7.41
Apr-24	-	-	-	-	-	-	-	-	-	-	-	8.03	-	-
May-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun-24	-	-	-	-	-	-	-	-	-	-	-	7.82	-	7.23
Jul-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug-24	-	-	-	-	-	-	-	-	-	-	-	7.96	-	-
Sep-24	7.17	7.57	8.39	8.24	-	-	-	-	-	-	8.75	8.25	-	7.09
Oct-24	-	-	-	-	-	-	-	9.36	-	-	8.24	8.39	-	-
Nov-24	-	-	-	-	7.58	-	-	-	-	-	-	-	-	-
Dec-24	-	-	-	-	-	-	-	-	-	7.76	-	8.01	-	7.66
Jan-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar-25	7.17	-	8.58	-	7.45	7.88	7.53	9.15	7.59	-	8.24	7.63	7.94	7.99
Apr-25	-	-	-	-	-	-	-	-	-	-	-	-	-	8.04
May-25	-	-	-	-	-	-	-	-	-	-	-	8.45	-	-
Jun-25	6.39	7.09	7.97	6.16	6.67	7.57	7.36	7.37	-	7.61	7.35	7.66	7.69	8.10

Appendix E

Suite 2 Full Laboratory

Table E1-1 Annual Suite 2 (Full Laboratory) results for all drawpoints, for the 2022–25 triennial period

Group	Analytes	Units	Double Jay	Heffernan	Ganymede	Mt Marven	Saddle	Craig	King St	Morgans N	Ramornie N	Recreation	Sarah	Transvaal	AB01P	
			Sep-24	Jun-25	Jun-25	Sep-24	Nov-24	Jun-25	Jun-25	Oct-24	Dec-24	Oct-24	Oct-24	Jun-25	Apr-24	Jun-25
Phys-chemical	EC (lab)	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	pH (lab)		7.71	7.61	7.9	8.28	7.76	8.02	8.03	9.34	8	8.3	8.11	8.02	7.9	8.02
	TDS	mg/L	70,600	244,000	3,470	14,700	73,600	5,140	5,850	5,710	1,990	758	14,900	4,370	914	856
	Hardness	mg/L	-	-	-	-	10,000	-	-	-	811	-	-	-	505	538
	Total Alkalinity	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major ions	Bicarbonate	mg/L	-	-	-	-	104.00	-	-	-	82.00	-	-	-	257	259
	Calcium	mg/L	943	-	-	358	1,140	-	-	85	229	47	882	-	90	95
	Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chloride	mg/L	31,600	-	-	6,840	36,500	-	-	3,030	564	344	7,560	-	179	201
	Magnesium	mg/L	1,560	-	-	348	1,740	-	-	376	58	62	484	-	68	73
	Potassium	mg/L	480	-	-	58	240	-	-	16	4	5	54	-	1	2
	Sodium	mg/L	21,600	-	-	4,730	21,500	-	-	1,300	241	138	3,700	-	58	91
	Hydroxide	mg/L	-	-	-	-	<1	-	-	-	<1	-	-	-	<1	<1
Minor ions/metals	Aluminium	mg/L	-	-	-	-	<0.1	-	-	-	<0.01	-	-	-	<0.01	0.01
	Antimony	mg/L	<0.010	-	-	<0.002	<0.010	-	-	<0.001	<0.001	<0.001	0.001	-	<0.001	<0.001
	Arsenic	mg/L	<0.010	-	-	0.051	<0.010	-	-	0.037	0.003	<0.001	0.002	-	0.004	0.004
	Barium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Boron	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Cadmium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chromium	mg/L	<0.010	-	-	<0.002	<0.010	-	-	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	Copper	mg/L	0.017	-	-	0.022	<0.010	-	-	<0.001	0.003	<0.001	0.006	-	<0.001	<0.001
	Iron	mg/L	<0.5	-	-	<0.1	<0.5	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05
	Lead	mg/L	<0.01	-	-	<0.002	<0.01	-	-	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	Lithium	mg/L	-	-	-	-	0.068	-	-	-	0.005	-	-	-	0.006	0.005
	Manganese	mg/L	1,560	-	-	348	1,740	-	-	376	58	62	484	-	68	73
	Mercury	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Molybdenum	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Nickel	mg/L	0.012	-	-	0.038	<0.01	-	-	0.007	0.004	<0.001	0.029	-	0.002	0.001
Selenium	mg/L	<0.1	-	-	<0.02	<0.1	-	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	
Zinc	mg/L	<0.05	-	-	<0.01	<0.05	-	-	<0.005	0.015	<0.005	0.022	-	0.018	0.022	
Organics	Ammonia	mg/L	0.2	-	-	0.05	0.49	-	-	0.02	0.03	0.03	0.4	-	0.12	<0.01
	Nitrate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phosphate	mg/L	-	-	-	-	1.86	-	-	-	<0.1	-	-	-	<0.10	<0.10
	Silica	mg/L	10.69	-	-	38.27	-	-	-	8.08	-	9.24	2.97	-	79.6	80.9

