Annual Review 2021 Tarrawonga Coal Mine

Name of operation	Tarrawonga Coal Mine
Name of operator	Whitehaven Coal Mining Pty Ltd
Development consent/project approval number	PA 11_0047
Name of holder of development consent/project	Tarrawonga Coal Pty Ltd
approval	
Mining lease number	ML 1579, ML 1685, ML 1693, ML1749
Name of holder of mining lease	Tarrawonga Coal Pty Ltd
Water licence number	WAL 31084
Name of holder of water licence	Whitehaven Coal
MOP start date	4/12/2015
MOP end date	01/11/2022
Annual review start date ¹	1/01/2021
Annual review end date	31/12/2021

I, ______Dean Scott, certify that this audit report is a true and accurate record of the compliance status of the Tarrawonga Coal Mine for the period 1st January 2021 until 31st December 2021, and that I am authorised to make this statement on behalf of Tarrawonga Coal Pty Ltd.

Note. a) The Annual Review is an 'environmental audit' for the purposes of section 122B (2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000. b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or \$22,000, or both).

Name of authorised reporting officer	Dean Scott
Title of authorised reporting officer	General Manager – Open Cut
	Operations
Signature of authorised reporting officer	DA
Date	31/03/2022
¹ NSW Annual Review Guideline was released in October 2015	



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1 STATEMENT OF COMPLIANCE

The compliance status of the Tarrawonga Coal Mine (TCM) as at 31st December 2021 is summarised in Table 1-1 and Table 1-2 below.

Table 1-2 notes non-compliances that occurred during the reporting period, and non-compliances from previous reporting periods that still require management action. References to the Environment Protection Licence (EPL) are limited to those that relate to the Project Approval conditions, specifically Schedule 3 Condition 22, 28(c), 33 and 39(c)(ii).

Table 1-1 -Statement of Compliance

Were all conditions of the relevant approval(s) complied with (Yes/No)?			
PA 11_0047	No		
ML 1579	Yes		
ML 1693	Yes		
ML 1685	Yes		
ML 1749	Yes		
WAL 31084	Yes		

Compliance status key for Table 1-2- Non-Compliances

Risk Level	Colour Code	Description		
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence		
Medium	Non–compliant	 Non-compliance with: potential for serious environmental consequences, but is unlikely to occur; or potential for moderate environmental consequences, but is likely to occur 		
Low	Non–compliant	Non-compliance with: • potential for moderate environmental consequences, but is unlikely to occur; or • potential for low environmental consequences, but is likely to occur		
Administrative non- compliance	Non–compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)		



Table 1-2- Non-Compliances

Relevant Approval	Condition Number	Condition Description (summary)	Compliance status	Comment	Where Addressed in Annual Review
PA 11_0047	Schedule 3 conditions 33, 39(ii)	The Proponent shall ensure that all surface water discharges from the site comply with the discharge limits (both volume and quality) set for the project in any EPL.	Non-compliant	On the 23 rd of March 2021, TCM released water from the Licenced Discharge Point 3 after approximately 33.8mm of rain. EPA investigation concluded that TCM had discharged waters that exceeded concentration limits for TSS and pH and potentially other pollutants including metals and bicarbonates.	Section 7.1.2
PA 11_0047	Schedule 3 conditions 33, 39(ii)	The Proponent shall ensure that all surface water discharges from the site comply with the discharge limits (both volume and quality) set for the project in any EPL.	Non-compliant	On the 8 th of December 2021, TCM released water from the Licenced Discharge Point 3 after approximately 37.2mm of rain in the 24hour period previous, but >200mm in the previous month. This was reported to DPIE and the EPA.	Section 7.1.2
PA 11_0047	Schedule 3, condition 22	Unless otherwise authorised by an EPL, the Proponent shall ensure that no offensive odours are emitted from the site, as defined under the POEO Act.	Non-compliant	On the 16 th of December 2021, a blast at TCM generated a '3C' fume that left the premises via the Northern Boundary. The PIRMP was activated and neighbours and authorities notified. As per Section 5.1.3 of TCM's Blast MP a notification to DPIE was submitted through the Major Projects Portal.	Section 6.2.2



2 Introduction

This Annual Review (AR) for Tarrawonga Coal Mine (TCM) has been prepared in accordance with Condition 3 of Mining Lease (ML) 1579, Condition 3 of ML 1685, Condition 4 of ML 1693 (Mining Act 1992) and Condition 4 (Schedule 5) of PA 11_0047, as modified.

TCM is located approximately 16km east of Boggabri (Refer Figure 1). TCM is owned by Tarrawonga Coal Pty Ltd (TCPL) and operated by Whitehaven Coal Mining Pty Ltd (WCMPL). Biodiversity offsets locations are shown in Figure 2 and Figure 3.

The current Mining Operations Plan for TCM was prepared under the new guidelines "ESG3: Mining Operations Plan (MOP) Guidelines". The AR follows the format required by the NSW Government Annual Review Guideline (October 2015). Though primarily covering the period from 1st January 2021 to 31st December 2021 (the reporting period), where relevant the AR provides information on historical aspects of the operations, longer term trends in environmental monitoring results and provides relevant information on activities to be undertaken during the ensuing period, (i.e. from 1st January 2022 to 31st December 2022, or beyond).

2.1 Mine Contacts

The management personnel responsible for operational and environmental performance at the TCM and their relevant contact details are as follows:

- Mr Dean Scott, General Manager-Open Cut Operations:
 - Contact: (02) 6741 9309.
- Mr Craig Sullivan, Operations Manager:
 - Contact: (02) 6741 5030.
- Ms Megan Martin, Environmental Superintendent:
 - Contact: (02) 6741 5009.



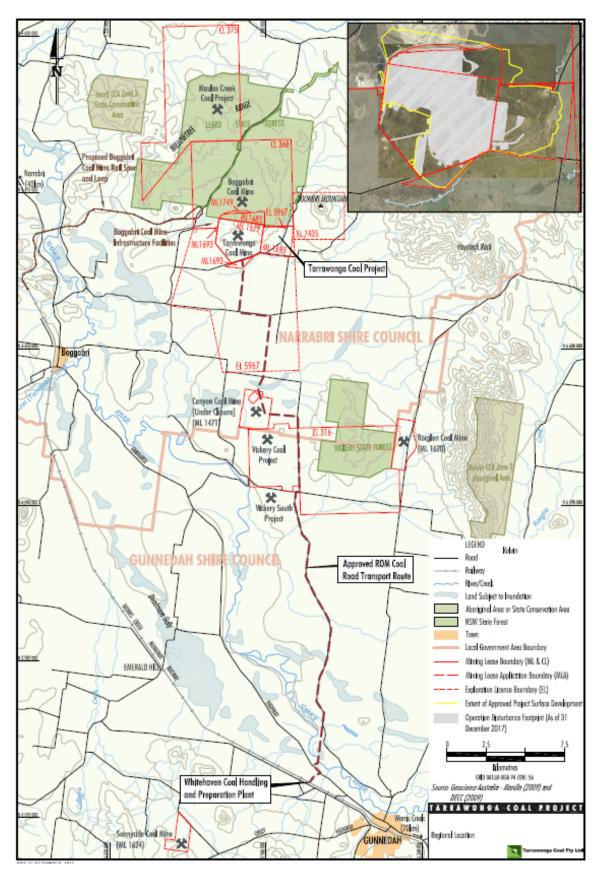


Figure 1- Locality Plan



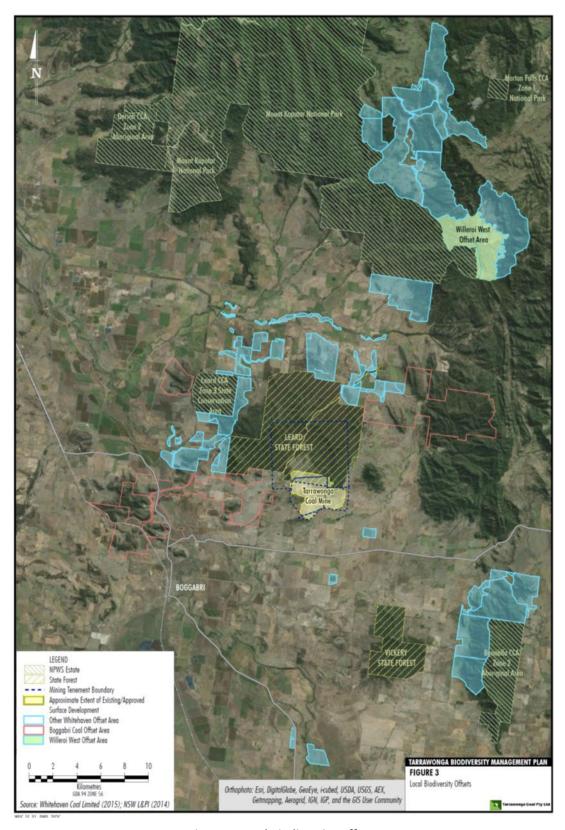


Figure 2: Local Biodiversity Offsets



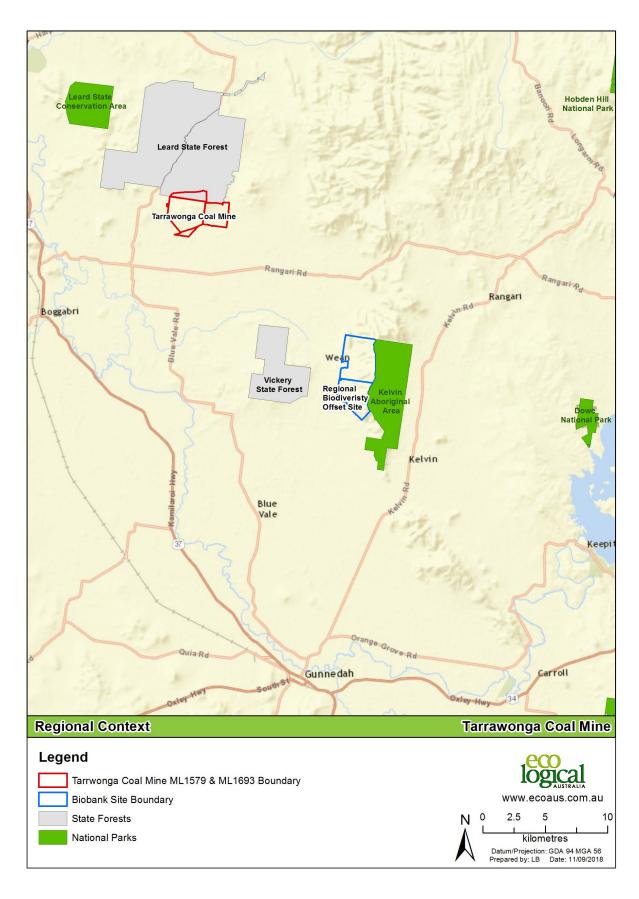


Figure 3- Regional Location of Biobank Site



3 APPROVALS

3.1 Tenements, Licences and Approvals

Table 3-1 Identifies the approvals in place for the TCM at the end of the reporting period, the issuing/responsible Authority, dates of issue, expiry date and relevant comments.

Table 3-1- Tenements, Licences and Approvals

Issuing / Responsible Authority	Type of Lease, Licence, Approval	Date of Issue	Expiry	Comments
Division of Resources and Energy (DRE)	Exploration Licence (EL 5967)	10/01/2017	24/07/2021	Application review submitted in July 2021.
Environment Protection Authority (EPA)	Environment Protection Licence (EPL) No. 12365	09/01/2006	N/A	EPL12365
Environment Protection Authority (EPA)	Variation- Environment Protection Licence (EPL) No. 12365	13/12/2021	N/A	Variation
NSW Department Primary Industry - Water Department of Planning Infrastructure &	90BL253276 90BL253278 90BL253279 90BL253280 90BL254253 90BL254254 90BL254255 90BL254221 90BL254214 90BL255766 WAL31084 WAL29548 Project Approval PA 11_0047	18/05/2006 18/05/2006 18/05/2006 18/05/2006 18/05/2006 18/05/2006 24/04/2007 05/04/2007 04/04/2007 19/08/2012 02/08/2013 26/07/2012	Perpetuity	Monitoring bores 250 units 50 units
Environment (DPIE) Department of Planning Infrastructure & Environment (DPIE)	Project Approval PA 11_0047	2014	31/12/2030	MOD1 (continued coal haulage to Gunnedah CHPP)
Department of Planning Infrastructure & Environment (DPIE)	Project Approval PA 11_0047	2016	31/12/2030	MOD2 (allow receipt of all types of coal reject)



Issuing / Responsible Authority	Type of Lease, Licence, Approval	Date of Issue	Expiry	Comments
Department of Planning Infrastructure & Environment (DPIE)	Project Approval PA 11_0047	February 2017	31/12/2030	MOD3 (Traffic Management Plan)
Department of Planning Infrastructure & Environment (DPIE)	Project Approval PA 11_0047	May 2017	31/12/2030	MOD4 (Sound Power Level modification)
Department of Planning Infrastructure & Environment (DPIE)	Project Approval PA 11_0047	August 2017	31/12/2030	MOD5 (Open Cut Augmentation)
Department of Planning Infrastructure & Environment (DPIE)	Project Approval PA 11_0047	October 2018	31/12/2030	MOD6 (Coal Haulage)
Department of Planning Infrastructure & Environment (DPIE)	Project Approval PA 11_0047	June 2020	31/12/2021	MOD8 (Trucking water) for 18 months
Department of Planning Infrastructure & Environment (DPIE)	Project Approval PA 11_0047	February 2021	31/12/2030	MOD7 (Life of Mine)
Department of Planning Infrastructure & Environment (DPIE))	Project Approval PA 11_0047	May 2021	31/12/2030	MOD9 (Disposal of Waste Tyres)
Department of Agriculture, Water and Environment (DAWE)	EPBC 2011/5923	11/03/2013	31/12/2053	Conditional Federal Project Approval for LOM Project
Department of Regional NSW – Division of Mining, Exploration and Geoscience (DMEG)	Mining Lease (ML) 1579	03/04/2006	02/04/2027	Expires 21 years from commencement
Department of Regional NSW – Division of Mining, Exploration and Geoscience (DMEG)	Mining Lease (ML) 1685	18/07/2013	14/11/2032	
Department of	Mining Lease (ML)	14/10/2013	14/10/2034	Expires 21 years from



Issuing / Responsible	Type of Lease,	Date of	Expiry	Comments
Authority	Licence, Approval	Issue	EXPIT Y	Comments
Regional NSW – Division of Mining, Exploration and Geoscience (DMEG)	1693			commencement
Department of Regional NSW – Division of Mining, Exploration and Geoscience (DMEG)	Mining Lease (ML) 1749	17/11/2017	14/11/2032	
Department of Regional NSW – Division of Mining, Exploration and Geoscience (DMEG)	Mining Operations Plan (MOP) Amendment A	14/11/2016	31/12/2020	MOP Amendment A
Department of Regional NSW – Division of Mining, Exploration and Geoscience (DMEG)	Mining Operations Plan (MOP) Amendment B	30/06/2017	30/12/2020	MOP Amendment B
Department of Regional NSW – Division of Mining, Exploration and Geoscience (DMEG)	Mining Operations Plan (MOP) Amendment C	16/03/2015	30/11/2020	MOP Amendment C
Department of Regional NSW – Division of Mining, Exploration and Geoscience (DMEG)	Mining Operations Plan (MOP) Amendment D	12/04/2019	30/11/2020	MOP Amendment D
Department of Regional NSW – Division of Mining, Exploration and Geoscience (DMEG)	Mining Operations Plan (MOP) Amendment E	7/01/2020	30/11/2020	MOP Amendment E
Department of Regional NSW – Division of Mining, Exploration and Geoscience (DMEG)	Mining Operations Plan (MOP) Amendment F	23/10/2020	01/11/2022	MOP Amendment F
Division of	Mining Operations	13/12/2021	01/11/2022	MOP Amendment G



Issuing / Responsible Authority	Type of Lease, Licence, Approval	Date of Issue	Expiry	Comments
Department of	Plan (MOP)			approved 13/12/2021
Regional NSW –	Amendment G			
Division of Mining,				
Exploration and				
Geoscience				
(DMEG)				



4 OPERATIONS SUMMARY

4.1 Mining Operations

Table 4-1 presents the production summary at the end of the reporting period.

Table 4-1 - Production Summary

Material	Approved Limit (Project Approval PA11_0047)	Previous Reporting Period 2020	This Reporting Period 2021 (actual)	Next Reporting Period 2022 (forecast)
Waste Rock/ Overburden (bcm)	n/a	23,831,308	20,996,248	25,549,564
ROM Coal/Ore (t)	3,500,000	2,507,031	2,189,672	2,260,146
Coarse and Fine Reject (t)	700,000	61,101	497,917	700,000
Saleable Product (t)	n/a	2,302,724	1,714,781	2,251,439
Gravel Production (m³)	90,000	0	0	90,000

4.1.1 Other Operations

PA 11_0047 permits 24-hour operation of mining activities. TCPL has made some minor changes to operating times to accommodate changes in the working roster for improved production and economic stability.

Open cut mining activities, including processing of coal, generally occurred between the hours of 6:30 am and 5:00 pm (day shift) and 4:30 pm and 3:00 am (night shift) from Monday to Friday. Processing of coal on day shift also occurs almost every Saturday whereas mining activity on Saturday day shift has only occurred on an occasional basis to meet production deadlines.

4.1.2 Coal Haulage

For the reporting period **2,024,805** tonnes of coal was hauled along the approved haulage route from TCM to the Whitehaven Gunnedah CHPP. During the same period **93,387** tonnes of coal was distributed from TCM to the domestic market. There was no coal haulage from Vickery or Rocglen Coal Mines during the reporting period. The total tonnage of coal rejects received by TCM during



2020 was **497,917** tonnes. Transport of coal from the site or receipt of coal reject from the Whitehaven CHPP by truck has only occurred during the approved hours of:

- (a) 6 am to 9.15 pm Monday to Friday;
- (b) 7 am to 5.15 pm Saturday; and
- (c) at no time on Sundays or public holidays.

4.1.3 Exploration

Whitehaven Coal geology department undertook exploration drilling during the reporting period. Nineteen (19) exploration boreholes were completed in the reporting period. Sixteen were completed in October and the remaining three in November. These will be reported in the ML1579 Annual Report due in May 2022.

Exploration drilling will continue to be undertaken at the TCM to further assess the coal reserves within the tenements. The term of licence (EL5967) ended on the 24th of July 2021, and a renewal application is currently being assessed by the Department of Regional NSW MEG (Exploration and Mining).

4.2 Next Reporting Period

4.2.1 Mine Operations

The mine production rates are planned for **2,260,146** tonnes per annum of ROM coal and **25,549,564** bank cubic metres (bcm) of overburden during calendar year 2022. TCM may produce gravel up to 90,000m³ over the next calendar year.

Vegetation clearing activities in mining areas over the next reporting period will be conducted in accordance with the approved Biodiversity Management Plan (BMP) and the updated Mining Operations Plan Amendment G (2021). The clearing program will be undertaken during the annual twelve week clearing campaign from the 15th February to the 30th April, except under exceptional circumstances and with the approval of the Secretary of the DPIE.



5 ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

There were no Actions from the previous Annual Review.

6 ENVIRONMENTAL PERFORMANCE

The following sub-sections document the implementation and effectiveness of the various control strategies adopted at TCM, together with monitoring data for the reporting period. Life of mine monitoring data is included as Appendices in this AR, where relevant, to allow for discussion on longer-term trends.

6.1 Noise

6.1.1 Criteria

The Project Approval (PA 11_0047) and EPL 12365 describe the noise criteria for site operations and coal haulage as seen in Table 6-1.

Table 6-1- Noise Compliance

Noise Criteria dB(A)						
Location Day, Evening & Night LAe LAeq (15 min) Night LAe				t LAeq (1 min)		
All other privately-owned residences	35			45		
Road Traffic Noise Criteria dB(A) LAeq (1 hour)						
Location	Day	Ever	ning	Night		
Any residence on privately-owned land	60	6	0	55		

A number of other specific conditions (i.e. acquisition, monitoring protocols and cumulative impacts) are listed in the PA and EPL 12365.

6.1.2 Environmental Management Measures

In accordance with the Noise Management Plan, a number of operational measures continue to be implemented on site to maintain compliance with limits. These include but are not limited to:

- Real-time noise monitor and web based interface;
- Automated SMS alarms notifying site personnel of elevated noise levels approaching noise criteria;
- Modification of operations where required;



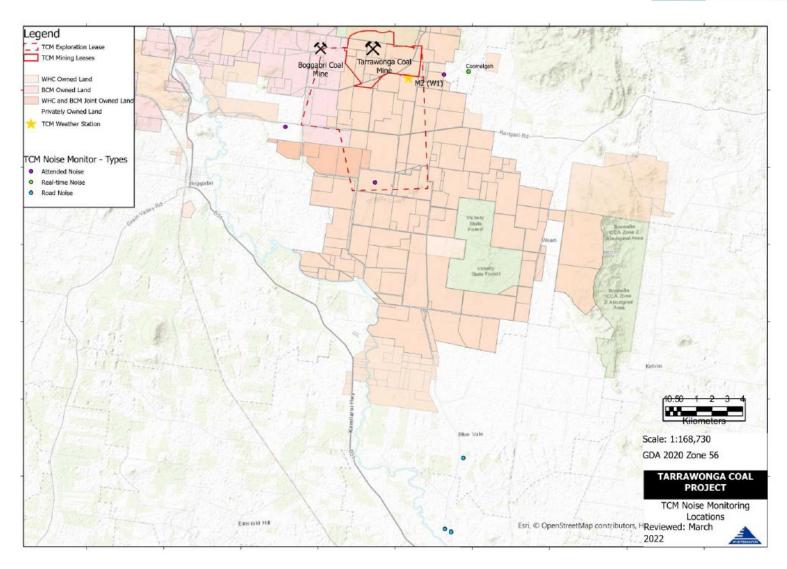


Figure 4 - Noise monitoring locations.



6.1.3 Key Environmental Performance

Attended Noise Monitoring

An independent consultant completed attended noise monitoring programs on a quarterly basis during the reporting period. The noise monitoring sites are identified on Figure 4 and include 3 sites: "Bungalow" (TN4), "Barbers Lagoon" (TN3) and "Matong-Coomalgah" (TN2) properties. Attended noise monitoring results are shown in the table below and show compliance with the criteria specified in the project approval on all occasions during the reporting period.

Table 6-2 Attended Noise Monitoring results comparison

		Limits (day/evening/night/night)		
	2019	2020	2021	
Q1	31/<25/IA/25	<27/<24/<24/35	<21 / <27 / <20/IA	35 / 35 / 35 / 45
Q2	42**/34/29/34	<25/<20/28/29	<18 / <25 / <29/36	
Q3	<35/33/34/42	<25/34/<29/35	<26 / <24 / <21/31	LAeq, 15min/LAeq, 15min/LAeq, 15min/LA1, 1min
Q4	<20/<19<13/50*	30/35/<34/IA	<21 / <24 / <24/42	
		TN3 - Barbers Lago	oon	
	2019	2020	2021	
Q1	26/IA/31/33	32/33/32/NM	<28 / <30 / <30/IA	
Q2	34/33/33/38	35/33/34/35	<35 / <30 / <30/37	
Q3	32/31/33/42	<23/<16/<20/NM	<24 / <20 / <30/34	
Q4	<20/<19/<13/IA	<16/<35/<35/IA	<35 / <35 / <30/IA	
		TN4 - Bungalow	1	
	2019	2020	2021	
Q1	<25/IA/IA/29	34/<34/<30/IA	<40 IA / IA <30 / IA <30 / IA	
Q2	35/29/30/35	<30/<30/32/35	<26 / <30 / <30/29	
Q3	IA/20/IA/IA	<16/<22/27/NM	<21 / <23 / <26/29	
Q4	<20/<42#/<19/IA	<27/<26/<34/NM	<35 / <30 / <30/IA	

Note: Above values are the maximum or only measurements recorded for the indicated period.

Kev:

IA = *Mine noise inaudible*

NM = Not measured due to adverse weather conditions as mentioned in EPL12365

Attended noise monitoring to date indicates that results are generally consistent with previous reporting year's results for all other measurements taken.

^{* =} taken at TN2 monitor, 9dB reduction to nearest private property not added. Reading within compliance levels.

^{**=} taken at TN2 monitor, 9dB reduction to nearest private property not added. Reading within compliance levels however was reported to agencies and discussed in Annual Review 2019.

^{# =} Consultant report stated that 'Further investigation into these measurements determined that the elevated levels were caused by insects'.



Road Noise Monitoring

TCM is required to ensure that the noise generated by road transport along public sections of the coal haulage route was in accordance with the Tarrawonga Noise Management Plan and with Schedule 3 condition 12 of PA 11_0047. A road noise survey was undertaken in June and December 2021. The monitoring occurred at the privately owned residences on the "Weroona" property and "Brooklyn" properties located off Blue Vale Road. Results showed compliance on all occasions, which is consistent with the predictions of the Whitehaven ROM Coal Haulage Modification Environmental Assessment for the southern section of the approval transport route.

Real Time Noise Monitoring

In accordance with the requirements of PA 11_0047 and EPL 12365, TCM continued to undertake real time noise monitoring and managed noise according to the Noise Management Plan during the reporting period.

Annual Sound Power level Testing

In December 2021, sound power level (SPL) testing of all the operating fixed and mobile plant was undertaken. According to MOD 4 (May 2017) of the PA 11_0047, there is no criteria applicable for SPL and levels identified in the Noise and Blasting Environmental Assessment (EA, 2011) are only used for comparison purposes. Each plant item was assessed for different types of activities (i.e. Dynamic and Stationary).

A comparison of SPL levels in Table 6-3 below indicates that the overall average measured values for the reporting period were lower than the assumed and modelled values in the EA (2011), and lower than previous years.



Table 6.3 - Average Sound Power Levels against EA (2011)

Туре	Average Overall -	EA (2011) -		
	2021	2020	2019	Compliance Level
Haul Truck - CAT 785C Dump Truck	117.7	118.0	120.4	121
Haul Truck -HITACHI EH4000-AC2	111.4	108.9	N/A	116
Haul Truck - CAT 789 Dump Truck	112.4	116.0	116.4	121
Water Carts	108.8	107.0	113.7	111
Bulldozers	110.7	114.0	120.8	116
Frontend Loaders	108.0	105.5	107.5	117
Graders	104.5	104.0	107.3	108
Drills	116.7	117.7	117.3	117
Excavators	109	109.5	118.0	115
Crushing Plant	110	111.0	112.0	113

Note: N/A = Plant was not yet used on site.



Acoustic model annual validation

An independent consultant was engaged to assess and validate the noise model prediction developed in 2011 against the monitoring results for 2021.

The results show that winds towards some locations occur more often in some periods (i.e. day or night time) than others, according to the location. Inversion conditions (stability classes E, F and G) do not appear to cause more elevated results.

The attended monitoring has only been able to obtain limited numerical data on the mine noise contribution at most of the nearest privately owned receptor locations. This arises largely as the private receptors closer to the mine have been acquired since the time of the EIS, hence the existing sensitive receivers are now a significant distance away from the mine, where there is little mine noise.

The results indicate that it is rare for even a trained technician in the field, assisted by a specialised noise analyser to be able to measure any mine noise contribution at the more distant locations (i.e. Bungalow and Barber's Lagoon). It is noted that for Coomalgah, the monitoring is conducted much closer to the mine than the receptor (hence it is possible to measure the mine noise more often), and these measurements are then extrapolated back to the commensurate mine noise levels at the receptor location; a key reason that makes it possible to obtain more data for this location relative to the other sites.

The assessment indicates that the measured mine noise levels comply with criteria and generally align well with the predicted levels, or are below the predicted levels.

6.1.4 Proposed Improvements to Environmental Management

During the reporting period, TCM commissioned new plant items that were tested for sound power levels before use and fitted with noise suppressant technology as required.

A revised Noise Management Plan (NMP) was approved by the Department in May 2021. TCM will review the NMP as required.



6.2 Blasting

6.2.1 Criteria

Blasting criteria for the TCM are noted in PA 11_0047, and Condition L5 of EPL 12365.

- Blasting must only be carried out between 9.00 am and 5.00 pm, Monday to Saturday inclusive. Blasting is not allowed on Sundays, public holidays or at any other time without the written approval of the Director-General.
- A maximum of one (1) blast per day, unless an additional blast is required following a blast misfire and a maximum of 4 blasts per week averaged over a calendar year for the project:
- For non-project related residences, the overpressure level from blasting operations must not:
 - Exceed 115dB (Lin Peak) for more than 5% of the total number of blasts over a period of 12 months; or
 - Exceed 120dB (Lin Peak) at any time.
- For non-project related residences, ground vibration peak particle velocity from the blasting operations must not:
 - Exceed 5mm/s for more than 5% of the total number of blasts over a period of 12 months; and
 - Exceed 10mm/s at any time, at any residence on privately owned land.

6.2.2 Key Environmental Performance

During the reporting period, 60 blasts were initiated. There were no instances where two or more blasts were required to be fired on one day due to safety reasons.

One overpressure was recorded above 115dB on project-related property "Tarrawonga" during the reporting period which is equivalent to 2 in 70 (~2.9%) above the 115dB limit over a 12 month period, noting that criteria only applies to privately owned properties.

The maximum ground vibration recorded during the reporting period was 1.4mm/s recorded at "Coomalgah" on 17th of September 2021 which is below the consent criterion of 5mm/s. Two elevated results recorded at the project related property "Tarrawonga" on the 25th of May and 30th of August 2021, were 132.2dB and 116.3dB respectively. As noted above, overpressure criteria does not apply at the project related premises 'Tarrawonga'.

Performance during the reporting period was consistent with the EA prediction for blasting.

The maximum fume rating for the reporting period was classified as a '3C' per the Australian Explosives Industry And Safety Group Inc. – Code of Practice: Prevention and Management of Blast



Generated NOx Gases in Surface Blasting. One instance of a blast fume leaving the premises boundary was recorded in the reporting period. Further details of the non-compliance and operation response is included in section 11. As per Section 5.1.3 of TCM's Blast Management Plan a notification to DPIE was submitted through the Major Projects Portal.

6.2.3 Proposed Improvements to Environmental Management

A revised Blast Management Plan (BMP) was submitted to DPIE in May 2021 for approval, following approval of MOD 9.

TCM is currently updating the BMP and PIRMP as a result of the event on the 16th of December 2021 and activation of the PIRMP. This will be submitted to DPIE in March 2022.



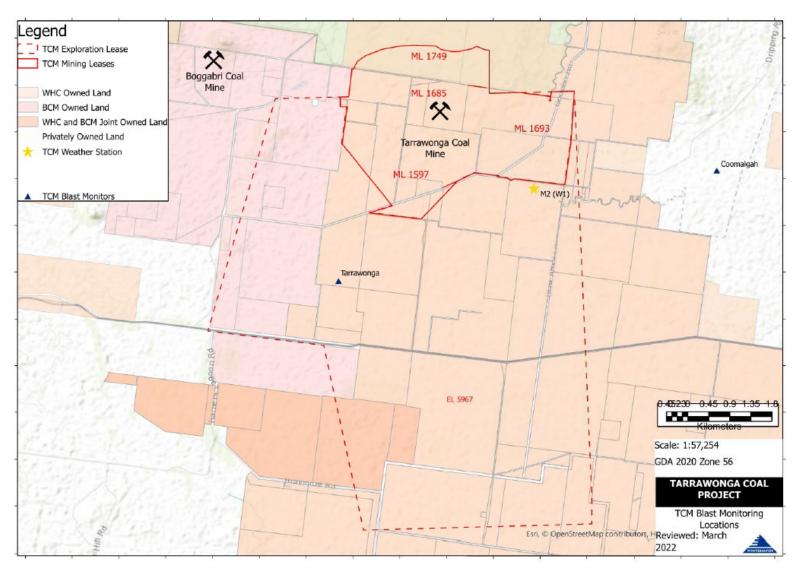


Figure 5: Blast Monitoring Locations



6.3 Air Quality

6.3.1 Criteria

The air quality criteria applicable to the TCM are specified in PA 11_0047 Schedule 3. Air quality criteria is summarised below:

- Acceptable mean annual increase in deposited dust 2g/m2/month.
- Mean annual dust deposition (all sources) 4g/m2/month.
- Mean annual Total Suspended Particles (TSP) (all sources) 90 μg/m3.
- Mean annual Particle Matter under 10 microns (PM10) 30 μg/m3.
- 24-hour average PM10 particulate level 50 μg/m3.

6.3.2 Environmental Management Measures

TCM employs a range of air pollution control measures specified in the Air Quality and Greenhouse Gas Management Plan (AQGGMP), including:

- Maintaining a real time SMS alarming system to key operational personnel;
- Using a prediction and dust forecasting system;
- Modification of work practices where required including changing of excavation and dumping strategies;
- Temporary cessation of operational equipment if required;
- Limiting ground cover removal in advance of mining consistent with operational requirements;
- Application of water to exposed surfaces, with emphasis on those areas subject to frequent vehicle/equipment movements which may cause dust generation and dispersal;
- Use of dust suppressant product on the roads;
- Water injection on drilling rigs;
- Use of aggregates for blast hole stemming;
- Water application at the crusher and on the conveyor discharge point to the coal bin;
- Cessation of coal processing activities during periods of concurrent high winds and temperatures which cause coal dust dispersal, independent of water applications.
- ROM coal pad watering;
- Progressive shaping and rehabilitation of areas once they are no longer required for mining purposes;
- Speed limit restrictions on all vehicles and equipment on the mine site;



- Use of covers on the trays of all product coal trucks. All coal haulage vehicles (road trucks only), including those operated by sub-contractors, are fitted with roll-over tarpaulins.
- TCM continues to liaise with Boggabri Coal Mine (BCM) and Maules Creek Coal Mine (MCCM) during periods of elevated air quality events to manage cumulative impacts.

Figure 6 displays the air quality monitoring locations including the deposited dust gauges (DDG), two Tapered Element Oscillating Micro balance units (TEOM) installed on project related properties (Flixton and Wil-gai), 3 mobile real-time dust samplers (E-samplers) installed near the mine boundary and one High Volume Air Sampler (HVAS) on privately owned property (Coomalgah) operating and serviced during the reporting period.



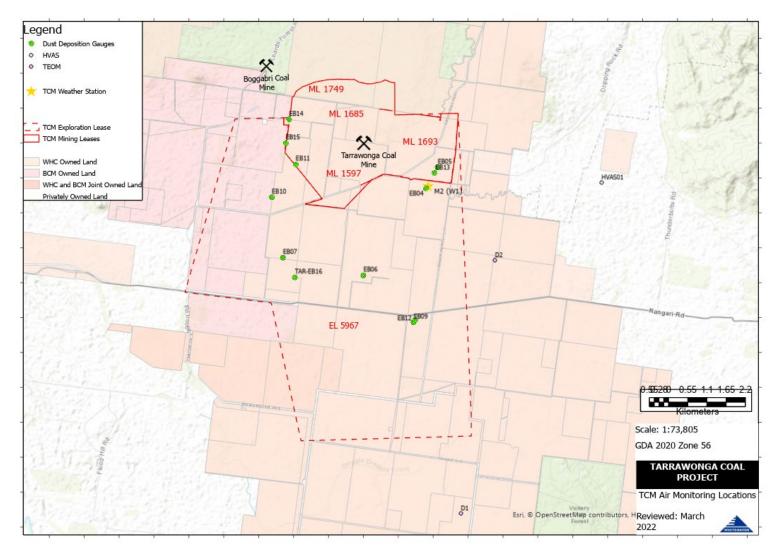


Figure 6: Air quality monitoring locations



6.3.3 Key Environmental Performance

Dust Deposition Gauges:

Table 6-3 details the monthly dust deposition levels measured at 10 dust deposition gauges (DDG). Monitoring criteria in Sch 3 Cn 24 of PA11_0047 is not applicable at these locations because they are situated on project related land. Despite the relative wet year, some dust gauges recorded sporadic elevated results at (EB-4), (EB-5) and (EB-10) located near Goonbri Road and Dripping Rock Road (dirt road). DDG field sheets often noted contamination (debris, bird droppings and dead fauna) and it was concluded in all cases that elevated results were likely related to localised contamination.

The annual average limit was exceeded at four monitoring locations but as discussed above, this was often due to localised contamination and these outliers are indicated in the table below.



Table 6-3 -Deposited Dust monitoring data summary 2021 [g/month/m²]

MONTH	TEMPLEMORE (EB-4)¹	BOLLOL CREEK STN (EB-5)¹	AMBARDO (EB-6)¹	TARRAWONGA (EB-7)¹	PINE GROVE (EB-9)¹	TARRAWONGA MINE (EB-10)¹	TARRAWONGA MINE (EB-11)¹	TARRAWONGA MINE (EB-14)¹	TARRAWONGA MINE (EB-15)¹	JERALONG NORTH (EB-16) ²
Jan 21	6.7#	4.6#	1.1	3.2	1.3	-	3.1	8.4	6.5	4.4
Feb 21	2.4	8.1	2.8	1.4	1.1	3.6	5.9	4.4	1.8	1
Mar 21	0.8	2.2	4.8	1.5	1.2	5.4	5.9	11.1#	0.7	5.8#
Apr 21	12.6 #	5#	1.6	0.3	0.6	19.1#	3.7	0.5	0.7	3
May 21	10.5 #	6.5#	0.5	0.7	1.00	14.5#	4.5	4	2.1	3.4
Jun 21	2.2	4.2	0.3	0.2	0.4	3.3	1.9	3.2	0.4	4.9#
Jul 21	12.9 #	12.5#	0.2	0.3	0.2	6.6#	2.3	3.2#	0.5	2.8
Aug 21	1.9	37.5#	0.8	0.9	1.8	47.7#	2.4	4.2	1.4	4.9
Sep 21	5.9	2.8	0.4	0.4	0.4	68.1#	1.7	3.1#	0.6	0.4
Oct 21	2.9	4.6	2.9	1.2	1.9	19.6#	3.1	7	2	2.3
Nov 21	3.1#	9.7#	7.2#	2.2	1	12.5#	2.7	3.6	1.5	3.7#
Dec 21	10.8 #	8.9#	1.3	1	0.8	13.3#	0.6	3.9	6.8#	3.2
2021 Average	6.1	8.9	2.0	1.1	1.0	19.4	3.2	4.7	2.1	3.3

[#] Results contaminated by deposits deemed unrelated to mining activities (bird droppings, insects and vegetation).



High Volume Air Sampler (HVAS)

TCM has one HVAS which is located at the privately-owned property "Coomalgah". All the results recorded at the HVAS are summarised in Appendix 2.

Including the PM10 elevated level below, the PM10 annual average at Coomalgah was 9.6 $\mu g/m^3$, which is below the 30 $\mu g/m^3$ criterion specified in Schedule 3 condition 24.

PM₁₀ measurements have been summarised in Table 6-4, and Figure 7 shows the trend from 2018 to December 2021 (excluding the values measured during days of "adverse weather").

Table 6-4 - HVAS PM10 24 hour average elevated results [μg/m³]

Date Sampled	24hr average level (μg/m³)	24hr average Limit (μg/m³)	24hr average Regional Air Quality Index (RAQI) value	Comments
17/12/2021	77.6	50	Noted on the field sheet that 'wheat harvesting occurring on the property and increased volume of trucks in the area'. E-Sampler PM10 monitoring station between the mine operations area and the HVAS recorded no exceedances. Air specialist consultant confirmed that this level was not minerelated, and attributed only 5% of this result to TCM operations. This was reported to DPE and is included in annual average.	17/12/2021

N=North; S=South; E=East; W=West

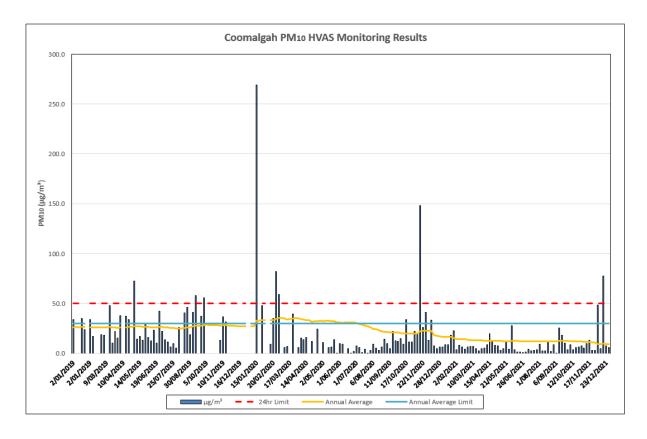


Figure 7- HVAS-PM10 24hr average monitoring data (2019-2021)



Total Suspended Particulate (TSP) is calculated from the measured PM $_{10}$ data using monitoring conducted at the 'Coomalgah' HVAS. Results indicated the TSP rolling annual average remained below the applicable criteria of 90 μ g/m for the reporting period. These are illustrated in Figure 8.

The EA predicted no exceedance of the annual average TSP criterion. TSP results inferred from PM₁₀ data were consistent with the EA for the reporting period.

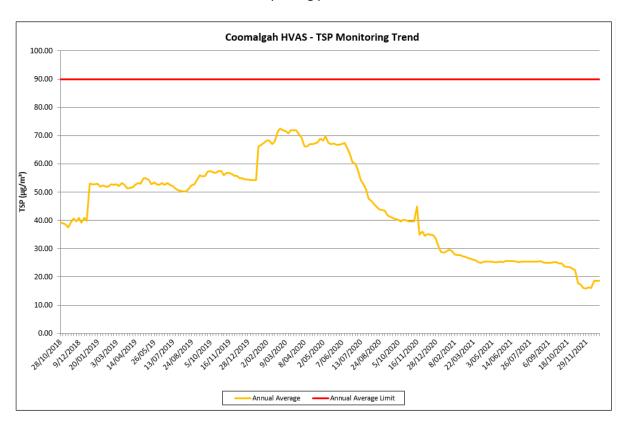


Figure 8 – Coomalgah HVAS- calculated TSP Monitoring Trend (2018- 2021)

E-samplers

Three (3) E-samplers are installed on mine owned land (no criterion applies) and monitor continuously and real-time PM10 levels. The monitors are used as a management tool to facilitate the day to day mine operations and for investigation purposes.

TEOMs

Throughout the reporting period, the TEOM located on a mine owned property 'Flixton' monitored continuously and real-time PM10 levels. The monitor is used as a management tool to facilitate the day to day mine operations and therefore there is no criterion applicable at that location.



Results recorded at the PM2.5 monitor on the project related property 'Wil-gai' remained generally consistent with those recorded during previous reporting periods for most of the year. The Air Quality Greenhouse Gas Management Plan (AQGGMP) states that whilst no criteria applies TCM will compare results against PM2.5 annual average target levels (no levels stipulated within the project approval) of $8.0 \, \mu g/m^3$ and $25 \mu g/m^3$ for 24hr average. Including all the PM2.5 24hr average values measured during the reporting period, the annual average calculated is $2.44 \mu g/m^3$.

An air specialist assessed TCM performance against the Key Performance Indicators (KPI's) listed in Table 6-5 of *Tarrawonga Coal Mine – Particulate Matter Control Best Practice Pollution Reduction Program (PRP)*. The assessment of KPI-1 , KPI-2 and KPI-4 has shown that:

KPI – 1 (PM10/ROM (kilograms/tonne))

For 2021, calculated PM10 was 468,717kg/year and ROM was 2,189,672t/year giving a PM_{10}/ROM ratio of 0.2 (kg/t) which is consistent with the baseline ratio of 0.2 specified in the PRP.

• KPI – 2 (PM10 Emission Control (%)):

The level of control applied to operations has not changed since the PRP. As the level of dust control applied to activities at TCM has not changed from previous years the KPI-2 value would also be unchanged.

Mining Activity	Current Control Factor	Control Factor with additional best practicable controls.	К2у
Hauling on unsealed roads	75	80	94%
Unloading Coal to hopper	30	79	38%
Wind Erosion and Maintenance - Stockpiles	25	62.5	40%

Table 6-5 - KPI - 2 Summary of PM10 control factor (TAS, 2021)

• <u>KPI – 4</u> (Water Intensity for Hauling (L/VKT)):

Whilst total kilometres are not precisely measured there has generally been a significant increase in total water applied to haul roads between 2020 and 2022. Since April 2018 a dust suppressant has been used on the haul roads in periods of low rainfall in order to assist with water management on site. As 2021 was an extremely wet year, the use of dust suppressant and watercarts dropped accordingly and this can affect the utility of this KPI as it now stands.



6.3.4 Proposed Improvements to Environmental Management

The predictive air dispersion model system will continue to be implemented in accordance with the BTM Air Quality Management Strategy. The Air Quality and Greenhouse Gas Management plan will be reviewed, updated and submitted as necessary.

6.4 Biodiversity and Offsets

TCMs approved Biodiversity Offset Strategy includes the Willeroi West BOA for maintaining and improving 1,660ha of native woodland and forest adjacent to the south-eastern boundary of Mount Kaputar National Park.

6.4.1 Weather Summary of Willeroi Offset Property

Regionally central meteorological station to the BOAs is the Gunnedah Pool site (BOM 2021) which has recorded highly variable rainfall over the last 3 years; from driest in 140 years of 237mm in 2019, followed by above average rainfall years in 2020 and 2021 of 833mm and 990mm respectively resulting in major flooding of the Namoi River in November and December 2021. TCM maintains a meteorological station for the BOA with a summary of weather conditions experienced at the Willeroi Offset property during the 2021 reporting period being annual average daily temperature ranges were 2°C to 34°C in 2022. The total annual rainfall in 2021 was 686mm with the maximum in November (132mm) and minimum in April (13mm).

6.4.2 Infrastructure Management

During the reporting period, maintenance of signage and gates was undertaken as required to continue to restrict unauthorised access and minimise livestock incursion. Any remaining derelict assets/infrastructure items will continue to be assessed, removed and remediated as required prior to transfer of Willeroi Offset property to National Park Estate.

6.4.3 Seed Management

The routine seed assessments on the Willeroi West West BOA aims to identify on a seasonal basis the life cycle stage and development of native plants to identify what, where, when and how to target appropriate resources to collect seed for future revegetation programs. A total of 3 species were collected resulting in 891 grams of local provident seed from across the Willeroi West BOA.



6.4.4 Flora and Fauna Monitoring Program

During the reporting period, the ecological monitoring program of the Willeroi West BOA included winter bird surveys that were undertaken in August 2021 and flora monitoring of 26 sites across 4 vegetation zones (VZs) undertaken during September and October 2021 plus annual fauna monitoring at 22 bird survey sites and 12 diurnal herpetofauna survey sites undertaken from September 2021. During the winter bird surveys, six threatened species (Dusky Woodswallow, Brown Treecreeper, Diamond Firetail, Hooded Robin, Little Lorikeet and Turquoise Parrot) were recorded.

During flora monitoring, 1 VZ (North-west Slopes Dry Sclerophyll Woodlands - Good condition) was recorded as meeting or exceeding completion criteria for all 4 biometrics. Native plant species richness (NPS) completion criteria (native species richness benchmark for relevant biometric vegetation communities) was met or exceeded at all 4 VZs. Native overstorey cover (NOS) completion criteria (minimum overstorey cover benchmark for relevant biometric vegetation communities) was met or exceeded at 1 out of 4 VZs. Native midstorey cover (NMS) completion criteria (minimum midstorey cover benchmark for relevant biometric vegetation communities) was met or exceeded at all 4 VZs. Native ground cover grass (NGCG) completion criteria (minimum groundcover benchmark for relevant biometric vegetation communities) was met or exceeded at all 4 VZs. Comparison of individual plot data shows that NPS decreased from 100% of sites last year to 92% of sites meeting or exceeding the completion criteria in 2021. Native overstorey cover (NOS) increased from 13% of sites last year to 23% of sites meeting or exceeding the completion criteria in 2021. Native midstorey cover (NMS) decreased from 100% of sites last year to 92% of sites meeting or exceeding the completion criteria in 2021. Native ground cover grass (NGCG) decreased from 100% of sites last year to 92% of sites meeting or exceeding the completion criteria in 2021. Spring bird surveys recorded 81 bird species with site level richness ranging from 7 to 31. By habitat, the bird richness across 12 woodland sites was 59 (average 20.27; range 13 to 26), 38 species were detected at revegetation/rehabilitation sites (average = 13.42; range 7 to 20), and 50 species were recorded at naturally regenerating sites (average 17.3; range 9 to 31). In 2020, 105 bird species were detected while in 2019, 58 bird species were detected.

Fourteen reptile species were detected during diurnal herpetofauna surveys of 12 sites. Site species richness ranged between 0 and 5. By habitat, 9 species were detected in woodland (average 2.75 range 0 to 5), 7 species were detected in naturally regenerating sites (average 2, range 0 - 4) and one species was detected in revegetated sites (average 0.25, range 0 to 1).



6.4.5 Habitat Management and Ecological Thinning

The WHC Offsets Ecological Thinning Stage 1 Assessment (AMBS, 2020) concluded that there was no evidence of direct impacts from Callitris (Cypress Pine) regrowth to native plant species richness (composition) or density (structure) within remnant Box Gum Woodland vegetation communities and did not establish a relationship between those variables and Callitris density (i.e. basal area). The WHC Offsets Ecological Thinning Stage 2 Assessment (AMBS, 2022) undertook desktop remote sensing to spatially analyse where potentially dense Callitris occurs in Box Gum Woodland across Willeroi West BOA and undertook targeted ground truthing field surveys to validate and quantify against Ecological Thinning criteria. Stage 2 Assessment concluded that no areas on Willeroi West BOA supported inappropriate Callitris regrowth therefore finding that Ecological Thinning management could not be justified at this point in time on Willeroi West Offset properties (AMBS, 2022).

During the reporting period, habitat augmentation was undertaken with 38 nest boxes targeted for Small Gliders, Greater Gliders, Microbats, Turquoise Parrots, Brown Treecreepers and Pale-headed Snakes installed on the Willeroi Offset Property during reporting period.

6.4.6 Feral Animal Management

WHC undertook routine pest animal monitoring across the Willeroi West BOA in February, May, September, and November 2021. The adoption of a "monitor, measure and manage" approach to feral animal management will allow WHC to implement adaptive management in response to changes being measured through monitoring in feral animal abundance specific to the different geographical regions of the Willeroi West BOA. Feral animal monitoring utilises the relevant methodologies for specific feral animals generally in accordance with the NSW DPI Monitoring Techniques for Vertebrate Pests so that a range of methods can be used such as transects/spotlighting and cameras traps where practicable and relevant to specific offset areas/properties. Monitoring demonstrated that certain animals like Eastern Grey Kangaroos can be high, Feral Pigs can be high in abundance seasonally with all other feral animal species recorded as scarce to low abundance levels across 2021. The feral animal monitoring ensures that timely and prioritised feral animal control is undertaken on a seasonal basis identifying what, where, when and how to target appropriate resources across the Willeroi West BOA for feral animal management.

During the reporting period, WHC implemented a comprehensive feral animal control program across the Willeroi West BOA with routine 1080 baiting and pig trapping programs undertaken in



March (26 Foxes and 1 Feral Dog were removed from 120 baits presented and 5 Feral Pigs trapped), June and July (19 Foxes removed from 90 baits presented, 15 Feral Pigs were trapped), September (17 Foxes removed from 90 baits presented and 5 Feral Pig trapped) and December 2021 (12 Foxes removed from 30 baits presented and 2 Feral Pigs trapped). A total of 330 baits were presented on WCCM BOA with 22% taken by feral animals. Night time open range shooting programs were implemented in conjunction with the other routine programs resulting in an additional 8 Hares and 6 Feral Pigs were controlled in 2021. There were 19 Goats harvested at the Willeroi West BOA during the reporting period with saleable Goats on sold to an abattoir. Only appropriately qualified and experienced feral animal contractors (appropriate feral animal management qualifications, NSW fire arm licence and pesticide accreditation where relevant) were engaged to undertake feral animal control works for WHC.

6.4.7 Revegetation Management

The BMP revegetation strategy focuses on restoration and revegetation of cleared non-native grassland (former cultivation) and derived native grasslands and assisting natural regeneration in better quality woodland areas. The revegetation program was successfully completed for the Willeroi West BOA in the 2019 reporting period with good survival achieved to date. There was no additional revegetation works undertaken on the Willeroi West BOA during this reporting period.

WHC coordinated routine formal weed monitoring/inspections undertaken across Willeroi West BOA in February, May, September and December 2021. The priority weeds identified included legacy weeds inherited from previous owner's management regimes such as Green Cestrum, St John's Wort, Sweet Briar and Common Prickly Pear as well as a range of broadleaf weeds within revegetation areas. The weed monitoring/inspections ensure that timely and prioritised weed control is undertaken on a seasonal basis with the spatial information directly given to spraying contractors to identify what, where, when and how to target appropriate resources across the Willeroi West BOA for weed control.

During the reporting period, WHC implemented a weed control program of the Willeroi West BOA including 1,283ha treated between January and December 2021 targeting primarily Fleabane, Sweet Briar, Box Thorn, St John's Wort, Coolati Grass, Prickly Pear and Broadleaf weed species as required. Only appropriately qualified and experienced weed contractors (AQF3 accreditation or higher for use of herbicide) were engaged to undertake weed control works for WHC.



6.4.8 Audits and Reviews

There was no Independent Biodiversity Audit or Leard Forest Regional Biodiversity Strategy Review during the reporting period. Next Independent Biodiversity Audit is due by the end of June 2023.

6.4.9 Clearing

6.4.9.1 Flora

During the pre-clearing survey, a qualified ecologist tagged a total of 227 habitat features (hollow bearing trees, large woody debris or nests) within the overall area to be cleared (approximately 31.4Ha). The ecologist was present during clearing activities in accordance with the Biodiversity Management Plan (BMP).

6.4.9.2 Fauna

One threatened fauna species was observed during the time of pre-clearing survey. Ecologists observed a Speckled Warbler (*Pyrrholaemus sagittatus*), listed as vulnerable under the Biodiversity Conservation Act 2016. They also located two microbat roost trees and one White-winged Chough (*Corcorax melanorhamphos*) nest was located and visually demarcated.

Over the duration of the clearance supervision 2021, a total of 27 arboreal lizards (19 geckos and 8 skinks) were captured from habitat trees immediately after felling, and these were relocated to nearby suitable habitat outside the study area. Of the 19 geckos, ten were identified as Rhobust Velvet gecko (*Nebulifera robusta*), six were identified as Southern Spiny-tailed Geckos (*Strophurus intermedius*) (Figure 9) and the remaining three were identified as *Gehyra* sp.. Five skinks were identified as Boulenger's Snake Eyed Skinks (*Morethia boulengeri*), and the remaining three as Treecrevice Skinks (*Egernia striolata*). One tree crevice skink and five Boulenger's Snake-Eyed Skinks were observed in the felling but were unable to be captured and relocated, so were left on site. One Barking Gecko (*Underwoodisaurus milii*) was also observed but unable to be captured, and left on site.

Three Yellow-bellied Sheathtail bats (*Saccolaimus* flaviventris) were observed departing habitat trees during felling and were seen flying towards the Leard State Forest. These are listed as 'vulnerable' under the *Biodiversity Conservation Act 2016*. One Lesser Long-eared Bat (*Nyctophilus geoffroyi*), three Inland Freetail Bats (*Ozimops petersi*), and one Gould's Wattled Bat (*Chalinolobus goudlii*) were captured during clearing, released at dusk and were tracked with temporary mounted radio trackers for several nights. This was part of TCMs microbat radio tracking program and displayed



successful movement and normal behaviour of microbat species directly after clearing of their previous roost.



Figure 9 – Photo: Southern Spiny-tailed Gecko (*Strophurus intermedius*) successfully relocated during clearing activities. (EcoLogical 2021)



Four tree frogs were also captured and relocated during felling and successfully relocated to neighbouring forest. Three were Peron's Tree frog (*Litoria peronii*) (Figure 10) and one was a Desert Tree frog (Litoria rubella).



Figure 10 – Photo: Peron's Tree frog (*Litoria peronii*) successfully relocated during clearing activities. (EcoLogical 2021)

6.4.10 Grazing Management

During the reporting period, the Willeroi BOA was not stocked and subsequently grazing was excluded. There was no reported stock incursion within the reporting period.

Grazing activity continued to occur at several mine owned properties near the mine site including Tarrawonga, Templemore and Bollol Creek properties.

6.4.11 Soil & Erosion Management

Annual inspections were undertaken including unsealed fire break tracks and associated drainage structures across the Willeroi West BOA to review appropriate erosion and sediment control measures required in accordance with the Blue Book (Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004)). Despite the above average rainfall during the reporting period; no targeted additional maintenance was identified as required to mitigate further erosion



and sedimentation. The remaining sites and tracks/drainage structures are maintained during routine WHC Biodiversity fire break track maintenance program.

6.4.12 Key Environmental Performance

On 24th June 2021; TCM successfully registered a Conservation Agreement on the land titles for the Willeroi West Offset property as required of the Biodiversity Offset Strategy. The Conservation Agreement was secured under Part 5 Division 3 of the Biodiversity Conservation Act 2016 and thus completing the in perpetuity legal mechanism required by the Commonwealth EPBC Act Approval 2011/5923 Condition 10 and NSW Project Approval 11_0047 Schedule 3 Condition 46. WHC will reengage with NPWS whom have previously shown interest in the Willeroi West Offset property being transferred to National Park Estate.

6.4.13 Proposed Improvements to Environmental Management

The TCM BMP was approved in December 2020 and it will be reviewed as necessary.

6.5 Aboriginal Heritage Management

6.5.1 Environmental Management Measures

During the reporting period, annual heritage inspections were completed on the 18 known Aboriginal archaeological heritage sites within the Willeroi West BOA. Each site is maintained with demarcation fencing around the heritage site perimeter and signage to mitigate access and disturbance with a total 1.8km of demarcation fencing around these heritage sites across the Willeroi West BOA.

A Cultural Heritage Assessment was completed in September 2011 as part of the Tarrawonga Coal Project EA. A total of 57 sites (21 open artefacts, 11 scarred trees and 21 isolated artefacts) were located during the surveys of the Project Area. An additional requirement of PA 11_0047 includes the development of an Aboriginal Cultural Heritage Strategy (ACHS) in conjunction with the Boggabri Coal Mine and Maules Creek Project. This Strategy was approved by DPIE in 2017.

To date, the measures in place to protect Aboriginal cultural heritage are considered satisfactory, with all measures identified in the EA, Project Approval and Heritage Management Plan (HMP) in place.

During 2021, TCM installed approximately 20 perimeter fences and conducted maintenance on those that were identified in the fencing audit in.

In accordance with the HMP, a qualified archaeologist and RAP representatives conducted a fence audit of all previously identified Aboriginal cultural heritage sites. It was concluded in the 2021 audit



that some of these newly updated/installed fences already require maintenance due to damage by wildlife or livestock. It should be noted that due to widespread flooding, site access issues and Covid-19 impacts, the 2021 fencing audit occurred in the early weeks of 2022. The 2022 fence audit will be conducted at the close of the calendar year as scheduled.

Of the 106 sites listed on the Heritage NSW Aboriginal Heritage information and Management System, many of which have been salvaged or reassessed as 'Not a Site'. This includes nine scar trees within the Mining Lease.

During pre-vegetation clearing inspection 2021, the RAP and archaeologist identified one Aboriginal cultural heritage object within the clearance areas and salvaged these for storage on site. This site was updated on the Aboriginal Heritage Information Management System (AHIMS) to 'destroyed'.

6.5.2 Key Environmental Performance

In accordance with the current HMP, a registered archaeologist and RAPs inspected archaeological site fences and salvaged any remaining artefacts located in close proximity of the pit or in areas that were cleared in 2021.

The HMP was reviewed during the reporting period, due to the approval of MOD7.

6.5.3 Proposed Improvements to Environmental Management

No specific management procedures are required.

6.6 Bushfire Management

6.6.1 Environmental Management Measures

During the reporting period, no bushfires occurred and no ecological burns were undertaken. on Willeroi BOA .TCM conducted mowing and slashing along roads and tracks to keep grass low and minimize the risk of fire. This program will be maintained as the grass continues to grow.

6.6.2 Key Environmental Performance

No instances occurred where TCM was required to assist to the RFS team or any other landholder or body. TCM installed a water tank connected to a groundwater bore in a property adjacent the mine to assist fire fighter in case of an emergency. In 2020, local RFS teams were invited to site to discuss Emergency Response Plan and familiarise with TCM firefighting capabilities and protocols.



6.6.3 Proposed Improvements to Environmental Management

TCM will continue to engage with the local RFS and with the community via CCC meetings and their members. TCM will continue to conduct mowing and slashing activities along access roads and tracks to keep grass to acceptable levels.

6.7 Meteorological Data

Meteorological monitoring is conducted onsite in accordance with Schedule 3 Condition 30 of the PA 11_0047. Table 6-6 summarises the monthly meteorological conditions at TCM for the 2021 reporting period.

The total annual rainfall for the reporting period was 1070mm; which it was over a hundred mm recorder for 2020 (931.1mm) and almost double the long term mean annual rainfall (583.4mm) for these area. The maximum monthly rainfall was recorded during November with 239.6 mm.

A minimum temperature of -5.2°C was recorded in July and a maximum temperature of 36.1°C in December.

In 2021, prevailing winds were predominately between the South (S), South East (SE) and South-South Easterly (S-SE) direction for the whole of the year.



Table 6-6: Templemore weather station monitoring data 2021

Month	2m Temperature (°C)			10m T	emperatu	re (°C)	Average Wind	Prevailing	Monthly
Worth	Min	Mean	Max	Min	Mean	Max	Speed (m/s)	Wind Direction	Rainfall (mm)
January	7.2	22.4	35.9	11.1	24	35.6	2.5	SE 145°	58.4
February	10.3	22.1	34.3	13.8	23.6	34.7	2.9	SE 141°	117.8
March	8.8	19.5	32.2	11.9	21.3	31.9	2.5	SSE 154°	141.2
April	-1.7	13.6	27.8	1.9	16.4	28.1	2	SE 141°	22.2
May	-3.2	10.3	25.4	0.1	13	25.2	1.7	SE 144°	67
June	-3.6	8.7	20.4	0.5	10.9	20.7	2.3	S 173°	105
July	-5.2	8.2	23.3	-2	10.4	23.2	2.3	S 181°	73.8
August	-3.2	10.1	25.4	0.5	12.5	26.2	2.2	SSE 169°	41.8
September	-3	13.1	29.4	1.1	15.5	29.7	2.6	SSE 161°	56.2
October	0.7	16.0	32.5	4	18.2	32.8	2.6	S 170°	50.8
November	3.8	18.6	31	8.5	20.2	30.4	3	SSE 162°	239.6
December	8.8	21.7	36.1	11.3	23.2	35.8	4.3	SE 149°	96.6
Total		-						1070.2	

Regionally central meteorological station to the BOAs is the Gunnedah Pool site (BOM 2021) which has recorded highly variable rainfall over the last 3 years; from driest in 140 years of 237mm in 2019, followed by above average rainfall years in 2020 and 2021 of 833mm and 990mm respectively resulting in major flooding of the Namoi River in November and December 2021. TCM maintains a meteorological station for the BOA with a summary of weather conditions experienced at the Willeroi Offset property during the 2021 reporting period being annual temperature ranges were 2°C to 34°C in 2022. The total annual rainfall in 2022 was 686mm with the maximum in November (132mm) and minimum in April (13mm).



6.8 Waste

6.8.1 Environmental Management

During 2021, TCM engaged a contractor (Namoi Waste Corporation) that is responsible for the collection and management of the entire waste streams generated at the mine.

During the reporting period, waste removed from site for disposal or recycling are summarised in

Table 6-7 – Waste Management Summary

Table 6-7- Waste management summary

Waste Stream	Container size	2021	2020	2019	2018#	Unit of Measure
General Waste	3m³	290,485	326,490	306,530	269,694	Kg
Tyres*	n/a	53	43	61	54	each
Batteries**	As listed	12 pallets	2,037 kg	21 pallets	57 pallets	Kg/ each
Waste Oil	IBC	244,200	312,200	273,800	231,000	L
Oil Filters	3m³	8,170	12,285	28,165	8,835	Kg
Hydraulic Hoses	3m³	2,535	460	1,685	885	Kg
Coolant	IBC	7,500	0	0	8,000	L
Grease	N/A	140	-	-	-	L
RimTreat	IBC	6000	-	-	-	L
Scrap Metal***	15m³	65,500	54,000	68,000	70,500	Kg
Cardboard	10m³	5,985	9,390	11,535	9,825	Kg
Timber	15m³	7,000	28,110	33,480	33,000	Kg
Septic Waste	Pumped out	73,300	127,500	90,300	55,500	L
Paper/Plastic/ Aluminium Can	240Lts	0	115	320	351	Kg



*Heavy machine Tyres were reused onsite for traffic management, or are in a storage area pending disposal; **Battery Type N200, N150 & N70 donation to Westpac helicopter; ***Major clean-up of the yard; n/a not applicable or data not available; #to be able to assess performance over the years, TCM has extrapolated using values provided by the Waste contractor from August to December 2018. ## coolant is stored onsite in a 10kL tank that is emptied by the waste contractor before it reaches 100% capacity

TCM added some waste items from the workshop waste stream, such as Grease and RimTreat (a liquid used to prevent corrosion on rims). These have been added to the table above and are recycled via Namoi Waste Corp.

In August 2021, TCM disposed of 187 tyres that had been historically stockpiled on site. TCM disposed of these in pit in accordance with EPL 12365. The numbers indicated from 2021 through to 2018 in Table 6-7 above are stockpiled numbers that have now been disposed of in pit.

6.8.2 Key Environmental Performance

During the reporting period no incidents relating to waste management occurred.

6.8.3 Proposed Improvements to Environmental Management

Tarrawonga aims to reduce waste via a number of initiatives including recycling (oils, greases, scrap steel and domestic recyclables) and increasing tyre life through education and training of machine operators.

During the reporting period, TCM kept all Paper/Plastic/ Aluminium Cans on site, and will research a recycling program that will suit site operations in the next reporting period.



6.9 Environmental Performance Summary

An environmental performance summary for TCM is presented in Table 6-8- Environmental Performance:

Table 6-8- Environmental Performance

Aspect	Approval Criteria or EIS/EA Prediction	Performance during the reporting period	Trend / Key Management Implications	Implemented / proposed management actions
Noise	Refer s6.1	Approval criteria met.	Nil	Nil
Blast	Refer s6.2	Blast fume emitted from TCM. DPIE and EPA notified as per TCM Blast Management Plan requirements.	Nil	TCM's notified DPIE regarding one (1) instance of blast fume being emitted from the premises. TCM is undergoing a review of the Blast Management Plan and associated procedures as an outcome of internal investigation.
Air Quality	Refer s6.3	Approval criteria not met.	Nil	TCM's notified DPIE regarding one (1) PM10 24 hour average exceeding the 50µg/m³ limit at the 'Coomalgah' property. This high result was investigated and was concluded to be non-mining related but it was included in the annual average calculation of the Annual Review 2021.
Biodiversity	Refer s6.4	Approval criteria met.	Nil	Nil
Heritage	Refer s6.5;s6.6	Approval criteria met.	Nil	Nil
Spontaneous Combustion	Refer s6.7	Approval criteria met.	Nil	Nil
Bushfire Management	Refer s6.8	Approval criteria met.	Nil	Nil
Waste Management	Refer s6.10	Approval criteria met	Nil	Nil



Aspect	Approval Criteria or EIS/EA Prediction	Performance during the reporting period	Trend / Key Management Implications	Implemented / proposed management actions
Water management	Refer s7	Approval Criteria not met.	TCMs EPL 12365 now stipulates that a Mandatory Environmental Audit must now be undertaken in response to water management on site.	TCM notified relevant agencies including DPIE regarding two instances where approval criteria was not met following uncontrolled water releases (at SD28). TCM reviewed dams' design and completed construction in the rehabilitation area that reports to this catchment.



7 WATER MANAGEMENT

The mine lies within the catchment of the Namoi River. Locally and within proximity of the project site, Goonbri Creek, Bollol Creek and Nagero Creek all provide flows to the Namoi River during runoff events. The design of sediment basins within the disturbed area of the mine aims to limit the opportunity of discharge of runoff from mine-disturbed area, i.e. after appropriate detention time to satisfy licensed discharge criteria.

Detailed Surface Water and Groundwater monitoring results are provided in Appendix 2 and Appendix 3 respectively.

7.1 Surface Water Performance and Management

Sediment basins, storage dams and associated banks and drains have been designed by an engineering consultant in accordance with the Managing Urban Stormwater: Soils and Construction Vol 2E Mines and Quarries (DECC, 2008) in conjunction with the references to Volume 1 (Landcom, 2004). Water within the Project Approval area is nominally classified either as "clean", "dirty", "contaminated" or "pit water" depending on the source of the flow and it's potential for physical or chemical contamination. The definition of these classifications follows:-

- "Clean Water" comprises water that has not come in contact with mine disturbance and does not have potential to contain hydrocarbons.
- "Dirty Water" comprises water that has come into contact with mine disturbance and does not have potential to contain hydrocarbons.
- "Pit Water" comprises water contained within the open cut sump or pumped to the void water dam for containment and use for dust suppression across the site.
- "Contaminated Water" comprises runoff water, which could potentially contain hydrocarbons.

There are five wet weather discharge points nominated in the current EPL12365 (relevant to PA11_0047 Schedule 3 Conditions 33 and 39). These are SD9 (LDP2), SD28 (LDP3), SD17 (LDP1), SB23B (LDP26) and SB24B (LDP27).

During the reporting period, there were two instances of uncontrolled discharge of waters to the environment. March and December 2021 were particularly wet months where TCM experienced a heavy rainfall events, resulting in uncontrolled water releases on the following dates:

- 23rd March 2021
- 8th December 2021

More information on these events are provided in **Section 7.1.2** below.



7.1.1 Surface Water Monitoring

TCM has a requirement to undertake surface water monitoring on a quarterly basis in addition to the monitoring of any wet weather discharge event. Historical data is available in Appendix 2. Surface water monitoring locations are shown in Figure 11.

Whilst there are no criteria or concentration limits specified for the quarterly surface water samples, the results do provide an indication as to the quality of water on-site. The assessment of sediment load, salinity, pH, oil and grease and other monitoring parameters during these quarterly water monitoring events was consistent with previous reporting years and summarised in Table 7-1.

Table 7-1 - Surface water quarterly monitoring 2021

Date	Sample Location	рН	EC (µS/cm)	Total Suspended Solids (mg/L)	Total Organic Carbon (mg/L)	Grease & Oil (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)
12/02/2021	VOID	8.5	2040	42	<1	<5	0.03	0.008	0.06	<0.01
12/02/2021	SD17	8.15	342	322	5	<5	0.001	0.003	0.002	<0.01
12/02/2021	SD16A	8.41	430	4600	3	<5	<0.001	0.01	0.002	<0.01
17/05/2021	SD17	7.88	236	212	-	<5	-	0.005	0.001	<0.01
18/05/2021	SD27	7.96	256	257	-	<5	-	0.003	0.001	<0.01
19/05/2021	SB16A	8.23	391	220	-	<5	-	0.005	0.007	<0.01
20/05/2021	Void	8.72	1540	17	-	<5	-	0.004	-	-
21/05/2021	GCU	7.78	160	62	-	<5	-	0.002	<0.001	<0.01
22/05/2021	GCD	7.53	210	68	-	<5	-	0.002	<0.001	<0.01
23/05/2021	SB23B	8.12	224	22	-	<5	-	0.002	<0.001	<0.01
16/08/2021	SD17	7.64	213	185	-	<5	-	0.006	0.001	0.01
16/08/2021	SD27	8.15	320	124	-	<5	-	0.003	0.003	0.01
16/08/2021	SB16A	8.2	406	48	-	<5	-	0.006	0.006	0.01
16/08/2021	Void	8.84	1240	11	-	<5	-	0.006	-	-
16/08/2021	GCU	7.95	196	35	-	<5	-	0.002	0.001	0.01
16/08/2021	GCD	7.84	493	24	-	<5	-	0.002	0.001	0.01
17/11/2021	GCU	7.57	164	12	-	<5	-	0.003	0.001	0.01
17/11/2021	GCD	7.38	234	79	-	<5	-	0.005	0.002	0.01
17/11/2021	SD17	8.15	255	143	-	<5	-	0.002	0.006	0.01
17/11/2021	SD27	8.61	384	15	-	<5	-	0.001	0.006	0.01
17/11/2021	SB16A	8.38	406	31	-	<5	-	0.006	0.006	0.01
19/11/2021	Void	8.78	1970	64	1	<5	-	0.014	-	0.01
19/11/2021	SB16B	8.94	408	20	-	<5	-	0.002	0.007	0.01



Levels of oil and grease were low overall, with levels below the discharge limits. Level of Total Suspended Solids (TSS) fluctuated between 11 and 4,600 mg/L with 48% of the measurements below the 50mg/L.

Overall pH values showed that water sampled was between neutral and alkaline. Concentration levels of antimony, arsenic, molybdenum and selenium were monitored throughout the period. Results remained consistently low and below thresholds outlined in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000).

Surface water monitoring results showed generally similar trends with previous reporting periods.

Commitments with regard to the surface water-monitoring program are detailed in the Water Management Plan which was approved in September 2020.



7.1.2 Water Discharges

Throughout the 2021 reporting period, there were twelve (12) wet weather discharges and eleven (11) controlled water releases.

In accordance with relevant EPL12365 conditions, water samples were collected after discharge and results can be found in Table 7-2.

Table 7-2: Discharge Results 2021

No. of LDP discharges		рН		EC (uS/cm)		TSS (mg/L)		Oil and Grease (mg/L)	
	alsonarges	Average	Max	Average	Max	Average	Max	Average	Max
LDP1	2	7.59	7.97	185	202	313.5	330	<5	<5
LDP2	10	7.65	8.1	345.9	390	58.2	182	<5	<5
LDP3	6	7.53	8.62	314.5	457	1,924.33*	5,670	<5	<5
LDP26	3	7.7	8.05	188.7	230	24.3	30	<5	<5
LDP27	5	7.8	8.06	238.6	323	281.2	634	<5	<5

^{*} High average skewed by 23rd March discharge event described in Sections 1, 7.1 and 11.

Uncontrolled water releases:

23rd **March 2021** – After approximately 33.8mm, TCM released water via SD28 (EPL Licenced discharge point 3). Water exceeded EPL limits for Total Suspended Solids (TSS), measuring 5,670mg/L, and pH, measuring 8.62pH. This was reported to authorities and an internal investigation was conducted.

8th **December 2021** - After approximately 37.2mm, TCM released water via SD28 (EPL Licenced discharge point 3). Water exceeded EPL limits for Total Suspended Solids (TSS), measuring 190mg/L. This was reported to DPIE, EPA and RR and an internal investigation was conducted.



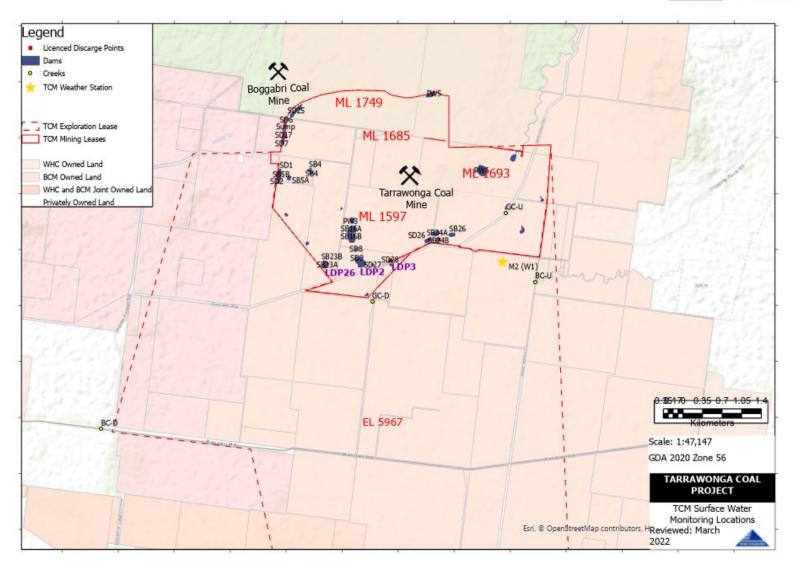


Figure 11 – 2021 Surface water monitoring locations



7.2 Groundwater Management

7.2.1 Environmental Performance and Management

The mine's performance with respect to groundwater performance and management, the prevention of pollution, and the assessment of impacts on groundwater availability to other surrounding users, has been assessed through groundwater level and chemistry monitoring undertaken at a series of piezometers and bores within the Project Area and adjacent properties.

7.2.2 Groundwater Monitoring

Groundwater monitoring was undertaken by a contracted company, accountable for water level measurement, collection of samples and laboratory analysis. Two data loggers monitored water levels at MW1 and MW2 to the South and one Vibrating Wire Piezometers (VWP) sites (TA65) was operating to the East of the mine.

The groundwater monitoring sites are shown in Figure 12. Historical groundwater quality data and standing water level plots are available in Appendix 4.

With the assistance of a groundwater consultant, TCM has assessed the best locations to install three new monitoring bores to the East of the mine. This work was hoped to be completed at the close of CY21, but due to November flooding and COVID-19 impacts, this has been pushed back to 2022.

Groundwater levels

Graphs available in Appendix 4 show that groundwater levels at the majority of nominated monitoring bores maintained a steady trend throughout the reporting period. Most of the bore levels show a significant increase at the beginning of 2020, likely related to rainfall recorded over that year. Sampling and water levels have not been monitored at MW6 since the beginning of 2019, due to a broken casing. This bore is located on Boggabri Coal Mine property. Samples could not be collected at MW8 due to a damaged casing however, water level could regularly be checked for at that site.

At TCMs VWP, TA65, the 110m intake shows a responsive water level plot, whilst an increased rate of depressurisation is observed in the 97m, 136m and 153m intakes since approximately March 2017. Excluding the 56m intake which, as noted above may be faulty, during 2021 depressurisation continued in the 30m, 47m, 97m, 136m and 153m intakes, ranging from 0.08m in the 30m intake to a maximum of 2.13m in the 153m intake, reflecting changes consistent with the presence of an open cut mining operation in proximity to TA65.



Minor repressurisation was seen in the 35m and 136m intake (0.20m and 0.37m respectively), however a significant repressurisation on the 110m intake of some 4.24m was recorded in 2021, with all of the deeper intakes (97m to 153m) showing slower depressurisation rates since around 2019.



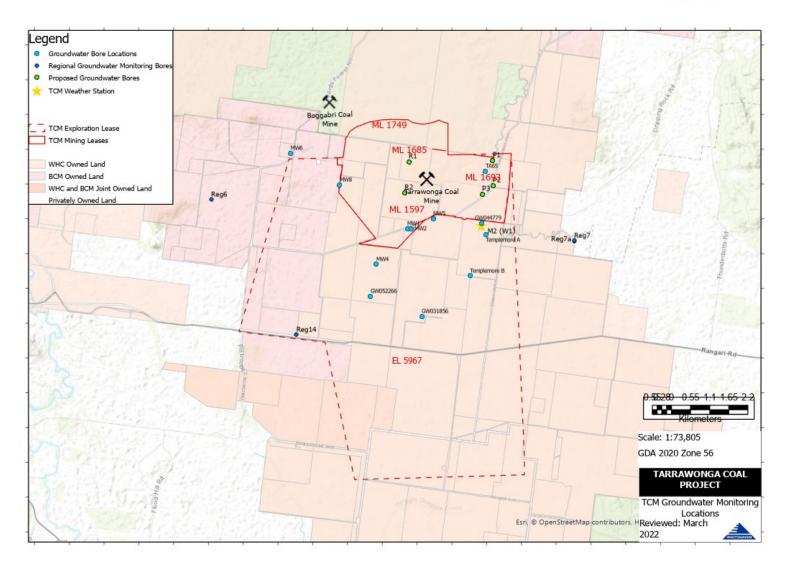


Figure 12 – 2021 Groundwater monitoring locations



Groundwater quality

Analysis of samples taken during the reporting period showed that groundwater quality remained generally in line with historical data at all locations monitored. Water quality was compared to the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000) guidelines for stock watering (cattle). There were no recorded instances of groundwater quality exceeding the limits prescribed by those guidelines during the reporting period.

Water quality has also been compared to the National Environment Protection Council (NEPC) Agricultural and Livestock Guidelines. The following instances occurred where water quality did not meet the parameters identified in the guidelines:

- Since there is no Iron limits for livestock in the ANZECC, the agricultural irrigation guidelines for iron (0.2mg/L) was used for comparison. Most of the monitoring sites were above the 0.2mg/l limit on at least one occasion during the reporting period. Throughout historical data (back to 2009), iron has been seen to fluctuate with high peaks (up to 47mg/L) at most bores on more than one occasion.
- Almost all bores, except for MW2 were above the agricultural irrigation guideline for TDS (600mg/L) when sampled throughout 2021. MW4 and GW044997 were the only bores to measure values above the 2,400mg/L NEPC livestock guideline limit, with 2,980mg/L measured. No sites measured above the ANZECC guideline for stock drinking water (4,000mg/L) value.

7.2.3 Groundwater Management

Pit water inflow is a result of combination of rainfall and groundwater seepage:

- Direct rainfall runoff and infiltration through the emplaced overburden which flows downdip to the open cut sump(s); and
- Inflows from the exposed coal seam.

To prevent any potential risk of contamination with chemical and hydrocarbon, TCM implemented control measures such as:

- Vehicle maintenance carried out in designated areas;
- Any spills being cleaned up; and
- Hydrocarbons products being stored within a bunded area, constructed in accordance with AS 1940-2004 and/or EPA requirements.



Monitoring occurs in surrounding groundwater bores on a regular basis to detect and assess any changes in quality or level that may be mine attributed.

The Tarrawonga Coal Project EA identified that there would be a reduction in the potentiometric head in the aquifers of the porous rock systems to the east and the north. In the past, the Vibrating Wire Piezometers installed in TA60 and TA65 have demonstrated depressurisation as predicted as the mine moves toward the east. Due to pit progression, site TA60 was decommissioned in 2019.

Regional Bores (Reg. 6, 7a and 14) maintained a steady trend during the period for all parameters including Electrical conductivity (EC). EC was compared to the performance indicators outlined in TCM's Groundwater Response Plan within the WMP, and none of these bores were above performance indicators (the 95th percentile of historical data) at the time of this report. Water levels at each of the regional bores rose substantially due to above average annual rainfall, and therefore none were below performance indicators (5th percentile of historical data) during the reporting period.

The BTM Complex finalised the updated BTM Ground Water model and submitted it to DPIE during the reporting period. This model was prepared in consultation with groundwater experts and regulatory agencies.

During the reporting period, no complaints have been received in relation to impacts upon any other groundwater users. This is consistent with the predictions of the EA; that no significant impact would therefore affect beneficial use of groundwater of other groundwater users.

7.2.4 Water Take

During the water year 2021, no water was extracted from the licenced groundwater bores. Instead, TCM used rainfall and runoff captured in the sediment dams and pit to provide operational water requirements. Any water in the pit occurred through passive take and is in accordance with Water licences as listed in Table 7-3 that give units of entitlement per water annum.

In accordance with respective sites approvals and principles of the BTM Water Management Strategy, water sharing opportunities were discussed.



	Passive Take Licenses								
Water Licence #	Water Sharing Plan	Water Source and Management Zone	Share units (ML)	Available Water (ML)	Passive take (ML)	Take deducted (ML)			
WAL 12716	Upper and Lower Namoi Groundwater Sources 2003	Upper Namoi Zone 4 Namoi Valley (Keepit Dam to Gin's Leap) Groundwater Source	43	86	37	37			
WAL 12491	Upper and Lower Namoi Groundwater Sources	Upper Namoi Zone 11 Maules Creek Groundwater Source	77	153	1	1			
WAL 29548	NSW Murray Darling Basin Porous Rock Groundwater Sources	Gunnedah - Oxley Basin Mdb Groundwater Source	50	62.5		50			
WAL 31084	NSW Murray Darling Basin Porous Rock Groundwater Sources	Gunnedah - Oxley Basin Mdb Groundwater Source	250	312.5	242	192			
WAL 29461	NSW Murray Darling Basin Porous Rock Groundwater Sources	Gunnedah - Oxley Basin Mdb Groundwater Source	120	150		0			

Table 7-3 - Water take

7.3 Site Water Balance

According to the site water balance developed by a water consultant, the water management system for 2021 had the capacity to be operated and meet operational objectives in normal average weather conditions;

- Wet weather releases and controlled water releases occurred on numerous occasions throughout 2021. This allowed excess water release from site and this is discussed in Section 7.1
- Rainfall and runoff captured in the sediment and pit water dams provided for the majority of water demand in the dry, median and wet years;

These predictions were consistent with the actual outcomes observed during this monitoring period.

Table 7-4 provides an overview of water stored and used on site during the reporting period.



Table 7-4 - Water Stored and used during the reporting period

Table 2-3 EA values (2012) (ML) Jan 2021 -Jan 2020 -**Dry Year-**Wet Year -Dec 2021 Jan 2019 -**Average Year Dec 2020** 25%-ile **75%ile** (17 years) (ML) **Dec 2019** (ML) (17 years) (17 years) (ML) 2,273 2.036 316 325 **Total Runoff** 402 480 58 **Groundwater inflow** 59 58 255 255 255 0 **External Source** 17 43 n/a n/a n/a 213 Moisture in Coal n/a n/a n/a 2,544 **TOTAL INPUT** 2,112 530 580 657 735 241 217 100 130 141 **Evaporation** 118 213 Moisture loss in coal n/a 113 n/a n/a n/a **Crusher Dust** 35 30 35 8 8 8 suppression **Haul Road and ROM** 378 329 406 399 389 394 pad dust suppression Offsite release/ 146 279 0 0 0 0 discharge Water contained in 900 20 n/a n/a n/a n/a spoil/ Other 1,914 **TOTAL OUTPUT** 894 656 532 548 515 630 1,218 -126 64 125 193 Change in inventory

Note: For Jan-Dec (annual) period, values must be compared with caution as the EA value is based on 17 year annual average with changing catchment and land uses over time.

8 REHABILITATION

8.1 Post Rehabilitation Land Uses

According to the Mine Site Rehabilitation Management Plan and the MOP, woodland areas will be established on slopes and upper terraces of the Northern and Southern Emplacement Areas.

Rehabilitation on the Southern Emplacement is still immature while it is further advanced on the Northern Emplacement (including in ML1685 adjacent to Boggabri Coal Mine) with some older sections close to achieving open woodland land use target.

However, no rehabilitation to Box Gum Endangered Ecological Community (EEC) woodland was undertaken nor has rehabilitation to agricultural land occurred during the reporting period.



8.2 Rehabilitation Performance during the Reporting Period

8.2.1 Status of Mining and Rehabilitation

Integration with Boggabri Coal's waste emplacement has started with rehabilitation activities to follow as per the MOP. The EA Total disturbance Area generally aligns with the most recent MOP total disturbance Areas.

Flooding events during November 2021 impacted the completion of the landform planned to be established in December 2021. Access to site was cut off for significant amounts of time in November 2021 and consequently total material moved was impacted. This meant that the landform was not completed. As at the end of March 2022 this landform has been completed and is undergoing internal quality assurance checks for 'sign off'. Final quality assurance checks may result in the exact area of the landform being revised, this will be reported in the Annual Review for 2022. It is included in Table 8-1 as land being prepared for rehabilitation in both the 2021 and the 2022 column. It is also described in Figure 14. The status of mining and rehabilitation at the completion of the reporting period is summarised in Table 8-1 and Figure 13.

Table 8-1- Rehabilitation Status

	Mine Area Type 1 [Ha]	2017	2018	2019	2020	2021	2022⁺
0	Total Mine Footprint	600.1	627.6	687.5	741.8	772.2	826.1
1	Total Active Disturbance	498.4	540.7	579.4	607.8	625.6	631.7
2	Land Being Prepared for Rehabilitation	8.9	12.9	29.6	27.6	11.7	47.7
3	Land Under Active Rehabilitation	67.2*	74.1	78.5	106.4	146.7	194.4
4	Completed Rehabilitation	0.0	0.0	0.0	0.0	0.00	0.00

 $^{^{1}}$ Refer Annual Review Guideline (p.11) for description of mine area types.

^{*}Active rehabilitation area was incorrectly calculated and reported for 2017 with 83.3Ha.

^{*}Forecast for 2022 based on MOPG

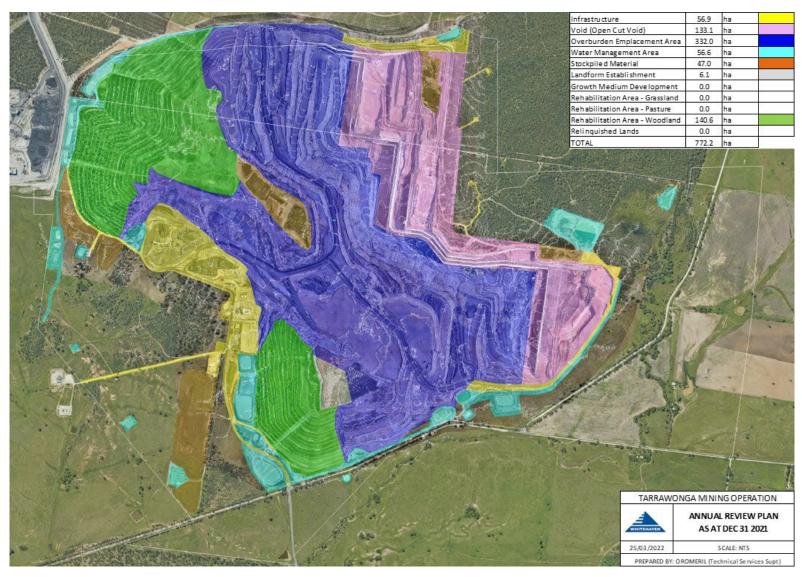


Figure 13- Status of mining rehabilitation as at December 2021

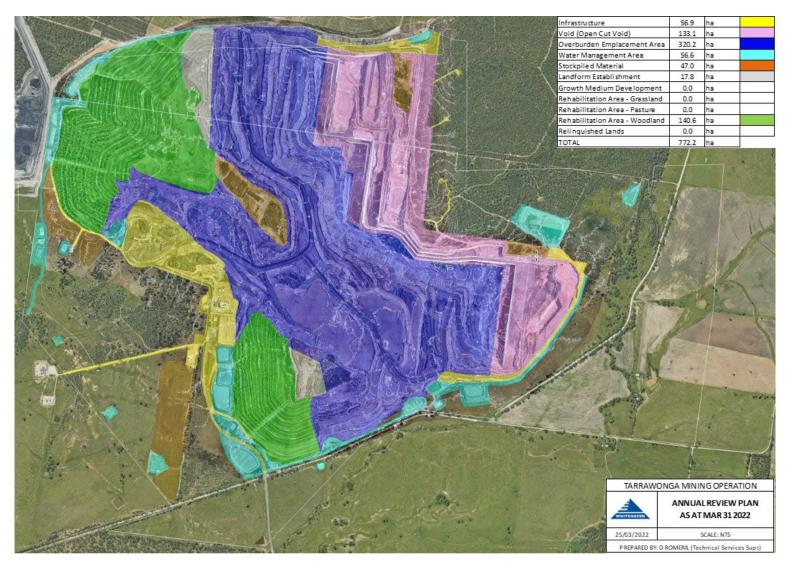


Figure 14: Status of Mining Rehabilitation as at end of March 2022



8.2.2 Rehabilitation Fauna and Flora Monitoring

Investigations undertaken by Geoff Cunningham Natural Resource Consultants Pty Ltd as part of the original Mine EIS identified no significant impact on threatened flora species, endangered ecological communities, endangered flora populations or critical habitat as a consequence of the development. Establishment of monitoring plots commenced in April 2007 and has continued as required. Over the life of the mine, quadrats are to be established across rehabilitation sites and control sites. Potential impacts noted in the EA included the clearing of Box-Gum Woodland EEC/CEEC and the groundwater dependent ecosystem - Bracteates Honey myrtle low riparian forest. However these areas had not yet been disturbed or cleared for mining purposes.

On the 25th July 2019 the Resources Regulator issued a Notice under section 240 of the Mining Act 1992 to Whitehaven Coal Mining Limited to prepare and submit a TCM Mine Rehabilitation report prepared by a persons approved by the Director Compliance Operations. Whitehaven Coal Mining Limited engaged an independent ecologist to undertake a gap analysis and prepare the report. They identified inconsistencies regarding the current status of progressive rehabilitation undertaken at TCM and his report outlined proposed measures and actions to improve the progressive rehabilitation performance including annual monitoring and data collection.

As a result, the annual flora and fauna monitoring program was developed, however slightly varied from previous years, taking into account the recommendations detailed in the gap analysis report.

Qualified ecologists completed this annual monitoring program in accordance with the MOP, the Mine Site Rehabilitation Management Plan, the Biodiversity Management Plan and the recommendations from the gap analysis report.



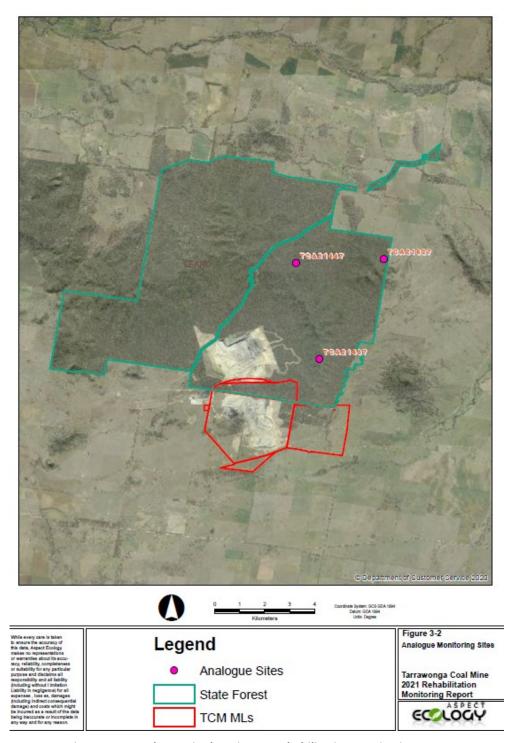


Figure 15 – Analogue site locations – Rehabilitation monitoring 2021



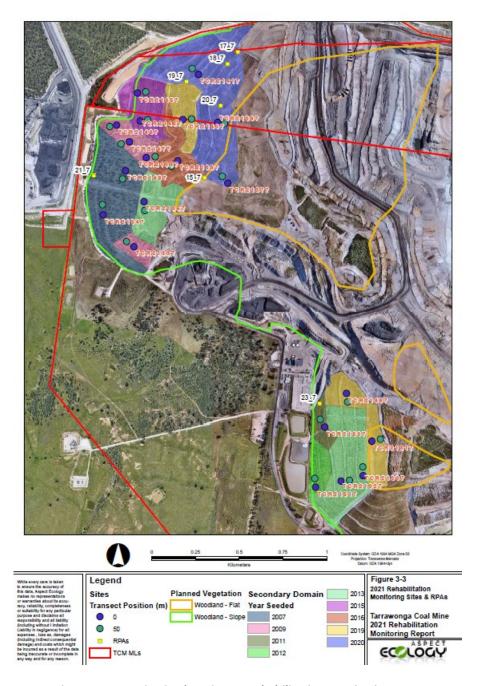


Figure 16 – Monitoring locations – Rehabilitation Monitoring 2021

8.2.2.1 Flora Monitoring

A detailed ecological field assessment of rehabilitated areas and analogue sites was undertaken in October 2021. Monitoring was undertaken using the Whitehaven Annual Rehabilitation Monitoring Methodology (WARMM v1.4—Aspect Ecology 2021). Due to the engagement of a new ecological consultant, monitoring comprised:

• the establishment of three new 'best-on-offer' (DPIE 2020) local analogue woodland sites established in Leard State Forest (Figure 15), situated in native vegetation communities



specified in the MOP (table 14): Narrow-leaved Ironbark - cypress pine - White Box shrubby (Plant Community Type ID 592 in the BioNet Vegetation Classification System);

- twenty Woodland Domain Sites (Figure 16), capturing all extant years seeded (2007–20), comprising
 - o five sites co-located with historical plots surveyed in 2020;
 - ten sites which share at least the transect start location with historical sites surveyed in 2020;
 - four sites in newly established locations in young rehabilitation (three sites, seeded 2020), or older rehabilitation not previously captured in any monitoring program (one sites, seeded 2011); and
- eight categorical Rehabilitation Point Assessments (RPAs) across the rehabilitation, aimed at further improving rehabilitation data spatial coverage.

Groundcover

Cover levels in the Woodland domain at Tarrawonga were highly variable; however, none achieved or approached equivalence with the average cover value observed at analogue sites.

Total groundcover (including exotic cover) at woodland sites at Tarrawonga was high (91-100% cover) at 25% of all sites; equivalently, moderate cover (31-40%) was observed at 25% of all sites. All other cover ranges from 11% to 90% (excluding 31-40%) were each equally common, each being observed at 12.5% of all sites.

Native grasses were rare and occasional at most RPAs (38% each) and absent or frequent each at 13% of sites

Exotic grasses were rare at most RPAs (62%) and absent, occasional, or abundant each at 13% of RPAs

Weeds (other than exotic grasses) were occasional at most sites (45%), common at 27% of sites, then frequent at a further 18% of sites and finally abundant at a minority of sites (9%)

Tree cover

In the Northern Emplacement Area, all sites in recently established rehabilitation exhibited tree seedling densities ≥300 stems/ha, with the highest being 690 stems/ha. In the Southern Emplacement Area, densities were lower with one site having 230 stems/ha and the other having only 50 stems/ha, the latter value being regarded as insufficiently dense.

Eucalypt tree density (>2 m tall) within older rehabilitation (prior to 2017) was variable; the highest densities were from the Northern Emplacement Area: 2015, and one site from 2007. The three lowest density sites (0–10 stems/ha) were all from the Southern Emplacement Area, however the



next lowest site (20 stems/ha) was from Northern Emplacement Area 2009 rehabilitation. The remaining sites were within the range 100–300 stems/ha.

Trees less than two metres tall were rare at the majority of RPAs (55%), occasional at 27% and absent or frequent each at 9% of RPAs

Trees more than two metres tall were absent at most RPAs (75%), and rare or common each at 12.5%. The majority (87.5%) of sites assessed using the Rapid Assessment methodology at Tarrawonga mine were determined to require no further retreatment in the 2022 rehabilitation season; however, 12.5% were considered likely to benefit from herbicide treatment, reploughing and reseeding with native seedstock.

It was recommended that:

- additional tube stock plantings be carried out, particularly in the Southern Emplacement
 Areas in which there has been low seedling survival or recruitment;
- spot spraying of groundcover weeds be conducted in areas of good tree and shrub establishment; and,
- ploughing and seeding of some 2020 rehabilitation polygons sections that failed in the north-eastern section of the Northern Emplacement Area

Soil pits

Soil profile and condition assessments were recommended every three years. Two soil pits were established in 2011, one in the rehabilitation zone, and one in each control zone. Soil pits are described using standard field measures with particular notice of horizon boundaries and ecological functionality (e.g. root establishment, evidence of soil fauna). As per the RMP (ELA 2011), soil pits are analysed every three years. As soil pits were analysed in 2018, this parameter was due in the 2021 reporting period. Due to outward impacts such as flooding and overall site access issues due to saturated grounds, soil pits were unable to be dug in 2021, but will be done in the 2022 reporting period.

In the 2018 survey, the soil pit in the rehabilitation zone (Rehabilitation Zone 2) showed a profile reconstruction with topsoil depth at 15 cm and depth to overburden at 30 cm. The control zone shows a similar profile reconstruction with topsoil depth at 10 cm and depth to compact clays at 30 cm. The rehabilitation zone exhibited good establishment of grass. The control zone also showed good establishment of grass and other plant roots including larger tree roots, which were present in all horizons. Soil fauna were not identified in any pits.



An extensive soil testing program was conducted in 2020 to obtain representative soil samples within each rehabilitation area. This program is discussed further in section 8.2.3.2.

Revegetation Management

Between July and December 2021, TCM coordinated rehabilitation activities including seeding of approximately 21Ha on the Northern Rehabilitation Area, and approximately 11Ha on the Southern Rehabilitation area. Due to flooding, site access and Covid-19 impacts, hiko tree planting was delayed for the calendar year and will be conducted in March of 2022. This will involve the planting of approximately 8,200 now mature seedlings, including the following species: *Eucalyptus albens*; *Eucalyptus mellidora*; *Eucalyptus crebra*; *Brachychiton populnesus*; *Cymbopogon refractus*; *Austrostipa filiformis*; *Callitris glaucophylla* and *Angophora floribunda*.

Topsoil throughout all rehabilitated areas was mixed with mulch from previous tree clearing campaigns, spread in 200 to 300mm layers and ameliorated with gypsum.

The above average rainfall recorded throughout the period had a noticeably positive impact with an estimated survival rate of more than 90% on both the southern rehabilitation area where approximately 200 trees were planted prior to aforementioned impacts.

8.2.2.2 Fauna Monitoring

At TCM, fauna and habitat monitoring surveys focused on thirteen sites within the woodland rehabilitation zones and two control sites within the Leard State Forest, as shown in Figure 16. The terrestrial fauna survey target woodland birds and searches for available reptile habitat.

Woodland birds monitoring was undertaken during winter 2021 and summer 2022 (Previously spring of the same year, but was postponed due to site access, flooding and Covid-19 impacts). Woodland birds were recorded using songometers (audio recording) set to automatically record at dawn and dusk. The recordings are then listened to by bird experts and species identified. Whilst recording is occurring, ecologists will make visual notes regarding birds in the area immediate to the recording system.

Bats have been previously monitored using anabat technology (audio recording of bat sonar) that is then interpreted by experts. Anabats are unable to pick up sonar of particular species such as Longeared bats (Nyctophilius sp.)

Birds:

In Summer 2021/2022, 8 previously unrecorded bird species were observed on the rehabilitation area. These included:



- Red Wattlebird,
- Stubble quail,
- Musk Lorikeet,
- Pallid Cuckoo,
- Rainbow Bee-eater,
- Red-Browed Finch,
- Eastern Yellow Robin, and
- Fan-tailed Cuckoo.

Part of this increase in species diversity could result from monitoring of an area with greater structural diversity and being in closer proximity to native vegetation, and/or the use of songmeters. Normally monitoring is conducted in the earlier half of the morning, and later half of the afternoon, when conditions are not as optimal.

Previous analysis has indicated that bird assemblages of Rehabilitation sites are becoming increasingly similar to Control sites and that the overall trajectory of the Rehabilitation sites is gradually moving towards the Control sites based on ordination methods. These changes are most likely due to vegetation and habitat features maturing over time.

The cumulative bird species diversity of controls sites is 20% greater than that of the rehabilitation sites (104 species versus 86 species respectively). This is mostly due to a difference in vegetation types, with Control sites having established shrub species such as *Callitris spp* and *Geijera parviflora*, which if established in the Rehabilitation areas, would increase the presence of these species and overall fauna richness.

Bats

Bat monitoring was unable to occur in this reporting period due to site access issues in the period it is usually undertaken, but will be done in the next reporting period.

During the 2020 bat monitoring `There were least eight (8) and up to fourteen (14) species recorded during the 2020 Spring bat survey (Table 8-2) including up to two (2) species that are listed as Vulnerable under the NSW BC Act. Based on the call profiles, two species listed as Vulnerable could potentially have been present within the study area, Large Bent-winged Bat (*Miniopterus orianae oceanensis*) and Corben's Long-eared Bat (*Nyctophilus corbeni*). Corben's Long-eared Bat is also listed as Vulnerable under the EPBC Act.



The most commonly recorded species / species group within the study area were the *Ozimops species* complex (Inland Free-tailed Bat, South-eastern Free-tailed Bat and Ride's Free-tailed Bat). Collectively, there were 90 (60%) of the identifiable calls attributed to the *Ozimops species* complex. General microbat activity was regarded as being low to moderate at the site with one microbat call recorded every seven or eight minutes on average throughout the survey period, equating to 94 calls recorded per night.

Table 8-2 - Microbat species diversity recorded ultrasonically at Tarrawonga Mine surveys between 4th and 6th November 2020.

Scientific Name	Common Name	Result
Chalinolobus gouldii	Gould's Wattled Bat	D
Chalinolobus morio	Chocolate Wattled Bat	Р
Miniopterus orianae oceanensis*	Large Bent-winged Bat	Р
Nyctophilus corbeni*1	Corben's Long-eared Bat	Р
Nyctophilus geoffroyi	Lesser Long-eared Bat	Р
Nyctophilus gouldii	Gould's Long-eared Bat	Р
Ozimops petersi	Inland Free-tailed Bat	Р
Ozimops planiceps	South-eastern Free-tailed Bat	Р
Ozimops ridei	Ride's Free-tailed Bat	Р
Scotorepens balstoni	Inland Broad-nosed Bat	D
Scotorepens greyii	Little Broad-nosed Bat	D
Vespadelus darlingtoni	Large Forest Bat	D
Vespadelus regulus	Southern Forest Bat	Р
Vespadelus vulturnus	Little Forest Bat	Р

 $D = Definitely\ recorded,\ P = Potentially\ recorded,\ *listed\ as\ threatened\ under\ the\ BC\ Act,\ 1\ listed\ as\ threatened\ under\ the\ EPBC\ Act$

Reptiles

A pilot project investigating reptile diversity was undertaken across five (5) locations within the rehabilitation area. Roofing tiles were placed out randomly in 2020 to see whether these could service both as habitat for small reptiles and be used to survey reptiles. On inspection in the Summer months, none of the tiles were being used by reptiles. The ecologists undertaking the survey commented that it may be too early to monitor for reptiles as it can be up to 10 years before the effects of management can be detected even in remnant areas due to the poor dispersal ability of many small reptiles.



8.2.3 Habitat Management

On TCMS Southern Emplacement Rehabilitated area, woody debris and dead trees were deposited on the ground during the rehabilitation process to generate habitat and protection for species.

Cover crop was sown during seeding processes to establish vegetation cover, weed suppression and



Figure 17 - Photo: Salvaged trees laid down and erected in the Northern Rehabilitation area in 2020

8.2.3.1 Weeds Management

During 2021, a noxious weed monitoring program was conducted at TCM every 6 months. The survey in June and November found that there were nineteen invasive weed species identified. Given the large amount of rainfall recorded onsite in 2021, the infestation of the noxious weeds at TCM was generally high. Management of targeted weed within the mine leases was undertaken at opportune times following suitable weather and with consideration to the NIWAC Weed Management Guide for North West NSW (NSW DPI) including:

- Manual removal of African Boxthorn, spraying of stumps to prevent regrowth;
- Spot spraying of general weeds and grasses in the vicinity of monitoring stations, administration building, magazine and ROM areas,
- Spot spraying of Prickly Pear around site,



- Spraying of Nagoora Burr and other aggressive species surrounding dams.
- Spot spraying of rampant weeds including boxthorn and prickly pear prior to clearing, to try and exclude them from the topsoil.

8.2.3.2 Feral Animal Management

TCM coordinated the implementation of the Vertebrate Pest Management Plan using infra-red motion cameras installed at strategic locations around the Mining Leases. Findings indicate overall vertebrate pest sighting onsite has significantly dropped since 2018.

The survey for 2021 (Table 8-3) showed there were no sightings of feral goats, cats, dogs, or other species. Sightings for rabbits and hares have decreased significantly from 163 in 2018 to 1 during the reporting period. Fox sightings also decreased significantly from 168 in 2018 to 1 in this reporting period.

Feral pig sightings continued to decrease from 159 in 2018 to 6 total sightings for this reporting period. Due to an overall drop in Feral animal sighting, no trapping, shooting or baiting program was conducted within the Mining Leases and rehabilitated areas in 2021 however TCM will continue to monitor and manage feral animals according to the BMP and MSRMP.

Table 8-3- Summary of Vertebrate Pest sighting (2018-2021)

	Feral Pig (descendant of various breeds of Sus scrofa)	Fox (Vulpes vulpes)	Feral Cat Felis catus)	Rabbit/Hare (Oryctolagus cuniculus) / (Lepus capensis))	Wild Dog (canis familiaris)	Other
Quarter 1	0	0	0	0	0	0
Quarter 2	0	0	0	0	0	0
Quarter 3	4	1	0	1	0	0
Quarter 4	2	0	0	0	0	0
Total 2021	6	1	0	1	0	0
Total 2020	17	4	0	22	0	0
Total 2019	54	73	2	140	0	2
Total 2018	159	168	1	163	0	2



8.2.3.3 Soil & Erosion Management

During 2021, significant efforts were made to improve soil management and minimise erosion on site.

Soil Management

A soil specialist conducted an extensive soil testing program in 2020. The objective was to provide a soil inventory of rehabilitated areas through field soil assessment and laboratory testing aimed at improving the growth medium for future revegetation.

The field program was designed to obtain representative samples within each rehabilitation area. Sampling points were irregularly located according to the survey team judgement to enable the delineation of potential soil boundaries based on year of rehabilitation or change in soil type used as growth medium. Soil test sites were excavated by hand to 0.3-0.5m. The number of survey points totalled 35 sites in the Northern Rehabilitation Area and 20 sites in the Southern Rehabilitation Area. This survey density fulfilled the requirement of a 1:10,000 soil survey. Sampling consisted of one bulked topsoil sample at each site with typical sample depth 0-10cm, with occasional 'subsoil' samples taken at 30-40cm for assessment of erosion tunnelling risks.

The laboratory testing suite for these sites included pH and EC (1:5 water); pH (1:5 CaCl); Available (Ammonium, Nitrate, Sulfur); Exchangeable Sodium, Potassium, Calcium, Magnesium, Hydrogen, Aluminium, Cation Exchange Capacity; Colwell Phosphorus; Available Micronutrients Zinc, Manganese, Iron, Copper, Boron, Silicon; Total Carbon (TC), Total Nitrogen (TN), TC/TN Ratio, Organic Matter; Basic Colour, Basic Texture.

The findings indicate that the soil resources used on the rehabilitated areas at TCM, depth and characteristic of the top soil layer provide an adequate growth medium to establish the desired vegetation species. Following recommendations of the soil specialist approximately 68 tonnes of gypsum was used to improve characteristics of top soil spread on the Northern Emplacement area prior to the start of revegetation activities.

Topsoil was stripped from areas cleared of vegetation in accordance with the stripping ratio recommended by a soil consultant. Where possible topsoil was directly placed onto prepared rehabilitation areas or stockpiled in accordance with the Mine Site Rehabilitation Management Plan.



Erosion and Sediment control

Several water infrastructures including sediment dams, drop structures, diversion drains and contour banks were designed and sized in accordance with the managing-urban-stormwater-soils and construction guide (volume-2E-fourth-edition). TCM constructed engineered drop structures in the Southern Rehabilitation area (Figure 18). One dam (SD26) was constructed along the toe of the Southern Emplacement area, adding to the capacity of this water management system by 16.9ML. While the basin itself has been completed, the inlet and spillway are still to be constructed in the next reporting period.

The Southern emplacement area toe drain has also had work near completed in the reporting period, with multiple silt traps dug within the drain and small amounts of cover crop seed sown by hand to prevent erosion.



Figure 18 - Photo: Rocklined Drop structure and completed contours on the Southern Rehabilitation area - November 2021.

Inlets and spillways of some of the sediment dams were remediated using geotextile fabric and armour rock and a sump and drain desilted.

Coir logs were installed for sediment control during the construction and civil works activities of the culvert and associated dams and drains.

TCM undertook seeding activities with cover crop at some of new water infrastructures.

The water management network capacity that was sized to manage 38.4mm of rain over 5 days (as per EPL12365 requirement). High intensity rainfall events throughout the reporting period (1070mm over the calendar year, >200mm during November alone), resulted in high rates of flow in some of



the drop structures and contour banks generating gullies, scouring and erosion that required development of specific remediation plans. A contractor has been engaged to enact remediation plans on most affected water structures.

In accordance with MOP requirement and TARPs, TCM will continue to implement erosion control measures and remediate affected areas to meet the completion criteria for mine landform stability.

8.2.4 Renovation or Removal of Buildings

During the reporting period, two new office buildings were installed adjacent to the workshop area for workshop staff and site based contractors. No other buildings have been constructed or relocated during the reporting period.

8.2.5 Other Rehabilitation Undertaken

No additional rehabilitation of explorations areas, infrastructure, shafts, dams, fence lines or bunds occurred during the reporting period.

8.2.6 Departmental Sign-off of Rehabilitated Areas

Departmental sign-off has not been requested for any rehabilitated areas during the reporting period.

8.2.7 Variations in Activities against MOP

At the end of 2021, TCM submitted a MOP Amendment G (MOP G) that included rehabilitation progression and future opportunities where rehabilitation could be accelerated into a revised rehabilitation schedule. MOP G was approved in December 2021 and will be implemented throughout the next reporting period.

At the end of calendar year 2021, TCM achieved the rehabilitation target for ecosystem establishment (29.5 ha) specified in MOPG. This was an increase in the 14.7 ha stipulated in the superseded MOPF.

No landform was established during the reporting period, but approximately 11Ha of landform was completed by March 2022 on the Northern Rehabilitation area, as indicated in Figure 19. This delay was due to flooding in November 2021, impacting access to site. Covid-19 related absenteeism impacts at the beginning of 2022 further reduced the availability of staff. This area of landform will be progressed to ecosystem establishment in 2022 following completion of the internal quality assurance process.





Figure 19 – Rehabilitation status - Southern Emplacement Area - End of CY2021





Figure 20 - Rehabilitation status - Northern Emplacement Area - End of CY2021.





Figure 21 - Northern Emplacement Area Rehabilitation at end of March 2022.

8.2.8 Trials, Research Projects and Initiatives

In 2021, TCM performed a very simple trial, assessing different methodologies and techniques for rehabilitation on the Southern emplacement area. These trials assessed the use of fertiliser and cover crop. The top most contours received general purpose fertiliser (Tunza Crop 15) while the bottom contours did not, and the whole area was seeded with cover crop (Millet and Oats) and mixed with our native seed mix. These trials are showing success in both areas (likely due to favourable conditions), and as growth continues, the outcomes will be assessed and incorporated into future rehabilitation programs. Cover cropping has shown major success throughout extreme wet weather, as the topsoil was able to be quickly stabilised and prevented major erosion.

During 2021 seeding, TCM also introduced some canopy species to the native seed mix, but it is currently too early to tell if these will have any success. Rehabilitation monitoring and rehabilitation methodology records are shared among Whitehaven operations to inform decision-making regarding future rehabilitation campaigns.



In 2021 TCM engaged Aspect Ecology to undertake a Ground Flora Rehabilitation Study. The overall study aims are:

- 1. Identify and evaluate management methods to reduce exotic ground flora, and
- 2. Identify and evaluate methods to enhance groundcover diversity and cover/abundance
- 3. Apply findings from aims 1 and 2 to produce management recommendations for Whitehaven Coal.

In 2021, project activities focussed on:

- database searches;
- review of abstracts against article inclusion criteria; and
- research article compilation and evaluation.

This Ground Flora Rehabilitation Study will continue into 2022.

The nearby Whitehaven Coal mine, Maules Creek coal mine has a requirement to undertake a \$1M research program into rehabilitation of Box Gum Grassy Woodland upon mine rehabilitation, the findings from which has been considered by TCM and will be integrated into Rehabilitation Management Plans (replacement of the MOP) as appropriate.

8.2.9 Key challenges to Achieving Successful Rehabilitation

The key issues to achieving successful rehabilitation include:

- Improved landform design and site water modelling to reduce erosion and sedimentation (e.g. gullying and sedimentation resulting in land stability and vegetation growth issues);
- weed and feral animal control;
- Native vegetation establishment corresponding to identified PCT (Plant Community types);
- landform stability; and
- climate/ and extreme weather conditions

In cases where the performance is sub-optimal, additional management measures will be implemented (e.g. replanting, repairing landforms and water management features, application of mulch/fertilisers, feral animal and weed control etc.). A Trigger Action Response Plan (TARP) for rehabilitation at the TCM has been included in the MOP, which outlines appropriate actions and varied responses that will be implemented as required.



8.3 Actions for Next Reporting Period

- TCM are finalising the new Rehabilitation Management Plans that are to replace the MOP in 2022 with updated closure criteria.
- Vegetation clearing will be undertaken during the approved window from 15th Feb to 30th April 2022.



9 COMMUNITY AND COMPLAINTS

In accordance with PA 11_0047, a Community Consultative Committee (CCC) meeting was held on a quarterly basis at TCM. The committee comprised representatives of Gunnedah Shire Council, Narrabri Shire Council, TCM and the community including landholders.

Community contributions continued to be managed in accordance with the Whitehaven Coal Donations and Sponsorship Policy. Approximately \$51,700 was donated on behalf of TCM to several organisations including Narrabri Rugby League Club, Clontarf Foundation, Winanga-Li Early Learning and the Dorothea Mackellar Poetry Awards.

TCM maintained a designated community complaints line. In the event of a complaint, details pertaining to the complainant, complaint and action taken are recorded. Each complaint is investigated and documented with individual complaint records maintained. Any Complaints is reported and findings discussed with CCC members during the meeting. Those meetings give an opportunity to provide an update of the environmental and operations performance.

TCM recorded one complaint during 2021 regarding Blasting. The complaint was in relation to a blast fume. All monitoring data was compliant with licencing conditions. The complainant was informed of the Health government fact sheets and was offered to be added to the blasting notification list, however, the complainant declined.

The number of complaints has significantly decreased in recent years. This is the result of continuous collaboration and constant engagement with community members. Table 9-1 provides a comparison of complaints received since 2016 annual reporting period.

Table 9-1- Complaints Summary

Category	2016	2017	2018	2019	2020	2021
Air Quality	1	3	1	0	0	0
Traffic	1	0	0	0	0	0
Surface Water	1	0	0	0	0	0
Visual Amenity	0	0	0	0	0	0
Noise / Vibration	1	0	0	0	1	0
Blast	2	0	0	0	1	1
Other	0	0	0	0	0	0
TOTAL	5	3	1	0	1	1

Note: Some complaints may relate to more than one category.



9.1 Community Contributions

Community contributions are managed in accordance with the Whitehaven Coal Donations and Sponsorship Policy. Whitehaven Coal donated \$250,444.65 to local Gunnedah and Regional groups during the reporting period. Groups which received contributions included, but were not limited to the following;

Gunnedah

Gunny Munny

Gunnedah Show Society

St Marys College

Two Rivers Arts Council

Legacy

Rotary Mental Health **Curlewis Public School**

Gunnedah South Public School

Gunnedah High School Gunnedah Public School **Gunnedah Ministers Fraternal** Gunnedah Water Tower Museum

Gunnedah PCYC

Gunnedah Shire Band Incorporated

The Gunnedah Tennis Club Firebug Photography Black n Blue Boxing **Gunnedah Show Society Gunnedah Eisteddfod Society**

Clontarf Foundation Clontarf Foundation Gunnedah Can Assist

Gunnedah Bulldogs Rugby League Club

Mary Ranken Child Care Centre

Dorothea Mackellar Poetry Awards

Gunnedah Junior Rugby League Football Club Gunnedah Junior Rugby League Football Club

Gunnedah High School

Challenge Community Services Rotary Club of Gunnedah West Inc

Funktionality Event Management

Gunnedah Baptist Community Preschool

Gunnedah Public School

Carroll Community Bus Incorporated

Gunnedah & district Chamber of Commerce

Winanga-Li Early Learning & care services

Gunnedah Community Carols

Lions Club Gunnedah

Gunnedah District cricket Association &

gunnedah junior cricket

Gunnedah South School

Regional

The OBG Co The OBG Co

Currabubula Red Cross

Westpac Rescue Helicopter Service

Clontarf Foundation

Operation Pilgrimage Group

Curlewis Pre-School

Liberty Party

West Tigers Rugby League Club

Clontarf Foundation

Operation Pilgrimage Group

Special Children's Christmas Party

Touch Rugby League St Vincent De Paul Society

Pilliga CWA

Tamworth Family Suppot



Open Opportunities Gunnedah High School Gomeroi Roos



10 INDEPENDENT AUDIT

In 2021, TCM was not required to complete any Independent Environmental Audits (IEAs). Details of previous audits are discussed below.

10.1 Independent Biodiversity Audit (EPBC)

The Commonwealth Department of Agriculture, Water and Environment (DAWE) directed TCM to undertake an Independent Compliance Audit of the EPBC Approval 2011/5923 including site inspections of the mine site and Willeroi BOA which was completed in January 2020 with no Non-Compliance (NC) identified.

10.2 Independent Environmental Audit (IEA)

In accordance with Sch 5, cn 10 of PA11_0047, a 3 yearly Independent Environmental Audit (IEA) and Biodiversity component were conducted between July and August 2020. There are no outstanding actions from the 2020 IEA. The next independent audit will take place in CY2023.



11 INCIDENTS AND NON-COMPLIANCES FOR THE REPORTING PERIOD

11.1 Reportable Incidents

Reportable incidents are discussed more in detail in sections 6.3 and 7.1.

11.2 Non-compliances

Non-compliances with relevant approvals noted within Section 1 are outlined in Table 11-1:

Table 11-1- Non-compliance Action plan

		-	•	
Non - Compliance	Date / Location	Cause	Action Plan	Status/Estimated Completion Date
Uncontrolled discharge contrary to EPL and Project approval limits	23 rd March 2021 – LDP3 (SD28)	Run-off from unrehabilitated areas caused increased pH levels and metals in the water quality analysis. The inclusion of catchments in excess of SD28's design contributed to a discharge occurring prior to recording 38.4mm of rainfall in the preceding 5 day period.	Review and update sampling procedures following discharge events. Upgrade catchment of SD28 to reduce runoff from un-rehabilitated areas.	Sampling procedures updated and implemented in October and November 2021. SD26 completed in November 2021. Toedrain to divert run-off from un-rehabilitated areas to SD26 completed in November 2021. Installation of drop structure, culverts and drain to divert catchment from SD28 to SD9 begun in 2021.
Uncontrolled discharge contrary to EPL and Project approval limits	8 th December 2021 – LDP3 (SD28)	Saturated catchment as a result of large amounts of rain over November (>200mm) and the year (2x average) caused LDP3 to discharge following a rain event that was below 38.4mm of rainfall in the preceding 5 day period. Due to the discharge being a result of recent rain the TSS of the discharge was above 50mg/L at 190mg/L.	Investigate incident to ascertain cause. Establish vegetation in the drainage of SD27 and SD28 to reduce erosion and improve sediment capture. Increase capacity of SD28 and raise spillway.	Incident investigation completed on the 11 th January 2022. Drain between SD27 and SD28 seeded in late 2021. Work to SD28 scheduled to be completed in March 2022.
Fume event of level 3C crossed the site boundary following a	16 th December 2021 TN Pit	Emulsion product used was selected for use in drill patterns that had been exposed to wet weather. This product produced fume which was not anticipated.	Use of liners for loading drill holes. Revision of emulsion product used for holes exposed to wet weather	Use of hole liners for loading drill patterns continued to end of reporting period (expected to continue into 2022)



Non - Compliance	Date / Location	Cause	Action Plan	Status/Estimated Completion Date
blast on the 16 th			reviewed.	Utilisation of blasting products has been
December 2021.				reviewed.

11.3 Regulatory Actions

- The EPA issued two penalty notices (#3173530590 and #3173530609) in response to the uncontrolled water release on the 23rd of March 2021.
- The EPA also issued an official caution notice (#3500875) in relation to the burial of end
 of life tyres between 2014 and 2016, as TCM could not account for 11 end-of-life haul
 truck tyres.



12 ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

The following measures will be continued or implemented in the next reporting period:

Table 12-1- Summary of activities for 2021

	Activity Description	Timing
1	Update and review Environmental management plans as required by the PA 11_0047.	Ongoing throughout the year
2	Undertake rehabilitation and mining activities in accordance with the most recent MOP.	Ongoing throughout the year
3	Continue environmental monitoring and management.	Ongoing throughout the year
4	Continue implementation of approved Leard State Forest Precinct Strategies.	Ongoing throughout the year
5	Continue community liaison and engagement with local stakeholders	Ongoing throughout the year



Appendix 1: Blast Monitoring Data

BLAST MONITORING DATA

ANNUAL REVIEW
2021 TARRAWONGA COAL PTY L'
2021 Groundwater Monitoring Da

Environmental Blast Monitoring

Tarrawonga Coal Pty Ltd ACK 100 TAZ 116

Shot #	Location I.D	Date	Monitor Location	Peak Ground Presure (mm/s)	Peak Overpressur (dBL)	Time	Fume Rating
1019	TC48_1214_JE & TC48_1218_JE_PS	13 January 2021	Coolmalgah	95	0.22	12:01pm	1B
			Tarrawonga	99.7	0.12		
1020	TN29_0811_BW300	15 January 2021	Coolmalgah Tarrawonga	104.2 99	0.07 0.09	12:10pm	-
			Coolmalgah	86.9	0.09		
1021	TC30_0409_BC	19 January 2021	Tarrawonga	91	0.04	11:57pm	-
			Coolmalgah	97.7	0.09		
1022	TC50_1214_BW284	21 January 2021	Tarrawonga	90.7	0.06	1:14pm	-
1023	TC30_0101_RL300_ROCK	27 January 2021	Coolmalgah	99.6	0.01	12:51pm	_
1023	1630_0101_N200_NOCK	27 January 2021	Tarrawonga	94.2	0.02	12.31pm	
1024	TC46_1219_NG	29 January 2021	Coolmalgah	94	0.26	12:08pm	-
		,	Tarrawonga	101.2	0.29		
1025	TN27_0303_RL280_TRIM	1 February 2021	Coolmalgah	93	0.25	4:30pm	-
			Tarrawonga	98.9	0.3		
1026	TN2829_0103_JE&TN2829_0101_MN	5 February 2021	Coolmalgah Tarrawonga	93.8 101.8	0.25 0.26	1:01pm	-
			Coolmalgah	84.5	0.25		
1027	TN23_0104_NG	18 February 2021	Tarrawonga	100.4	0.13	1:02pm	-
4020	TC20 0500 IF8TC20 0500 MM	40.5-1	Coolmalgah	103.4	0.49	2.00	
1028	TC29_0509_JE&TC29_0509_MN	19 February 2021	Tarrawonga	102.9	0.48	3:00pm	-
1029	TN23_0509_NG	3 March 2021	Coolmalgah	95	0.07	12:56pm	-
1029	11423_0309_140	3 Walti 2021	Tarrawonga	93.6	0.13	12.30piii	-
1030	TC29_0104_JE	5 March 2021	Coolmalgah	106.9	0.35	9:39am	1A
1050	1025_0204_52	5 March 2021	Tarrawonga	111.6	0.34	3.550	271
1031	TC48_1824_JE	11/0/2021	Coolmalgah	98.5	0.27	3:37pm	1A
			Tarrawonga	111.4	0.21		
1032	TC50_1218_JE	30 March 2021	Coolmalgah	92.5	0.29	12:31pm	2B
			Tarrawonga	101.4 99.2	0.19 0.99		
1033	TC47_1217_NG_PS&TN24_0210_JE	14 April 2021	Coolmalgah Tarrawonga	98.1	0.54	4:30pm	1A
			Coolmalgah	101.8	0.28		
1034	TN24_0210_JE	15 April 2021	Tarrawonga	109.4	0.71	11:44pm	-
1035	TCF0 4024 IF	27.4 11.2024	Coolmalgah	95.5	0.26	12:56	2B
1035	TC50_1824_JE	27 April 2021	Tarrawonga	97.7	0.14	12:56	28
1036	TN28_0303_RL280_TRIM	29 April 2021	Coolmalgah	101.6	0.11	12:28pm	-
	***************************************		Tarrawonga	95.7	0.21		
1037	TC47_1217_MN	30 April 2021	Coolmalgah	107.6	1.01	12:6pm	-
			Tarrawonga	109.4	0.73		
1038	TC47_2225_NG	4 May 2021	Coolmalgah Tarrawonga	96.6	0.21 0.16	12:01pm	2B
				80.3 94.4	0.16		
1039	TC29_0810_MN	10 May 2021	Coolmalgah Tarrawonga	91.7	0.22	12:13pm	3A
4040	TCF0. 4640. IF	42.142025	Coolmalgah	94	0.13	44.25	
1040	TC50_1618_JE	12 May 2021	Tarrawonga	90	0.07	11:25am	-
1041	TC47_1821_NG_PS	13 May 2021	Coolmalgah	88.4	0.45	3:50pm	_
1041	1047_1021_110_13	15 Way 2021	Tarrawonga	error	error	3.30pill	_
1042	TC29_0103_MN	18 May 2021	Coolmalgah	97.5	0.21	12:06pm	-
		,	Tarrawonga	94.9	0.18	,	
1043	TC47_1825_MN	25 May 2021	Coolmalgah	104.7	0.61	9:15am	2B
-			Tarrawonga	132.2	0.51	1	
1044	TC51_1723_JE	27 May 2021	Coolmalgah Tarrawonga	98.7 98.3	0.35 0.18	1:07pm	2B
			Coolmalgah	93.4	0.18	1	
1045	TH33_0409_RL325	7 June 2021	Tarrawonga	102.6	0.15	1:13pm	3B
40.0	TCC4 4C47 7	0.1	Coolmalgah	104.3	0.24	0.4-	
1046	TC51_1617_DAM_JE	8 June 2021	Tarrawonga	99.4	0.11	9:17am	-
1047	TC30_0407_MN & TN24_0205_MN	18 June 2021	Coolmalgah	104.3	0.14	2:20pm	1A
1047	1C30_0407_WIN & 11424_0203_WIN	10 Julie 2021	Tarrawonga	97.6	0.14	2.20pill	IA
1048	TN24_0610_MN	24 June 2021	Coolmalgah	98.2	0.02	9:02am	-
10.00	11120020_11111	2-30.10 2021	Tarrawonga	101.8	0.02	3.020.11	

Shot #	Location I.D	Date	Monitor Location	Peak Ground Presure (mm/s)	Peak Overpressur (dBL)	Time	Fume Rating
1049	TC47_1316_VY	1 July 2021	Coolmalgah Tarrawonga	94.7 111.4	0.42 0.2	12:31pm	-
1050	TC51_1718_JE & TC52_1318_RL284	5 July 2021	Coolmalgah Tarrawonga	111.6 96.5	0.16 0.07	12.07pm	-
1051	TC30_0102_NG_PS_210706	7 July 2021	Coolmalgah Tarrawonga	88.1	0.12	4:06pm	-
1052	TN26_0310_MN_PS	8 July 2021	Coolmalgah	98.8 94.7	0.29 0.32	12:01pm	1B
1053	TC30_0102_VY	14 July 2021	Tarrawonga Coolmalgah	102.8 106.9	0.34 0.29	1:28pm	-
1054	TC47_2223_NG & TC53_12_RL284	22 July 2021	Tarrawonga Coolmalgah	109.7 93.1	0.34 0.29	11:39am	1A
1055	TN24_0210_VY & TN24_0210_NG	28 July 2021	Tarrawonga Coolmalgah	89.5 96.2	0.16 0.17	10:17am	1A
			Tarrawonga Coolmalgah	99.6 103.7	0.23 0.08		IA.
1056	TH33_0409_BW325	29 July 2021	Tarrawonga Coolmalgah	88.4 90.9	0.11 0.06	12:03pm	-
1057	TC53_1316_RL284	2 August 2021	Tarrawonga Coolmalgah	101.3 96.8	0.06 0.21	10:01am	-
1058	TC47_1922_NG	5 August 2021	Tarrawonga	92.9	0.15	12:07pm	-
1059	TH33_0104_BW325	11 August 2021	Coolmalgah Tarrawonga	97.3 96.6	0.11 0.19	12:26pm	-
1060	TC51_1316_JE_PS	13 August 2021	Coolmalgah Tarrawonga	108.2 92.7	0.09 0.09	11:45am	-
1061	TC51_1316_JE_PART1	20 August 2021	Coolmalgah Tarrawonga	104.2 113.1	0.21 0.14	9:12am	1A
1062	TC51_1316_JE_PART2	30 August 2021	Coolmalgah Tarrawonga	113.4 116.3	0.25 0.16	9:01am	-
1063	TC47_1718_NG	1 September 2021	Coolmalgah Tarrawonga	90.8 92.1	0.19 0.12	11:17am	-
1064	TC48_1225_NG_PS	3 September 2021	Coolmalgah Tarrawonga	93.4 99.2	1.21 0.58	3:29pm	-
1065	TC47_1216_NG & TC48_20_MN_ECH_PS	10 September 2021	Coolmalgah Tarrawonga	98.2 97.5	0.38 0.12	1:02pm	-
1066	TN3031_0104_BC & TC30_OVERSIZED ROCKS	47/9/21	Coolmalgah	91.4	0.12	11:35am	-
1067	TC48_2024_MN	17 September 2021	Tarrawonga Coolmalgah	90.7 97.7	0.15 1.4	1:09pm	-
1068	TC30_0306_VY & OVERSIZED_ROCKS	28 September 2021	Tarrawonga Coolmalgah	102.4 99.2	0.47 0.09	12:08pm	_
1069		30 September 2021	Tarrawonga Coolmalgah	100.5 103.7	0.12 0.19	11:04am	
	TC52_1418_JE_PS	<u> </u>	Tarrawonga Coolmalgah	105.1 97.6	0.08 0.09		-
1070	TC53_1315_RL280	6 October 2021	Tarrawonga Coolmalgah	91.3 109.9	0.08 0.41	12:04pm	-
1071	TC2_1418_JE	15 October 2021	Tarrawonga	99.4 104.6	0.17	9:18am	-
1072	TC48_1219_MN	22 October 2021	Coolmalgah Tarrawonga	104.6	1.29 0.49	12:08pm	-
1073 1074	TN (Multiple locations)	29 October 2021	Coolmalgah Tarrawonga	109.7 105.6	0.24	12:04pm	1B
1075 1076	TN24_0210_NG	10 November 2012	Coolmalgah	106.9	0.07	12:00pm	-
1078	TN24_0204_NG & TH31_0405_BC	18 November 2021	Tarrawonga Coolmalgah	99.2 95	0.12 0.06	12:07pm	-
1079 1080	TC48_2024_NG	1 December 2021	Tarrawonga Coolmalgah	100.2 90.6	0.09 0.31	10:43am	3b
			Tarrawonga Coolmalgah	88.4 85.3	0.16 0.2		
1081	TC54_1624_NG	8 December 2021	Tarrawonga Coolmalgah	82.8 86.9	0.08 0.16	9:04am	1a
1077	TN252627_0204_RL280	16 December 2021	Tarrawonga	93.1	0.16	1:08pm	3C



Appendix 2: HVAS Monitoring Data

HVAS MONITORING DATA

COOMALGAH $\mathrm{PM}_{10}\,$ 24Hrs average at HIGH VOLUME AIR SAMPLER

Date	μg/m³	Comments
3-Jan-21	6.4	
9-Jan-21	9	
15-Jan-21	8.9	
21-Jan-21	18	
27-Jan-21	23	
2-Feb-21	3.7	
8-Feb-21	8.2	
14-Feb-21	6.4	
20-Feb-21	4	
26-Feb-21	6.7	
4-Mar-21	7	
10-Mar-21	7.2	
16-Mar-21	4.6	
22-Mar-21	2.6	
28-Mar-21	5.1	
3-Apr-21	5.5	
9-Apr-21	9	
15-Apr-21	20.1	
21-Apr-21 27-Apr-21	13.2 8.4	
3-May-21	7.4	
9-May-21	3.4	
15-May-21	4.9	
21-May-21	11.8	
27-May-21	4.5	
2-Jun-21	27.8	
8-Jun-21	3.9	
14-Jun-21	1.2	
20-Jun-21	1.2	
26-Jun-21	0.7	
2-Jul-21	1.2	
8-Jul-21	4.2	
14-Jul-21	2.8	
20-Jul-21	3.1	
26-Jul-21	3.7	
1-Aug-21	9.2	
7-Aug-21	2.4	
13-Aug-21	2.5	
19-Aug-21	11.5	
25-Aug-21	2.2	
31-Aug-21	8.5	
6-Sep-21	<0.1 25.4	
12-Sep-21 18-Sep-21	18.5	
24-Sep-21	10.4	
30-Sep-21	3.6	
6-Oct-21	9	
12-Oct-21	3.9	
18-Oct-21	5.9	
24-Oct-21	6.3	
30-Oct-21	7.7	
5-Nov-21	5.5	
11-Nov-21	9.6	
17-Nov-21	13.4	
23-Nov-21	2.9	
29-Nov-21	2.9	
5-Dec-21	48.4	
11-Dec-21	5.1	
17-Dec-21	77.6	Noted on the field sheet that 'wheat harvesting occurring on the property and increased volume of trucks in the area'. Air specialist consultant confirmed that this level was not mine-related, and attributed only 5% of this result to TCM operations
23-Dec-21	7.7	
29-Dec-21	5.8	



Appendix 3: SW Monitoring Data

SURFACE WATER MONITORING DATA

Quarterly Surface Water Monitoring Results

Date	Sample Location	рН	EC (μS/cm)	Total Suspended Solids (mg/L)	Total Organic Carbon (mg/L)	Grease & Oil (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Comments
8-Sep-06	SD5	6.5	930	144		<2					
8-Sep-06	SD6	7.5	310	104		<2					
8-Sep-06	SD8	8.9	190	25		<6					
8-Sep-06	SD9	9	285	1940		<2					
						2007					
11-Jan-07	SD5	8.4	3750	20		<2					
11-Jan-07	SD8	8.2	420	84							
11-Jan-07	SD9	8.6	440	15		<2					
11-Jan-07	MV1	7.7	3970	293		<2					
18-Apr-07	SD1	8.6	605	86		<2					
18-Apr-07	SD2	8.5	395	102		<2					
18-Apr-07	SD8	8.6	270	36		<2					
18-Apr-07	SD9	8.4	310	133		<2					
18-Apr-07	SD20	9.1	520	80		<2					
18-Apr-07	MV	7.8	4260	<2		<2					
25-Jul-07	SD1	7.5	990	23		<2					
25-Jul-07	SB5	8	1150	17		<2					
25-Jul-07	MV1	7.6	3130	15		30					
25-Jul-07	SD8	8.1	260	25		<2					
25-Jul-07	SD9	7.7	290	22		<2					
25-Jul-07	SD5	8.4	3370	8		<2					
31-Oct-07	SD9	7.8	310	16		<2					
31-Oct-07	SD8	8.8	780	32		<2					
31-Oct-07	SB5	8.9	1200	60		<2					
31-Oct-07	SB8*	9	2000	110		<2					
31-Oct-07	SB7	8.4	560	27		<2					
31-Oct-07	MV	8.1	2780	45		<2					
31-Oct-07	SD5	8.3	2620	44		<2					
						2008					
18-Mar-08	SD9	6.9	245	27		<2					
18-Mar-08	SD8	8.4	1340	19		<2					
18-Mar-08	SD5										
18-Mar-08	SD20	7.4	385	44		<2					
18-Mar-08	Pit Water Dam	8.4	1620	14		<2					
18-Mar-08	MV	7.8	3110	10		<2					
18-Mar-08	SB5	7.8	870	54		<2					
18-Mar-08	SB7	7.5	365	387		<2					
18-Mar-08	SD17	7.4	460	58		<2					
22-Aug-08	SD9	7.9	275	35		<2					
22-Aug-08	SD8	8.9	1450	20		<2					
22-Aug-08	SB16	8.8	1440	16		<2					
22-Aug-08	SD5	8.7	1310	35		<2					
22-Aug-08	SB4	8.7	1980	31		<2					
22-Aug-08	SB5	8.5	955	13		<2					
22-Aug-08	Pit Water Dam	8.7	2420	17		<2					
5-Sep-08	BCD BCD	7.2	75	150		<2					
5-Sep-08	DAM1	7.4	185	4930		<2					
23-Sep-08	BCU	6.8	95	92		<2					
23-Sep-08	BCD	6.7	115	107		<2					

Date	Sample Location	рН	EC (μS/cm)	Total Suspended Solids (mg/L)	Total Organic Carbon (mg/L)	Grease & Oil (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Comments
23-Sep-08	SD8	8.9	995	24		<2					
23-Sep-08	SD17	8.3	720	456		<2					
7-Oct-08	SD17	8.2	735	75		<2					
7-Oct-08	SD8	8.9	775	22		<2					
7-Oct-08	SB14	8.5	255	43		<2					
15-Dec-08	SD17	7.4	435	152		<2					
15-Dec-08	SD9	7.3	245	24		3					
15-Dec-08	SD8	8.2	635	22		<2					
15-Dec-08	BCD	6.9	135	30		<2					
						2009					
10-Feb-09	MV	8.2	3370	13		<2					
10-Feb-09	SD8	8.9	790	11		<2					
10-Feb-09	SD9	8.5	330	16		<2					
10-Feb-09	SB14	8	380	32		<2					
10-Feb-09	SB5	8.8	1070	7		<2					
10-Feb-09	SB16	9	1200	6		<2					
24-Jun-09	SB7	8.21	401	90	6	<5					
24-Jun-09	SB5	8.62	1180	12	8	<5					
24-Jun-09	Pit water	8.87	2330	148	5	<5					
24-Jun-09	SD9	8.33	335	5	8	<5					
24-Jun-09	SD16	8.16	550	20	5	<5					
24-Jun-09	SB14	7.71	351	29	9	<5					
27-Aug-09	SB7	8.1	418	62	5	<10					
27-Aug-09	SB5	8.64	1210	29	8	<10					
27-Aug-09	Pit water	8.2	2580	264	6	<10					
27-Aug-09	SD9	8.36	389	12	8	<10					
31-Aug-09	SB14	8.73	342	56	10	<10					
31-Aug-09	SD16	8.3	547	158	5	<10					
22-Dec-09	NCD	7.8	137	164	16	19					
22-Dec-09	BCU	7.32	150	220	25	-					
22-Dec-09	BCD	7.04	146	32	43	-					
29-Dec-09	BCD	6.88	75	47	15						
29-Dec-09	NCD	6.73	143	32	10						
29-Dec-09	NCU	6.79	95	34	18						
29-Dec-09	SD14	8.12	1080	65	4						
29-Dec-09	SB14	7.41	374	128	19						
29-Dec-09	Goonbri Creek	7.02	60	38	12						
						2010		ı			
25-Feb-10	SB7	8.14	197	194	3	5					
25-Feb-10	SB5	8.06	681	77	4	<5					
25-Feb-10	SD9	7.95	123	18	8	5					
25-Feb-10	SD16	8.49	734	257	3	<5					
25-Feb-10	SB14	8.03	232	40	6	<5					
25-Feb-10	SD2	8.37	276	15	<5	<5					
24-May-10	SB7	8.41	291	17	4	13					
24-May-10	SB5	8.59	531	48	5	13					
24-May-10	SD9	8.62	148	10	8	6					
24-May-10	SD16	8.93	810	9	4	8					
24-May-10	SB14	7.76	251	538	8	6					
6-Jul-10	SB14	8.09	245	95	5	<5					

Date	Sample Location	рН	EC (μS/cm)	Total Suspended Solids (mg/L)	Total Organic Carbon (mg/L)	Grease & Oil (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Comments
9-Aug-10	SB16	8.39	1170	10	3	<5					
9-Aug-10	Pit water	7.07	1940	37	2	<5					
9-Aug-10	SD9	7.72	147	24	9	<5					
9-Aug-10	SD16	8.29	793	40	5	<5					
9-Aug-10	SB14	7.69	260	1300	6	<5					
2-Nov-10	SB7 (pre floc)	8.33	332	38	4	<5					
4-Nov-10	SB7 (post floc)	8.72	339	10	3	<5					
10-Nov-10	SB16	9.19	1140	14	3	<5					
10-Nov-10	SD9	7.94	168	16	11	<5					
10-Nov-10	SD16	9.49	831	11	5	<5					
10-Nov-10	SB14	7.72	323	56	5	<5					
						2011					
9-Mar-11	SD17	8.38	393	42	6	<5					
9-Mar-11	SB16	7.17	968	20	6	<5					
9-Mar-11	VOID	7.95	2540	78	6	<5					
9-Mar-11	SD9	7.98	186	30	11	<5					
9-Mar-11	SD16	8.71	762	27	5	<5					
9-Mar-11	SB14	8.17	361	43	6	<5					
3-May-11	SD16	8.58	1020	22	6	<5	<0.001	0.002	0.014	<0.01	
3-May-11	SB14	7.9	434	24	6	<5	<0.001	0.002	0.004	<0.01	
3-May-11	SD17	8.92	2040	20	6	<5	<0.001	0.004	0.014	<0.01	
3-May-11	SB16	8.58	1030	13	4	<5	0.003	0.2	0.029	<0.01	
3-May-11	VOID	Dry									
4-Aug-11	SD16	8.64	975	32	8	<5	<0.001	0.002	0.011	<0.01	
4-Aug-11	SB14	8.33	414	24	6	<5	<0.001	0.001	0.003	<0.01	
4-Aug-11	SD17	8.53	925	10	8	<5	<0.001	0.002	0.006	<0.01	
4-Aug-11	SB16	8.52	891	24	4	<5	0.004	0.002	0.028	<0.01	
4-Aug-11	VOID	8.52	2890	49	5	<5		0.015			
9-Nov-11	SD16	9.03	791	20	7	<5	<0.001	0.003	0.01	<0.01	
9-Nov-11	SB14	7.84	431	20	5	<5	<0.001	0.002	0.004	<0.01	
9-Nov-11	SD17	8.39	448	56	6	<5	<0.001	0.002	0.003	<0.01	
9-Nov-11	SB16	8.39	646	6	3	<5	0.003	0.002	0.026	<0.01	
9-Nov-11	VOID	8.08	1790	158	3	<5	0.003	0.002	0.020	V0.01	
9-INOV-11	VOID	0.00	1750	138	3	2012					
29-Feb-12	SD16	7.96	365	34	2	<5	<0.001	0.001	0.009	<0.01	
29-Feb-12 29-Feb-12	SB14	8.15	443	174	5	<5	<0.001	0.002	0.003	<0.01	
			434	18	7	<5	<0.001	0.002	0.003	<0.01	
29-Feb-12	SD17	8.23	434	23			0.001		0.004	<0.01	
29-Feb-12	SB16	8.17	433 727	23 1620	2	<5 <5	0.001	0.001 0.008	0.012	<0.01	
29-Feb-12	VOID	8.3		70	4			0.008	 		
9-Mar-12	SB23 Pre-floc	7.84	148	 	4	<5			-		
10-Mar-12	SB23 24hrs post floc	7.82	159	60	16	<5					
11-Mar-12	SB23 48hrs post floc	7.75	158	61	16	<5					
2-Mar-12	SD16 Pre-floc	8.17	351	16	2	<5					
2-Mar-12	SB14 Pre-floc	8.13	452	50	5	<5					
2-May-12	SD16	8.37	388	14	2	<5	<0.001	<0.001	0.008	<0.01	
2-May-12	SB14	9.08	1060	57	5	<5	<0.001	0.002	0.004	<0.01	
2-May-12	SD17	8.74	602	8	6	<5	<0.001	0.001	0.006	<0.01	
2-May-12	SB16	7.87	456	6	1	<5	0.001	0.001	0.013	<0.01	
2-May-12	VOID	8.26	2080	10	1	<5	0.002	0.009	0.048	<0.01	
2-May-12	GCR1	7.99	689	104	35	<5	<0.001	0.003	0.002	<0.01	

11-May-12 S824 373 42 11 45 5 5 5 5 5 5 5 5	
22-May-12 SB14 980 42 5 <5	
22-May-12 SD16 400 35 2 <5	
22-May-12 SD9 133 36 8 <5	
22-May-12 SD17 SD18 S58 S58 16 7 <5	
28-May-12 SD17 8.58 558 16 7 <5	
28-May-12 SD9 7.97 136 37 8 <5	
28-May-12 SB14 8.21 661 53 5 <5	
28-May-12 SB24 8.21 351 42 11 <5	
18-Jun-12 SB14 8.05 513 92 5 <5	
18-Jun-12 SD16 8.13 445 25 4 <5	
18-Jun-12 SD9 7.95 137 23 8 <5	
18-Jun-12 SD17 8.54 533 14 6 <5	
18-Jun-12 Canyon SD 8.13 304 87 9 <5	
11-Jul-12 NCD 7.19 174 150 19 <5	
20-Jul-12 S823-After Floc 7.92 254 16 3 <5	
23-Jul-12 SD16-Background info water 8.02 450 25 3 <5	
23-Jul-12	
14-Aug-12 SD16 8.1 454 <5	
14-Aug-12 SB14 8.11 646 <5 7 <5 <0.001 0.002 0.007	
	<0.01
	<0.01
14-Aug-12 SD17 8.08 465 <5 5 <5 <0.001 0.001 0.004	<0.01
14-Aug-12 SB16 7.96 561 <5 2 <5 0.003 0.002 0.02	<0.01
14-Aug-12 VOID 8.39 2220 <5 2 <5	
14-Aug-12 GCR1 7.82 190 16 19 <5 <0.001 0.002 <0.001	<0.01
14-Aug-12 GCR2 7.72 182 12 17 <5 <0.001 0.002 <0.001	<0.01
14-Nov-12 SD16 9.84 679 100 6 <5 <0.001 0.004 0.01	<0.01
14-Nov-12 SB14 8.85 890 24 3 <5 <0.001 <0.001 0.006	<0.01
14-Nov-12 SD17 8.7 700 14 4 <5 <0.001 <0.001 0.006	<0.01
14-Nov-12 SB16 8.69 707 76 1 <5 0.004 0.002 0.026	<0.01
14-Nov-12 VOID 8.62 2870 10 <1 <5	
2013	
1-Feb-13 SD9 pre floc 7.44 262 43 7 <5	
1-Feb-13 SD9 post floc 7.39 267 82 8 <5	
20-Feb-13 SD9-Pre Discharge 7.89 275 18 8 <5	
6-Mar-13 SD16 7.69 252 288 5 <5 <0.001 0.005 0.001	<0.01
6-Mar-13 SB14 7.81 378 99 4 <5 <0.001 0.001 0.002	<0.01
6-Mar-13 SD17 8 229 91 4 <5 <0.001 <0.001 0.002	<0.01
6-Mar-13 SB16A 8.01 365 240 4 <5 0.002 0.004 0.013	<0.01
6-Mar-13 VOID 8.23 1620 16 2 <5	
6-Mar-13 GCR1 7.43 126 106 5 <5 <0.001 <0.001 <0.001	<0.01
6-Mar-13 GCR2 7.42 173 48 16 <5 <0.001 0.002 <0.001	<0.01
30-May-13 SD16 8.16 341 100 7 <5 <0.001 0.003 0.003	<0.01
30-May-13 SB14 8.42 538 38 6 <5 <0.001 0.002 0.003	<0.01
30-May-13 SD17 8.47 334 49 6 <5 <0.001 0.002 0.003	<0.01
30-May-13 SB16A 8.25 530 108 10 <5 0.004 0.004 0.018	<0.01
30-May-13 VOID 8.51 3120 45 4 <5	
7-Aug-13 SD16 8.49 390 7 6 <5 <0.001 0.001 0.003	<0.01
7-Aug-13 SB14 8.96 570 8 7 <5 <0.001 <0.001 0.002	<0.01
7-Aug-13 SD17 8.59 371 9 4 <5 <0.001 <0.001 0.003	<0.01
7-Aug-13 SB16A 8.05 585 20 7 <5 0.005 0.003 0.022	<0.01
7-Aug-13 VOID 8.35 2660 29 6 <5	
7-Aug-13 TAR-GCD 7.4 155 52 16 <5 <0.001 0.002 <0.001	<0.01
7-Aug-13 TAR-GCU 7.42 208 14 20 <5 <0.001 0.003 <0.001	<0.01

Date	Sample Location	рН	EC (μS/cm)	Total Suspended Solids (mg/L)	Total Organic Carbon (mg/L)	Grease & Oil (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Comments
5-Nov-13	SD16	9.42	538	29	15	<5	<0.001	0.004	0.004	<0.01	
5-Nov-13	SB14	8.55	1070	172	17	<5	<0.001	0.002	0.005	<0.01	
5-Nov-13	SD17	8.87	573	21	9	<5	<0.001	0.002	0.005	<0.01	
5-Nov-13	SB16A	8.8	918	38	8	<5	0.008	0.005	0.04	<0.01	
5-Nov-13	VOID	8.25	2530	11	29	<5		0.01			
						2014					
20-Feb-14	TAR-SD16	8.35	432	65	6	<5	< 0.001	0.006	0.003	<0.01	
20-Feb-14	TAR-SB14	8.09	393	1280	8	<5	<0.001	0.005	<0.001	0.01	
20-Feb-14	TAR-SD17	8.79	712	46	8	<5	<0.001	0.002	0.007	<0.01	
20-Feb-14	TAR-SB16A	8.61	713	330	8	<5	0.004	0.01	0.023	<0.01	
20-Feb-14	TAR-VOID	8.63	1350	22	1	<5	0.007	0.026	0.101	<0.01	
20-Feb-14	TAR-GCU	6.69	115	433	23	<5	<0.001	0.005	0.001	<0.01	
6-May-14	TAR-SD16	8.12	404	19	3	21	<0.001	0.004	0.003	<0.01	
6-May-14	TAR-SB14	8.92	1980	10	4	5	<0.001	0.002	0.008	<0.01	
6-May-14	TAR-SD17	8.26	351	25	3	<5	<0.001	0.002	0.0002	<0.01	
6-May-14	TAR-SB16A	8.2	483	134	1	<5	0.003	0.008	0.02	<0.01	
6-May-14	TAR-VOID	8.31	3280	213	<1	<5		0.006			
6-May-14	TAR-GCU	7.89	318	<5	14	<5	<0.001	0.002	0.001	<0.01	
6-May-14	TAR-GCD	7.88	301	<5	17	<5	<0.001	0.001	<0.001	<0.01	
6-Aug-14	TAR-SD16	8.7	439	5	6	<5	<0.001	0.002	0.002	<0.01	
6-Aug-14	TAR-SB14	8.67	1450	22	7	<5	<0.001	0.001	0.004	<0.01	
6-Aug-14	TAR-SD17	8.44	397	48	7	<5	<0.001	0.002	0.003	<0.01	
6-Aug-14	TAR-SB16A	8.25	609	63	8	<5	0.005	0.004	0.024	<0.01	
6-Aug-14	TAR-VOID	8.5	3260	515	16	<5					
6-Aug-14	TAR-GCU	8.31	392	42	14	<5	<0.001	0.002	<0.001	<0.01	
11-Nov-14	TAR-SD16	8.7	507	14	6	<5	<0.001	0.002	0.004	<0.01	
11-Nov-14	TAR-SB14	8.85	1480	50	14	<5	<0.001	0.003	0.012	<0.01	
11-Nov-14	TAR-SD17	8.7	539	34	7	<5	<0.001	<0.001	0.005	<0.01	
11-Nov-14	TAR-SB16A	8.51	740	18	5	<5	0.006	0.003	0.032	<0.01	
11-Nov-14	TAR-GCU	7.7	549	1230	57	<5	<0.001	0.022	0.006	<0.01	
11-Nov-14	TAR-GCD	7.64	751	62	50	<5	<0.001	0.011	0.004	<0.01	
8-Dec-14	TAR-VOID	8.04	3060	170	<1	<5					
						2015					
18-Feb-15	TAR-SD16	8.19	451	16	4	<5	<0.001	0.004	0.006	<0.01	
18-Feb-15	TAR-SB14	8	626	12	4	<5	<0.001	0.004	0.005	<0.01	
18-Feb-15	TAR-SD17	8.13	313	123	5	<5	<0.001	0.007	0.006	<0.01	
18-Feb-15	TAR-SB16A	8.29	574	71	2	<5	0.003	0.007	0.025	<0.01	
18-Feb-15	TAR-GCU	7.43	242	86	6	<5	<0.001	0.01	0.02	<0.01	
18-Feb-15	TAR-GCD	7.22	444	748	26	<5	<0.001	0.016	0.002	<0.01	_
18-Feb-15	TAR-VOID	8.72	3170	10	<1	<5					
7-May-15	TAR-SD16	8.27	409	16	6	<5	<0.001	0.003	<0.001	<0.01	
7-May-15	TAR-SB14	8.85	1300	17	8	<5	<0.001	0.002	0.002	<0.01	
7-May-15	TAR-SD17	8.3	539	44	5	<5	0.001	0.003	0.007	<0.01	
7-May-15	TAR-SB16A	8.19	571	44	2	<5	0.005	0.003	0.008	<0.01	_
7-May-15	TAR-VOID	8.62	2910	5	5	<5					
7-May-15	TAR-GCD	7.35	147	29	8	<5	<0.001	0.003	<0.001	<0.01	

Date	Sample Location	рН	EC (μS/cm)	Total Suspended Solids (mg/L)	Total Organic Carbon (mg/L)	Grease & Oil (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Comments
17-Aug-15	TAR-SD16	8.43	426	19	4	8	<0.001	0.003	0.011	<0.01	
17-Aug-15	TAR-SB14	8.91	1070	7	5	<5	0.001	0.001	0.02	<0.01	
17-Aug-15	TAR-SD17	8.81	902	192	8	7	< 0.001	0.002	0.043	<0.01	
17-Aug-15	TAR-SB16A	7.95	658	65	2	7	0.007	0.004	0.05	<0.01	
17-Aug-15	TAR-GCU	7.67	161	96	6	6	<0.001	0.004	0.001	<0.01	
17-Aug-15	TAR-GCD	7.59	202	35	7	<5	<0.001	0.007	<0.001	<0.01	
27-Aug-15	TAR-VOID	8.41	1020	49200	<20	6					
17-Nov-15	TAR-SD16	8.9	440	10	6	<5	<0.001	0.004	0.004	<0.01	
17-Nov-15	TAR-SB14	8.21	455	100	9	<5	<0.001	0.003	0.005	<0.01	
17-Nov-15	TAR-SD17	7.98	361	191	10	<5	<0.001	0.004	0.004	<0.01	
17-Nov-15	TAR-SB16A	8.08	550	64	6	<5	0.001	0.002	0.048	<0.01	
17-Nov-15	TAR-VOID	8.36	1350	43	4	<5					
17-Nov-15	TAR-GCU	7.47	157	33	15	<5	<0.001	0.006	<0.001	<0.01	
			<u> </u>		<u> </u>	2016	<u>I</u>	<u>I</u>		1	
11-Feb-16	TAR-SD16	8.2	289	95	5	<5	<0.001	0.006	0.004	<0.01	
11-Feb-16	TAR-SB14	8.29	722	21	4	<5	<0.001	0.004	0.007	<0.01	
11-Feb-16	TAR-SD17	8.26	698	174	2	<5	0.002	0.007	0.014	<0.01	
11-Feb-16	TAR-SB16A	7.99	622	84	1	<5	0.002	0.003	0.035	<0.01	
11-Feb-16	TAR-VOID	8.28	882	53	<1	<5					
11-Feb-16	TAR-GCD	7.45	159	129	10	<5	<0.001	0.01	0.002	<0.01	
10-May-16	TAR-VOID	8.33	3270	<5	2	<5	40.001	0.011	0.002	<0.01	
10-May-16	TAR-SD16	8.04	340	66	5	<5	<0.001	0.004	0.003	<0.01	
10-May-16	TAR-SB14	8.45	535	108	8	<5	<0.001	0.005	0.003	<0.01	
10-May-16	TAR-SD17	8.45	774	25	9	<5	<0.001	0.003	0.016	<0.01	
			847	21	4	<5	<0.001	0.003	0.03	<0.01	
10-May-16	TAR-SB16A	7.25	170	119	14	<5	<0.001	0.002	<0.001	<0.01	
10-May-16	TAR-GCD TAR-SD16	7.25 8.13	427	19	6	<5	<0.001	0.003	0.003	<0.01	
10-Aug-16			644	154	6	<5	<0.001	0.004	0.003		
10-Aug-16	TAR-SD14	8.13	267		5		<0.001	0.004	0.003	<0.01 <0.01	
10-Aug-16	TAR-SD17	7.85	474	87 45	3	<5 <5	<0.001 <0.001	0.005	0.003	<0.01 <0.01	
10-Aug-16	TAR-SB16A	8.13	136	18	16	<5	<0.001		<0.017		
10-Aug-16	TAR-GCU	7.29						0.003		<0.01	
10-Aug-16	TAR-GCD	7.08	95	33	12	<5	<0.001	0.002	<0.001	<0.01	
10-Aug-16	TAR-VOID	8.55	3010	6	1	<5	0.004	0.005	0.004	0.04	
15-Nov-16	TAR-SD16	8.72	712	7	5	<5	<0.001	0.005	0.004	<0.01	
15-Nov-16	TAR-SD17	8.77	557	37	10	<5	<0.001	0.003	0.01	<0.01	
15-Nov-16	TAR-SB16A	8.36	603	14	6	<5	<0.001	0.003	0.025	<0.01	
15-Nov-16	TAR-VOID	8.6	3000	26	2	<5					
15-Nov-16	TAR-GCU	7.89	242	26	16	<5	<0.001	0.004	0.002	<0.01	
15-Nov-16	TAR-GCD	8.15	526	12	12	<5	<0.001	0.004	<0.001	<0.01	
				1		2017	ı	<u> </u>	1		
2-Aug-17	SD14	7.9	459	28	12	<5	<0.001	0.008	0.002	<0.01	
2-Aug-17	SD17	8.1	528	202	22	<5	<0.001	0.009	0.006	<0.01	
2-Aug-17	SB16a	8.4	551	93	8	<5	<0.001	0.003	0.017	<0.01	
2-Aug-17	GCU	7.3	208	70	29	<5	<0.001	0.009	0.001	<0.01	
2-Aug-17	GCD	8.1	489	169	33	<5	<0.001	0.026	0.002	<0.01	
2-Aug-17	VOID	8.1	3360	8	2	<5					
5-Sep-17	SB14	8.9	757	67	5	5	<0.001	0.008	0.004	<0.01	
5-Sep-17	SD17	9.1	1300	170	12	12	<0.001	0.005	0.023	<0.01	
5-Sep-17	SB16a	8.4	957	41	1	1	<0.001	0.003	0.03	<0.01	
5-Sep-17	QCU	8.3	15	878	7	7	<0.001	0.006	<0.001	<0.01	

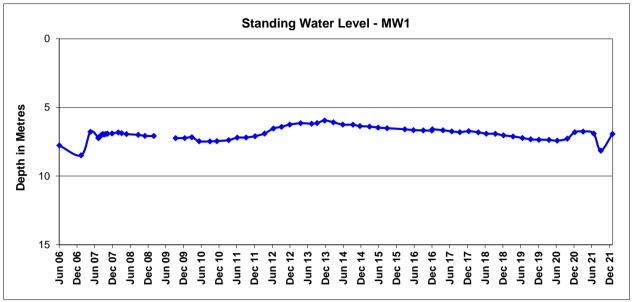
\$5.99 T COC 7.4 COR 275 37 37 40.001 0.006 0.000 0.001	Date	Sample Location	рН	EC (μS/cm)	Total Suspended Solids (mg/L)	Total Organic Carbon (mg/L)	Grease & Oil (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Comments
\$49-17 \$916 \$0.4 \$43 \$19 \$9 \$1 \$0.001 \$	5-Sep-17	QCD	7.4	678	225	37	37	<0.001	0.006	0.003	<0.01	
\$5.997 \$1014	5-Sep-17	VOID	8.6									
\$59:17 \$527 \$527 \$52 \$416 \$170 \$10 \$6 \$6.001 \$	8-Sep-17	SD16	9.4									
\$8.9917 \$8160	8-Sep-17	SD14	9.7									
\$\frac{8}{8}P\$P\$P\$P\$P\$P\$P\$P\$P\$P\$P\$P\$P\$P\$P\$P\$P\$P\$P\$	8-Sep-17	SD17	8.2	416	120	10	<5	<0.01	<0.01	<0.01	<0.01	
5-96-17	8-Sep-17	SB16a	8.1			6			<0.01	0.02	<0.01	
13-8w-17 W100 8.5 3000 21 5 5	8-Sep-17	GCU	7.5	114	121	8	<5	<0.01	< 0.01	<0.01	<0.01	
13490-77	8-Sep-17	GCD	7.9	280	161	12	<5	<0.01	<0.01	<0.01	<0.01	
13-80-17 5317 5316 56 690 85 77 <5 <5 <5 <5 <5 <5 <	9-May-17	VOID	8.5	3050	21	1	<5	-				
13-19-02-17 58516A 8.6 901 85 77 45 40001 0.004 0.026 4.001	13-Nov-17	SB14	8.1	440	130	11	<5	<0.001	0.007	0.002	<0.01	
13-Nov-17	13-Nov-17	SD17	9.1	958	122	29	<5	<0.001	0.006	0.017	<0.01	
133-80-17 GCU 6.5 1.75 2.2 144 <5 <0.001 0.007 0.001 <0.01 <0.01	13-Nov-17	SB16A	8.6	901	85	7	<5	<0.001	0.004	0.026	<0.01	
13-10-17 GCD 6.7 234 125 14	13-Nov-17	VOID	8.6	2970	19	2	<5					
122-Feb-18	13-Nov-17	GCU	6.5	175	22	14	<5	<0.001	0.007	0.001	<0.01	
22-feb-18 S016 9.2 3400 216 34 <5 <0.001 0.018 0.015 <0.01	13-Nov-17	GCD	6.7	234	125	14	<5	<0.001	0.005	0.001	<0.01	
22-Feb-18 SSB4 8.9 8.23 6.0 11 < \$ < < < < < <							2018					
22-Feb-18	22-Feb-18	SD16	9.2	1400	216	34	<5	<0.001	0.018	0.015	<0.01	
22-Feb-18	22-Feb-18	SB14	8.9	823	60	11	<5	<0.001	0.01	0.007	<0.01	
22-fe-18 GCU 7 170 166 25 <5 <5001 0.004 <0.001 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	22-Feb-18	SB16a	9.4	1330	280	36	<5	<0.001	0.012	0.028	<0.01	
22-May-18	22-Feb-18	Void	8.7	3600	15	1	<5					
## Other sites were day 21-Aug-18	22-Feb-18	GCU	7	170	166	25	<5	<0.001	0.004	<0.001	<0.01	
21-Aug-18	22-May-18	Void	8.9	3340	14	1	6					
21-Aug-18	Other sites were dry											
Ches sites were day SD16 8.5 407 634 4 4 4 5 40.001 0.014 0.001 0.011 0.011 13-Nov-18 SD16 8.5 407 634 4 4 4 5 40.001 0.004 0.006 40.01 0.011 13-Nov-18 SD14 8.9 2020 26 10 5 40.001 0.004 0.006 40.01 0.011 0.002 40.01 13-Nov-18 SD17 8.1 439 8898 10 45 40.001 0.011 0.002 40.01 0.011 13-Nov-18 SB16A 8.4 1090 436 20 45 40.001 0.014 0.011 40.011 40.01 13-Nov-18 GCU 7.1 253 14 18 45 40.001 0.005 0.001 40.01 40.01 13-Nov-18 GCU 7.2 260 65 18 45 40.001 0.011 0.001 40.01	21-Aug-18	SB16A	9.3	5300	54	51	<5	0.002	0.022	0.192	<0.01	
13-Nov-18 SD16 8.5 407 634 4 4 45 4001 0.014 0.001 0.01 13-Nov-18 SD14 8.9 2020 26 10 5 40.001 0.004 0.006 40.01 13-Nov-18 SD17 8.1 439 898 10 45 40.001 0.01 0.002 40.01 13-Nov-18 SB16A 8.4 1090 436 20 45 40.001 0.014 0.011 40.01 13-Nov-18 GCU 7.1 253 14 18 45 40.001 0.005 0.001 40.01 13-Nov-18 GCD 7.2 260 65 18 45 40.001 0.001 0.005 0.001 40.01 13-Nov-18 GCD 7.2 260 65 18 45 40.001 0.001 0.005 0.001 40.01 13-Nov-18 Vold 8.2 2880 18 5 45 40.001 0.011 0.001 40.	21-Aug-18	Void	8.9	3590	<5	2	<5					
13-Nov-18 SD14 8.9 2020 26 10 5 <0.001 0.004 0.006 <0.01 13-Nov-18 SD17 8.1 439 898 10 <5 <0.001 0.01 0.002 <0.01 13-Nov-18 SB16A 8.4 1090 436 20 <5 <0.001 0.014 0.011 <0.01 13-Nov-18 GCU 7.1 253 14 18 <5 <0.001 0.005 0.001 <0.01 13-Nov-18 GCD 7.2 260 65 18 <5 <0.001 0.011 0.001 <0.01 13-Nov-18 GCD 7.2 260 65 18 <5 <0.001 0.011 0.001 <0.01 13-Nov-18 Void 8.2 2880 18 5 <5 <0.001 0.011 0.001 <0.01 13-Nov-18 Void 8.2 2880 18 5 <5 <0.001 0.011 0.001 <0.01 13-Nov-18 Void 8.5 3720 19 3 <5 <0.001 0.015 0.007 <0.01 22-Feb-19 SB16A 10 6840 47 126 <5 0.002 0.058 0.238 <0.01 22-Feb-19 Void 8.6 3720 19 3 <5 <-												
13-Nov-18	13-Nov-18	SD16	8.5	407	634	4	<5	<0.001	0.014	0.001	0.01	
13-Nov-18	13-Nov-18	SD14	8.9	2020	26	10	5	<0.001	0.004	0.006	<0.01	
13-Nov-18 GCU 7.1 253 14 18 <5 <0.001 0.005 0.001 <0.01	13-Nov-18	SD17	8.1	439	898	10	<5	<0.001	0.01	0.002	<0.01	
13-Nov-18 GCU 7.1 253 14 18 <5 <0.001 0.005 0.001 <0.01 13-Nov-18 GCD 7.2 260 65 18 <5 <5 <0.001 0.011 0.001 <0.01 13-Nov-18 Void 8.2 2880 18 5 <5	13-Nov-18	SB16A	8.4	1090	436	20	<5	<0.001	0.014	0.011	<0.01	
13-Nov-18	13-Nov-18		7.1	253	14	18	<5	<0.001	0.005	0.001	<0.01	
13-Nov-18	13-Nov-18	GCD	7.2	260	65	18	<5	<0.001	0.011	0.001	<0.01	
22-Feb-19 SB14 8.8 2410 536 24 <5 <0.001 0.016 0.007 <0.01												
22-Feb-19							2019					
22-Feb-19	22-Feb-19	SB14	8.8	2410	536	24	<5	<0.001	0.016	0.007	<0.01	
22-Feb-19				6840	47	126	<5	0.002	0.058	0.238	<0.01	
Other sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- no sample taken Company of the sites were not flowing- not sample taken of the sites were not sample taken of the sites of the sites were not sample taken of the sites o	22-Feb-19	Void		3720	19	3	<5					
23-May-19				ole taken								
5-Sep-19 SD16 7.6 169 83 5 <5					<5	<1	<5					
5-Sep-19 SD14 8.4 971 20 5 <5												
5-Sep-19 SD17 7.4 435 141 10 <5												
5-Sep-19 SD16A 8.2 509 276 11 <5												
5-Sep-19 GCU 6.8 90 16 10 <5 <0.001 0.002 <0.001 <0.01 5-Sep-19 GCD 6.7 101 39 8 <5												
5-5ep-19 GCD 6.7 101 39 8 <5 <0.001 0.002 <0.001 <0.01 23-May-19 Void 8 3070 <5												
23-May-19 Void 8 3070 <5 <1 <5 0.046 13-Aug-19 SD16 7.8 297 434 4 <5												
13-Aug-19 5D16 7.8 297 434 4 <5												
13-Aug-19 SD17 7.9 393 181 6 <5 <0.001 0.002 0.002 <0.01 13-Aug-19 VOID 8.6 3000 15 <1 <5												
13-Aug-19 VOID 8.6 3000 15 <1 <5												
Other sites were any no sumple taken					1.5	71	,	-			-	
					12	4	-E			 		
11-Aug-19 VOID 8.6 3700 13 4 <5 Other sites were dry- no sample taken - See photos				L	13	4	<5					

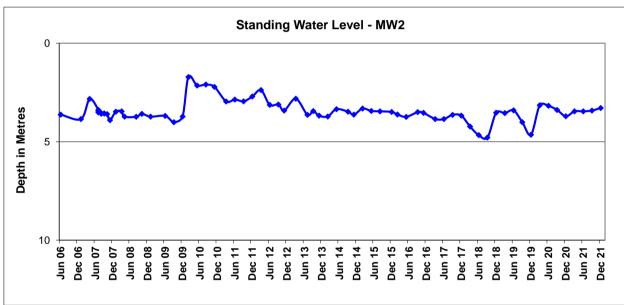
Date	Sample Location	рН	EC (μS/cm)	Total Suspended Solids (mg/L)	Total Organic Carbon (mg/L)	Grease & Oil (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Comments
						2020					
13-Feb-20	SD16	7.9	421	262	8	<5	<0.001	0.004	0.002	<0.01	Approx. 180mm of rain that week from Saturday 8th to Thurs 13th
13-Feb-20	SB14	8.2	938	37	7	<5	<0.001	0.004	0.005	<0.01	
13-Feb-20	SD17	8	166	1170	4	<5	<0.001	0.004	<0.001	<0.01	
13-Feb-20	SB16A	8.2	493	282	7	<5	<0.001	0.004	0.004	<0.01	
13-Feb-20	GCU	7.3	147	95	14	<5	<0.001	0.002	<0.001	<0.01	
13-Feb-20	GCD	7.2	269	64	14	<5	<0.001	0.002	<0.001	<0.01	
5-Mar-20	VOID	8.17	2420	380	4	<5	0.001	0.001	0.001	0.01	
6-May-20	SD16	8.8	397	21	10	<5	<0.001	0.001	0.005	<0.01	
6-May-20	SB14	8.7	2250	92	12	<5	<0.001	0.003	0.005	<0.01	
6-May-20	SD17	8.4	293	120	8	<5	<0.001	0.001	0.002	<0.01	
6-May-20	SB16a	8.8	543	33	9	<5	<0.001	0.002	0.013	<0.01	
6-May-20	VOID	7.8	3290	34	<1	<5		0.012			
19-Aug-20	SD17	8.27	367	42	6	<5	<0.001	0.001	0.002	<0.01	
19-Aug-20	SD16	7.75	444	37	5	<5	<0.001	0.001	0.004	<0.01	
19-Aug-20	SB14	8.97	1320	32	9	<5	<0.001	0.003	0.004	<0.01	
28-Aug-20	VOID	8.36	3600	25	30	<5					
12-Nov-20	SB16A	8.44	967	78	8	6	0.001	0.003	0.021	0.01	
12-Nov-20	SD17	8.53	645	62	4	6	0.001	0.001	0.003	0.01	
12-Nov-20	VOID	8.58	1700	40	2	5					
						2021					
12-Feb-21	VOID	8.5	2040	42	<1	<5	0.03	0.008	0.06	<0.01	
12-Feb-21	SD17	8.15	342	322	5	<5	0.001	0.003	0.002	<0.01	
12-Feb-21	SD16A	8.41	430	4600	3	<5	<0.001	0.01	0.002	<0.01	
17-May-21	SD17	7.88	236	212		<5		0.005	0.001	<0.01	
17-May-21	SD27	7.96	256	257		<5		0.003	0.001	<0.01	
17-May-21	SB16A	8.23	391	220		<5		0.005	0.007	<0.01	
17-May-21	Void	8.72	1540	17		<5		0.004			
17-May-21	GCU	7.78	160	62		<5		0.002	<0.001	<0.01	
17-May-21	GCD	7.53	210	68		<5		0.002	<0.001	<0.01	
17-May-21	SB23B	8.12	224	22		<5		0.002	<0.001	<0.01	
16-Aug-21	SD17	7.64	213	185		<5		0.006	0.001	0.01	
16-Aug-21	SD27	8.15	320	124		<5		0.003	0.003	0.01	
16-Aug-21	SB16A	8.2	406	48		<5		0.006	0.006	0.01	
16-Aug-21	Void	8.84	1240	11		<5		0.006	0.004		
16-Aug-21	GCU	7.95	196	35		<5		0.002	0.001	0.01	
16-Aug-21	GCD	7.84	493	24		<5		0.002	0.001	0.01	
17-Nov-21	GCU	7.57	164	12		<5		0.003	0.001	0.01	
17-Nov-21	GCD	7.38	234	79		<5		0.005	0.002	0.01	
17-Nov-21	SD17	8.15	255	143		<5		0.002	0.006	0.01	
17-Nov-21	SD27	8.61	384	15		<5		0.001	0.006	0.01	
17-Nov-21	SB16A	8.38	406	31		<5		0.006	0.006	0.01	
19-Nov-21	Void	8.78	1970	64		<5		0.014	0.007	0.01	
19-Nov-21	SB16B	8.94	408	20		<5		0.002	0.007	0.01	

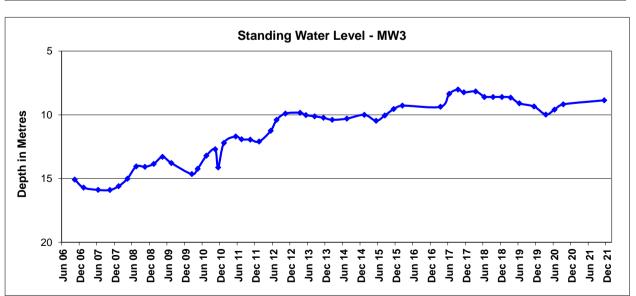


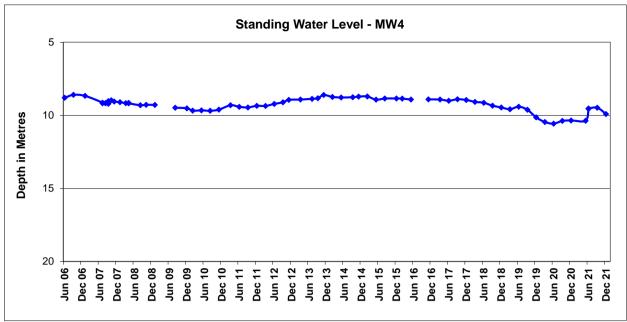
Appendix 4: GW Monitoring Data

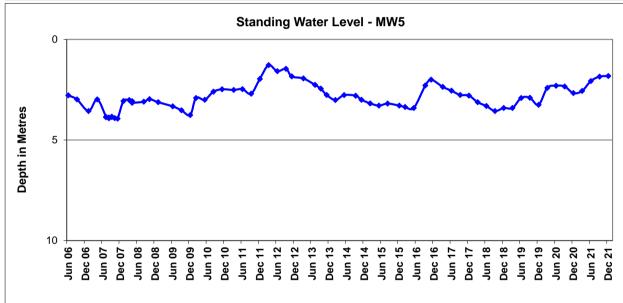
GROUNDWATER MONITORING DATA

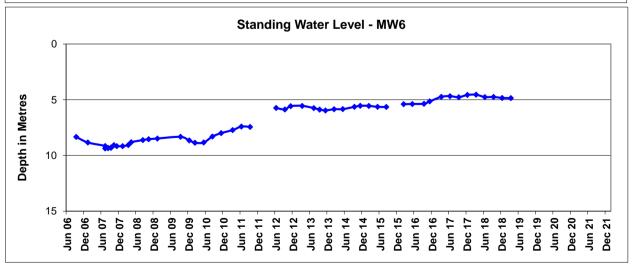


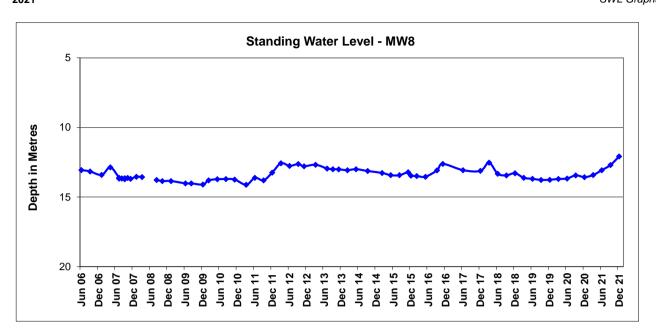


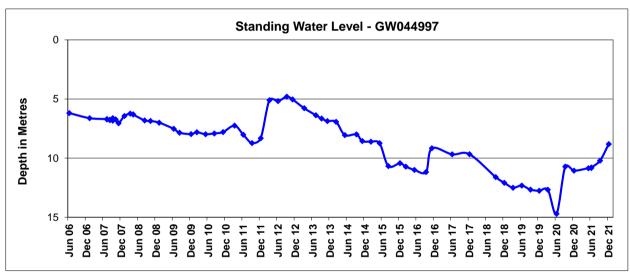


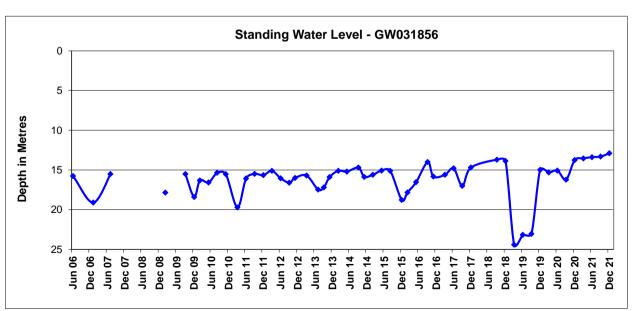


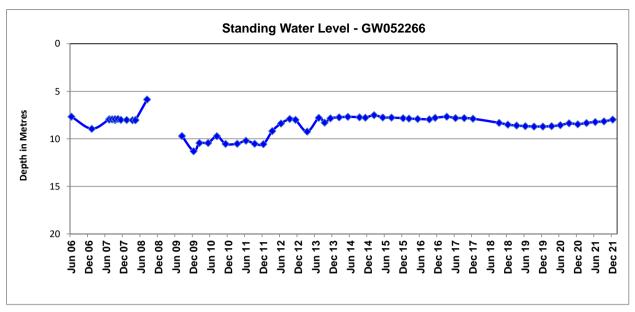


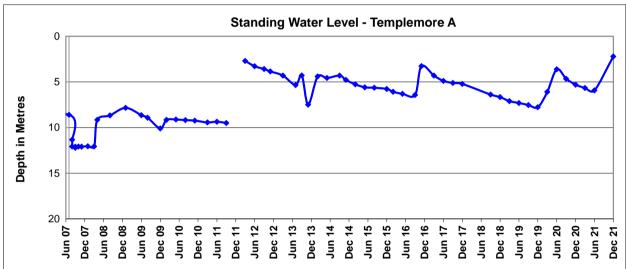


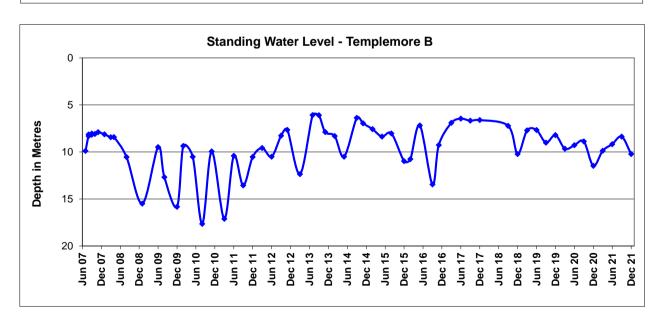




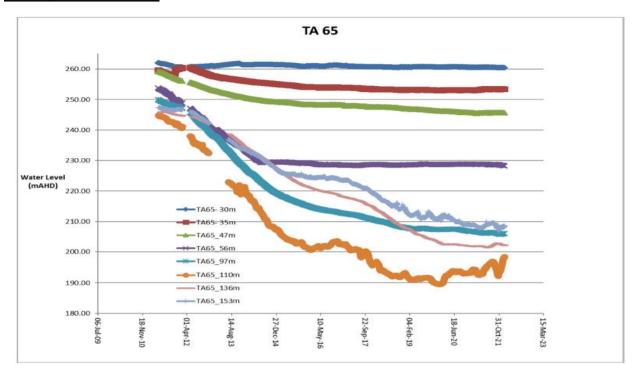








Vibrating Wire Piezometers:



Regional Bores:



c.		mbgil	nbtoc	Field	Parame	eters		Ε	olids			Major Ar	nions				Major Cat	tions								Total I	Metals								1/8t	(N)	٧,	8/1	- Z	J/ba	1/ba				
Sample Location	Date	Depth to Ground -	Depth to Stand - n	pH - Field	EC - Field - μs/cm	Temp - Field - °C	pH-Lab	EC - Lab - µs/c	Total Dissolved S	Hydroxide Alkalinity as CaCO3 - mg/L	Carbonate Alkalinity as CaCO3 - mg/L	Bicarbonate Alkalinity as CaCO3 - mg/L	Alkalinity - mg/L	Sulfate (SO4)- mg/L	Chloride (CI) - mg/L	Calcium (Ca) - mg/L	Magnesium (Mg) - mg/L	mg/L	Potassium (K) - mg/L Aluminium (Al) - mg/L	Arsenic (As) - mg/L	Boron (B) - mg/L	Barium (Ba) - mg/L	Beryllium (Be) - mg/L	Cadmium (Cd) - mg/L	Cobalt (Co) - mg/L	Chromium (Cr) - mg/L	Copper (Cu) - mg/L	Manganese (Mn) - mg/L	Nickel (Ni) - mg/L	Lead (Pb) - mg/L	Selenium (Se) - mg/L	Vanadium (V) - mg/L	Zinc (Zn) - mg/L	Iron (Fe) - mg/L	Mercury (Hg) - m	Ammonia as Nitrog	Nitrite as N -mg	Nitrate as N - m	Nitrite + Nitrate a mg/L	Total Anions - m	Total Cations - m	TPH C6-C9	TPH C10-C36	TRH C6- C10	TRH C10-C40
ANZECC Guideline - s									4000					1000		1000			5	0.5				0.01	1	1	1		1	0.1	0.02		20		0.002			400							
NEPC Guideline - Agr NEPC Guideline - Live	ricultural Irrigation (mp	g/L)							600 2400					1000		1000		+	5	0.1				0.01	0.05	1	0.2	2	0.02		0.02		20		0.002		30	400	+	-	_		+	-	
THUIN	(0,)																																												
MW1 MW1 MW1	2-Jun-06 11-Jan-07 18-Apr-07	7.77 8.49 6.77	9.22 7.50	7.48				6330 2410					772 684	145	2680 346	26	138 1 33	554		0.006				<0.0001		<0.005	<0.006		0.026	<0.001			0.11		<0.0001			_		=			#	#	\pm
MW1 MW1 MW1	18-Apr-07 9-Jul-07 10-Jul-07 18-Jul-07	7.23 7.18 7.18	7.50 7.96 7.91 7.91	7.30	2440	17.4		2500					614	143	385	21	29	504	25	<0.00				<0.0001		<0.005	0.0005		0.008	<0.001			0.09		<0.0001							<2	380	0	=
MW1 MW1 MW1 MW1	18-Jul-07 7-Aug-07 22-Aug-07	7.01	7.74																																								Ŧ		\equiv
	22-Aug-07 5-Sep-07 24-Sep-07	6.97	7.66 7.70 7.66															#																			-	=	=				丰		=
MW1 MW1 MW1	11-Oct-07 26-Nov-07	6.91 6.89	7.64																														\rightarrow										1		1
MW1 MW1	29-Jan-08 4-Mar-08 23-Apr-08	6.87	7.55 7.60 7.67	7.20	3100	21.2		3120					665	247	567	46	50	614	20	*0.00				*0.0000E		40.01	0.003		0.01	0.0036			0.007		0.0003							40.0	25 0.0	17	\pm
MW1 MW1 MW1	21-Aug-08 29-Oct-08	7.00 7.07	7.73 7.82	7.80	3430			3500					690	210	680			670		0.001				0.00023		0.015	0.002		0.01	0.0036			0.007	_	<0.0002		-	=	=			<0.0	25 0.02	.00	=
MW1 MW1	29-Jan-09 17-Jun-09 11-Sep-09	7.08	7.73	7.20	5470			3870	2320	<1	<1	725	725	167		46	61			0.001		0.091	<0.001	<0.0001	0.001	0.013	0.047	0.103	0.009	0.008		<0.01	0.019	0.71	<0.0001	<0.01	=			39.9 4	11.2 1.	.58	王		Ŧ
MW1 MW1 MW1 MW1 MW1 MW1 MW1 MW1 MW1			7.90 7.90 7.84		4670			4510	目	<1	<1	780	780	234	882	70	95	875	28 <0.01	0.001	Ħ	H				<0.005	0.014	0.131	0.038	0.001		H	0.048	<0.05	<0.0001	7	<0.01	0.2	0.2	45.3 5	0.1 4.	.99	丰	F	丰
MW1 MW1	25-Feb-10 11-May-10 30-Aug-10	7.46 7.47	8.13 8.14	7.56 7.47	4330 3890	22.6 21.5		4090	1850	<1	<1	694	694	229	795	43	60	779	26	0.001		0.075	<0.001	0.0001	0.002	0.002	0.011	0.204	0.009	0.005		<0.01	0.012	0.88 •	<0.0001	0.16	#	#	=	41 4	11.7 0.	.75	丰	+	=
MW1 MW1	9-Nov-10 10-Mar-11	7.45	8.12	7.06	3170	24.6	7.26	3650		<1	<1	658	658	210	839	44	62	771	29 0.04	0.002						0.003	0.063	0.035	0.006	0.006			0.016	0.3	<0.0001		<0.01	0.09	0.09	41.2 4	11.6 0.	.49	\pm		\pm
MW1 MW1 MW1	6-Jun-11 6-Sep-11 7-Dec-11	7.20 7.19 7.09	7.87	7.2 7.09 7.16	3110 3200	19.9 22.5	7.72	3990	2080	<1	<1	620	620	246	774	41	56	739	26 0.1	0.003		0.057	<0.001	0.0001	0.002	0.002	0.019	0.193	0.005	0.01		<0.01	0.014	0.99	<0.0001	<0.01	<0.01	0.04	0.04	39.3 3	39.5 0.	.12	ᆂ		\pm
MW1 MW1 MW1	13-Mar-12 13-Jun-12 4-Sep-12	6.90	7.57	7.44	3140	21.9	7.78	3590	2040	<1	<1	629	629	232	748	44			30 0.12	<0.00		0.067	<0.001	<0.0001	<0.001	0.003	0.081	0.028	0.009	0.001		<0.01	0.027	0.23	<0.0001	<0.01	<0.01	0.12	0.12	38.5 4	10.7 2.	76	#		=
MW1 MW1 MW1	4-Sep-12 27-Nov-12 20-Mar-13	6.41 6.25	7.08 6.92	7.44 7.54	3340 3140	20.8	7.8	3570	2090	<1	<1	681	681	212	676	39	55	662	26 0.03	<0.00		0.069	<0.001	<0.0001	<0.001	0.005	0.09	0.067	0.007	0.003		<0.01	0.067	0.2	<0.0001	<0.01	<0.01	0.06	0.06	37.1 3	35.9 1.	.62	\pm		\equiv
MW1 MW1 MW1	20-Mar-13 11-Jul-13 5-Sep-13	6.18	6.85	7.52 7.49 7.48	3110	20.1			1830 1900	<1	<1	690	690	205	5/5	35	48	677	27 0.15	<0.002	0.06	0.055	<0.001	<0.0001	<0.001	0.007	0.1	0.031	0.016	0.008	<0.01	<0.01	0.125	0.25	<0.0001	0.08	<0.01	0.1	0.1	33.8 3	36.8 4	52	#		#
MW1 MW1 MW1	22-Nov-13 20-Feb-14 27-May-14	5.95	6.62	7.6 7.5 7.6	3140	20.8	!		1800	<1	<1	624	624	195	516	29		710	30 1.23	0.001	<0.05	0.062	<0.001	0.0004	0.001	0.023	0.487	0.073	0.012	0.031	<0.01	<0.01	0.624	2.49	<0.0001	0.02				31.1 3	36.8 8.	.39	#		#
MW1 MW1	27-May-14 9-Sep-14 20-Nov-14	6.25 6.26	6.92	7.6 7.7	3140 3220	20.7	7.97	3320		<1	<1	714	714	206	520	29	40	594	24 0.13	0.002						0.01	0.058	0.077	0.009	0.006			0.098	0.53			<0.01	0.17	0.17	33.2 3	31.2 3.	.19	\pm		=
MW1 MW1 MW1 MW1	20-Nov-14 26-Feb-15 26-May-15 27-Aug-15	6.36 6.39 6.47	7.03 7.06	7.7 7.7 7.6 7.5	3190 3170	21.6 27.7	7.13	800	1700	<1	<1	739	739	210	551	34	45	634	22 0.08	0.001		0.056	<0.001	<0.0001	<0.001	0.004	0.045	0.078	0.009	0.003	<0.01	<0.01	0.118	0.3	<.00001	0.05	<0.01	0.15	0.15	34.7 3	33.5 1.	.71	#	#	\pm
MW1 MW1 MW1 MW1	27-Aug-15 4-Dec-16	6.51 6.59	7.18	7.6 7.7	3280 3270	18.5	8.03	3440	1900 1950	<1	<	636	030	225	<1	28			22 0.1	0.001	<0.05	0.066	<0.001	<0.0001	<0.001	<0.001	0.026	0.019	0.004	<0.001	10.01	<0.01	0.075	0.18	<0.0001		<0.01	0.11		30.1 3			丰		=
MW1 MW1	4-Dec-16 24-Feb-16 23-May-16	6.59 6.65 6.67	7.26	7.6 7.7	3290 3340	23.2	8.03	3400		<1	<1	686 674		233	582	40			24 0.02	0.001	<0.05	0.061	<0.001	<0.0001	<0.001	<0.001	0.032	0.016	0.006	0.001	<0.01	<0.01	0.049	0.12 <	<0.0001		<.01	0.15	5.25	35 3			丰		=
MW1 MW1 MW1	1-Sep-16 29-Nov-16 23-Mar-17	6.68	7.35	7.6	31/0	21./	0.26		2060	<1	17	708	725		578			634		0.002	<0.05	0.069	<0.001	<0.0001	0.001	0.008	0.086	0.708		0.008	<0.01	<0.01	0.135	0.93	<0.0001		c0.01	0.03	-	34.7 3			#	+	_
MW1 MW1 MW1	21-Jun-17 13-Sep-17 13-Dec-17	6.74 6.80	7.41	7.7 7.8 7.8 7.7 7.9 7.9 7.7	3290 3270	19.4	8.31		1850	<1	8	784	792	214	550	31		656		<0.00	<0.05	0.047	<0.001	<0.0001	<0.001	0.001	0.025	0.065	0.009	0.002	<0.01	<0.01	0.028	0.17	<0.0001	0.01	<0.01	0.07	0.07	35.8 3	34.4 1.	.94	圭		=
MW1	22-Mar-18	6.73 6.81 6.91	7.48	7.7	3360	20.2	8.41	3360	1950	<1	32	754	786	212	646	33	44	581	24 0.76	0.002	<0.05	0.068	<0.001	<0.0001	0.002	0.012	0.071	0.286	0.018	0.038	<0.01	<0.01	0.2	3.81	<0.0001	0.05	0.06	0.14	0.2	38.3 3	31.2 10	0.3	ᆂ		\pm
MW1 MW1 MW1	12-Jun-18 13-Sep-18 5-Dec-18	6.92 7.03	7.59	7.7 7.8	3300 3420	21.9	8.09		1810	<1	<1	704	704	208	639	33	44	603	21 0.73	0.002	<0.05	0.061	<0.001	<0.0001	0.004	0.005	0.036	0.325	0.01	0.004	<0.01	<0.01	0.037	1.38	<0.0001	0.19	<0.01	0.01	0.01	36.4	32 6.	41	#		#
MW1 MW1 MW1	5-Dec-18 14-Mar-19 19-Jun-19	7.11 7.22	7.78 7.89	7.8 8.1 8	3430 3320	20.8	8.22		2190	<1	<1	755	755	211	561	31	45	693	27 0.11	0.001	<0.05	0.054	<0.001	<0.0001	<0.001	0.005	0.017	0.064	0.014	0.005	<0.01	<0.01	0.04	0.62	<0.0001	<0.01	0.03	0.11	0.14	35.3 3	36.1 1.	.09 <2) <50	0 <2	0 <100
MW1 MW1 MW1	11-Sep-19 5-Dec-19 18-Mar-20	7.32 7.35 7.36	7.99 8.02 8.03	8 8 79	3440 3510	21.7	8.21	3430	2010	<1	<1	672	672	224	36.3	40	51	701	24 0.06	<0.00	<0.05	0.046	<0.001	<0.0001	<0.001	<0.002	0.012	0.199	0.008	<0.003	<0.01	<0.01	0.037	0.33	<0.0001	0.02	<0.01	0.04	0.04	36.3 3	37.3 1.	.34 <2	0 <50	0 <2	0 <100
MW1 MW1 MW1	18-Mar-20 11-Jun-20 23-Sep-20	7.42	8.09 7.94	7.9 7.8 7.9 7.9	3490 3500	20.3	8.16	3260	2040	<1	<1	780	780	211	616	34	49	665	23 0.07	<0.00	<0.05	0.05	<0.001	<0.0001	<0.001	0.002	0.015	0.064	0.004	0.002	<0.01	<0.01	0.015	0.25	<0.0001	0.03	<0.01	0.14	0.14	37.4 3	35.2 2.	.91 <2	0 <5	0 <2	20 <100
MW1 MW1 MW1	8-Dec-20 4-Mar-21 21-Jun-21	6.80 6.75 6.90 8.14	7.47	7.9	3510 3390	17.7 21.4	8	3420	2220	<1	7	796	802	240	654	32	49	694	23 0.05	<0.00	<0.05	0.047	<0.001	<0.0001	<0.001	0.022	0.039	0.085	0.136	0.004	<0.01	<0.01	0.026	0.72	<0.0001	0.14	<0.01	0.22	0.22	39.5 3	36.4 4.	.04 <2	0 <5/	0 <2	20 <100
MW1 MW1	2-Sep-21 31-Dec-21	8.14 6.93	7.57 8.81 7.6	6.72 7.32	3520 3600	16.5	7.57	3530	2290	<1	<1	729	729	208	628	45	53	669	25 0.71	<0.00	<0.05	0.061	<0.001	<0.0001	<0.001	0.013	0.029	0.129	0.02	0.008	<0.01	<0.01	0.078	1.4	<0.0001	0.7	0.17	0.31	0.31	0.7 0	0.07 0.	.02 <2	0 <10	00 <2	20 <100
THUIN			4.40			-0.2		5440					432	475	2230	137	106 1	400	14	<0.00																							#		
MW2 MW2 MW2	2-Jun-06 11-Jan-07 18-Apr-07	3.85	4.62 3.60	6.8				511					176	9	25.1	1	<1	101	1	0.002				0.0001									0.09	•	<0.0001		=	=	#		#		\mp		=
MW2 MW2 MW2 MW2 MW2 MW2	9-Jul-07	3.39	4.16	7.15	446	18.8		496					175	11	27.2	<1	<1	99	1	0.002				0.0002		<0.005	0.003		0.002	<0.001			0.233	•	<0.0001			\exists	3	1	1	<2) 250	0	\pm
MW2 MW2 MW2	10-Jul-07 18-Jul-07 7-Aug-07 22-Aug-07	3.52 3.58 3.55	4.29 4.35 4.32				H										H	#		\vdash	<u> </u>	H										=	_	=	_	_	=	#	=	#	#		#	+	\pm
MW2 MW2 MW2 MW2 MW2 MW2	5-Sep-07 24-Sep-07 11-Oct-07	3.57	4.32 4.34 4.34			E	E	E					E	E		E		3		E	E							E						_			_	#	#	Ŧ	≢	⇟	丰	Ė	圭
MW2 MW2	26-Nov-07	3.60 3.91 3.48	4.37			Ē	E	E	目		E	E						\exists			E								H			H	\equiv	1		3	1	∃	1	Ŧ			Ŧ	Ŧ	Ŧ
MW2 MW2 MW2	29-Jan-08 4-Mar-08 23-Apr-08	3.48 3.46 3.73	4.25 4.23 4.50	7.3	400	19.9		440	H				165	10	39	8.9	5.8	99	17	0.005	1	H		0.00018	H	0,11	0.13		0.15	0.14			0.37	=	0.0004	_	#	#	=	#	#	<0.0	J25 <0	1	\pm
MW2 MW2 MW2	23-Apr-08 21-Aug-08 29-Oct-08	3.59		6.9				620					180				7.1			0.008				0.00007			0.027			0.061			0.17	=	0.0002		=	=	=	=		<0.0	025 <0.10	00	\equiv
MW2 MW2 MW2	29-Jan-09 17-Jun-09 11-Sep-09	3.69	4.51 4.53 4.8	7.7	660	19.1		602	1540	<1	<1	195	195	<10	59	1	1	128	2	0.006		0.311	0.004	0.0002	0.052	0.025	0.047	1.54	0.041	0.052		0.08	0.172	32.6	0.0005	0.1	_	#	_	5.57 5	5.76 1.	.62	#		#
MW2 MW2	11-Sep-09 14-Dec-09 25-Feb-10	3.72	4.8 4.51 2.51	7.7	691	18.3	7.5			<1	<1	202	202	12.8	55.3	2	1	134	2 <0.01	<0.00	+					<0.001	<0.001	0.018	<0.001	<0.001		1	<0.005	<0.05 <	<0.0001	-	<0.01	0.45	0.45	5.86 6	5.07 1.	.73	丰	+	=
MW2 MW2	11-May-10 30-Aug-10	2.15	2.94	7.61 7.4 7.32	717 590	22.3		618	780	<1	<1	149	149	24.3	76.7	2	1	129	2	0.014		0.441	0.006	0.0002	0.058	0.071	0.073	1.06	0.094	0.071		0.13	0.3	88.3	0.0002	0.01	3			5.66 5	5.84 1	.6	圭		\equiv
MW2 MW2 MW2	9-Nov-10 10-Mar-11 6-Jun-11	2.96	3.75	7.32 7.31 7.3	566	24.2	7.23	457	igspace	<1	<1	156	156	24	69	2	2	124	2 0.28	0.001						0.001	0.018	0.018	0.006	0.002		$oxed{oxed}$	0.045	0.3	0.0001	= -	<0.01	0.07	0.07	5.57 5	5.69 1.	.02	ŧ	▐	\pm
MW2 MW2	6-Sep-11	2.86 2.95 2.71	3.74 3.5	7.3 6.9 7.08	585 600	19.8 19.2	7.33	692	340 640	<1	<1	169	169		92				2 1.93		+	0.016	<0.001	<0.0001	<0.001		0.005		0.003			<0.01			<0.0001		<0.01			6.64 6			丰		=
MW2 MW2	7-Dec-11 13-Mar-12 13-Jun-12	2.38 3.13	3.17	7.06	912 1320	22	7.41	1060	640	<1	<1	232	232	50	164	12	10	224	4 0.3	<0.00		0.012	<0.001	<0.0001	<0.001	0.002	0.002	0.058	0.004	<0.001		<0.01	0.01	0.28 <	<0.0001	0.03	<0.01	0.05	0.05	10.3 1	11.3 4.	.44	丰		\mp

		lgdı	toc	Field Par	rameters			ds			Major Ar	nions			Major	Cations								Total Metals	.						-	S S			ż	٦.	1/1				
Sample Location	Date	epth to Ground - π	Depth to Stand - mb	pH - Field	C- Field - µs/cm emp - Field - °C	pH-Lab	EC - Lab - µs/cm	Total Dissolved Soli	Hydroxide Alkalinity as :aCO3 - mg/L	Carbonate Alkalinity as aCO3 - mg/L	Bicarbonate Alkalinity as	kalinity - mg/L	Sulfate (SO4) - mg/L Chloride (CI) -	mg/L alcium (Ca) -	ignesium (Mg) - mg/L	odium (Na) - mg/L	otassium (K) - mg/L	Juminium (Al) - mg/L Arenic (As) -	mg/L oron (B) - mg/L	Sarium (Ba) -	mg/L Beryllium (Be) - mg/L	ıdmium (Cd) - mg/L	oalt (Co) - mg/L	Copper (Cu) -	mg/L inganese (Mn) - mg/L	Jickel (NI) - mg/L	-ead (Pb) - mg/L	Selenium (Se) - mg/L	anadium (V) - mg/L	Zinc (Zn) - mg/L	on (Fe) - mg/L	mercury (187-118	Nitrite as N-mg/1	Nitrate as N - mg/	Nitrite + Nitrate as mg/L	Total Anions - meq	Total Cations - mec	Ionic Balance TPH C6-C9	TPH C10-C36	TRH CG- C10	TRH C10-C40
ANZECC Guideline - s	tock drinking water			-	FC-			4000	Ŭ		Ü	A	1000	1000	ž	0,	Ь	٩	.5	+-	ă	0.01	3	1 1	2	ž	0.1		>	20	0.0	02	+	400							\blacksquare
MW2	4-Sep-12	3.11 3.42	3.9 4.21	7.07 17	260 19.7	7.47	1310	802		<1	319		68 2		17		5	3.48 0		0.03	4 <0.001	<0.0001			0.149	0.004			<0.01	0.075 2	.86 0.0		01 <0.0				13.5 1		=		\blacksquare
MW2 MW2 MW2 MW2	27-Nov-12 20-Mar-13 11-Jul-13	3.64	4.43	7.03 7	05 19.1 70 22.7 39 19.8	3			<1	<1	179			5 3		150	3	1.3 0		0.02	2 <0.001	<0.0001		<0.001 0.0	36 0.293		0.006		<0.01	0.078 0			4 <0.	0.05	0.05		7 1		\equiv	E	
MW2 MW2 MW2	5-Sep-13 22-Nov-13 20-Feb-14	3.45 3.68 3.72	4.24	6.78 6 6.9 6	80 19.8 94 19.4 75 21.2	7.46	674	389	<1	<1	173			3 2		142	3	6.39 0	001 <0.0	01 0.1	0.039	<0.0001	0.002	0.005 0.0	37 0.134	0.006		<0.01	0.02			002 0.0	4				6.52 1		\pm	E	
MW2 MW2 MW2	27-May-14	3.72 3.35	4.14	7.4 6	18 20.9	7.01	694	395	<1	<1	171	171	27 8	5 2	2	155	3	1.32 0	001 <0.0	0.0	6 0.012	<0.0001	<0.001	0.004 0.0	55 0.058	0.004	0.006	<0.01	<0.01	0.08 1	32 <0.0	001 <0.	01	1 0.00	0.00	6.38	7.08 5	.2 25	\pm	〓	
MW2 MW2	9-Sep-14 20-Nov-14 26-Feb-15		4.42		15 20.4 195 21.6	1 7.27	567	206	-/1	- 41	219	219	16 3	7 (1	4	113	2	0.01 0	003 0.0	5 0.00	7 <0.001	<0.0001	0.001	<0.001	0.22	0.012	0.01	<0.01	<0.01	0.086 1	75 <0.0	1001	2 <0.1	1 0.00	0.08	0.30 E 27	3.73 3	07	=		
MW2	26-May-15	3.44 3.46	4.23	7.2 5 7.1 5	22 19.7	7.32	538	298	<1	< .	188	188	13 2	8 1	1	119	1	0.87 0	002 <0.0	5 0.01	5 <0.001	<0.0001	<0.001	<0.001 0.0	06 0.035	0.002	0.001	<0.01	0.01	0.027 0	.69 <0.0	001 0.0	4 <0.0	0.02	1 0.02	4.82	5.33 5	.04	#	F	Ħ
MW2 MW2 MW2	27-Aug-15 4-Dec-15 24-Feb-16 23-May-16	3.49 3.62 3.74	4.28 4.41	7.1 5 7 5	28 20.2 62 21.4 97 21	1 7.38	575	305	<1	<1	209	209	3.1 3	7 2	2	131	2	0.48 0	002 <0.0	5 0.00	0.001	<0.0001	<0.001	<0.001 0.0	32 0.038	0.002	<0.001	<0.01	<0.01	0.016 0	.45 <0.0	1001 <0.	01 <0.0	0.03	0.03	5.66	6.01	3	\equiv		
MW2 MW2 MW2 MW2	23-May-16 1-Sep-16 29-Nov-16	3.5	4.29	6.9 5	54 19.6	7.04	557		<1	<1	207	207	19 3	6 <1	<1	130	2	11.7 0	004					0.01 0.0	0.287	0.011	0.007			0.091 1	1.4 0.0	001	<0.0	0.27	0.27	5.55	5.7 1	.35	\equiv		
MW2 MW2 MW2 MW2		3.85	4.64	7 6	24 21.2	7.7	639	432	<1	<1	232	232	18 4	8 <1	1	138	2	4.76 0	002 0.0	6 0.03	2 <0.001	<0.0001	0.004	0.004 0.0	19 0.239	0.005	0.004	<0.001	0.02	0.045	.7 <0.0	0.0	2 <0.	0.74	0.74	6.36	6.14 1	.82	\pm	〓	
MW2 MW2	21-Jun-17 21-Jun-17 13-Sep-17	3.64	4.64 4.43	6.9 5	48	7.54	533	295	<1	<1	226	226	16 3	1 2	1	130	2	0.32 0	001 0.0	7 0.00	6 <0.001	<0.0001	0.001	<0.001 0.0	02 0.077	0.001	<0.001	<0.01	<0.01	0.01 0	.21 <0.0	0.0	2 <0.0	1.11	1.11	5.72	5.89 1	.42	=		
MW2 MW2 MW2	13-Dec-17 22-Mar-18 12-Jun-18	4.23 4.67	5.02	7.3 5	45 20.2 19 21.2	7.4	498	348	<1	<1	204	204	15 3	4 3	2	102	1	17.5 0	0.0	6 0.07	3 <0.001	<0.0001	0.011	0.013 0.0	13 0.8	0.012	0.01	<0.01	0.03	0.056 1	5.8 0.0	0.0	4 0.0	1 0.97	0.98	5.35	4.78 5	.64	#	F	=
MW2 MW2 MW2 MW2	12-Jun-18 13-Sep-18 5-Dec-18 14-Mar-19	3.53	4.32	6.8 5	47 00 21.2 45 20.4	1		612	<1	<1	192	192	18 6	3 2	2	119	2	18.3 0	003 0.0	7 0.07	7 0.001	<0.0001	0.009	0.015 0.0	13 0.492	0.013	0.009	<0.01	0.03	0.06 1	9.2 <0.0	0.0	4 <0.0	0.89	0.89	5.99	5.49 4	.32	+		
MW2	19-Jun-19	3.41	4.2	7 4	60 21 61 20.4	1		532	<1	<1	186	186	20 4	0 <1	<1	122	2	4 0	002 0.0	7 0.0	2 <0.001	<0.0001	0.002	0.004 0.0	0.168	0.003	0.002	<0.01	0.01	0.014 3	.68 <0.0	0.0	1 <0.0	3.08	3.08	5.26	5.36 0	.91	\blacksquare	<20	<100
MW2 MW2	11-Sep-19 5-Dec-19	4.65	4.8 5.44 3.94	7.1 5		7.35	530	379 310	<1	<1	166	166	22 4	4 2	1	113	2	11.9 0	003 0.0	7 0.04	9 <0.001	<0.0001	0.006	0.01 0.0	0.341	0.009	0.006	<0.01	0.02	0.028 9	.97 <0.0	1001	<0.0	01 2.32	2.32	5.02	5.15 1	.3			<100
MW2 MW2	18-Mar-20 11-Jun-20 23-Sep-20	2 10	3.94 3.97 4.18	7.3 4	90 20.8	3 7.39 3 7.39	496	299	<1	<1	187	107	19 3	4 Z	- 2	101	1	1.22 0	001 0.0	6 0.00	0.001	<0.0001	<0.001	0.004 <0.0	0.028	0.002	<0.001	<0.01	<0.01	0.01 1	1 <0.0	001 0.0	1 <0.0	1 0.15	1.8	4.59	4.66 0	/1 <20 61 <20	<50	<20	<100
MW2 MW2 MW2 MW2 MW2 MW2 MW2	8-Dec-20 4-Mar-21	3.39 3.71 3.46 3.46	4.15	7.3 5 5.99 4	35 16.5 62 21.3	7.33	468	304	<1	<1	176			3 2	1	104	2	1.91 0	002 <0.0	5 0.02	2 <0.001	<0.0001	0.001	0.002 0.0	0.034	0.001	0.001	<0.01		0.014 1		001 <0.	01 <0.0	1 0.71	0.13		36.4 4		<50	<20	<100
MW2 MW2 MW2	21-Jun-21 2-Sep-21 29-Dec-21	3.46 3.42 3.29	4.25	7.05 5 6.36 6	76 16.5	7		400	<1	<1	254	254	24 4	3 2	2	138	2	0.92 <0	.001 0.0	6 0.01	5 <0.001	<0.0001		<0.001 0.0	03 0.127	0.003	0.002	<0.01	<0.01	0.017 0	.61 <0.0	001 0.0	1	1.09	109			<20	<50	<20	
NAGERO			4.08	5.74 8		5																											+					\blacksquare			
MW3 MW3	2-Jun-06 15-Oct-06	15.08 15.71		7.65 7.85	20 23.1	1	1525 1534					642	16 1	9 25	10	356	4	<0	.001	-									=	_		=		1	1			—	=	=	=
MW3 MW3	11-Jan-07 9-Jun-07	15.89 15.9		7.66 7.69	24.9 19.7	7	1600 1028					696 673		27 19 15	7 5	381 389	3	<0	.001			<0.0001		<0.001 0.0 <0.005 <0.0	06 101	0.004	<0.001 <0.001			0.1								=	\equiv	E	
MW3 MW3 MW3 MW3	5-Oct-07 8-Jan-08	15.6 15.01		6.8 7.9 7.8	19.8 23.8	3	1710 1620 1740																															_	\pm		
MW3 MW3	23-Apr-08 10-Jul-08 29-Oct-08	15.01 14.05 14.08 13.85		7.8 7.8 7.8	23.8 23.5 19		1630							\pm	+																							士	\pm	〓	
MW3 MW3 MW3	20-Jan-09 22-Apr-09	13.3		7.8 7.9	22.8	7	1770 1770													#									=			=						#	=		
MW3	22-Jul-09	14.13		7.9	21.2	2	1780	890 890																														#	=	F	
MW3 MW3 MW3 MW3	12-Nov-10 15-Feb-10 16-Apr-10	14.24		7.9 14 8 14	440 21.9 440 23.3	3	1440 1440	720 720																														\pm	\pm		
MW3 MW3	19-Jul-10 26-Oct-10	12.7 12.2 11.7		7.8 17 7.83 17	700 20.3 730 21.7 750 26.1	7.93		1020	<1	<1	871	0,1		04 12	4	479	3	0	002			<0.0001		<0.001 0.0	03	0.003	10.001			0.013 0		0.1	7 <0.0	0.0	1 <0.01		21.8 3 19.8 1		\pm		
MW3 MW3	28-Jan-11 2-May-11	11.92		8.05 1	760 26.1 760 22.2	2		1000	<1	<1	815	815 798		08 10			3	- 0	001			0.0001		0.005 <0.0		0.003	10.001			0.005 0			3 <0.0			20.0	20.7 4		=	 	
MW3 MW3 MW3	18-Jul-11 24-Oct-11 18-Jan-12	11.95 12.1 11.25		8.08 18	810 23.5 670 23.6	7.63	1690	1000	<1	<1	715	715	40 1	12 29	9		410		002			<0.0001		0.003 0.0	01	0.004	<0.001			0.02 0			4 <0.0	0.02	1 <0.01	18.3	20.7 4		=		\blacksquare
MW3 MW3	1-May-12 23-Jul-12	10.4		7.18 18 7.56 1	840 22.5 700 20.6	5 8.05	1730	1010	<1	<1	765	765	35 1	14 19	5	398	4	<(.001			<0.0001		0.001 <0.0	101	0.004	<0.001			0.01 <0			1 <0.0	910	0.02	19		.52	#	F	
MW3 MW3	23-Oct-12 7-Mar-13	9.84 10.02 10.12 10.23 10.39		7.66 19 7.25 16	900 21.7 650 21.9	7 7.68		1020 1190	<1	<1	815	815	31 1	3 18	5	470	4	0	001			<0.0001		0.008 0.0	01	0.013	<0.001			0.022 0		0.1	7 <0.0	1 <0.0	1 <0.01	19.8	21.9 4	.79	\pm	E	
MW3 MW3 MW3	16-May-13 21-Aug-13	10.12 10.23		7.78 1: 7.57	20.1	7 7.93	2020		<1	<1	592	592	52 2	34 12	4	504	4	0	003			<0.0001		<0.001 <0.0	101	0.002	<0.001			0.008 <0	1.05	0.2	3 <0.	1 <0.0	1 <0.01	20.9	23 4	.58	\pm	二	
MW3 MW3	14-Nov-13 3-Feb-14 17-Jul-14	10.3			.87 23.3		2140		<1	<1	477	477	60 3	19 17	5	464	4	0	001		1	<0.0001		<0.001 0.0	02	0.002	<0.001		_	0.013 <0	.05	0.1	2 <0.	0.12	0.12	19.8	21.5 4	.23	=	〓	
MW3 MW3	29-Jan-15 19-May-15	10.00 10.47 10.05			790 21.9	7.92	2050		<1	<	398	398	74 3	9 17	5	436	3	0	001	+	-	<0.0001	<0.001	0.0	01	0.002	<0.001		=	0.026 <0	1.05	0.	2 <0.0	0.02	0.02	20.5	20.3 0	.66	#	F	Ħ
MW3 MW3 MW3 MW3	13-Aug-15	9.55	-	7.22	20.2	7.96			<1	<1	451	451	78 2	35 15	5	403	3	<(.001	Ŀ	Ŀ	<0.0001		<0.001 0.0	28	0.003	<0.001			0.584 <0		0.3	2 <0.0	0.02	0.02	18.7	18.8	1.2	\pm		
MW3 MW3	30-Nov-15 24-Feb-16 1-Mar-17	9.28 9.37 8.35 8.02		5.93 7.48 20	22.9	7.94	2050		<1	<1	348	348	83 3	97 17	5	450	3	<(.001			<0.0001	$\equiv 1$	<0.001 <0.0	101	0.002	<0.001			0.014 <0	.05	0.2	2 <0.0	0.0	1 <0.01	19.9	20.9 2	49	$\pm \equiv$	텉	
MW3	1-Jun-1/ 1-Sen-17	8.02 8.24 8.17		7.93 20 7.44 20 7.64 20	060 070									\pm					\pm	┢	\vdash				\pm	\vdash	<0.001			#	\pm	\pm	ᆂ	1			Lt	\pm	=	\models	\Box
MW3 MW3 MW3	1-Nov-17 28-Mar-18 4-Jun-18	8.17 8.6 8.6	#	7.87 20 7.81 20	050 233	6.79	2430	H											#	#							<0.001		_	#	=		╪		1		H	#	=	=	\blacksquare
MW3 MW3	5-Jun-18 3-Sep-18	8.6		5.33 20 7.35 20	040									=	1			_	#	+	1				#	1	-0.0003		_	#	= =	#	╪		1	H	H	#	丰	=	一
MW3 MW3	5-Dec-18 22-Mar-19	8.65 9.1		7.37 20 7.87 20	020 24.1 050 36.2	7.77	2130								L			<u>_</u>	_	▐	1			<u> </u>		L	<0.001		_	<u></u>			Ⅎ	Ŀ	L		ΕĖ	\pm	\pm		
MW3 MW3	19-Jun-19 25-Nov-19	9.35 9.98		7.76 2: 7.85 20	129 23.5 097 26.6	5 8.28 5 7.87	2120		<1 <1	<1 <1	384 419	384 419	82 3 80 4	57 16 17 15	5 5	436 431	3	<0 <0	.001 .001			<0.0001 <0.0001		<0.0001 <0.0 <0.0001 <0.0	0.105 0.069	0.005 0.006	<0.001 <0.001			0.005 <0	1.05	0.1 0.2	9 <0.i 2 <0.i	0.01	0.01			\pm	\equiv		
MW3 MW3	23-Mar-20 2-Jun-20	9.59 9.18	=	7.61 20	102 085 14.7	7 7.89	2150	1.37	<1	<1	429	429	74 3	3 14	5	426	3	<0	.001			<0.0001		<0.0001 <0.0	01 0.079	0.008	<0.001		— [-	0.005 <0	1.05	0.1	8 <0.	0.12	0.12			#	=		\blacksquare
MW3 MW3 MW3	16-Sep-20 24-Nov-21	8.86 8.95		7.61 2: 7.89 2	176 27.7 431 31.8	7.94	2680	1.42ppt	<1	<1	466	466	122 5	1 20	24	484	5	<(.001	+	\vdash	<0.001	_	<0.001 <0.0	0.016	0.008	<0.001		_	0.006 <0	.05	0.1	9 <0.	0.06	0.06			#	=	二	=
MW3 MW3			_	#	\pm									+	1				\pm		ļ			_	+	Ħ	F		_ İ	#	\pm	= =	+	+	1		 	丰	Ħ		一
TARRAWONGA MW4	2-Jun-06	8.8	9.5	7			2200					1010	155 9	5 157	118	614	10		005																						
MW4	9-Sen-06	8.6 8.67	9.3	7.06	#		3,430					1010	143 7	7 157	112	504	19	0	004	\pm		0.0003		<0.005	11	0.014	0.026		_	0.1	×0.0	1001	\pm				 	#	=	二	
MW4 MW4 MW4	11-Jan-07 9-Jul-07 18-Jul-07 7-Aug-07	9.13 9.18	9.83 9.88	5.82 5	410 18.9	9	5400					989	235 14	80 211	166	829	16	0	001	+	1	0.0004		<0.005 0.0	08	0.011	0.011		#	0.13	<0.0	1001	Ŧ	1	1—	H	H	<20	330	\vdash	一
MW4 MW4	22-Aug-07	9.17 9.17	9.87	Ⅎ	Ⅎ														ᆂ	Ŀ	L			<u>_</u>						£			Ŧ	Ŀ	L			圭	\pm		
MW4 MW4 MW4 MW4	5-Sep-07 24-Sep-07	9.21	9.91 9.73 9.67																														Ξ					\pm	$\pm \Xi$	巨	三
MW4	11-Oct-07	8.97	9.67			1	1																																	ь_	

		lgdr	toc	Field	d Para	meters			Sp			Major An	ions			Ma	jor Catio	ons								Total	Metals								ų.	(N)		_	ż	7	1/1				
Sample Location	Date	Depth to Ground - π	Depth to Stand - mb	pH- Field	C- Field - µs/cm	remp - Field - °C	qen-Hq	EC - Lab - µs/cm	Total Dissolved Soli	Hydroxide Alkalinity as	Carbonate Alkalinity as	Bicarbonate Alkalinity as CaCO3 - mg/L	Alkalinity - mg/L	Sulfate (SO4) - mg/L	Chloride (CI) - mg/L	mg/L 1agnesium (Mg) -	mg/L Sodium (Na) -	mg/L Potassium (K) -	mg/L Numinium (AI) -	mg/L Arsenic (As) -	Boron (B) - mg/L	Barium (Ba) - mg/L	Beryllium (Be) - mg/L	Cadmium (Cd) - mg/L	obalt (Co) - mg/L	Chromium (Cr) - mg/L	Copper (Cu) - mg/L	fanganese (Mn) - mg/L	Nickel (Ni) - mg/L	Lead (Pb) - mg/L	Selenium (Se) - mg/L	Vanadium (V) - mg/L	Zinc (Zn) - mg/L	Iron (Fe) - mg/L	Mercury (Hg)- mg	Ammonia as Nitroger	Nitrite as N -mg/I	Nitrate as N - mg/	Nitrite + Nitrate as mg/L	Total Anions - meq	Total Cations - mec	Ionic Balance TPH C6-C9	TPH C10-C36	TRH C6- C10	TRH C10-C40
ANZECC Guideline - s					ш				4000				Ì	1000		000			5	0.5				0.01	1	1	1	2	1	0.1	0.02		20	0	0.002			400							
MW4 MW4 MW4	26-Nov-07 29-Jan-08 4-Mar-08	9.06 9.1 9.17	9.76 9.8 9.87			+	1	+	\perp							=	+	#																	=								#		#
MW4 MW4	4-Apr-08 23-Apr-08	9.15 9.18	9.85 9.88		516	50 18		496)				995	317	1240	210 1	58 81	02	21	0.00	4			0.0015		0.042	0.29		0.16	0.44			0.62	C	0.001	=						<0.0	25 <0.	1	=
MWA	21-Aug-08 29-Oct-08	9.31 9.28 9.29	9.98 9.96		574	10 22	2	580)				980	280	1400			40		0.00				0.00009	9	0.008	0.008		0.016	0.18			0.2		0.0001							<0.0	25 <0.10	00	\equiv
MW4 MW4 MW4 MW4	29-Jan-09 17-Jun-09 28-Aug-09		10.05	6.8	540	00 21	5	492	2980	<1	<1	977	977	156	1160	189 1	47 7	55	16	0.00	7	1.16	0.003	0.0004	0.015	0.023	0.207	1.82	0.055	0.106		0.04	0.278	24.9 0.	.0004	<0.01				55.6	54.8 0	0.8	ᆂ		士
MWA	14-Dec-09	9.48 9.52 9.68	10.14 10.14	6.94	506	0 25	6 7.35			<1	<1	783	783	31.6	64.1	L87 1		46		0.00	1					<0.005	0.001	0.671	0.016	<0.001			0.114 <	<0.05 <0	0.0001		0.02	0.45	0.48		54.5 3.	41	丰		丰
MW4 MW4 MW4	25-Feb-10 11-May-10 30-Aug-10	9.66 9.69	10.3 10.28 10.31	7.58 7.33 6.9	566 474	0 21 10 20	8	521	3120	<1	<1	942	942	200	1180	149 1	15 8.	21	14	0.01	2	1.84	0.006	0.0006	0.03	0.033	0.17	1.26	0.096	0.138		0.08	0.238	25.3 0.	.0002	0.02				56.2	53 3.	.01	\equiv		\equiv
MW4 MW4 MW4 MW4	9-Nov-10 10-Mar-11	9.61 9.31						7 346)	<1	<1	893	893	87	730	78 (3 7)1					0.005	0.084	0.188	0.014	0.15			0.801	1.08 <0	0.0001		0.04	0.38		40.2		.61	士		士
MW4 MW4 MW4	6-Jun-11 6-Sep-11 7-Dec-11	9.42 9.46 9.35	10.04	7.12	319	30 18 36 2:	7 7.77	7 391)	<1	<1	861	861	104	700	74 !	8 7	02	10 0.6	5 <0.0)1	0.146	<0.001	<0.000	0.002	0.001	0.008	0.175	0.006	0.006		<0.01	0.418	0.7 <0	0.0001	0.2	<0.01	0.43	0.43	39.1	39.3 0.	.15	士		丰
MW4	13-Mar-12	9.36	9.97 9.98 9.84	7.6 7.52	258	30 22 50 20	1 8.01 6	1 369	2130		<1	898	898				4 7			6 <0.0)1	0.159	<0.001	<0.000	<0.001	<0.001	0.01	0.017	0.004	<0.001		<0.01		0.3 <	0.001	<0.01	<0.01		0.85		43.1 3.	.92	#		4
MW4 MW4 MW4	13-Jun-12 4-Sep-12 27-Nov-12	9.22 9.11 8.94		7.74	344	10 21	7		2170) <1	<1	962	962	108	674		5 6				01	0.167	<0.001	<0.000	< 0.001	<0.001	0.058	0.116	0.007	0.005		<0.01	0.513	0.44 <0	0.0001	0.02	0.02	1.04	1.06	40.5	38.6 2.	.37	丰		丰
MW4 MW4	20-Mar-13 11-Jul-13 5-Sep-13 22-Nov-13	8.92 8.87 8.83	9.54	7.53	342	0 20	6 7.65 9	373	2020	1 4	<1	908	880	110	652 745			72	12 0.2 15 0.2		1 <0.004	0.156	<0.001	<0.000	0.001	0.011	0.05	0.158	0.01	0.006	<0.01	<0.01	0.338	0.4 <0	0.0001	0.02	<0.01	1.68	1.68	37 41 4	40.7 4.	. /8	丰		丰
MW4 MW4 MW4	24-Feb-14	8.83 8.61 8.74	9.49 9.45 9.23 9.36	7.6 7.6	372	20 21 20 21	7 4 7.98	389	2010	0 <1	<1	875		113				44		4 <0.0	1 <0.001	1 <0.05	0.166	0.0002	<0.003	0.001	0.128	0.116	0.007	0.006	<0.01	<0.01	0.444	1.22 <0	0.0001	0.06					39.5 0.	.68	圭	E	圭
MW4	27-May-14 9-Sep-14	8.78 8.76	9.4	7.6	384	10 21	5 78			<1	<1	1020	1020	118	679	108	9 5	97	11 0.1	3 <0.0)1					0.003	0.057	0.235	0.008	0.007			0.334	0.86 <0	0.0001		0.2	0.54	0.74	42	38.1 4.	.83	\equiv		\equiv
MW4 MW4 MW4	20-Nov-14 26-Feb-15	8.72 8.71 8.93	9.34	7.3 7.3 7.3	403	70 21	6 7.7	443	2200	<1	<1	1090	1090	132	786	131 1	07 6	87	14 0.1	3 <0.0	1 <0.05	0.159	<0.001	<0.000	0.002	0.002	0.033	0.373	0.007	0.02	<0.01	<0.01	0.244	3.4 <0	0.0001	0.18	0.01	0.97	0.98	46.7	45.6 1.	.23	#		#
MW4	26-May-15 27-Aug-15 4-Dec-15	8.85	9.47 9.47 9.48	7.2	434	10 19 10 21	7 5 7.72	2 468	2550		<1	870	870	151	711	123 1	07 7:	19	14 0.0	2 <0.0	1 <0.05	0.159	<0.001	<0.000	<0.001	<0.001	0.004	0.359	0.004	0.002	<0.01	<0.01	0.149	1.21 <0	0.0001	0.56	<0.01	0.6	0.6	40.6	46.6 6.	.85	丰		#
MW4 MW4 MW4	4-Dec-15 24-Feb-16 23-May-16	8.85 8.86 8.92	9.48 9.54	7.4	445	0 21 30 21	7 7.85	465	2610	<1	<1	988	988	152	899	156 1	19 7	67	17 0.3	2 0.00	3 <0.05	0.18	0.002	0.0004	0.003	0.003	0.02	0.46	0.006	0.014	<0.01	<0.01	0.209	1.84 <0	0.0001	2.22	<0.01	0.07	0.07	48.3	51.4 3	3.1	上		1
MW4 MW4	1-Sep-16	8.91	9.53	7.3	433	30 22	8					982					1	<u>.</u>																									士		\pm
MW4 MW4 MW4 MW4	29-Nov-16 23/03/2017 21/06/2017 13/09/2017	8.92 9 8.9	9.54 9.62 9.52	7.4	437	70 19	7 7.83	3 461	2800) <1	<1	1040			882				16 0.5 15 0.7				<0.001	<0.0002	0.002	<0.001	0.036	0.356	0.008	0.011	<0.01	<0.01		1.05 <0	0.0001	0.1	0.05	1.36			47.8 1 48.7 0.	99	丰		#
MW4	13-Dec-17 22-Mar-18	8.95 9.08	9.57	7.2	444	10 22	3 7.4	447				1040	2040	247	040	72 -	-		15 0.7	3 10.01	10.03	0.100	10.001	10.000	0.001	10.001	0.015	0.510	0.003	0.013	10.01	10.01	0.000	2.40		0.03	0.00		1.23	47.0	40.7		丰		丰
MW4 MW4 MW4	12-Jun-18 13-Sep-18	9.14 9.34	9.76 9.96	7.3 6.9	443	70 22	1 7.49	9 456	2310	<1	<1	919	919	142	959	155 1	02 6:	11	10 0.0	5 0.00	1 <0.05	0.161	<0.001	<0.000	0.001	<0.001	0.004	0.307	0.004	0.002	<0.01	<0.01	0.077	0.12 <0	0.0001	0.33	<0.01	0.06	0.06	48.4	43 5.	.92	\pm		\pm
MW4	5-Dec-18 14-Mar-19	9.46 9.58 9.41	10.08	7.2	448	30 21	9 7.67	7 484	2460	0 <1	<1	1010	1010	145	818	L45 1	12 70	02	16 0.1	4 <0.0	1 <0.05	0.181	<0.001	<0.000	<0.001	0.001	0.005	0.394	0.003	0.008	<0.01	<0.01	0.079	0.65 <0	0.0001	2	0.05	0.21	0.26	46.3	47.4 1	.2	ᆂ	<2	0 360
MW4 MW4 MW4	19-Jun-19 11-Sep-19 5-Dec-19	9.62 10.14	10.03 10.24 10.76	7.4	346	0 20 30 21	8 7.99 8	346	1930		<1	715	715	112	682	78 !	2 6	85	8 0.1	2 <0.0	1 <0.05	0.075	<0.001	<0.000	<0.001	0.001	0.002	0.141	0.002	0.002	<0.01	<0.01	0.023	0.4 <0	0.0001		<0.01	0.08	0.08	35.8	38.2 3.	.13	丰		#
MW4 MW4 MW4 MW4	5-Dec-19 18-Mar-20 11-Jun-20	10.46	11.08	7.5	349	30 22 30 21	5 7.74		2040		<1	822	822		716	70 !		74			01 < 0.05	0.077	<0.001	<0.000	<0.001	<0.001	0.000	0.13	<0.001	<0.001	<0.01	<0.01	0.017	0.21 <0	0.0001	0.02	0.02			39.2	00.0	.49 <2) <50	0 <2) <100
MW4 MW4	11-Jun-20 23-Sep-20 8-Dec-20 14-May-21	10.38 10.35 10.37	10.97	7.3	358	0 19 0 19	4 8.02 2 7 7.7	2 338	2050		<1	953 876	953	103	650 684		0 6		8 0.0 14 0.1		01 < 0.05	0.086	<0.001	<0.000	<0.001	<0.001	0.002	0.174	0.002	0.002		<0.01	0.051	0.14 <0	0.0001	8.34	0.03	0.12	0.15		36.1 4.	.33 <2			0 <100
MW4 MW4 MW4	7-Jun-21 21-Jun-21	9.56	10.18	7.26	353	0 15	5 7.37 9	7 340	2210	<1	<1	805	805	98	587	84 !	9 6	44	11 0.2	4 <0.0	1 <0.05	0.166	<0.001	<0.000	<0.001	0.001	0.01	0.419	0.009	0.013	<0.01	<0.01	0.169	0.58 <0	0.0001	5.34	0.16	0.07	0.23		37.3 3.	.69 <2	0 <50	0 <2) <100
MW4 MW4	2-Sep-21 31-Dec-21	9.48 9.91	10.1 10.53	6.76 7.56	306 304	0 16 0 20	5 7.62 2	310	2020	<1	<1	871	871	70	490	50	5 6:	13	6 0.1	3 <0.0	0.05	0.088	<0.001	<0.000	<0.001	<0.001	0.002	0.166	0.005	0.003	<0.01	<0.01	0.083	0.003 <	0.001	0.9		0.08	0.09			<2	0 <50	0 <2	0 <100
TEMPLEMORE MW5	2-Jun-06	2.78	3.4	6.9				153)				472	138	169	17	3 3	73	6	0.00	6																						+		4
MW5 MW5	9-Sep-06 11-Jan-07	2.98 3.56	3.6 4.18	7 25				487)				836	435	1060	44 4	9 10	70	13	0.00	3			<0.000	1	<0.001	<0.001		0.013	<0.001			0.09										上		1
MW5 MW5 MW5	11-Jan-07 18-Apr-07 10-Jul-07 18-Jul-07	2.98 3.85	3.6 4.47 4.49	7.59	136	0 19	7	193)				380	161	291	14	.5 1	.3	5	0.00	2			<0.000	ı	<0.005	0.001		0.009	<0.001			0.111	<0	0.0001							<2	0 3490	0	#
MW5 MW5 MW5	7-Aug-07 22-Aug-07	3.87 3.92 3.88	4.54			+	1									=		1																=		_							丰		丰
MW5 MW5	5-Sep-07 24-Sep-07	3.84 3.86	4.46		E	E	E	E	E			E				1	ŧ	1	Œ	+		E			E									土								ŧ	王	ŧ	王
MW5 MW5	11-Oct-07 26-Nov-07	3.91 3.94	4.53	1	E	Ŧ	E	E	E							Ŧ	Ŧ	Ŧ	Ŧ			E					$oxed{oxed}}}}}}}}}} }} } } } } } } } } } } } } $							==	Ⅎ								士		量
MW5 MW5 MW5	29-Jan-08 4-Mar-08 4-Apr-08	3.06 3.01 3.07	3.68 3.63 3.69		H	+	+	+	╄	1		1			=	#	#	#	=	+	\vdash	\vdash			+								=	#	=	_	_	=	#	=	=	=	#		#
MW5	23-Apr-08	3.15 3.10	3.77	7.9	355	0 19	9	326			+	1	630	332	553	29		96		0.01	2			0.0001	7	0.006	0.027		0.042	0.054			0.11	<0	0.0001						=		丰		丰
MW5 MW5 MW5 MW5	21-Aug-08 29-Oct-08 29-Jan-09	2.97 3.12	3.59 3.73 4.18	7.3	330	00 19		340	1370					290	560		.5 4			0.00	8	Ŀ		<0.0000	5	0.005	0.004		0.007	0.018			0.028		0.0001							<0.0	25 0.57	7	\equiv
MW5	17-Jun-09 14-Sep-09	3.33 3.52	4.32					212	1370	(1	<1	486	486		315	13 :		85		0.01	2	0.054	<0.001	<0.000	0.003	0.002	0.02	0.586	0.006	0.019		<0.01	0.105	1.66 <0	0.0001	0.07	40.04	40.01	40.01	21.1	23.2 4	1.6	丰		世
MW5 MW5 MW5	14-Dec-09 25-Feb-10 11-May-10	3.76 2.91	3.71	7.21	690	00 28	4 /.44	4 /46 502	3630	<1	<1	2110		678 491	1720	у 1 38		10		0.01	2	0.426	0.001	0 000	0.032	0.001	0.002	1.4	0.022	0.062		0.05	0.078	23 <0	0.0001	0.1	<0.01	<0.01	<0.01	62.4	91 3.	53	#		#
MW5 MW5	30-Aug-10 9-Nov-10	2.6 2.48	3.4	7.85 7.35	174 262	0 22	1		3030	1	- 1	030	030	431	2200	~	-	-		0.03		0.420	0.001	0.009	0.032	0.024	0.07	1.33	0.071	0.008		0.05	U.Z.11	-3 10	,,,,,,,,	J.1		=	=	JZ.4	30.3 1.		#	=	#
MW5 MW5 MW5	10-Mar-11 6-Jun-11 6-Sep-11	2.51 2.47	3 31	7.39 7.45 7.39	191	17 25	2 7.69			<1	<1	416	416	130	396	11		74		2 0.0.		E			E	0.001	0.03	0.64	0.003	0.007			0.139	0.79 <0	0.0001		<0.01	0.11	0.11	22.6	22.4 0.	.49	\pm		\pm
MWS	6-Sep-11 7-Dec-11 13-Mar-12	2.7 1.96	2.76	7.36	227	75 20	5		1360		<1	427	427	177	385	10		01			2	0.051	<0.001	<0.000	0.001	0.004	0.006	0.081	0.005	0.004		<0.01	0.032	4.1 <0	0.0001	0.11	<0.01	0.04	0.04		23.4 0	0.6	重		崋
MW5 MW5 MW5 MW5	13-Jun-12	1.28 1.58	2 20	7.52 7.81	07	7 20	2		736		<1	269	269 439	45	380	g .	7 25		5 1.9 8 7.8		6	0.027	<0.001	<0.000	<0.001	0.002	0.005	0.122	0.003	<0.001		<0.01	0.02	5.13	0.0001	<0.01	<0.01	U.43	<0.01	13.7 22.5	13.8 0.	.33	丰	+	丰
MW5 MW5	4-Sep-12 27-Nov-12 20-Mar-13	1.46 1.84 1.94	2.64	7.65	265	0 22 30 24	1 7.92 5 7 7.61	1 157	956		<1	373	323	46	236	7		21	6 05	3 0.01	1	0.036	<0.001	<0.000	1 <0.001	0,004	0.054	0.073	0,004	0.007		<0.01	0.158	0.56	0.0001	0.08	<0.01	0.06	0.01	14.1	15.1 3	.57	丰		丰
MWS	11-Jul-13 5-Sep-13 22-Nov-13	2.26 2.45	3.06	7.54 7.62 7.55	84 164	6 21 10 21	5 8 8.07				<1	396	396	115	287	5		06	8 4.6	2 0.01	1 <0.001	1 0.12	0.038	<0.000	1 <0.001	0.003	0.062	0.07	0.004	0.009	<0.01	<0.01	0.118	3.25 <0	0.0001	0.02				18.4	18.7 0.	.73	于	Ŀ	于
MW5 MW5 MW5	20-Feb-14	2.76	3.56 3.81	7.7	179	30 21 30 22	7 7.77	7 185	964	<1	<1	377	377	111	282	7	3 3	94	6 2.0	5 0.01	4 <0.001	1 <0.05	0.039	0.0004	0.002	0.01	0.166	0.232	0.007	0.024	<0.01	<0.01	0.46	2.68 <0	0.0001	<0.01	╛	∃	彐	17.8	18.3 1.	.34	重		崋
MW5 MW5	27-May-14 9-Sep-14 20-Nov-14	2.77 2.80 3.00 3.18	3.57	7.7	213	5 22 30 20	5 7.99	220		<1	<1	476	476	159	319	7	8 4	62	8 12.	7 0.01	4				+	0.009	0.059	0.379	0.019	0.016			0.141	8.81 <0	0.0001	_	0.02	0.65	0.67	21.8	21.3 1.	.23	丰	+	丰
MW5 MW5 MW5		3.18 3.29									<1	433	433	130	299	5			6 1.1		<0.05	0.026	<0.001	<0.000	<0.001	<0.001	0.005	0.044	0.002	<0.001	<0.01	<0.01	0.04	0.74 <0	0.0001	0.01	<0.01	0.14	0.14	19.8	18.2 4.	.09	丰		丰
MW5 MW5	26-May-15 27-Aug-15	3.19	3.98	7.7	211	10 19	7 8.08	221	1300	<1	<1	424	424	174	262	8	9 4	65	6 1.2	9 0.02	3 <0.05	0.051	<0.001	<0.000	<0.001	<0.001	0.002	0.373	0.002	<0.001	<0.01	<0.01	0.036	1.67 <0	0.0001	0.04	<0.01	0.02	0.02	19.5	21.5 4.	.92	工		二二

lon		- mbgl	mbtoc	Field	Parame	ters		cm	Solids			Major Aı	nions			,	Major Ca	ations									Total M	Netals								mg/L	gen (N)	1/30	ng/L	as N -	1/bau	neq/L	g,		9		0
Sample Locat	Date	Depth to Ground	Depth to Stand -	pH - Field	EC - Field - µs/cm	Temp - Field - °C	рн - Гар	EC - Lab - μs/	Total Dissolved	Hydroxide Alkalinity as CaCO3 - mg/L	Carbonate Alkalinity as CaCO3 - mg/L	Bicarbonate Alkalinity as CaCO3 - mg/L	Alkalinity - mg/L	Sulfate (SO4) - mg/L	Chloride (CI) - mg/L	Calcium (Ca) - mg/L	Magnesium (Mg) - mg/L	Sodium (Na) - mg/L	mg/L	Aluminium (AI) - mg/L	Arsenic (As) - mg/L	Boron (B) - mg/L Barium (Ba) -	mg/L Beryllium (Be) -	mg/L	cadmium (cd) - mg/L	Cobalt (Co) - mg/L	Chromium (Cr) - mg/L	Copper (Cu) - mg/L	Manganese (Mn) - mg/L	Nickel (Ni) - mg/L	Lead (Pb) - mg/L	Selenium (Se) - mg/L	Vanadium (V) - mg/L	Zinc (Zn) - mg/L	Iron (Fe) - mg/L	Mercury (Hg) -	Ammonia as Nitro	Nitrite as N -m	Nitrate as N - r	Nitrite + Nitrate mg/L	Total Anions - n	Total Cations - r	Ionic Baland	TPH C6-C9	TPH C10-C3	TRH CG-CI	TRH C10-C4
ANZECC Guideline - s	tock drinking water								4000					1000		1000				5	0.5				0.01	1	1	1		1	0.1	0.02		20		0.002			400								
MW5	4-Dec-15	3.29	4.08	7.7	3070	21.2																																	1							-	
MW5	24-Feb-16	3.36	4.15	7.7	2060	23.5	7.76	2230	1180	<1	<1	471	471	184	361	12	13	519	7	0.95	0.01	0.05 0.	036 <0.0	001 <0	0.0001 <	<0.001	< 0.001	0.013	0.209	0.003	0.002	< 0.01	< 0.01	0.071	0.79	< 0.0001	0.09	<.01	0.24	0.24	23.4	24.4	2.04				
MW5	23-May-16	3.41	4.2	7.7	1632	23.4																																									
MW5	1-Sep-16	2.29	3.08	7.7	1700	21	7.96	1750		<1	<1	382	382		256	6	7	378	5	5.55 (0.009						0.003	0.007	0.071	0.004	0.002			0.05	3.86	< 0.0001		< 0.01	1.1	1.1	17.5	17.4	0.25				
MW5	29-Nov-16	2	2.79	7.6	3010	20.7																																			1						

c		mbgl	btoc	Field Pa	arameters		_	lids			Major Ar	nions			Major	Cations								Total M	letals							g/L	(N) ua	η.	7.	- N	d/L	J/ba				
Locatio	Date	- puno	and - m	_ [mɔ/s	qe1-	- us/cr	olved Sc	- s 1/2	a s 7x	as C	1/8/L	÷ ÷	-	Mg) -	- (1	-	AI) -	, lar		- (ə	- D	ng/L	Ė	-	Mn)	ng/L	1/8a e) -	- (>	1/3	1/30	m -(BH)	Nitroge	s N - mg	m-Ns	itrate a: g/L	ıns - me	ons - me	TPH C6-C9	10-C36	C6- C10	10-C40
Sample	۵	Depth to G	Depth to St	pH - Field	C- Field - µs,		EC - Lab -	Total Disso	Hydroxide Alkalinity a CaCO3 - mg	Carbonat Alkalinity a CaCO3 - mg	Bicarbona Alkalinity a CaCO3 - ms	۸ - Kalinity	Sulfate (SO- mg/L Chloride (C	mg/L Calcium (Ca	Aagnesium (mg/L	Sodium (Na mg/L	Potassium (mg/L	Arsenic (As	mg/L	Barium (Ba	mg/L Beryllium (B mg/L	Cadmium (C mg/L	obalt (Co) - ı	Chromium (emg/L	Copper (CL mg/L	flanganese (mg/L	lickel (Ni) - r	ead (Pb) - n Selenium (S	mg/L Vanadium (V)	mg/L Zinc (Zn) - m	Iron (Fe) - m	Mercury (Hg):	Ammonia as	Nitrite as	Nitrate as	Nitrite + Ni	Total Anic	Total Catic	±4±	TPH C10	TRH (TRH C10
ANZECC Guideline - s	tock drinking water				<u> </u>			4000					1000	1000) =			5 (0.5			0.01	1	1	1	2	1	0.1 0.	02	20		0.002			400							
MW5 MW5	23-Mar-17		3.15				1750	1100	<1	<1	340	340	92 29	3 8	9	352	7	0.59 0.	.007 <0.	0.0	42 <0.001	<0.0001	0.002	<0.001	0.03	0.638			.01 <0.	01 0.144	0.5	<0.0001	0.94	0.14	2.4	2.54	17	16.6 1.0)2			=
MW5 MW5	21-Jun-17 13-Sep-17 13-Dec-17	2.76	3.34 3.55 3.58	7.8	2610	8.19	2640	1520	<1	<1	561	561	200 42	1 12	14	567	8	1.13 0.	.014 <0.	0.0	35 <0.001	< 0.0001	<0.001	<0.001	0.007	0.082	0.001	0.005 <0	.01 <0.	0.089	0.74	< 0.0001	0.06	<0.01	0.06	0.06	27.2	26.6 1.1	17		旦	$\overline{}$
MW5	22-Mar-18																																									
MW5 MW5	12-Jun-18 13-Sep-18	3.31 3.56	4.1 4.35	7.9 : 7.8 :	1413 1980 22	2 8.07	2040	1080	<1	<1	418	418	146 34	1 8	8	386	5	1.43 0	0.01 <0.0	0.0	3 <0.001	<0.0001	<0.001	<0.001	0.005	0.035 <	0.001	0.002 <0	.01 <0.	01 0.024	1 1.09	< 0.0001	0.04	<0.01	0.03	0.03	21	18 7.7	78		\vdash	
MW5 MW5	5-Dec-18 14-Mar-19	3.41 3.41	4.2 4.2	7.7	2130 21	.5			<1	<1	313	313	69 16	2 3	3	286	4	1.65	0.01 <0.0	05 0.0	23 <0.001	<0.0001	< 0.001	<0.001	0.004	0.044	0.002	0.001 <0	01 0.0	1 0.028	3 1.4	< 0.0001	0.02	< 0.01	0.17	0.17	12.3	12.9 2.6	59		<20	<100
MWS	19-Jun-19	2 91	3.7	76 '	1292 22	5			<1	<1	393		164 37	0 10	10	450	,	3.47 0	000 40	0.0	22 40 001	40.000s	×0.001	0.003	0.004	0.044	0.002	0.002 40	01 0.0	1 0.031	1.63	40.0001		40.01	0.00	0.00		21.2 1.4		450	-20	<100
MW5 MW5	11-Sep-19 5-Dec-19	3.25	3.69 4.04	7.8	2080 21	.4 0.12	2120	504						5 4	10	430		2.47 0.	.009 (0.	0.0.	32 (0.00.	.0.000	.0.001	0.002	0.004	0.044 (0.002	0.002 0	.01 0.0	0.031	1.03	V0.0001	0.00	V0.01	0.09	0.09	7.84	7.00 0.0	17 120	-50	120	<100
MW5 MW5	18-Mar-20 11-Jun-20	2.41	3.2 3.09	7.6	675 20.	.7			<1		180					182		1.8 0.	.006 <0.0	JS U.U.	18 <0.00.	<0.000	<0.001	<0.001	<0.001	0.04	0.001 <	0.001 <0	.01 0.0	0.02	1.35	<0.0001	0.03	<0.01	1.51			7.89 0.3	53 <20	<50	<20	
MW5 MW5	23-Sep-20 8-Dec-20	2.67	3.13 3.46	7.8	1960 18	.1			<1		461			0 9		432		4.41 0	0.01 <0.0	0.0	34 <0.001	<0.0001		0.002	0.006	0.055	0.002	0.003 <0	.01 <0.			<0.0001	0.02	<0.01				20.2 4.8		<50	<20	<100
MW5 MW5	4-Mar-21 21-Jun-21	2.56 2.07	3.35 2.86	7.36	874 23	7.47	885	575	<1	<1	245	245	42 17	9 4	4	193	3	5.72 0.	.006 <0.	0.03	29 <0.003	<0.0001	<0.001	0.004	0.013	0.068	0.004	0.002 <0	.01 0.0	0.029	4.01	<0.0001	0.03	<0.01	0.54	0.54	9.41	9 2.2	22 <20	<50	<20	<100
MW5 MW5	2-Sep-21 29-Dec-21	1.85	2.64	6.8	1771 19	8 7.7	1810	1180	<1	<1	423	423	90 2	2 7	8	373	7	5.73 0.	.009 <0.	0.0	41 <0.001	<0.0001	<0.001	0.005	0.016	0.221	0.008	0.011 <0	.01 <0.	01 0.102	3.5	<0.0001	0.31		0.12	0.12			<20	<50	<20	<100
NAGERO		1.82			2034 21	.0														+																						
MW6 MW6	2-Jun-06 9-Sep-06	8.34 8.84	9 9.5	7.3			2030					720	55 30	8 59	29	440	8	<0	0.001							_	_														\blacksquare	=
MW6	11-Jan-07	9.15	9.81	6.89	2050 :-		2030					724	51 2	2 62	30	426	7	<0	0.001			<0.0001		<0.005	<0.001		0.011 <	0.001		0.08		<0.0001									=	=
MW6 MW6	10-Jul-07 18-Jul-07	9.37 9.35	10.01	7.5	2060 18	1	2000					666	47 28	3 58	2/	411	8	0.0	UUU5	\pm		0.00009		0.0025	0.001		0.004 0	.0005		0.01		0.00005									ᆮ	
MW6 MW6	7-Aug-07 22-Aug-07	9.32 9.29	9.98 9.95	-	+	-	-	-						+	-		 			-	-	+	+		-		-		-	-	+	1					-	-			Н	-
MW6 MW6	5-Sep-07 24-Sep-07	9.31	9.97 9.73											_																											\blacksquare	=
MW6 MW6	11-Oct-07	9.16	9.82																																						\blacksquare	=
MW6	26-Nov-07 29-Jan-08	9.06	9.83 9.72																																						旦	
MW6 MW6	4-Mar-08 22-Apr-08	8.62	9.475 9.28	7.1	2000 21	.1	2120					670	51 2	3 64	29	391	9.8	0.	.001			<0.0000	5	0.001	0.002		0.006 0	.0031		0.009	5	<0.0001							<0.025	<0.1	\blacksquare	
MW6 MW6	21-Aug-08 29-Oct-08	8.48	9.205 9.15	7.1	2050 23	.9	2100					680	50 2	0 60	27	380	8.5	0.	.001	_	_	0.0000	,	0.003	0.003		0.004	0.077		0.034	1	< 0.0001							<0.025	0.18	$\vdash \vdash$	_
MW6 MW6	29-Jan-09 14-Sep-09	8.33 8.65	9.1 9.43																																						\blacksquare	=
MW6 MW6	14-Dec-09 25-Feb-10	8.86	9.64 9.62	7.13	2112 23	4 7.3	2100		<1	<1	652	652	39.4 2	2 56	26	385	8	<0.01 <0	0.001					<0.005	<0.001	0.336	0.008	0.002		0.01	<0.05	<0.0001		0.02	0.53	0.55	21	21.9 2.2	24			=
MW6	11-May-10	8.84 8.3	9.08	7.56	2360 21	.5	2030	1160	<1	<1	645	645	42.2 26	1 56	26	380	7	<0	0.001	0.1	93 <0.001	<0.0001	0.002	0.002	0.002	0.278	0.003	0.006	<0.	0.008	3 2.13	< 0.0001	<0.01				21.1	21.6 1.1	14			=
MW6 MW6	30-Aug-10 9-Nov-10	7.72	8.78 8.5	7.03	1835 24	.3																																			ш	
MW6 MW6	10-Mar-11 6-Jun-11	7.41	8.19 8.22	7.08 :	1783 24 1670 19	7.53	1790		<1	<1	627	627	42 29	3 55	27	406	9	0.15 <0	0.001					0.002	0.034	0.047	0.003	0.015		0.216	0.32	< 0.0001		0.03	0.97	1	21.7	22.9 2.6	51		lacksquare	-
MW6 MW6	6-Sep-11 7-Dec-11	Pie	zo damage zo damage	d																		1	1																		\blacksquare	=
MW6	13-Mar-12	5.74	6.52	7.49	1840 23	4 7.68	1980	1150	<1	<1	624	624	46 26	2 55	24	390	9	0.15 <0	0.001	0.1	25 <0.001	<0.0001	<0.001	0.002	0.009	0.013	0.004	0.001	<0.	0.071	0.12	< 0.0001	<0.01	<0.01	1.44	1.44	20.8	21.9 2.9	4		\blacksquare	=
MW6 MW6	13-Jun-12 4-Sep-12	5.87 5.58	6.65 6.36	7.82	1840 22	8.08	1990	1210	<1	<1	681	681	39 2	6 53	25	381	8	0.09 <0	0.001	0.1	43 <0.003	<0.0001	<0.001	<0.001	0.012	0.013	0.003	0.003	<0.	01 0.072	0.18	< 0.0001	<0.01	<0.01	1.13	1.13	22.2	21.5 1.6	59			
MW6 MW6	27-Nov-12 20-Mar-13	5.55 5.75	6.33	7.6 : 7.46	1817 21 343 22	.8 7.43	351	252	<1	<1	106	106	28 1	5 12	3	49	8	0.49 0.	.001	0.0	37 <0.001	<0.0001	<0.001	0.003	0.081	0.095	0.006	0.009	0.0	0.402	2 0.56	<0.0001	0.23	0.1	0.6	0.7	3.15	3.18 0.4	14		ᆮ	
MW6 MW6	11-Jul-13 5-Sep-13	5.88 5.96	6.66 6.74	7.62	452 20 465 21	3 7.8	496	327	<1	<1	132	132	60 2	5 18	3	75	10	0.86 <0	0.001 <0.0	01 0.0	8 0.038	<0.0001	< 0.001	0.002	0.075	0.058	0.005	0.006 <0	01 0.0	0.151	0.93	< 0.0001	0.09				4.59	4.66 0.7	74		尸	=
MW6 MW6	22-Nov-13 24-Feb-14	5.85	6.63	7.2	486 20	.8	242	187	<1		56		26	- 10	+	73		0.88 <0		01 -0.0	nc 0.036	<0.000		0.002		0.004		0.006 <0	01 0.0		0.93		0.03			H	4.59		1		ightharpoonup	=
MW6	27-May-14	5.64	6.42	7.5	360 22	.1				41	- 00	- 00		8	+					U1 NU.	0.02	NU.000.	0.001			0.094 L	0.003	7.004	.01 0.0	0.10.	0.5	10.0001	0.33					1.55			=	=
MW6 MW6	9-Sep-14 20-Nov-14 26-Feb-15	5.54 5.55	6.32 6.33 6.43	7.5	845 21 712 21	.4 7.61 .6	854	L	<1	<1	274			3 24		140		1.63 0.	.002	╧		L		0.005		0.154 (0.012	0.016			1.55			<0.01	<0.01			8.07 4.2			ш	
MW6 MW6	26-May-15	5.64 5.65	6.43	7.6 7.5	543 22 692 19	.2 7.67	617	353	<1	<1	173	173	42 4	3 25	5	89	10	0.13 <	0.01 <0.	0.0	36 <0.01	<0.0001	<0.001	0.001	0.012	0.059	0.007	0.002 <0	.01 <0.	0.238	3 0.32	< 0.0001	0.06	<0.01	0.62	0.62	5.54	5.79 2.1	11		尸	一
MW6 MW6	27-Aug-15 4-Dec-15	5.4	6.18																	_																					P	H
MW6	24-Feb-16	5.38	6.16	7.6	1012 21	2 7.85	1080	620	<1	<1	327	327	46 13	5 41	12	203	10	0.31 0.	.002 0.0	6 0.0	83 <0.001	<0.0001	<0.001	0.004	0.018	0.063	0.01	0.006 <0	.01 <0.	0.211	1.94	<0.0001	0.09	<0.01	0.98	0.98	11	12.1 4.7	73		=	一
MW6 MW6	23-May-16 6-Sep-16	5.36 5.15	6.14 5.93	7.6	1080 23	.3 7.77	1100		<1	<1	331	331	1	9 34	10	181	9	0.04 <0	0.001	ᆂ			$\pm \pm$	<0.001	0.004	0.016	0.007 <	0.001		0.079	0.49	<0.0001		<0.01	0.42	0.42	11	10.6 1.9	97		ᆮ	
MW6 MW6	29-Nov-16 13-Mar-17	4.68	5.52 5.46	7.5	1600 22	.8 8.25	1630	980	<1	<1	481	481	45 26	9 44	20	296	9	0.04 <0	0.001 0.0	7 0.1	03 <0.001	0.0001	<0.001	0.003	0.026	0.008	0.007	0.002 <0	.01 <0.	01 0.156	5 0.21	<0.0001	0.01	<0.01	1.1	1.1	18.1	16.9 3.3	19		ᆮ	
MW6 MW6	21-Jun-17 13-Sep-17	4.77 4.57	5.55 5.35	7.5	1660 21	.8	1710		<1	<1		573		1 51		318	9	0.05 <0	0.001 0.0	8 0.0	9 <0,001	<0.0001	<0.001	0.007		0.006	0.008 <	0.001 <0		01 0.121		<0.0001	0.03	<0.01				18.4 0.	6		尸	=
MW6 MW6	13-Dec-17 22-Mar-18		5.33	7.6	1738 21		-,10	-/10	Ė		J. J	-,,		—	1				0.0			.5.000			2.250				0.	J. J.12	7.14							0.			=	H
MW6	12-Jun-18	4.75	5.53	7.7	1828	0 0	200-	2005	<u> </u>			1		<u>. </u>	1	244		0.00		1.	4 .0.55	.0.000	10.00	0.004	0.000	0.005	0.000			04 0.55		-0.005	201		4.35	4.25	22.4	40.2			\blacksquare	=
MW6 MW6	13-Sep-18 5-Dec-18	4.84 4.85	5.62 5.63	7.6	2020 21 2200 21	.8 8.23	2090	2090	<1	<1	566	566	48 34	7 38	26	344	6	U.U6 <0	0.001	/ 0.1	.ı <0.001	<0.0001	<0.001	0.001	0.002	U.005 (0.003 <	U.UU1 <0	.01 <0.	01 0.007	0.09	<0.0001	0.04	<0.01	1.35	1.35	22.1	19.2 7.1	4			
MW6 MW6	14-Mar-19 19-Jun-19	Ca	sing broke	n	===							$\vdash \exists$	-F	1		\vdash	$\vdash \exists$		===	Ŧ		1			\equiv		- F	===						H		$\vdash \exists$	\exists	===			尸	一
MW6 MW6	11-Sep-19 5-Dec-19	Ca	sing broke	n	1													1								_												1			=	Ħ
MW6 MW6	10-Jun-20 23-Sep-20	Ca	sing broke	n																																					=	一
MW6	8-Dec-20	Ca	sing broke sing broke	n																\pm			\Box				<u> </u>														ᆮ	
MW6 NGA MINE - MW7 De	4-Mar-21 comissioned	Ca	sing broke	n																																						

uo		- mbgl	mbtoc	Field F	Paramet	ters		E	Solids			Major Ar	nions				Major	Cations									Total	Metals								ng/L	gen (N)	1/8	J/Br	as N -	J/bac	J/bau		9		0
Sample Locati	Date	Depth to Ground	Depth to Stand - 1	pH - Field	C - Field - µs/cm	emp - Field - °C	pH-Lab	EC - Lab - µs/c	Total Dissolved S	Alkalinity as CaCO3 - mg/L	Carbonate Alkalinity as CaCO3 - mg/L	Bicarbonate Alkalinity as CaCO3 - mg/L	Alkalinity - mg/L	Sulfate (SO4) - mg/L	Chloride (CI) - mg/L	Calcium (Ca) - mg/L	fagnesium (Mg) - mg/L	Sodium (Na) - mg/L	Potassium (K) - mg/L	Numinium (AI) - mg/L	Arsenic (As) - mg/L	toron (B) - mg/L	Barium (Ba) - mg/L	Beryllium (Be) - mg/L	Cadmium (Cd) - mg/L	obalt (Co) - mg/L	Chromium (Cr) - mg/L	Copper (Cu) - mg/L	fanganese (Mn) - mg/L	lickel (Ni) - mg/L	.ead (Pb) - mg/L	Selenium (Se) - mg/L	Vanadium (V) - mg/L	Zinc (Zn) - mg/L	Iron (Fe) - mg/L	Mercury (Hg) - r	Ammonia as Nitro	Nitrite as N - m	Nitrate as N - m	Nitrite + Nitrate : mg/L	Total Anions - m	Total Cations - m	TPH C6-C9	TPH C10-C3	TRH C6- C10	TRH C10-C4
ANZECC Guideline -	stock drinking water				ū	-		4	4000				1	1000		1000	2			5	0.5			_	0.01	1	1	1	2	1	0.1	0.02	-	20	_	0.002	`		400				+	+	_	
	ONGA MINE			_	_	_	-	_	1000					1000		2000					0.5				0.01			-	+	-	1	0.02		20		0.002			400		_		+-	_	-	
MW8	2-lun-06	13.06	13.8	6.7				2240					588	46	426	161	48	298	9		<0.001																							\pm		\pm
MW8 MW8	9-Sep-06 11-Jan-07	13.16 13.41	13.9	6.7	-	-	-	2260	_				587	80	411	180	53	319	7		< 0.001				<0.0001		< 0.005	0.002	_	0.007	0.001			0.16		<0.0001					-		_	+-		+
MW8	18-Apr-07	12.86	13.6																									0.002		-	0.000													ᆂ		
MW8 MW8	9-Jul-07 18-Jul-07	13.62 13.67		6.8	2530	18.9		2610	-			-	616	80	483	196	55	308	- 8		<0.001				<0.0001		<0.005	0.005	+	0.006	0.004			0.102		<0.0001					-		<20	250	+-	+-1
MW8 MW8	7-Aug-07 22-Aug-07	13.66 13.66	14.4																																									1	—	=
MW8	5-Sep-07	13.72	14.46																																									1	<u>t </u>	$\pm \pm$
MW8 MW8	24-Sep-07 11-Oct-07	13.64 13.63	14.38					-	-			1				<u> </u>	-		-1	_			-			<u> </u>		1	+-	1	-		1	-	_				\vdash	-1			+	+-	+	+
AAAA/Q	26-Nov-07 29-Jan-08	13.69	14.43																																									1	1	\perp
MW8 MW8	29-Jan-08 4-Mar-08	13.54 13.56	14.28			\dashv	-+	-+	-+			1	1				-	-		-			-		1			+	+	1	+			-+	-								+	+-	+-	+-
MW8 MW8	22-Apr-08		Bore blo		sample	_																																						\perp	=	\blacksquare
MW8	21-Aug-08 29-Oct-08	13.85	14.52 14.59 b	cked no	sample	-		-	_			1									_								+	1											-		-	+-	+-	+-1
MW8 MW8	28-Jan-09 17-Jun-09	13.85	14.6 14.77					_	_			-																	_	-													-	4—	-	1
MW8	27-Aug-09	14.02	14.77																																									\pm	\pm	$\pm \pm$
MW8 MW8	23-Dec-09 25-Feb-10	14.1 13.8		nple - ca		icked	-	_	_																				-												-		_	+-		4
MW8	11-May-10	13.72	14.47	nnle - ca	sing blo	cked																																						\pm		\blacksquare
MW8 MW8	30-Aug-10 9-Nov-10	13.71 13.74	14.46	nole - ca nole - ca	sing blo	cked	-+	-	-+			-	-																+	1	+			-	-						-	-	+-	+-	+-	+
MW8	14-Mar-11	14.12	14.87	nple - ca	sing blo	icked																																						ᆂ	二	
MW8 MW8	21-Jun-11 8-Sep-11	13.62 13.80	14.55	nple - ca	sing blo	icked		_	-			-																	+	-	+										-		+	+-	+-	+-1
MW8 MW8	9-Dec-11 14-Mar-12	13.24 12.57	13.99	nple - ca	sing blo	cked																																					_	\perp	$lue{}$	\blacksquare
MW8	14-Jun-12	12.76	13.51	3.2 dow	vn pipe																																							1	<u>t </u>	$\pm \pm$
MW8 MW8	6-Sep-12 28-Nov-12	12.63 12.79	13.38	3.2 dow	vn pipe	ne						1	_							_						1		+	+	1	1				_						_		-	+-	+	+
MW8	20-Mar-13	12.68	13.43	3.2 dow	vn pipe																																							1		\pm
MW8 MW8	11-Jul-13 5-Sep-13	12.95 13.00	13.75	3.2 dow	vn pipe vn pipe	-+	-+	-	-+			-	-																+	1	+			-	-						-	-	+-	+-	+-	+
MW8 MW8	22-Nov-13 20-Feb-14	13.01 13.07		3.2 dow	vn pipe																																							1	—	=
MW8	27-May-14	13.00	13.75	3.2 dow	vn pipe																								+	1														+-	+	+
MW8 MW8	9-Sep-14 20-Nov-15	13.13 13.22	13.88	3.2 dow	vn pipe																								1															=	$lue{}$	=
MW8	26-Feb-15	13.27	14.02	3.2 dow	vn pipe																																							\pm		\pm
MW8 MW8	26-May-15 27-Aug-15	13.43	14.22	3.2 dow	vn pipe	\dashv	-+	-+	-+			1	1			-	-	-		-			-		1			+	+	1	+			-+	-								+	+-	+-	+-
MW8 MW8	4-Dec-15 24-Feb-16	13.43 13.46 13.49	14.25	3.2 dow	vn pipe																																							=	⇇	=
MW8	23-May-16	13.54	14.33	3.2 dow	vn pipe			_				<u> </u>																														<u> </u>	\pm	士	世	$\pm \pm 1$
MW8 MW8	1-Sep-16 29-Nov-16	13.08	13.87	3.2 dow	vn nine	7	7	7												=															=						7			+-	=	\blacksquare
MW8	21-Jun-17	12.62 13.07	13.86	3.2 dow	vn pipe																																							士	\pm	=
MW8 MW8	13-Dec-17 22-Mar-18	13.12 12.53				 ∓	 F	- F				1	1						-1	-	-								+	1	1			-1	\dashv					-	 ∓		+-	+-	+	+
MW8	12-Jun-18	13.33	14.12	3.2 dow	vn pipe	_	_																																					=	=	=
MW8 MW8	13-Sep-18 5-Dec-18	13.44 13.29	14.23	3.2 dow	vn pipe			- 	-+			1	1			-	1		\vdash				1		1	 		1	+	+	+		1	-				-	\vdash				+	+-	+-	+-
MW8 MW8	14-Mar-19 19-Jun-19	13.62	14.41	3.2 dow	vn pipe	_	_		_																																			\bot	=	\blacksquare
MW8	11-Sep-19	13.69 13.77	14.56	3.2 dow	vn pipe																																						\pm	士		\pm
MW8 MW8	6-Dec-19 18-Mar-20	13.76	14.55	3.2 dow	vn pipe	=																																						+-	=	=
MW8	10-Jun-20	13.67	14.46	3.2 dow	vn pipe							t																		1														\pm	=	\Box
MW8 MW8	24-Sep-20 8-Dec-20	13.44										 				-		-	$\vdash \exists$	-	-					\vdash		1	+	1	+-			\vdash	\dashv				\vdash	$\vdash \exists$	-1	 -	+	+	+-	╆═┦
MW8	4-Mar-21	13.42	14.21	3.2 dow	vn pipe																																							1	1	\perp
MW8 MW8	21-Jun-21 2-Sep-21	13.07 12.7	13.86	3.2 dow	vn pipe	-+		-+	-+			1	1						\vdash									1	+	1	1											-	+-	+-	+-	+-
MW8	29-Dec-21	12.08																																											T	

uo		- mbgl	mbtoc	Field I	Paramete	rs	Ε	olids			Major Ar	nions			Major (Cations								Total N	Vietals							J/8r	(N)	B/L	1/8/	- N se	eq/L	1/baı	a			
Sample Location	Date	Depth to Ground-	Depth to Stand - π	pH - Field	EC - Field - µs/cm	Temp - Field - °C	pH-Lab	Total Dissolved S.	Hydroxide Alkalinity as CaCO3 - mg/L	Carbonate Alkalinity as	Bicarbonate Alkalinity as CaCO3 - mg/L	Alkalinity - mg/L Sulfate (SO4) -	mg/L Chloride (CI) - mg/l.	Calcium (Ca) - mg/L	Magnesium (Mg) - mg/L	Sodium (Na) - mg/L Potassium (K) -	Mg/L Aluminium (AI) - me/l.	Arsenic (As) -	Boron (B) - mg/L	Barium (Ba) - mg/L	Beryllium (Be) - mg/L	Cadmium (Cd) - mg/L	Cobalt (Co) - mg/L	Chromium (Cr) - mg/L	Copper (Cu) - mg/L	Manganese (Mn) - mg/L	Nickel (Ni) - mg/L	Lead (Pb) - mg/L	Selenium (Se) - mg/L	Vanadium (V) - mg/L	Zinc (Zn) - mg/L	Mercury (Hg) - m	Ammonia as Nitrog	Nitrite as N-mg/	Nitrate as N - m	Nitrite + Nitrate a mg/L	Total Anions - me	Total Cations - m	Ionic Balance	TPHC10-C36	TRH CG- C10	TRH C10-C40
ANZECC Guideline - s								4000)			100	0	1000			5	0.5				0.01	1	1	1		1	0.1	0.02		20	0.00	2		400							
TEMPI GW044997	LEMORE 2-Jun-06	6.19	6.4	6.9			30	00				768 17	0 758	112	102	544 4		0.00:	1																						_	
GW044997 GW044997	11-Jan-07 10-Jul-07	6.7		7.06	785 1	17.1	15 15	70 90				495 55 441 84	200	45 46	36 41	298 : 270 :		0.009	9			<0.0001 0.0002		<0.005	0.001		0.002 0.001	<0.001 <0.001		0	0.04	<0.00 <0.00	01 01						<	20 740		
GW044997 GW044997 GW044997	18-Jul-07 7-Aug-07 22-Aug-07	6.79	6.94 7 6.97				_							1																									_			Ħ
GW044997 GW044997	5-Sep-07 24-Sep-07	6.83 6.62	7.04 6.83																																							
GW044997 GW044997 GW044997	11-Oct-07 26-Nov-07		6.94 7.26 6.65				_																																			=
GW044997 GW044997	29-Jan-08 4-Mar-08 4-Apr-08	6.23 6.295	6.44																																							Ħ
GW044997 GW044997 GW044997	22-Apr-08 21-Aug-08 29-Oct-08	6.31 6.81	7.02 7.06	7	3370 2	21.8	31	50				585 27	6 656	135	125	461 1	7	0.00	7			<0.00005		<0.001	0.005		0.012	0.0003		0	800.	<0.00	01						<0.	025 <0.:		
GW044997 GW044997	29-Uct-08 29-Jan-09 17-Jun-09	7 7 7.52	7.2		3580 1	18.9	33:	50 2020) <1	<1	693	693 13	2 626	112	111	486 5		0.066	6	0.523	<0.001	0.0003	0.002	0.001	0.134	0.204	0.006	0.016		0.09 0	327 46	5 9 0.000	11 2.93				34.2	36	2.53			=
GW044997	28-Aug-09	7.85 7.97	8.05 8.17	6.95	3050 2	4.2 6	.87 30		<1	<1	517	517 20	3 636	40	118	546	0.02	0.00	8					<0.001	0.005	0.021	0.004	<0.0010		0	.065 0.	07 <0.00	01	0.22	21	21.2	32.5	35.5	4.4			
GW044997 GW044997 GW044997 GW044997	23-Dec-09 25-Feb-10 11-May-10 30-Aug-10	7.81 7.98	8.01 8.18	7.49	3720 2 3720 2	22.7	34	80 1770	<1	<1	593	593 19	2 640	114	119	434 2		0.018	8	0.258	<0.001	<0.0001	<0.001	<0.001	0.014	0.04	0.006	0.002		0.04 0	.048 7	.2 <0.00	01 2.03				33.9	34.4	0.66			=
GW044997 GW044997	9-Nov-10 14-Mar-11	7.8 7.25	8 7.45	6.8	3010 2	24.2	.15 16.	20	<1	<1	410	410 87	333	131	67	160	0.04	0.002	2					<0.001	0.013	0.004	<0.001	<0.001			.032 <0	.05 <0.00	01	<0.01	1.8	1.8	19.4	19.1	0.84	Ⅎ	1	Ħ
GW044997 GW044997	6-Jun-11 6-Sep-11	8.02 8.73	8.22 8.93	7.3 6.98	1514 1 1525 1	16.8 16.7 7.	.64 18.	30 1000) <1	<1		400 11			58		0.05	0.002	2	0.174	<0.001	<0.0001	<0.001	<0.001	0.01	0.007		<0.001		0.02 0	.047 <0	.05 <0.00	01 0.51	<0.01	1.43	1.43		18.5	1.31			H
GW044997 GW044997 GW044997 GW044997	7-Dec-11 13-Mar-12 14-Jun-12	5.1 5.18	5.3	oump no	1545 Z t operatio	nal	#		1									L	1											_	= =	1		Ħ	H	H			= =	#		Ħ
GW044997	14-Jun-12 6-Sep-12 27-Nov-12	4.8	5 24	7.95	1750 1 1665 2	17.5 7. 24.6	.69 18	40 1130) <1	<1	409	409 14	7 323	120	56	211 2	0.02	0.002	2	0.128	<0.001	<0.0001	<0.001	<0.001	0.011	0.005	<0.001	<0.001		0.01 0	.027 0.	07 <0.00	0.05	<0.01	. 5	5	20.3	19.8	1.29			
GW044997 GW044997	21-Mar-13 11-Jul-13	5.78 6.37	5.98																																							=
GW044997 GW044997 GW044997	5-Sep-13 22-Nov-13 20-Feb-14	6.65 6.87 6.93	6.85 7.07 7.13																																							=
GW044997 GW044997 GW044997	27-May-14 9-Sep-14 20-Nov-14	8.05 7.99	8.25 8.19																																					-		
GW044997 GW044997 GW044997	20-Nov-14 26-Feb-15 26-May-15	8.56 8.61 8.74	8.19 8.76 8.81 8.94																																							=
GW044997 GW044997 GW044997 GW044997	27-Aug-15 4-Dec-15 24-Feb-16	10.67	10.87				_							1																									_			Ħ
GW044997	23-May-16	10.99	10.63 10.92 11.19																																							\blacksquare
GW044997 GW044997 GW044997 GW044997	1-Sep-16 29-Nov-16 21-Jun-17 13-Dec-17	9.17 9.68	9.37 9.88				=																								=								=	#		Ħ
GW044997	13-Sep-18	11.6	9.88 9.87 11.8	7		20.8 7	7.6 64	00 3400) <1	<1	1010	1010 61	8 1270	179	183	897	0.08	0.00	5 0.14	0.137	<0.001	<0.0001	<0.001	<0.001	0.009	0.028	0.002	<0.001	<0.01	0.02 0	.012 1.	08 <0.00	01 0.04	<0.01	. 24	24	68.9	63.1	4.38			
GW044997 GW044997 GW044997	5-Dec-18 14-Mar-19 19-Jun-19	12.09 12.5 12.32	12.29	7.1 7.3	5710 2 5710 2	20.7	.75 63	50 3810 90 3430	<1	<1	1050	1050 55	5 994			956		0.00	5 0.13	0.144	<0.001	<0.0001	<0.001	0.004	0.008	0.024	0.002	<0.001	<0.01	0.02 0	.021 0.	35 <0.00	0.06	<0.01	. 17	17	60.6	64.1	2.85		<20	<100
GW044997 GW044997	11-Sep-19 5-Dec-19	12.66 12.76	12.96	7.3	5290	20.6	.77 54	90 3430	<1	<1	892	892 47	9 1080	181	166	933 4	0.08	0.00	6 0.12	0.125	<0.001	<0.0001	<0.001	0.001	0.007	0.043	0.002	<0.001	<0.01	0.02 0	.017 3.	25 <0.00	01	<0.01	13.2	13.2	58.3	63.4	4.21 <	20 <50	<20	<100
GW044997 GW044997	18-Mar-20	12.67 14.7	12.87 14.9	7.3 7.2	3840	1.5 7	.57 39	20 2130	(1	<1	549	549 32			123	555 6	<0.03	0.00	5 0.15	0.106	<0.001	<0.0001	<0.001	<0.001	0.027	0.056	0.003	<0.001	<0.01	0.02 0	.009 0	.1 <0.00	01 0.05	0.74	47.6	48.3	40	41.4	1.68 <	20 <50	<20	<100
GW044997 GW044997 GW044997	11-Jun-20 23-Sep-20 8-Dec-20 5-May-21	10.72 11.06 10.85	10.92 11.26	7.2 7.2 7.11	2960 1 3550 3580 1 4870	20 / 19.6 9.7 7		90 2980) <1	<1	926 877	926 18 877 37			92 128		0.22	0.35	0.12	0.154	<0.001	<0.0001	< 0.001	<0.001	0.012	0.324	0.002	<0.001	<0.01	0.01 0	.029 0.	79 <0.00	01 5.56	0.05	0.02	0.02	50.1	48.9	4.64 <	20 <50	<20	<100
GW044997 GW044997	7-Jun-21 21-Jun-21	10.83 10.79 10.21	11.03 10.99	7.23 7.27	4800 1 4730 1	4.1 7. 17.7	.32 45	50 2960 50 2570	(1	<1	790	790 38 731 28	2 879	149	132	776	0.03	0.01	3 0.12	0.164	<0.001	<0.0001		<0.001			0.003	<0.001	<0.01	0.02 0	.016 4.	43 <0.00		0.35	4.71	5.06		52.3	3.7 <	20 <50	<20	<100
GW044997 GW044997	2-Sep-21 29-Dec-21	10.21 8.81	9.01	6.44 7.18	4010 2 1253 2	20.7 7	.43 39	ы) 2570	<1	<1	731	731 28	b 712	111	100	631	0.04	0.00	2 0.1	0.103	<0.001	<0.0001	0.002	<0.001	0.003	0.184	0.002	<0.001	<0.01	<0.01 0	.009 0.	98 <0.00	0.04		4.87	5.35			<	20 <50	<20	<100
GW031856	2-Jun-06	15.76	16.4	7.3	910 2	2.4	11	50				459 22	105	50	33	156		<0.00				<0.0001		<0.001	0.036		0.001	0.001		0	.126	<0.00	01						<	20 <50		
GW031856 GW031856 GW031856	11-Jan-07 10-Jul-07 22-Apr-08	19.1 15.51	19.74	7.27 7.9 7.4	910 2 1080 1 1090 1	13.5	10 11 10	80 50	1			457 18 440 20 480 18	94.8 106	4/ 48 50	30 34 33	162 145 3	6	<0.00	1	\vdash		<0.0001 <0.0001 <0.00005		<0.005 <0.005 <0.001	0.005 0.008 0.008	H	<0.001 0.0005 0.003	0.0005		<	0.005 2.29 .048	<0.00 0.000 <0.00	05	\vdash	H	H		=	< 1	20 <50 0 25 025 <0.3		Ħ
GW031856	29-Oct-08	17.85		7.3	1090 2	26.9	110	00			1	440 19	81	51	30	150 2	8	0.002	2			<0.00005		0.003	0.009			0.0006			0.26	<0.00	01						<0.	025 <0.02	25	\blacksquare
GW031856 GW031856 GW031856 GW031856	10-Feb-09 17-Jun-09 11-Sep-09 23-Dec-09	15.51 18.4	16.28	7.4	1029	0.1	.45 10	10 704	<1	<1	453	453 15 422 17.	92	51	33	149	0.01	0.00	1	0.156	<0.001	<0.0001			0.004	0.002		<0.001 0.001			.037 0.			<0.01	0.14	0.14		11.8				=
GW031856 GW031856	25-Feb-10 11-May-10	16.31 16.58	17 12	7.61	1240 2	25.3 7.	.54 11	10 576	41	<1	436	436 17. 431 16.	6 90.8 8 91.8	47	34 32	160	<0.03	0.00: <0.00	1	0.15	<0.001	0.0002		< 0.005	0.001 0.002 0.116	0.001	<0.001	<0.001		<0.01	0.014 <0	.05 <0.00		<0.01	0.19	0.19	11.6	12.2	2.42	\pm		\blacksquare
GW031856 GW031856	30-Aug-10 10-Nov-10	15.35 15.52	15.95 16.12	7.35 7.08	1106 1 990 2	18.2 7 27.8 7	.42 11	40 50	<1 <1	<1	426 440	426 20 440 18 414 20	98	49 22	33	159 163	<0.03	<0.00	1					<0.001	0.008	0.009	<0.001	<0.001 <0.001 <0.001			1.88 <0 1.26 <0	.05 <0.00	01 01	<0.01	0.24 0.2	0.24	11.7 12.1	12.2 11	1.99 4.84	1		Ħ
GW031856 GW031856 GW031856	14-Mar-11 7-Jun-11 9-Sep-11	16.08	16.68	7.35	929 1	19.7	.46 88	20 620	- <1	<1		414 20	92			161		<0.00	11	0.146	<0.001	<0.0001	<0.001	< 0.001	0.004	<0.001		<0.001		<0.01	1.25 <0	05 <0.00		<0.01				11.4		#		Ħ
GW031856 GW031856 GW031856	9-Sep-11 7-Dec-11 19-Mar-12	15.65 15.1	16.25 15.7	1.21	10/0	20.9		10 666		<1		412 22				155		0.00	2	0.161	<0.001	<0.0001	<0.001	0.002	0.003	0.002	<0.001			0.02 0		06 <0.00		<0.01				12.3	1.55	ᆂ		Ħ
GW031856 GW031856	14-Jun-12 19-Sep-12	16.04 16.6	16.64 17.2	7 39	1170 Z 1060 Z	25.1 21.2 7	.84 11	60 670	<1	<1	410	410 21	. 115			158 4	0.01	0.00	1	0.176	<0.001	<0.0001	<0.001	<0.001	0.012	0.004	<0.001	0.002		0.01 0	.027 0.	29 <0.00	01 <0.01	<0.01	0.17	0.17	11.9	12.1	0.86	Ŧ	Ŧ	曰
GW031856 GW031856 GW031856	27-Nov-12 21-Mar-13 11-Jul-13	16 15.7 17.47	16.3 18.07	7.43 7.42 7.54	1048 2 1020 2 1064 1	24.2 7. 19.6	.78 11	00 640	<1	<1	435	435 21	90	49	32	157	<0.0	0.00	1	0.166	<0.001	<0.0001	<0.001	0.003	0.027	0.005	<0.001	0.006		0.01 0	.193 <0	.05 <0.00	01 <0.01	<0.01	0.22	0.22	11.7	12	1.31	+	+	Ħ
GW031856 GW031856 GW031856	5-Sen-13	17.2	17.8	7.56	1070 1	9.2 7	.92 11	30 660	<1	<1	432	432 20	100	49	33	158 4	<0.03	<0.00	1 <0.001	1 <0.05	0.141	<0.0001	<0.001	<0.001	0.005	0.002	<0.001	<0.001	<0.01	<0.01 0	.017 0.	06 <0.00	01 <0.01				11.9	12.1	1.08	\blacksquare		H
GW031856 GW031856 GW031856	22-Nov-13 24-Feb-14 27-May-14 9-Sep-14	15.1 15.20	15.7 15.8	7.7 7.5 7.3	1120 2 1120 2 1097 2	24.5 7 20.1	.84 11	50 684 40	<1	<1		430 22 388 23	99	48	32	155	<0.03	0.00	1 <0.001	1 <0.05	0.156	<0.0001	<0.001	<0.001	0.007	<0.001	<0.001	<0.001	<0.01	0.01 0	.138 <0	.05 <0.00	0.02	<0.04	0.2	0.2		11.8	0.01	丰	$\pm \overline{}$	曰
GW031856	20-Nov-14	15.87 15.6	16.47	7.2	1120	24.5		20 570	<1	<1		478 22	99	48	50	150	<0.0	0.00	1 <0.05	0.143	<0.001	<0.0001	<0.001	<0.002	<0.001	<0.001	0.001		<0.01	0.01 0	.197 <0	.05 <0.00	01 0.02	<0.01	0.21	0.21		11.7	4.47	=	+	Ħ
GW031856 GW031856 GW031856	26-Feb-15 26-May-15 27-Aug-15 4-Dec-15	15.6 15.07 15.1	15.67 15.7		1120 1	14.7 7		20 592		<1	406	406 23	66	49		157	0.01	0.00	1 <0.05	0.126	<0.001	<0.0001	<0.001	<0.001	0.022	0.002	0.001	0.003	<0.01	<0.01 0	.348 0.	19 <0.00	01 0.04					12.2	7.71	\equiv		H
GW031856 GW031856 GW031856	4-Dec-15 24-Feb-16 23-May-16	18.77 17.83 16.53 14	19.37 18.43	7.1 7.1	1118 2 1117 2	23.8 7	.89 11	40 656	<1	<1	454	454 23	75			173	0.01	0.002	2 <0.05	0.154	<0.001	<0.0001	<0.001	<0.001	0.007	0.005	<0.001		<0.01	0.01 0	.035 0.	09 <0.00	0.05	<0.01	0.21	0.21	11.7	13.6	7.53			=
GW031856 GW031856 GW031856	23-May-16 6-Sep-16 29-Nov-16 23-Mar-17									<1	424	424	96	53	33	142	<0.0:	0.00	1					0.001	0.057	0.001	0.002	0.009		0	.594 0.	25 <0.00	01	<0.01	0.2	0.2	11.6	11.6	0.06	#	L	=
GW031856	23-Mar-17	15.6	16.2	7.2	1130	8	.08 11	10 682	<1	<1	460	460 18	102	50	34	149	<0.03	0.00	1 <0.05	0.158	<0.001	<0.0001	<0.001	<0.001	0.03	0.002	<0.001	0.002	<0.01	0.01 0	.068 0.	06 <0.00	0.02	<0.01	0.22	0.22	12.4	11.8	2.44			

		lgdi	toc	Field Par	rameters			şp			Major Ani	ions			Major (Cations							Tota	ıl Metals							یے	(N)		_		7	7				
ple Location	Date	Ground - m	Stand - mb	ield	Field - µs/cm	pH-Lab	- Lab - µs/cm	issolved Soli	xide ity as · mg/L	nate ity as .mg/L	onate ity as mg/L	mg/L	SO4)- /L e (Cl) -	(Ca) -	m (Mg) -	(Na) -	/L M (Al) -	/L (As) -	mg/L	(Ba) - /L	ո (Be) - /և	/L (Cd) -	n (Cr) -	(Cu) -	se (Mn) -) - mg/L	1-mg/L	۱ (Se) - ا	- (A) -	- mg/L	Mercury (Hg) - mg/	a as Nitrogen	Nitrite as N-mg/L	Nitrate as N - mg/l	Nitrite + Nitrate as P mg/L	Total Anions - meq	al Cations - meq	TPH C6-C9	TPH C10-C36	TRH C6- C10	TRH C10-C40
Sam		Depth to	Depth to		EC - Field - µs/cm Temp - Field - °C		EC -		Hydroxide Alkalinity as CaCO3 - mg/L	Carbon Alkalini CaCO3 -	Bicarbonate Alkalinity as CaCO3 - mg/L	Alkalinity	Sulfate (SO4)- mg/L Chloride (CI)-	Calcium	Magnesium mg/L		Alum	mg/L Arsenic (As) mg/L	Boron (B)	Barium mg/	Beryllium (mg/L	Cadmium (4 mg/L	Chror	Cop	Manganes	Nickel (Ni) -	Lead (Pb) -	Selenium (Se) mg/L	Vanadium mg/L			Ammonia	Nitrit		Nitrite -	Total A	Total Catio	F	£.	Ĕ	T
ANZECC Guideline - s GW031856		44.70	45.20	7.5	153 443			4000					1000	1000				5 0.5				0.01 1	1	1		1	0.1	0.02	2)	0.002			400							
GW031856 GW031856	21-Jun-17 13-Sep-17	14.79 17 14.7	15.39	7.5 1 7.4 1	152 14.7 150 133 25.6	7.99	1130	601	<1	<1	497	497	22 82	56	35	159	3 <	0.01 0.001	<0.05	0.146	<0.001	<0.0001 <0.0	00.00	0.004	<0.001	<0.001	<0.001	<0.01	<0.01 0.0	0.0> 80	5 <0.000	1 0.03	<0.01	0.23	0.23	12.7	12.7 0.13			士	
GW031856 GW031856	13-Dec-17 13-Sep-18	14.7 13.7	15.3 14.3	7.4 1 7.3 1	133 25.6 130 16.1	7.76	1150	598	<1	<1	433	433	20 11	51	32	139	2 0	.01 0.002	<0.05	0.132	<0.001	<0.0001 <0.0	0.00	3 0.054	0.002	< 0.001	0.018	<0.01	<0.01 0.5	27 0.8	2 <0.000	1 0.02	<0.01	0.2	0.2	12.2	11.3 3.82		-	-+	$\overline{}$
GW031856	5-Dec-18 14-Mar-19 19-Jun-19	13.87	14.47	7.1 1	190 24.4	7 96	1050	736	-21	<1	451	AE1	19 68	42	20	155	3 0	01 0.001	<0.05	0 147	<0.001	<0.0001 <0.0	001 0.00	1 0.021	0.002	<0.001	0.003	<0.01	0.01 0.0	22 <0.0	5 <0.000	1 0.01	<0.01	0.22	0.22	11.3	11.3 0.1	_		<20	<100
GW031856 GW031856	19-Jun-19	24.4 23.16 23.03	23.76	7.3 1	120 18.6	7.00	1030											.01 0.001	V0.03	0.147	NU.001					V0.001	0.002		0.01 0.0				10.00								
GW031856 GW031856	11-Sep-19 6-Dec-19	23.03 14.98	23.63 15.58	7.4 1 7.4 1	160 16.9 180 25.9	7.92	1160	636	<1	<1	429	429	21 10	63	38	156	3 <	0.01 0.001	<0.05	0.166	<0.001	<0.0001 <0.0	0.00	2 0.013	0.002	0.001	<0.001	<0.01	<0.01 0	2 <0.0	5 <0.000	1	<0.01	0.26	0.26	11.9	13.1 4.75	<20	<50	<20	<100
GW031856 GW031856	17-Mar-20 11-Jun-20	15.32	15.92 15.67																																					=	
GW031856	24-Sep-20	15.07 16.22	16.82	7.3 1	090 19.5	7.92		654			480	480		1	L				!	L					L					2 0.0			L								
GW031856 GW031856	8-Dec-20 4-Mar-21	13.75 13.54	14.35 14.14	7.41 1	135 23.4	7.46	800		<1	<1 <1			34 66	54 64	35 18	152 93	3 <0 <1 0	.06 0.003	<0.05	0.149	<0.01	<0.0001 <0.0	001 < 0.00	1 0.006	0.002	< 0.001	0.001	<0.01	0.01 1. 0.02 0.			1 <0.01 1 <0.01	<0.01	6.92		13 8.02	12.3 2.79 8.72 4.16	<20 <20	<50 <50	<20 <20	<100
GW031856 GW031856	21-Jun-21	13.38 13.31	13.98	7.33 1	145 17.5	77	1120		<1				21 99					02 0.003	<0.05	0.068	<0.001	<0.0001 <0.0	001 <0.00	01 < 0.001	0.04	<0.001	<0.001	<0.01	0.01 0.										<50	<20	<100
GW031856	2-Sep-21 29-Dec-21	12.9	13.5	7.32 1	206 19.3	/./	1120	720	-1		430	430	21 9:	30	34	133	3 0	.03 0.002	NO.03	0.008	\0.001	V0.0001 V0.0	WI \0.00	71 \0.001	0.04	V0.001	VO.001	V0.01	0.01 0.	0.5	0.000	1 \0.01	V0.01	7.03	7.03			\20	130	\ZU	100
	WONGA																																								
GW052266 GW052266 GW052266	2-Jun-06 11-Jan-07 10-Jul-07	7.67 8.94 7.92	9.37	7.9 7.58		-	1360 1950					488 457	65 13 126 36 79 17	17	13 29	301 389	8	<0.00	1			<0.0001	<0.00	05 <0.001		< 0.001	< 0.001	-	0. 0.	12	<0.000	1	+		-	-+		+ +	-	-+	-
GW052266 GW052266	10-Jul-07 18-Jul-07	7.92 7.97	8.35	8.01 1	330 13.3		1480					435	79 17	23	14	315	6	<0.00	1			<0.0001	<0.00	0.001		<0.001	<0.001	\equiv	0.)1	<0.000	1			=	\equiv		<20	250	=	=
GW052266	7-Aug-07	7.94	8.37														_																							ightharpoons	=
GW052266 GW052266	22-Aug-07 5-Sep-07	8.02	8.45	士	ᆂ											Ħ	<u> </u>																							士	=
GW052266 GW052266	24-Sep-07 11-Oct-07	7.92 7.9	8.35 8.33			1		$\vdash \exists$	- 1							\vdash		_	1				+	+		\vdash	H	-1			1	1			\vdash			+		\dashv	
GW052266	26-Nov-07	8 01	8.43	_												H	-																							\Rightarrow	=
GW052266 GW052266	29-Jan-08 4-Mar-08	8.01	8.44 8.47 8.43	=																																				=	=
GW052266 GW052266	4-Apr-08 22-Apr-08	8.04	8.47	7.2 1	230 20.6		1250					465	19 13	. 94	48	110	4.5	<0.00	ı			<0.00005	<0.00	01 <0.001		0.006	0.0002		<0.	005	<0.000	1						<0.025	<0.1	士	
GW052266 GW052266	21-Aug-08 29-Oct-08	5.86	6.29	87 1	600 28.4		1600		-			450	93 22	19	17	270	6.5	<0.00				<0.00005	0.00	2 0.001	-	<0.001	0.0003		0.0	13	0.0006		-		-	-		<0.025	<0.100	\rightarrow	
GW052266	28-Aug-09	9.7	10.13	7.4	22 22 2	7.54	2000				252	252	24.6 64		46	270	J.J	10.00				10.00003	-0.00	2 0.001	0.000	0.002	0.0003		0.0	10 .00	5 .0.000		-0.04	6.00	6.00	7.54	7.72 4.20	10.023	10.100	\Rightarrow	=
GW052266 GW052266 GW052266	14-Dec-09 25-Feb-10 11-May-10	10.44	10.49	7.4 9	22 23.3	7.51	838		<1	<1	252	252	31.6 64.	1 55	16	84	<1 <	0.003					<0.00	0.003	0.006	0.003	<0.001		0.0	18 <0.0	5 <0.000	1	<0.01	6.09	6.09	7.51	7.72 1.36			\pm	_
	16-Aug-10	10.43 9.71	10.48	7.4 8	54 18.6 60 18.7		813	446	<1	<1	241	241	34 68.	3 54	16	80	<1	0.002	-	0.078	<0.001	<0.0001 <0.0	0.00	0.002	0.017	0.004	0.002	-	0.01 0.0	24 0.5	4 <0.000	1 0.05	+		-	7.46	7.52 0.42	-	-	-+	$\overline{}$
GW052266 GW052266	9-Nov-10 10-Mar-11	10.53 10.51	10.58	6.98	17 24.1		640		-21	-21	262	262	34 72	62	17	94	1 0	15 0.004					<0.00	1 0.024	0.024	0.001	0.003		0.1	03 1.2	2 <0.000	1	0.24	122	166	7.09	8.2 1.34			=	
GW052266 GW052266	6-Jun-11 6-Sep-11	10.19 10.51	10.24	7.05	63 20.2		040		1	,,	202			- 33	17	34	1 0	.13 0.004					\0.00	0.024	0.034	0.001	0.002		0.3				0.34							_	
GW052266	7-Dec-11	10.55	10.56	6.94 7 6.95 7	05 20.6	7.48	823	464	<1	<1	260	260	38 71	57	16	90	<1 0	.96 0.003	1	0.106	<0.001	<0.0001 <0.0	0.00	2 0.009	0.085	0.008	0.002		0.02 0.0	61 2.6	< 0.000	1 0.14	<0.01	6.35	6.35	7.99	8.08 0.53			-+	
GW052266 GW052266	13-Mar-12 13-Jun-12	9.18 8.38	9.23	7.04 7	84 21.6	7.54	821	498	<1	<1	267	267	37 68	57	17	99	<1 0	.03 0.002		0.086	<0.001	<0.0001 <0.0	0.00	0.113	0.005	0.012	0.003		0.02 0.	.5 0.1	<0.000	1 <0.01	<0.01	5.92	5.92	8.44	8.55 0.65	\vdash		\dashv	
GW052266	4-Sep-12	7.91	7.96	7.41 7	80 22.4	7.56	802	562	<1	<1	260	260	32 76	50	17	93	<1 0	.04 0.003		0.078	<0.001	<0.0001 <0.0	0.00	0.018	0.03	< 0.001	0.002		0.01 0.0	68 0.9	2 <0.000	1 0.07	0.01	5.53	5.54	8	7.94 0.42			=	
GW052266 GW052266	27-Nov-12 20-Mar-13	9.24	8.05 9.29	7.18 7	40 21.4	7.13	798	326	<1	<1	244	244	28 80	54	17	89	<1 0	.02 0.004		0.072	<0.001	<0.0001 <0.0	0.00	0.034	0.007	0.001	0.002		0.01 0.1	76 0.1	5 <0.000	1 0.02	<0.01	5.9	5.9	7.71	7.97 1.58			士	
GW052266 GW052266	11-Jul-13 5-Sep-13	7.79 8.29	7.84	7.25	90 22.4	7.62	787	493	1	c1	238	238	35 7	48	16	95	c1 1	02 0.002	<0.001	<0.05	0.091	<0.0001 0.0	02 0.00	4 0.324	0.036	0.009	0.006	<0.01	0.02 0.	9 17	2 <0.000	1 <0.01				7 54	7.84 1.94			\rightarrow	
GW052266	22-Nov-13 24-Feb-14	7.84			70 21.8			514						42		83	1	1.2 0.002	-0.004	-0.05	0.032	<0.0001 <0.0			0.03	0.003	0.007	<0.01	0.01 0.1			4 0.05					6.86 1.87			\Rightarrow	
GW052266 GW052266 GW052266	27-May-14	7.68	7.73	7.2	92 20.6			514	<1	<1	203						<1 (0.002	<0.001	<0.05	0.072	<0.0001 <0.0	0.00	1 0.112	0.03	0.003	0.007	<0.01				1 0.05								ightharpoons	
GW052266 GW052266	9-Sep-14 20-Nov-14	7.73 7.77	7.78	7.4 6	84 20.6 48 21.5 52 21.6	7.83	693		<1	<1	222	222		34	12	82	<1 0	.22 0.000	1				<0.00	0.007	0.318	0.003	<0.001			48 3.6		1	<0.01			7.01				-+	
GW052266	26-Feb-15	7.51	7.56	7.2 7	52 21.6	7.13	800	430	<1	<1	168	168	81 62	47	15	89	1 0	.44 0.006	<0.05	0.086	<0.001	<0.0001 0.0	0.00	1 0.012	0.141	0.008	0.002	<0.01	0.03 0.2	14 22.	<0.000	1 0.54	0.74	5.12	5.86	9.56	7.48 14.2			_	
GW052266 GW052266	27-Aug-15	7.76	7.81	7.2 7	07 19.7	7.61	712	380	<1	<1	218	218	36 48	40	15	85	2 0	.06 <0.00	< 0.05	0.049	<0.001	<0.0001 <0.0	0.00	0.006	0.273	0.002	<0.001	<0.01	<0.01 0.0	93 16	<0.000	1 0.19	0.03	0.46	0.49	6.46	6.98 3.85			=	
GW052266 GW052266	4-Dec-15 24-Feb-16	7.86	7.88	7 7	52 21.7	7.5	508	508	<1	<1	219	219	37 56	52	15	90	<1 0	.14 0.007	<0.05	0.084	<0.001	<0.0001 <0.0	00.00	0.008	0.096	<0.001	<0.001	<0.01	0.03 0.0	67 30.	5 <0.000	1 0.1	<0.01	6.21	6.21	7.74	7.74 3.82			士	
GW052266 GW052266	23-May-16 6-Sep-16	7.91	7.96	7 7	46 20.6 12 21.5				<1	-1	224	224	66	43	14	80	<1 0	12 0.001	-				<0.00	11 0.002	0.03	<0.001	<0.001	_	0.0	26 0.3		1	<0.01	3.05	3.05	7	6.78 1.65	_		\rightarrow	_
GW052266 GW052266	29-Nov-16 23-Mar-17	7.79 7.67	7.84	7.3 7 7.3 7	52 21.3	7.81		490				246			17	90	_1 ^	0.001	20.0r	0.074	<0.004	<0.0001 <0.0	001 <0.00	11 0.012	0.03	<0.001	<0.001	<0.01	0.01 ^	0.3		1 000	-0.01				7.66 1.66			\Rightarrow	=
GW052266	21-Jun-17		7.86	7.3 7	76 19.9		/60		71	ζ1	240	240	29 67	4/	1/	90	×1 U	.07 0.002	NU.U5	0.071	<u.uu1< td=""><td>~0.0001 <0.0</td><td>NO.1 NO.UL</td><td>, U.U.13</td><td>0.03</td><td>\U.UU1</td><td>~0.001</td><td>~U.U1</td><td>0.01 0.</td><td>U.3</td><td>× × 0.000</td><td>. 0.02</td><td>NU.01</td><td>5.97</td><td>3.97</td><td>7.41</td><td>7.00 1.66</td><td></td><td></td><td>士</td><td>_</td></u.uu1<>	~0.0001 <0.0	NO.1 NO.UL	, U.U.13	0.03	\U.UU1	~0.001	~U.U1	0.01 0.	U.3	× × 0.000	. 0.02	NU.01	5.97	3.97	7.41	7.00 1.66			士	_
GW052266 GW052266	13-Sep-17 13-Dec-17	7.81 7.88	7.93	7.1 8		7.72	779	404	<1	<1	264	264	35 60	58	18	93	<1 0	.61 0.001	<0.05	0.067	<0.001	<0.0001 <0.0	U1 <0.00	0.002	0.176	0.001	<0.001	<0.01	U.01 0.0	29 2.5	<0.000	1 0.04	<0.01	6.17	6.17	7.7	8.42 4.5	╆╀	_+	_+	\dashv
GW052266 GW052266 GW052266	13-Dec-17 13-Sep-18 5-Dec-18	8.32 8.51	8.37	7 7	70 21.9 18 21.8	7.54	795	442	<1	<1	233	233	34 69	50	15	81	<1 0	.14 0.004	<0.05	0.067	<0.001	<0.0001 <0.0	0.00	0.002	0.055	0.001	<0.001	<0.01	0.01 0.0	19 0.4	<0.000	1 0.03	<0.01	6.71	6.71	7.2	7.25 0.4	F	\equiv	=	=
GW052266	14-Mar-19	8.6	8.65	7.1 8	55 21.6	7.46	824	581	<1	<1	285	285	31 64	53	17	95	<1 0	.18 0.003	<0.05	0.094	<0.001	<0.0001 <0.0	0.00	0.002	0.284	0.002	<0.001	<0.01	0.02 0.0	47 2.9	<0.000	1 0.03	<0.01	6.68	6.68	8.14	8.18 0.19			<20	<100
GW052266 GW052266 GW052266	19-Jun-19 11-Sep-19 5-Dec-19	8.7	8.75	6.9 8	80 19.8 10 21	7.6	814	478	<1	<1	227	227	33 62	61	17	89	<1 0	.39 0.002	<0.05	0.075	<0.001	<0.0001 <0.0	0.00	2 <0.001	0.168	<0.001	<0.001	<0.01	0.01 0.0	16 1.6	<0.000	1	<0.01	6.85	6.85	7.47	8.31 5.38	<20	<50	<20	<100
GW052266 GW052266	5-Dec-19 17-Mar-20	8.7	8.75 8.72	7.1 8	40 21.8	-	H	\dashv	==		$-\exists$	=	$ \vdash$		$+ \equiv$	HŦ	-F	_	+ =	\vdash		$-\mp$	+	+ =	$+ \exists$	$\vdash \exists$	= $=$ $=$ $=$ $=$ $=$ $=$ $=$ $=$ $=$ $=$ $=$ $=$	-	-F		+ =	1 =	$+ \exists$	=	$+$ \mp	干	$ \vdash$	$\vdash \exists$	\dashv	一干	一
GW052266 GW052266	11-Jun-20 23-Sep-20	8.56 8.36	8.61	7.1 7	20 19	7 70	701	527	-21	-21	262	263	34 67	£7	17	Q1	c1 '	11 0.003	∠n nr	በ በማቀ	<0.004	<0.0001 <0.4	101 -0.0	11 <0.004	U UEE	<0.001	<0.001	<0.01	0.01 ^	12 0 7	2 <0.000	1 <0.04	<0.01	7 22	737	7.66	82 345	<20	<50	<20	<100
GW052266 GW052266	23-Sep-20 8-Dec-20 15-Mar-21	8.46 8.33	8.51	7.1 7	95 18.7	7.73	/31	321	- 41	- 1	203			3/	1/	31	×1 (U.UU2	NU.U5	0.078	<u.uu1< td=""><td>~0.0001 <0.0</td><td>NO.1 NO.UL</td><td>×0.001</td><td>0.056</td><td>\U.UU1</td><td>~U.UU1</td><td>NU.U1</td><td>0.01 0.</td><td>ız U./</td><td>×0.000</td><td>1 40.01</td><td>NU.01</td><td>1.52</td><td></td><td></td><td></td><td>120</td><td>\JU</td><td>\ZU</td><td>×100</td></u.uu1<>	~0.0001 <0.0	NO.1 NO.UL	×0.001	0.056	\U.UU1	~U.UU1	NU.U1	0.01 0.	ız U./	×0.000	1 40.01	NU.01	1.52				120	\JU	\ZU	×100
GW052266	21-Jun-21	8.22	8.27	7.08 8	102 18.3				<1	<1			22 11	51	36		3 <	0.003	<0.05	0.151	<0.001	<0.0001 <0.0	0.00	3 0.004	0.002	<0.001	<0.001	<0.01	0.01 0.1			1 <0.01	<0.01			13.6	12.6 3.88	ш		\Rightarrow	=
GW052266 GW052266	2-Sep-21 19-Dec-21	8.16 7.97	8.21	6.28 7	96 17.1	7.19	790	514	<1	<1	283	283	33 65	57	17	90	<1 0	.08 0.001	< 0.05	0.141	<0.001	<0.0001 <0.0	0.00	6 0.007	0.03	0.002	0.004	<0.01	0.01 0.1	68 1.7	4 <0.001	< 0.00	< 0.01	0.23	0.23	\equiv		<20	<50	<20	<100
TEMPL	EMORE A																																								
Templemore A Templemore A	18-Jul-07 7-Aug-07	8.61 11.33	9.07 11.79	===												H												- 7					1		+	7		+ = T		\dashv	-=
Templemore A	22-Aug-07	12.08	12.54	=												Ħ								1					= =			1			=	=				\Rightarrow	=1
Templemore A	5-Sep-07 24-Sep-07	12.09 12.22	12.68	<u></u>																																				士	=
Templemore A Templemore A	11-Oct-07 26-Nov-07	12.08 12.09 12.05	12.54 12.55		\pm	L	Ы	⊟┪	+					<u> </u>	L	ᅡ	_+		L	上一		+	\pm	\pm	L	Ь		+		_	\pm	L	L		= +	_+		上十	_+	=+	\dashv
Templemore A Templemore A	29-Jan-08 4-Mar-08	12.05 12.07	12.51 12.53	= -												H	==						1						==						=F	=	=		=	\dashv	二
Templemore A	4-Apr-08	9.16	9.62																				1															\Box		\Rightarrow	=
Templemore A Templemore A	21-Aug-08 29-Jan-09	7.84	9.14 8.3	<u>_</u>	士	ь								ᆂ	Ь	ь	士		\pm	L		<u>_</u>	士	\pm		Ы			士	ᆂ	\pm	Ł	L			ightharpoonup		ш		\Rightarrow	=
Templemore A Templemore A	17-Jun-09 28-Aug-09	8.65 8.92	9.39 9.4	7.7 1	640 19.7	0.16	1500	1000	<1	<1	426	426	56 22	165	42	106	1	0.003		0.132	<0.001	<0.0001 <0.0	0.00	0.021	0.247	0.002	0.002	\equiv	<0.01 0.)2	<0.000	1 0.01			=	16.1	16.3 0.7	F	\equiv	=	=
Templemore A	23-Dec-09	10.1	10.58	7.2 1	473 24	7.54	1400		<1	<1	241	241	79 24	72	41	125	1 <	0.002					<0.00	0.007	0.013	0.001	<0.001		0.0	25 <0.0	5 <0.000	1	0.07	3.25	3.32	13.6	12.4 4.61	\vdash		=	=
Templemore A Templemore A	25-Feb-10 11-May-10	9.16 9.12	9.64 9.6	7.92 1	083 21.2 590 22.1	ь	1600	906	<1	<1	376	376	68.3 24	152	38	105	3	0.004	\pm	0.21	<0.001	0.0001 <0.0	001 <0.00	0.011	1.9	0.006	<0.001		0.01 0.0	19 0.1	1 <0.000	1 3.1	L			15.7	15.4 1.13			\Rightarrow	=
Templemore A Templemore A	30-Aug-10 9-Nov-10	9.24	9.72	7.67 1.	485 I 23.7											F	$-\mathbf{F}$											=	\equiv						$=$ \mp	\pm T		$+ \mp$	\equiv	一干	
Templemore A Templemore A Templemore A	14-Mar-11 6-Jun-11	9.44 9.36	9.92	7.35 1	486 24.8	7.56	1420		<1	<1	402	402	49 29	175	41	120	4 0	.02 0.003					<0.00	0.011	3.31	0.005	<0.001		0.0	79 0.7	<0.000	1	<0.01	0.09	0.09	17.4	17.4 0.03			#	=1
Templemore A	6-Sep-11	9.56	9.98	7.61 1	395 21.8	8.04	1670	790	<1	<1	405	405	62 28	169	41	120	3 0	.08 0.004		0.266	<0.001	<0.0001 <0.0	0.00	0.004	1.81	0.004	<0.001		<0.01 0.0	33 0.1	<0.000	1 1.37	0.12	0.46	0.58	17.4	17.1 0.9			士	

u u		- mbgl	nbtoc	Field I	Parame	eters		Ε	olids			Major A	Anions			ħ	Major Ca	ations								Total	Metals								ng/L	gen (N)	g/L	B/L	as N -	π/L	T/bai	0)		10		
Sample Locati	Date	Depth to Ground	Depth to Stand - r	pH - Field	EC - Field - μs/cm	Temp - Field - °C	del -Hq	EC - Lab - µs/cm	Total Dissolved S	Hydroxide Alkalinity as CaCO3 - mg/L	Carbonate Alkalinity as CaCO3 - mg/L	Bicarbonate Alkalinity as	CaCUS - mg/L Alkalinity - mg/L	Sulfate (SO4) - mg/L	Chloride (CI) - mg/L	Calcium (Ca) - mg/L	Magnesium (Mg) - mg/L	Sodium (Na) - mg/L	Potassium (K) - mg/L	mg/L	Arsenic (As) - mg/L	Boron (B) - mg/L	Barium (Ba) - mg/L	Beryllium (Be) - mg/L	Cadmium (Cd) - mg/L Cobalt (Co) - mg/L	Chromium (Cr) - mg/L	Copper (Cu) - mg/L	Manganese (Mn) - mg/L	Nickel (Ni) - mg/L	Lead (Pb) - mg/L	Selenium (Se) - mg/L	Vanadium (V) - mg/L	Zinc (Zn) - mg/L	Iron (Fe) - mg/L	Mercury (Hg) - n	Ammonia as Nitrog	Nitrite as N -m	Nitrate as N - m	Nitrite + Nitrate a mg/L	Total Anions - m	Total Cations - m	Ionic Balano	TPH C6-C9	TPH C10-C36	TRH G6- C10	TRH C10-C40
ANZECC Guideline - s Templemore A	stock drinking water 9-Dec-11	No seess to	uall and	daels fla	adad				4000					1000		1000				5	0.5				0.01 1	1	1		1	0.1	0.02		20		0.002			400								
Templemore A Templemore A	13-Mar-12 13-Jun-12	2.7 3.28	3.18 3.76		960 826		7.79	988	578	<1	<1	222	222		103			74	8	0.1	0.003		0.093	<0.001	<0.0001 <0.00	<0.001	<0.001	0.006	<0.001	<0.001		<0.01	0.023	0.11	<0.0001	0.04	0.01	19.7	19.7	9.98	10.1	0.6		==	#	=
Templemore A Templemore A	6-Sep-12 27-Nov-12 21-Mar-13	3 59	4.07 4.33 4.79	7 3 2	216	20 1	7.67		500	<1	<1	203	203		103			54	4	0.05	0.002		0.071	<0.001	<0.0001 <0.003	<0.001		0.008		<0.001		<0.01	0.020	0.09	<0.0001	<0.01	<0.01	2.79	2.79		8.25				\equiv	
Templemore A Templemore A	11-Jul-13	5.34	5.82	7.68	1162	19.2	7.75		765	<1	<1		242	74	116			93	9	1.68	0.003	×0.001	0.114	<0.001	0.0001 0.001	0.001	0.142	0.501	0.005	0.01	40.01	<0.01	0.279	2.56	<0.0001	2.75	3.32	0.18			9.66			#	#	=
Templemore A Templemore A Templemore A	5-Sep-13 22-Nov-13	4.29 7.5 4.41	7.09	7.57	1100	10.9	7.96		669	<1	<1 21		272	96					6	0.07	0.003	<0.001	<0.05	0.119	<0.0001 <0.00	0.001	0.068	0.432	0.003	0.003	<0.01	<0.01	0.204	0.12	<0.0001	4.83		=			11			#	#	=
Templemore A Templemore A	20-Feb-14 27-May-14 9-Sep-14	4.57 4.31	4.89 5.05 4.79	7.6 7.8	1281	20.7		1190		<1	<1	272	272			104				0.23	0.004	<0.001	V0.03	0.1	<0.0001 <0.00	<0.001	0.103	0.432	<0.003	<0.012	V0.01	V0.01		0.75	< 0.0001	4.03	<0.01	2.6			10.8			#	丰	=
Templemore A Templemore A	20-Nov-14 26-Feb-15	4 78	5.26 5.75 6.07	7.9	1117	21 2	7.69	1210	674	<1	<1	242	242	105		109			4	0.2	0.003	<0.05	0.079	<0.001	<0.0001 <0.003	<0.001	0.015	0.1	0.002	<0.001	<0.01	<0.01	0.064	0.22	<0.0001	0.73	0.14	0.3			11.4			<u>=</u>	圭	=
Templemore A Templemore A	26-May-15 27-Aug-15	5.59 5.64 5.77	6.12	7.9	1180	18.4	8.03	1190	755	<1	<1			82	134		27		3	0.04	0.002	<0.05	0.077	<0.001	<0.0001 <0.00	<0.001	0.019	0.014	<0.001	<0.001	<0.01	<0.01	0.034	0.05	<0.0001	0.04	<0.01	0.93	0.93	10.8	11.7			<u> </u>	士	
Templemore A Templemore A Templemore A	4-Dec-15 24-Feb-16 23-May-16	6.08 6.31	6.25 6.56 6.79	7.8	1234	22.7	8.09	1300	668	<1	<1	340	340	88	176	147	30	102	4	0.03	0.004	<0.05	0.105	<0.001	<0.0001 <0.00	<0.001	0.012	0.415	0.001	0.001	<0.01	<0.01	0.037	0.11	<0.0001	0.5	0.44	<0.01	0.27	13.6	14.3	2.71		#	#	_
Templemore A Templemore A	6-Sep-16 29-Nov-16	6.43	6.91 3.75	7.9	1280	23.8	7.89	1300		<1	<1	338	338						4		0.003					<0.001	0.023	0.404	0.001	0.002			0.26	0.26	<0.0001		<.01	2.14			12.8			#	#	=
Templemore A Templemore A	23-Mar-17 21-Jun-17		4.79 5.37 5.59	7.4	274	22.1			530	<1	<1		189						4		0.002		0.07		<0.0001 <0.00	40.001		0.086		0.001	<0.01	<0.01		0.35	<0.0001	0.56	0.1				7.82			Ŧ	Ŧ	
Templemore A Templemore A	13-Sep-17 13-Dec-17	5.22	5.7	7.7	1091	210	0.00	1030		<1	<1								4	0.1	0.003	<0.05	0.076	<0.001	0.0002 <0.00	<0.001	0.02	0.018	<0.001	<0.001	<0.01	<0.01	0.07	0.1	<0.0001	0.05	<0.01	1.79			10.8		\equiv	\pm	\pm	\equiv
Templemore A Templemore A	13-Sep-18 5-Dec-18 14-Mar-19	6.39 6.66	7.14				7.9	1280	762	<1	<1		287		201	114		86		0.03	0.003	<0.05	0.087	<0.001	<0.0001 <0.00	<0.001	0.025	0.078	<0.001	0.001	<0.01	<0.01	0.024	0.17	<0.0001	0.05	<0.01	1.54			11.6		=	#	<20 <	<100
Templemore A Templemore A Templemore A	14-Mar-19 19-Jun-19 11-Sep-19	6.66 7.11 7.31 7.53	7.79 7.79 8.01	7.5	1240	19.5 19.6	8.06	1200	778	4	41	276	276		206			94	2	0.02	0.003	<0.05	0.096	<0.001	<0.0001 <0.00	<0.001		0.018		<0.001	<0.01	<0.01	0.025	0.11	<0.0001	0.12	v.u8 <0.01	3.49	2.19		11./		<20		<20 <	
Templemore A Templemore A	5-Dec-19 18-Mar-20		8.25 6.58 4.1						823	<1	<1	257	257			135			2	0.02	0.003	<0.05	0.061	<0.001	<0.0001 <0.000	<0.001	0.005	0.049	<0.001	<0.001	<0.01	<0.01	0.067	0.07	<0.0001	0.03	<0.01	6.39			13.4		<20		<20 <	
Templemore A Templemore A	11-Jun-20 23-Sep-20	3.62 4.65	4.1 5.13 5.78	7.6 7.8	785 950	19.6 17.8	7.56	930		<1	<1	233		67	125			69	3	0.07	0.002	<0.05	0.076	<0.001	<0.0001 <0.003	<0.001	0.003	0.006	<0.001	<0.001	<0.01	<0.01	0.072	0.09	<0.0001	<0.01	<0.01	5.19	5.19	9.58	8.77	4.42	<20		<20 <	<100
Templemore A Templemore A	8-Dec-20 4-Mar-21	5.3 5.67 5.93	5.78 6.15	7.9 7.42	1040 1175	17.9 22.5	7.55	1180	767	<1	<1	281	281	94	194	121	32	85	2	0.03	0.002	<0.05	0.102	<0.001	<0.0001 <0.003	<0.001	0.006	0.025	<0.001	<0.001	<0.01	0.01	0.149	<0.05	<0.0001	<0.01	0.02	9.49	9.51	13	12.4	2.45	<20	<50 <	<20	<100
Templemore A Templemore A	21-Jun-21 2-Sep-01	5.07	5.55 2.69	7.01	1398	20.3	7.94	1380	897	<1	<1	289	289	89	203	141	34	96	2	0.04	0.003	<0.05	0.098	<0.001	<0.001 <0.00	<0.001	0.002	0.014	0.001	<0.001	<0.01	0.01	0.082	<0.05	<0.0001	0.02		15	15			=	<20	<50 <	<20 /	<100
	EMORE B			7.41	1387	20.4																																								
Templemore B Templemore B	18-Jul-07 7-Aug-07	9.89 8.14 8.31	9.89 8.14															_		=																		=				=		#	#	_
Templemore B Templemore B Templemore B	22-Aug-07 5-Sep-07 24-Sep-07	8.17	8.17 8.05	_														_	=	=																		=				=		#	#	=
Templemore B Templemore B	11-Oct-07 26-Nov-07	8.09 7.9	8.09 7.9 8.13						\vdash				+			_		_	=	=	_		_															\dashv			=	=	=	#	#	=
Templemore B Templemore B	29-Jan-08 4-Mar-08	8.44	8.44																																			\exists						=E	丰	=
Templemore B Templemore B	4-Apr-08 21-Aug-08	8.42 10.55	8.42 10.55 15.5																																									=	\pm	
Templemore B	29-Jan-09 17-Jun-09	9.49	9.63	7.3	1810	19.5		1700	1080	<1	<1	419	419	106	240	118	52	175	2	=	0.002		0.145	<0.001	<0.0001 <0.00	<0.001	0.055	0.008	<0.001	<0.001		0.01	0.052	<0.05	<0.0001	<0.01		=		17.4	17.9	1.46		#	丰	=
Templemore B Templemore B Templemore B	28-Aug-09 23-Dec-09 25-Feb-10	15.84		6.75			7.44	1420		<1	<1		291		196			221		0.01	0.003					<0.001	0.022	0.003	0.002	<0.001			0.068	<0.05	<0.0001		<0.01	0.74	0.74	14.1	13.8	1.29	=	#	丰	=
Templemore B Templemore B	11-May-10 30-Aug-10	10.52 17.65	10.66 17.79	7.23	1532	23.8		1540	854	<1	<1	328	328	129	204	85	30	194	2	_	0.002		0.059	<0.001	<0.0001 <0.00	<0.001	0.007	0.024	<0.001	<0.001		0.01	0.02	0.11	<0.0001	0.02		=		15	15.1	0.48		#	#	=
Templemore B Templemore B	9-Nov-10 14-Mar-11	9.94 17.11 10.42	10.08 17.25	7.19 7.21	1405 1460	24.8 24.7	7.28	1400		<1	<1	339	339	136	264	97	37	200	2	0.28	0.002					<0.001	0.055	0.034	0.002	0.003			0.185	0.43	<0.0001		<0.01	2.85	2.85	17	16.6	1.3		=E	\equiv	
Templemore B Templemore B	6-Jun-11 8-Sep-11 7-Dec-11	13.56	13.7	7.12	1387	20.8	7.54	1630	982	<1	<1	325	325	137	254	62	38	202	2	0.03	0.003		0.076	<0.001	<0.0001 <0.003	<0.001	0.015	0.005	<0.001	<0.001		0.01	0.019	<0.05	<0.0001	0.03	<0.01	0.73	0.73	16.5	15.1	4.62			士	
Templemore B Templemore B Templemore B	7-Dec-11 13-Mar-12 13-Jun-12	10.53 9.58 10.51 8.28	9.72	7.28	1680	23	7.7	1790	1040	<1	<1		338						2		0.002		0.09	<0.001	<0.0001 <0.00	<0.001	0.013	0.004	<0.001	<0.001		0.02	0.036	0.1	<0.0001	0.11	<0.01	3.37	3.37	18.4	19.2	2.24		#	#	=
Templemore B Templemore B	4-Sep-12 27-Nov-12	8.28 7.65	8.42 7.79	7.34	1770	21.4	7.63	1920	1200	<1	<1		364								0.002		0.099	<0.001	<0.0001 <0.00	<0.001	0.01	0.005	<0.001	<0.001		0.01	0.072	0.1	<0.0001	<0.01	<0.01	7.25	7.25	20.2	20.1	0.31		#	丰	=
Templemore B Templemore B	20-Mar-13 11-Jul-13 5-Sep-13	7.65 12.36 6.08	12.5 6.22 6.24	7.29	1570 1523	22.4		1700		<1	<1		335						2	0.04	0.004		0.069	<0.001	<0.0001 <0.003	<0.001	0.019	0.012	<0.001	0.001		0.01	0.064	0.09	<0.0001	0.03	<0.01	4.44			17.9			#	丰	=
Templemore B Templemore B Templemore B	5-Sep-13 22-Nov-13 20-Feb-14	6.1 7.89 8.31	6.24 8.03 8.45	7.24 7.4	1470 1483	22.3	7.79		988	<1	<1		304		242	78			2	0.28	0.003	<0.001	0.06	0.076	<0.0001 <0.003	<0.001	0.046	0.035	<0.001	0.002	<0.01	0.02	0.148	0.3	<0.0001	0.03		\equiv			16.6			\equiv	\equiv	
Templemore B	27-May-14							1470		<1	<1		293 325						1		0.004	<0.001	0.06	0.061	<0.0001 <0.003	<0.001		0.022		0.005	<0.01	0.02		0.38	<0.0001	0.02	-0.04				14.7			==	丰	=
Templemore B Templemore B Templemore B	9-Sep-14 20-Nov-14 26-Feb-15	6.38 6.96 7.58	7.1	7.4	1523	22.3		1580	955	<1	<1 <1	325	325		211			205		0.05	0.004	<0.05	0.064	<0.001	<0.0001 <0.00	<0.001	0.007	0.004	0.001	<0.001	<0.01	0.01	0.028	0.07	<0.0001	0.09	<0.01	2.3	2.3		14.9			#	#	=
Templemore B Templemore B	26-May-15 27-Aug-15	2 37	8.51 8.17 11.12	7.4	1453	20.6		1520	826	<1	<1	286	286		179	74			1	0.03	0.003	<0.05	0.061	<0.001	<0.0001 <0.00	<0.001	0.001	0.005	<0.002	0.001	<0.01	0.02	0.046	0.07	< 0.0001	0.03	<0.01	2.07	2.07		15		=	#	#	=
Templemore B Templemore B	4-Dec-15 24-Feb-16 23-May-16	10.98 10.77 7.18	11.12 10.91	7.3	1572 1465	22.8	7.77	1510	874	<1	<1		307		214	82		219	1	0.31	0.004	<0.05	0.069	<0.001	<0.0001 <0.00	<0.001	0.007	0.005	<0.001	<0.001	<0.01	0.01	0.046	1.7	<0.0001	0.05	<0.01	0.21	0.21	15.5	16.3			=E	丰	
Templemore B Templemore B	6-Sep-16	7.18 13.46	7.32 13.6	7.2 7.2	1481 1510	21.8 23.5	7.58	1560		<1	<1	325	325		240	90	30	196	2	0.25	0.004					<0.001	0.024	0.021	<0.001	0.003			0.153	1.12	<0.0001		<0.01	2.14	2.14	16.1	15.5	1.84		\equiv	\equiv	\equiv
Templemore B Templemore B	29-Nov-16 23-Mar-17	13.46 9.27 6.91 6.46 6.68	9.41 7.05	7.2	1345 1500	21.3	8.02	15200	1040	<1	<1	322	322	129	235	71	31	197	1	0.04	0.003	<0.05	0.069	<0.001	<0.0001 <0.00	<0.001	0.014	0.012	<0.001	<0.001	<0.01	0.02	0.035	0.08	<0.0001	0.02	<0.01	2.42	2.42	15.7	14.7	3.48	=	#	#	=
Templemore B Templemore B Templemore B	21-Jun-17 13-Sep-17 13-Dec-17	6.68 6.61	6.82 6.75	7.6 7.4	1600	21.1 22.4	8.3	1620	916	<1	<1	360	360	149	245	89	37	213	2 <	0.01	0.003	<0.05	0.07	<0.001	<0.0001 <0.00	0.001	0.011	0.009	0.004	<0.001	<0.01	0.01	0.044	0.23	<0.0001	0.04	<0.01	2.31	2.31	17.2	16.8	1.19	=	#	#	=
Templemore B Templemore B	13-Sep-18 5-Dec-18	7.22 10.22	6.75 7.36 10.36	7.1 7.1	1440	22 21.7	7.59	1480	777	<1	<1	305	303		233		27	180	2	0.07	0.003	<0.05	0.058	<0.001	<0.0001 <0.00	<0.001	0.001	0.004	<0.001	<0.001	<0.01	0.02	0.033	0.09	<0.0001	0.05	<0.01	1.89	1.89	15.5	13.8	5.74	=	丰	丰	=
Templemore B Templemore B	14-Mar-19 19-Jun-19	7.22 7.71 7.67 9.01	7.85 7.81	7.3	1390 1580	22.9	7.58	1410	874	<1	<1		319		194					0.03	0.003	0.05	0.063	<0.001	<0.0001 <0.00	<0.001	0.001	0.003	<0.001	<0.001	<0.01	0.02	0.020	0.11	<0.0001	0.01	<0.01	1.3	1.3		14.4				:20	:100
Templemore B Templemore B	11-Sep-19 5-Dec-19 18-Mar-20									<1	<1	376	376						2 <	0.01	0.002	<0.05	0.134	<0.001	0.0003 <0.00	0.001	0.02	0.006	0.06	0.003	<0.01	0.02	0.394	1.04	<0.0001		<0.01				20.1		<20		<20 <	
Templemore B Templemore B	11-Jun-20	9.66 9.29	9.8 9.43	7.4	1460	20.4		1550	856 878	<1	<1	291	291 340		242			202	2	0.02	0.003	<0.05	0.061	<0.001	<0.0001 <0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	0.02	0.019	<0.05	<0.0001	0.01	<0.01				15.5		<20	<50 <	<20 <	
Templemore B Templemore B Templemore B	23-Sep-20 8-Dec-20 4-Mar-21	8.88 11.47 9.87	11.61	7.3	1420	19.8					- <1										0.002	<0.05	0.050	<0.001	<0.0001 <0.00	<0.001	0.001	0.003	<0.001	U.001	<0.01	0.02	0.022	<0.05	<0.0001	<0.01										
Templemore B Templemore B Templemore B	21-Jun-21	9.87 9.17 8.37	9.31	7.13	1493	18.3		1580		0.7	<1		362		233	04	27	300	1 (1.02	0.003	<0.05	0.059	<0.001	<0.0001 <0.00	<0.001		<0.001	<0.001	<0.001	<0.01	0.02		<0.05	<0.0001	<0.04	<u.u1< td=""><td>2.55</td><td>2.55</td><td>10.4</td><td>13.3</td><td>3.00</td><td>~ZU</td><td></td><td><20 <</td><td></td></u.u1<>	2.55	2.55	10.4	13.3	3.00	~ZU		<20 <	
Templemore B	2-Sep-21 29-Dec-21 IAL BORES	10.22					7.36	1360	1030	0.7		302	302	120	230	34	JZ.	200		J.UZ	0.002	~U.U3	0.037	~U.UUI	~0.0001 ×0.00.		<0.001	<u.uu1< td=""><td><0.001</td><td>\U.UU1</td><td>40.01</td><td>0.01</td><td>0.029</td><td>\U.U3</td><td>~v.uu01</td><td>\U.U1</td><td></td><td>2.31</td><td>2.31</td><td></td><td></td><td></td><td>ᆂ</td><td>二</td><td>20 5</td><td>100</td></u.uu1<>	<0.001	\U.UU1	40.01	0.01	0.029	\U.U3	~v.uu01	\U.U1		2.31	2.31				ᆂ	二	20 5	100
Reg 6			20.00																																											
Reg 6 Reg 6	21-Aug-15 24-Sep-15		20.08	12.28	2580	19.2	11.6	2270	1170	<1	90	60	150	111	520	14	<1	491	42 <	0.01	<0.001	<0.05	0.126		<0.0001	0.006	0.005	<0.001	0.001	<0.001			0.027	<0.05		0.84	<0.01	0.14	0.14	20	23.1	7.29		士	土	

		lgdr	ntoc	Field	Param	eters			spi			Major	Anions				Majo	r Cations									Total	Metals								1/	(N)		یے	ż	1/1	1/1					
Sample Location	Date	Depth to Ground - m	Depth to Stand - mb	pH - Field	C - Field - µs/cm	emp - Field - °C	del - Hq	EC - Lab - µs/cm	Total Dissolved Soli	Hydroxide Alkalinity as	Carbonate Alkalinity as	Bicarbonate Alkalinity as	- mg/L	Sulfate (SO4)- mg/L	Chloride (Cl) - mg/L	Calcium (Ca) -	fagnesium (Mg) -	Sodium (Na) - mg/L		Aluminium (AI) - mg/L	Arsenic (As) - mg/L	Boron (B) - mg/L	Barium (Ba) - mg/L	Beryllium (Be) - mg/L	Cadmium (Cd) - mg/L	obalt (Co) - mg/L	Chromium (Cr) - mg/L	- (n	langanese (Mn) -	mg/L Nickel (Ni) - mg/L	.ead (Pb) - mg/L	Selenium (Se) - mg/L	Vanadium (V) - mg/L	Zinc (Zn) - mg/L	Iron (Fe) - mg/L	Mercury (Hg) - mg/L	Ammonia as Nitroger	Nitrite as N-mg/L	Nitrate as N - mg/L	Nitrite + Nitrate as I mg/L	Total Anions - meg/	Total Cations - med	Ionic Balance	TPH C6-C9	TPH C10-C36	TRH C6- C10	TRH C10-C40
	stock drinking water				Ē	1			4000				4	1000		1000	Σ			5	0.5	æ		ш	0.01	1	1	1	Σ	1	0.1	0.02	-	20	-	0.002	1		400								
Reg 6 Reg 6 Reg 6	29-Oct-15 27-Nov-15 29-Dec-15		20.16 20.15 20.17	8.02	2310	33.9	8.15	2360	1420	<1	<1	234	234	147	532	47	23	358	9	<0.01	<0.001	0.08	0.048		<0.0001		<0.001	<0.001	01 0.1	3 0.001	<0.001			0.006	<0.05		0.16	<0.01	0.01	0.01	22.7	20 6.	5.33	#	#	#	=
Reg 6 Reg 6 Reg 6	15-Jan-16 17-Feb-16 11-Mar-16		20.25			25.3	8.05	2300	1250	<1	<1	228	228	151	527	49	78	359	10	<0.01	0.001	0.06	0.054		<0.0001		<0.001	<0.00	11 0 12	29 0.004	<0.001			<0.005	<0.05		0.12	<0.01	<0.01	<0.01	22.6 2	20.6 4	1 52	#	#	#	
Reg 6 Reg 6	18-Apr-16 12-May-16		20.52																		0.001	0.00	0.034		10.0001		10.001	10.00	0.11	0.004	10.001			10.003	40.03			40.01					=	圭	圭	⇉	\equiv
Reg 6 Reg 6 Reg 6	14-Jun-16 21-Jun-16 12-Jul-16		20.43 20.36 20.33	8.33		16.3	7.33		943 1370	30 <1	95 <1	<1 283	283			12 46			31 8		<0.003	0.07	0.107		<0.0001 <0.0001		<0.001		0.00		<0.001 <0.001			0.006 <0.005	<0.05		1.13 0.13	0.43 <0.01	0.01		19.7 1 21.9 1	19.1 1. 19.4 6.	.12	丰	#	#	=
Reg 6 Reg 6	12-Jul-16 8-Aug-16 5-Sep-16 5-Oct-16		20.29	7.77	2148	17.8	8.16	2160	1080	<1	<1	216	216	161	478	52	23	401	8	<0.01	0.002	0.08	0.053		<0.0001		<0.001	<0.001	0.12	29 0.002	<0.001			<0.005	0.08		0.1	<0.01	0.04	0.04	21.2 2	22.1 2.	25	Ŧ	4	4	
Reg 6 Reg 6 Reg 6	4-Nov-16 23-Dec-16		20.24	8.46	2108	27.1	8.26	2050	1350	<1	<1	226	226	137	458	47	22	326	11	<0.01	0.001	0.07	0.069		<0.0001		<0.001	<0.001	0.07	71 0.002	<0.001			<0.005	<0.05		0.2	0.03	0.02	0.05	20.3 1	18.6 4	1.29	圭	圭	⇉	=
Reg 6 Reg 6 Reg 6	18-Jan-17 14-Feb-17		20.24																																		一		\equiv		#	#	#	#	#	#	
Reg 6	9-Mar-17 5-Apr-17		20.32			20.8	8.23	2140	1160	<1	<1	197	197	137	462	41	22	350	11	<0.01	0.001	1.7	0.076		<0.0001		<0.001	<0.001	0.01	17 0.003	0.012			<0.05	0.21		<0.01	<0.01	0.07	19.8	1.17	≢	≢	圭	圭	⇉	\equiv
Reg 6 Reg 6 Reg 6	10-May-17 6-Jun-17 4-Jul-17		20.32 20.23 20.19		2126	13.7	8.32	2050	1480	<1	1	194	195	133	452	46	25	378	10	<0.01	0.002		0.055		<0.0001		<0.001	<0.001	0.01	12 0.003	0.009			<0.05	0.11		<0.01	0.03	10.9	19.4	4.04	#	#	#	#	#	=
Reg 6 Reg 6	8-Aug-17 26-Sep-17		20.19	9.06	2450	18.9	8.58	2320	1200	<1	29	219	248	109	510	22	29	457	22	<0.01	0.001		0.028		<0.0001		0.001	<0.001	0.04	47 0.009	0.047			<0.05	0.27		0.11	0.2	0.07	21.6	5.08	#	#	丰	丰	#	\exists
Reg 6 Reg 6 Reg 6	12-Oct-17 9-Nov-17 20-Dec-17		20.23 20.29 20.3	7.9	2210	41.8	8.25	2090	1080	<1	<1	224	224	156	481	40	16	325	9	<0.01	<0.001		0.05		<0.0001		<0.001	<0.001	0.01	17 0.003	0.01			<0.05	0.13		0.03	0.1	0.17	21.3	9.27	圭	≢	圭	圭	≢	\equiv
Reg 6	11-Jan-18 7-Feb-18 27-Mar-18		20.34 20.75 21.31			27.1	0 //1	2120	1100	<1	10	104	195	107	497	40	16	270	13	<0.01	<0.001		0.052		<0.0001		<0.001	<0.00	11 00	2 0.002	0.021			<0.05	0.26		<0.01	0.00	0.00	21.3	9.6	₹	≢	Ŧ	₮	⇶	
Reg 6 Reg 6 Reg 6	10-Apr-18 7-May-18		20.7 21.65		2000	27.1	0.41			1	10						10		Ē		V0.001		0.032		<0.0001		V0.001	V0.00	0.0	2 0.002	0.021											圭	圭	圭	圭	⇉	
Reg 6 Reg 6 Reg 6	14-Jun-18 5-Jul-18 9-Aug-18		21.92 22.2 22.2	8.14	2080	15.4	8.21	2020	1080	<1	<1	234	234	135	472	45	20	344	9	<0.01	<0.001		0.043		<0.0001		<0.001	<0.001	0.01	13 0.002	0.006			<0.05	0.1		<0.01	0.02	0.76	20.8	4.3	#	#	#	#	#	=
Reg 6	9-Aug-18 3-Sep-18 8-Oct-18		22.07		2076	16.9	8.52	2060	782	<1	14	200	214	130	429	42	20	340	10	<0.01	<0.001		0.048		<0.0001		<0.001	<0.001	0.01	14 0.002	0.008			<0.05	0.11		<0.01	<0.01	0.07	19.1	0.78	≢	圭	圭	圭	⇉	
Reg 6 Reg 6 Reg 6	8-Nov-18 11-Dec-18 8-Jan-19		22.16 22.36 22.4	8.01	2040	29.2	8.5	2060	1150	<1	21	200	220	147	459	50	22	350	11	<0.01	0.001		0.049		<0.0001		<0.001	<0.001	0.01	13 0.002	0.006			<0.05	0.06		<0.01	<0.01	0.76	20.4	1.47	#	#	丰	#	#	
Reg 6	8-Jan-19 11-Feb-19 5-Mar-19		22.4 22.23 22.34 22.48	8.2	2044	29.9	7.94	2090	1090	<1	<1	188	188	88	444	40	19	346	10	<0.01	<0.001		0.056		<0.0001		<0.001	<0.001	0.01	17 0.002	0.011			<0.05	0.13		<0.01	<0.01	0.13	18.1	2.03	圭	Ŧ	丰	手	=	
Reg 6 Reg 6 Reg 6	2-Apr-19 2-May-19 5-Jun-19 3-Jul-19		22.48 22.61 22.7 22.75		2146	22.2	8.19	2100	1100	<1	<1	200	200	144	459	38	18	335	10	<0.01	<0.001		0.055		<0.0001		<0.001	<0.001	0.01	16 0.006	0.01			<0.05	0.12		0.07	0.12	0.07	19.9	4.55	#	#	丰	#	#	=
Reg 6 Reg 6 Reg 6	3-Jul-19 5-Aug-19 5-Sep-19		22.75 22.79 22.81			22.4	7 00	2440	1320	<i>2</i> 1	Z1	201	201	156	ENO	42	20	270	15	<0.01	0.001		0.057		<0.0001		<0.001	<0.001	11 0.01	17 0.017	0.029			0.06	0.12		<0.01	0.02	<0.01	21.6	0.26	#	#	#	#	#	
Reg 6 Reg 6 Reg 6	10-Oct-19 4-Nov-19		22.87				7.36			- 1	\1									V0.01	0.001		0.037		<0.0001		V0.001	×0.00.	0.01						0.12		<u> </u>	0.02	.0.01	21.0	2.30	圭	圭	圭	圭	⇶	_
Reg 6	28-Nov-19 14-Jan-20 13-Feb-20		22.92 24.98 22.9		2062	27.5	8	2060	1060	<1	<1	216	216	148	509	40	18	324	10	<0.01	0.001		0.052		<0.0001		<0.001	<0.001	0.01	13 0.004	0.008			<0.05	0.11		<0.01	<0.01	0.03	21.8	3.93	#	#	#	#	#	
Reg 6 Reg 6 Reg 6	13-Feb-20 12-Mar-20 7-Apr-20 12-May-20		22.69 22.43	8.45	2025	9.9	8.21	2080	1140	<1	<1	209	209	146	488	42	17	333	11	<0.01	<0.001	0.06	0.063		<0.0001			<0.001	0.0	7 0.006	<0.001			<0.005	<0.05		0.08	0.09	0.02	0.11	21 1	18.3 6.	.93	圭	圭	⇉	
Reg 6 Reg 6 Reg 6	10-Jun-20 7-Jul-20		22.15 22.04 21.93	7.7	2042	17.2	7.98	2000	1060	<1	<1	212	212	134	469	40	19	349	10	<0.01	0.001	0.07	0.06		<0.0001			0.001	1 0.09	91 0.004	<0.001			0.008	<0.05		0.06	<0.01	0.02	0.02	20.2	19 3.	.21	丰	#	#	
Reg 6 Reg 6 Reg 6 Reg 6	10-Aug-20 10-Sep-20 19-Oct-20		21.79 21.75 21.71	7.89	2046	15.8	7.79	2020	1110	<1	<1	218	218	134	437	42	18	342	9	<0.01	0.001	<0.05	0.048		<0.0001			0.004	4 0.11	17 0.002	<0.001			0.008	<0.05		0.06	<0.01	0.03	0.03	19.5	18.7 2.	.07	\equiv	圭	₹	
Reg 6 Reg 6	4-Nov-20 26-Nov-20		21.65 21.64		2005	32.4	7.97	2120	1220	<1	<1	216	216	204	425	48	20	333	9	<0.01	<0.001	0.06	0.042		<0.0001			0.002	2 0.10	05 0.004	<0.001			0.013	<0.05		0.05	<0.01 <	<0.01	<0.01	20.6 1	18.8 4	1.57	圭	圭	⇉	
Reg 7a Reg 7a Reg 7a	20-Mar-14				1230	21.7	7.83	950	606	<1	<1	374	374	25	84	62	30	108	2	<0.01	0.007	<0.05	0.084		<0.0001		<0.001	0.002	2 2.5	3 0.002	<0.001			0.029	1.23		0.1	<0.01	0.05	0.05	10.4	10.3 0.	1.26	ቛ	#	#	
Reg 7a	23-Apr-14 27-May-14 26-Jun-14		6.19 6.23 6.28	7.01	846	16.9	7.52	884	E	<1	<1	369	369	28	64	58	26	103	_2	<0.01	0.005	< <u>0</u> .05	0.084		<0.0001		<0.001	<0.001	1.8	3 <0.001	<0.001			0.013	1.38		0.03	<0.01	0.12	0.12	9.76 9	9.57 1	.03	丰	丰	#	\equiv
Reg 7a Reg 7a Reg 7a Reg 7a	26-Jun-14 29-Jul-14 26-Aug-14 29-Sep-14		6.32 6.37 6.57				7.77	871	354	<1	<1	358	358	35	61	55	28	106	2	<0.001	0.006	<0.05	0.08		<0.0001		<0.001	0.003	3 1.4	2 0.001	<0.001			0.048	<0.05		0.03	<0.01	0.06	0.06	9.6 9	9.71 0.	1.54	丰	丰	#	\equiv
Reg 7a Reg 7a Reg 7a Reg 7a	28-Oct-14 27-Nov-14		6.58									E					E		Ħ										Ł								o		\Rightarrow		圭	丰	丰	圭	圭	#	
Reg 7a Reg 7a Reg 7a	17-Dec-14 20-Jan-15		6.69 6.76 6.85		805	23.8	8.11	853	428	<1	<1	300	300	38	66	45	22	89	2	<0.01	0.004	<0.05	0.072		<0.0001		<0.001	0.002	2 1.2	3 0.002	<0.001			0.076	<0.05		0.03	<0.01	0.02	0.02	8.65 7	7.98 4.	.04	丰	季	₹	目
Reg 7a Reg 7a Reg 7a Reg 7a	18-Feb-15 17-Mar-15 21-Apr-15 27-May-15		6.93 7.04	7.51	857	22	7.61	834	491	<1	<1	393	393	43	48	56	30	111	2	<0.01	0.008	<0.05	0.09		<0.0001		<0.001	0.002	2 1.2	5 0.002	<0.001			0.051	0.69		0.03	<0.01	0.17	0.17	10.1 1	10.1 0.	.18	圭	圭	≢	\equiv
Reg 7a Reg 7a Reg 7a	27-May-15 29-Jun-15 24-Jul-15		7.19 7.35 7.41	7.19	778	20 19.1	7.31	793	486	<1	<1	336	336	42	45	55	26	97	2	<0.1	0.008	<0.05	0.084		<0.0001		<0.001	<0.001	0.95	56 <0.001	<0.001			0.019	0.7		0.01	<0.01	0.02	0.02	8.86	9.15 1.	63	丰	丰	咠	=
Reg 7a Reg 7a Reg 7a Reg 7a	24-Jul-15 21-Aug-15 18-Sep-15 29-Oct-15		7.41 7.58 7.71 7.87				7.41	772	450	<1	<1	297	297	36	55	52	27	104	2	<0.01	0.008	<0.05	0.085		<0.0001		<0.001	<0.001	0.8	6 <0.001	<0.001			0.037	0.29		0.07	<0.01	0.09	0.09	8.24	9.39 6.	5.54	圭	圭	圭	\equiv
Reg 7a Reg 7a Reg 7a	29-Oct-15 26-Nov-15 29-Dec-15		7.87 7.93 8.03				7.79		468	<1	<1	332	332	45	53	51	24	94		<0.01	0.009	<0.05	0.089		<0.0001		<0.001	<0.001	1.0	5 0.001	<0.001			0.008	0.7		<0.01	<0.01	<0.01	<0.01	9.06 8	8.63 2	45	丰	丰	#	司
Reg 7a	15-Jan-16		8.15 8.22																		0.003	-0.03	J.J63				-0.001			5.001								.5.51	-5.01	1			Ξ	圭	圭	⇉	\equiv
Reg 7a Reg 7a Reg 7a Reg 7a Reg 7a Reg 7a	17-Feb-16 11-Mar-16 19-Apr-16 11-May-16		8.29 8.42 8.48	7.47	778	17.4	7.77	788	418	<1	<1	310	310	31	45	44	24	100	2	<0.01	0.008	<0.05	0.076		<0.0001		<0.001	<0.001	0.71	11 0.002	<0.001			0.029	0.35		0.04	<0.01	0.02	0.02	3.11 8	8.57 2.	.75	#	#	#	=
Reg 7a Reg 7a Reg 7a Reg 7a	14-Jun-16 12-Jul-16		8.65 8.62	7.38	786	15	7.77	758	374	<1	<1	300	300	20	40	44	21	86	1	<0.01	0.007	<0.05	0.078		<0.0001		<0.001	<0.001	0.6	8 0.001	<0.001			0.022	0.31		0.03	<0.01	<0.01	<0.01	7.54 7	7.69 0.	.97	圭	圭	圭	\equiv
Reg 7a Reg 7a	8-Aug-16 5-Sep-16 5-Oct-16		8.7 7.96 6.03	7.25	780	15.7	7.49	790	416	<1	<1	304	304	33	41	50	21	98	1	<0.01	0.006	<0.05	0.09		<0.0001		<0.001	<0.001	0.8	1 0.002	<0.001			0.019	0.44		0.03	<0.01	0.05	0.05	7.92 8	8.51 3.	.59	#	#	#	=
Reg 7a Reg 7a	4-Nov-16 15-Dec-16		5.76		742	16.2	7.8	714	496	<1	<1	296	296	26	46	43	20	79	2	0.06	0.006	<0.05	0.058		<0.0001		0.002	0.003	3 0.00	05 0.006	<0.001			0.023	<0.05		0.02	<0.01	0.56	0.56	7.75	7.28 3	3.15	王	Ŧ	\exists	=

u u		- mbgl	mbtoc	Field P	'arame	eters		E	olids			Maj	or Anior	is			N	Лаjor С	ations								Tota	ıl Metals								ng/L	gen (N)	1/8	J/8/L	- N se	neq/L	1/bər	a		10		
Sample Locati	Date	Depth to Ground -	Depth to Stand - n	pH - Field	C - Field - µs/cm	emp - Field - °C	pH-Lab	EC - Lab - µs/cm	Total Dissolved S	Hydroxide Alkalinity as	Carbonate Alkalinity as	CaCO3 - mg/L Bicarbonate	Alkalinity as CaCO3 - mg/L	Alkalinity - mg/L	mg/L	Chloride (CI) - mg/L	Calcium (Ca) - mg/L	fagnesium (Mg) - mg/L	Sodium (Na) - mg/L Potassium (K) -	mg/L Muminium (AI) -	mg/L Arsenic (As) -	mg/r	Barium (Ba) -	mg/L Beryllium (Be) - mg/L	Cadmium (Cd) - mg/L	obalt (Co) - mg/L	Chromium (Cr) -	Copper (Cu) -	fanganese (Mn) -	lickel (Ni) - mg/L	.ead (Pb) - mg/L	Selenium (Se) - mg/L	Vanadium (V) - mg/L	Zinc (Zn) - mg/L	Iron (Fe) - mg/L	Mercury (Hg) - m	Ammonia as Nitrog	Nitrite as N -mg/l	Nitrate as N - m	Nitrite + Nitrate a mg/L	Total Anions - m	Total Cations - m	Ionic Balance	PH06-0	TPH C10-C36	TRH G6- C10	TRH C10-C40
ANZECC Guideline - s	tock drinking water			_	ŭ	-			4000				+	1	000		1000	2		٩.	0.	-	20	+=	0.01	1	-		Σ	1	0.1	0.02		20	0.0	002	`	+	400		+		+	+			
Reg 7a Reg 7a	18-Jan-17 14-Feb-17		6.06 6.25																	2 40																									\equiv	<u>=</u>	
Reg 7a Reg 7a Reg 7a	9-Mar-17 3-Apr-17 11-May-17		6.34 6.45 6.61	7.22	8/8	1/.8	7.81	860	456	<1	<1	3	:05	305	43	58	53	24	92 2	! <0	01 0.0	06 0	.3 0.0	96	<0.000	1	<0.00	0.00	0.00	0.011	0.002			0.43 0	0.03	<(0.01 <	<0.01	0.14	8.62	0.28	_		=	#	#	
Reg 7a Reg 7a	6-Jun-17 4-Jul-17		6.66	7.31	869	14.1	7.67	833	496	<1	<1	3	11	311	36	58	53	24	98 2	! <0	01 0.0)6	0.0	93	<0.000	1	<0.00	0.00	0.002	0.003	0.002			0.36	0.02	0	.02	0.02	0.07	8.6	1.91				圭	\equiv	
Reg 7a Reg 7a	9-Aug-17 8-Sep-17		6.8 6.81	7.45	806	15.4	7.92	774	452	<1	<1	3	45	345	26	45	45	20	89 2	! <0	01 0.0	13	0.0	75	<0.000	1	0.00	1 <0.00	0.00	1 0.003	0.002			0.35	0.46	0	.04	0.04	0.22	8.7	5.39				士	=	
Reg 7a Reg 7a Reg 7a	17-Oct-17 8-Nov-17 20-Dec-17		6.93 7.01 7.18	6.79	898	34.5	7.74	850	421	<1	<1	3	58	358	38	54	52	26	108	· <0	01 0.0	15	0.0	94	<0.000	1	0.00	8 <0.00	1 0.00	3 0.001	0.003			0.12 <	0.01	<(0.01 <	c0.01	0.08	9.47	0.08	_		=	#	#	
Reg 7a Reg 7a	9-Jan-18 6-Feb-18		7.27									Ė																																	圭	Ŧ	
Reg 7a Reg 7a	27-Mar-18 9-Apr-18		7.75 7.84	7.05	852	15.3	7.44	899	506	<1	<1	3	29	329	47	58	54	24	92 :	<0	0.0	14	0.0	87	<0.000	1	0.00	8 <0.00	0.00	1 0.002	0.002			0.3 0	0.02	0	.07	0.07	0.1	9.19	2.74				士	=	
Reg 7a Reg 7a Reg 7a	7-May-18 14-Jun-18 5-Jul-18		8.01 8.18 8.28	7.35	790	20.9	7.73	799	427	<1	<1	3	50	350	34	48	49	23	96 :	. <0	01 0.0)5	0.0	89	<0.000	1	0.00	4 <0.00	0.00	1 <0.001	0.002			0.23 <	0.01	1	3.7	13.7	0.12	9.05	2.93				#	#	=
Reg 7a Reg 7a	9-Aug-18 10-Sep-18		8.46 8.62	7.28	822	22.2	7.69	766	398	<1	<1	2	95	295	28	46	41	21	89 :	<0	01 0.0)5	0.0	77	<0.000	1	0.00	7 <0.00	01 < 0.00	1 0.002	0.001			0.22	0.02	0	.02	0.02	0.11	7.77	0.67				士	#	
Reg 7a Reg 7a	8-Oct-18 8-Nov-18		8.68 8.81			H						E	—					25	400	Ξ	04	Ξ	Œ			E					0			0.25		\equiv	I	2.00	0.45	0.5:	2.0-	\exists	Ŧ	Ŧ	\equiv	垂	=
Reg 7a Reg 7a Reg 7a Reg 7a	19-Dec-18 8-Jan-19 11-Feb-19		8.97 8.98 9.05	/.33	794	26	8.51	752	460	<1	30	2	93	323	36	51	54	25	100 2	! <0	0.0	14	0.0	92	<0.000	1	<0.00	J1 <0.00	0.00	0.001	0.002			0.26	J.U2	0	.04	U.04	0.12	8.64	2.87	#	#	_	#	#	=
Reg 7a	13-Mar-19 2-Apr-19		9.11	7.28	821	30.5	7.61	784	485	<1	<1	3	36	336	35	52	48	22	94	<0	01 0.0	3 0	.2 0.0	89	<0.000	1	<0.00	0.00	1 <0.00	1 0.001	0.002		H	0.2	0.06	0	.07	0.07	0.1	8.91	3.42	\equiv	=	=	#	#	
Reg 7a Reg 7a Reg 7a	2-May-19 5-Jun-19 4-Jul-19		9.16 9.04	7.2	936	22.1	7.85	881	525	<1	<1	3	20	320	43	60	52	27	96 :	. <0	01 0.0)3	0.0	96	<0.000	1	<0.00	0.00	0.00	1 <0.001	0.002			0.31 <	0.01	0	.07	0.07	0.1	8.98	0.2				王	彐	
Reg 7a Reg 7a Reg 7a	4-Jul-19 5-Aug-19 9-Sep-19		9.12 9.17 9.25	9 53	862	22.1	7 3 2	912	510	<i>2</i> 1	-1	١,	87	287	36	47	51	25	97 -		01 0.0	и	0.0	96	<0.000	1	0.00	7 <0.00	11 <0.00	1 0.002	0.002			0.21 <	0.01		.04	0.04	0.09	7.81	6.23	#	#	=	#	#	=
Reg 7a Reg 7a	10-Oct-19 4-Nov-19		9.35 9.38				7.32	312		~1		É			30				3/	- 10	0.0	_	0.0.		×0.000	1	0.00	7 (0.00	71 \0.00	0.003	0.002				0.01	Ŧ	.04	0.04	0.03	7.01	0.23	=	#	-	#	#	=
Reg 7a Reg 7a	27-Nov-19 21-Jan-20 25-Feb-20		9.34 9.53	7.28	839	24.6	7.4	888	482	<1	<1	3	41	341	39	55	49	24	96 2	! <0	01 0.0)4	0.0	93	<0.000	1	0.00	4 <0.00	0.00	0.002	0.002			0.09	0.02	0	.02	0.02	0.01	9.18	2.97				\equiv	<u> </u>	
Reg 7a Reg 7a Reg 7a Reg 7a	12-Mar-20		8.77 8.37 7.83	7.28	912	22.4	7.29	885	533	<1	<1	3	76	376	43	59	65	28	100	! <0	01 0.0	3 <0	.05 0.1	1	<0.000	1		<0.00	0.416	0.002	<0.001			0.064	0.17	0	.02 <	<0.01	<0.01	<0.01	10.1	9.95 0).62		\pm	#	=
Reg 7a Reg 7a Reg 7a	7-Apr-20 13-May-20 10-Jun-20		7.05 7.03	6.99	961	9	7.19	968	558	<1	<1	-	44	344	60	65	62	28	110	<0	01 0.0	12 <0	.05 0.1	23	<0.000	1		<0.00	0.35	3 <0.001	< 0.001			0.044	0.1	<(0.01	0.02	0.4	0.42	9.96	10.2 1	38		丰	#	=
Reg 7a Reg 7a Reg 7a	7-Jul-20 11-Aug-20 11-Sep-20		7.05															-																											丰	=	_
Reg 7a	19-Oct-20		7.11 7.06 7.08	7.07	984	20.4	7.18	957	551	<1	<1	3	60	360	60	67	60	27	116	! <0	01 <0.0	01 <0	.05 0.1	13	<0.000	1		0.00	1 0.343	3 0.001	<0.001			0.052 0	0.13	<(0.01 <	<0.01	0.42	0.42	10.3	10.3 0	0.09		士	=	
Reg 7a Reg 7a Reg 14	4-Nov-20 7-Dec-20			7.07	469	27.9	7.4	896	540	<1	<1	3	43	343	59	60	58	26	103	! <0	01 <0.0	01 <0	.05 0.1	09	<0.000	1		0.00	6 0.317	7 0.002	<0.001			0.064	0.07	<(0.01	0.01	0.24	0.25	9.77	9.56 1	.08	#	#	#	
Reg 14 Reg 14	18-Mar-14 23-Apr-14		20.58	7.63	1575	26.9	7.76	1260	959	<1	<1	3	54	354	36	188	35	14	233 3	0	7 0.0	2 <0	.05 0.0	18	0.0002	2	<0.00	0.01	9	0.006	0.008			0.043 3	3.08	0	.13 <	<0.01 <	<0.01	<0.01	13.1	13.1 0	0.09	#	#	#	
Reg 14 Reg 14 Reg 14 Reg 14	27-May-14		19.67 19.45	=			7.72	1290		<1	<1	3	96	396	34	170	38	13	268 (0.	0.0	13 <0	.05 0.0	72	<0.000	1	<0.00	0.00	2	0.004	<0.001			0.015	0.09		0.2 <	c0.01	0.34	0.34	13.4	14.7 4	1.62	=	#	#	_
Reg 14 Reg 14 Reg 14	25-Jun-14 29-Jul-14 27-Aug-14		19.4									Ė								Ë		Ì																							圭	=	
Reg 14 Reg 14 Reg 14	29-Sep-14 28-Oct-14 27-Nov-14		22.41 21.2 19.97	_										_	_							_															_								\pm	#	
Reg 14 Reg 14	17-Dec-14		19.97 19.85 20.14	7.85	1198	29.1	8.14	1250	710	<1	<1	3	47	347	24	181	30	10	205 3	<0	01 0.0	1 <0	.05 0.0	56	<0.000	1	<0.00	0.00)1	0.001	<0.001			0.024 <	0.05	0	.29 <	<0.01	0.05	0.05	12.5	11.3 5	.17		丰	#	=
Reg 14 Reg 14	20-Jan-15 18-Feb-15 17-Mar-15		20.67	8.23	1226	22.9	8.09	1220	758	<1	<1	4	49	449	30	175	38	12	253 2	! <0	01 0.0	1 0.	.05 0.0	15	<0.000	1	<0.00	01 <0.00)1	0.002	<0.001			0.009 <	0.05	0	.32 <	<0.01	0.03	0.03	14.5	13.9 2	1.12		圭	=	
Reg 14 Reg 14 Reg 14	21-Apr-15 27-May-15		19.95 19.77	0.63	4470	24	7.05	4200	500				.00	200	20	454			220		22 00		05 00		.0.000		-0.00			0.004	-0.004			0.04	0.05		25	-0.04	0.05	0.05	42.0	42.6	. 04		\pm	#	=
Reg 14 Reg 14	29-Jun-15 24-Jul-15 21-Aug-15		19.65 19.59 19.57	0.02	11/8	21	7.65	1200	999	<1	<1	+	ioU	380	29	164	44	11	239	0.	JZ U.U	κυ <0	U.U	***	×0.000	+	<0.00	J. U.UU	+	0.001	<0.001		H	0.01 <	v.U3	- 0	.25 <	V.U.1	v.u5	J.U5	12.8	13.6 2	.01	=	#	#	=
Reg 14 Reg 14	24-Sep-15 29-Oct-15 27-Nov-15		19.54 20.27	8.24	786	17.6	7.85	797	480	<1	<1	2	87	287	38	59	22	8	167	! <0	01 0.0	04 <0	.05 0.0	41	<0.000	1	<0.00	0.00)1	0.002	<0.001			0.039 0	0.07	0	.01 <	<0.01	0.05	0.05	8.19	9.07 5	.06		圭	垂	
Reg 14 Reg 14	29-Dec-15		19.74 20 20.76	7.26	917	27	7.95	959	535	<1	<1	3	29	329	48	77	27	8	179	! <0	01 0.0	9 <0	.05 0.0	38	<0.000	1	<0.00	0.00)1	0.002	<0.001			0.006	0.41	0	.03 <	<0.01	0.02	0.02	9.74	9.84 0).46	=	#	#	=
Reg 14 Reg 14 Reg 14	15-Jan-16 17-Feb-16 11-Mar-16		21.04 21.24	7.62	995	29.6	8.01	983	504	<1	<1	3	20	320	40	78	26	10	184 2	! <0	01 0.0	14 <0	.05 0.0	34	<0.000	1	<0.00	01 < 0.00)1	0.004	<0.001		H	0.007	0.09	0	.04 <	<0.01 <	<0.01	<0.01	9.43	10.2 3	1.78	=	#	#	=
Reg 14 Reg 14	18-Apr-16 11-May-16		20.34												Ì					Ŧ		Ŧ																				Ĭ			丰	丰	
Reg 14 Reg 14 Reg 14	14-Jun-16 12-Jul-16		19.92 19.79 19.75	8.08	876	17	8.15	871	444	<1	<1	2	92	292	40	68	25	7	154	! <0	01 0.0	04 <0	.05 0.0	44	<0.000	1	<0.00	0.00)1	0.002	<0.001			0.01	0.12	0	.12 <	<0.01	0.04	0.04	8.58	8.57 0	0.11		#	#	=
Reg 14 Reg 14 Reg 14	5-Aug-16 5-Sep-16 5-Oct-16		19.75 19.75 19.65	8	886	17.4	7.96	921	519	<1	<1	2	91	291	45	64	21	7	159	<0	01 0.0	3 <0	.05 0.0	43	<0.000	1	<0.00	0.00)1	0.002	<0.001			<0.005	0.09	0	.16 <	<0.01	0.04	0.04	8.56	8.56 0	0.01	=	#	#	=
Reg 14 Reg 14 Reg 14	4-Nov-16 15-Dec-16		19.6 19.76	8.15	888	17.2	8.12	856	600	<1	<1	2	97	297	36	83	26	7	162 2	! <0	01 0.0	14 <0	.05 0.0	41	<0.000	1	<0.00	0.00)1	0.002	<0.001			<0.005	0.08	0	.16 <	<0.01	0.05	0.05	9.02	8.97 (0.3	£	圭	圭	
Reg 14	18-Jan-17 14-Feb-17		20.53	-	077	20.		0			E	E	Ŧ	120	I	7		∃		E	04					Ē			_		0		曰			=E	Ŧ				0.05	\pm	Ŧ		\equiv	手	\equiv
Reg 14 Reg 14 Reg 14	9-Mar-17 5-Apr-17 10-May-17		20.23 19.7 19.72	7.36	9/2	20.1	7.88	938	660	<1	<1	3	20	320	47	76	22	8	177	! <0	01 0.0	05 0	.3 0.0	54	<0.000	1	<0.00	0.00)1	U.007	0.003		H	0.34 0	J.U5	0	.01	U.U1	0.28	9.52	0.05	#	1	#	#	#	=
Reg 14 Reg 14 Reg 14 Reg 14	6-Jun-17 3-Jul-17		19.56 19.49	8.22	908	14.9	8.34	935	504	<1	5	2	71	276	34	82	29	8	169	! <0	01 0.0)2	0.0	42	<0.000	1	<0.00	0.00)1	0.002	0.004		H	0.1 0	0.21	<0	0.01 <	<0.01	0.09	8.54	5.39	\equiv	=	=	#	#	\equiv
Reg 14	8-Aug-17 15-Sep-17			8.16	916	17.3	8.15	893	419	<1	<1	2	98	298	41	81	26	7	163 2	! <0	01 0.0	13	0.0	39	<0.000	1	<0.00	0.00)1	0.002	0.003			0.09	0.23	0	.03	0.03	0.12	9.09	0.43				王	彐	
Reg 14 Reg 14	12-Oct-17 8-Nov-17 20-Dec-17		20.33 19.97 20.15	71	030	24.5	8 24	920	576	<i>2</i> 1	-	+,	06	312	44	104	26	7	158		01 0.0	13	0.0	33	<0.000	1	<0.00	01 <0.00	11	0.004	0.002			0.09	118		.04	0.04	0.00	10.1	6.81	#	#	=	#	#	=
Reg 14 Reg 14 Reg 14	9-Jan-18 6-Feb-18		21.27 21.65	1.4	230	24.0	0.34	340	3/0	41	-	-		,14		104	20	_	130		U.U	_	0.0.		\J.000	+	<0.00	- <u.ul< td=""><td></td><td>0.001</td><td>0.002</td><td></td><td>H</td><td>0.03</td><td>10</td><td>-</td><td></td><td>J.04</td><td>J.U0</td><td>10.1</td><td>J.01</td><td>#</td><td>#</td><td>+</td><td>#</td><td>#</td><td>=</td></u.ul<>		0.001	0.002		H	0.03	10	-		J.04	J.U0	10.1	J.01	#	#	+	#	#	=
Reg 14 Reg 14	26-Mar-18 9-Apr-18		20.77	7.14	1002	18.1	7.62	1050	595	<1	<1	3	25	325	75	102	26	8	178 2	! <0	01 0.0)4	0.0	28	<0.000	1	<0.00	0.00)1	0.002	0.005			0.28 0	0.03	0	.02	0.02	0.26	10.9	5.72		l	£	\equiv	于	
Reg 14	7-May-18		20.68																																										工	ユ	

## Major Colors Part Part																																															
ANZECC Guideline - stock drinking water	_		mpgl	btoc	Field	Parame	eters		_	spiles			Major	Anions				Majo	Cation	s								Total	Metals								g/L	(N) ua	٦/	76	ż	d/L	1/ba				
ANZECC Guideline - stock drinking water	ple Locatio	Date	- Ground -	Stand - m	ield	- µs/cm	⊃ pla	он - Гар	Lab - µs/cr	issolved Sc	xide ty as	nate ty as	mg/L inate ty as	mg/L -mg/L	SO4)-	(CI) -	(Ca) -	m (Mg) -	(Na) -	m (K) -	m (AI) -	(As) -	- mg/L	(Ba) - /L	. (Be) -	,(cd) -)-mg/L	n (Cr) -	(Cu) -	e (Mn) -) - mg/L	- mg/L	, (Se) -	n (V) -	- mg/L	- mg/L	ny (Hg)- m	as Nitrogo	e as N -mg	e as N - mg	Nitrate as mg/L	nions - me	ations - me	ic Balance	HC10-C36	010.00	H C10-C40
Reg 14 1-16-18 21-18 2	Sami		Depth to	Depth to	pH-F	EC - Field	Temp - Fi	u.	- DE	Total D	Hydrox Alkalini CaCO3 -	Carbor	CaCO3 - Bicarbo Alkalini	CaCO3 - Alkalinity	Sulfate (Chloride	Calcium	Magnesiui mg/	Sodium	Potassiu	Aluminiu mg/	Arsenic mg/	Boron (B)	Barium mg/	Beryllium mg/	Cadmium mg/	Cobalt (Co	Chromiur mg/	Copper mg/	Manganes mg/	Nickel (Ni)	(Ga) (Pb)	Selenium mg/	Vanadiur mg/	Zinc (Zn)	Iron (Fe)	Mercu	Ammonia	Nitrit	Nitrat	Nitrite 4	Total A	Total C	101	d1	TR	TRI
Reg 14 S-M-18 70-91 5 10-91 5	ANZECC Guideline -:	stock drinking water								4000					100)	1000				5	0.5				0.01	1	1	1		1	0.1	0.02		20		0.002			400							
Reg 14 S-Jul-18 C-Jul-18	Reg 14	14-lun-18		21.96	7.4	980	18.4	7.84	978	566	<1	<1	339	339	54	78	24	- 8	184	2	< 0.01	0.003		0.03		< 0.0001		< 0.001	< 0.001		0.003	< 0.001			0.37	0.03		< 0.01	< 0.01	0.25	10	0.54		$\overline{}$	\neg	\neg	\neg
Reg 14 9-Aug-18 76.91				21.04			,,,,							-								1		1							,,,,,,													\neg	\neg	\neg	
Reg.14 3-50-18 20.44 6.5 3.074 22.4 8.55 888 5.00 ct. 22 288 310 ct. 21 288 310 ct. 22 288 310 ct. 22 288 310 ct. 23 24 25 25 25 25 24 25 25				20.91																																										\neg	
Reg 14 Shov-18 2096				20.44	6.9	1024	22.4	8.55	988	520	<1	22	288	310	41	65	22	7	170	1	< 0.01	0.004		0.032		< 0.0001		< 0.001	< 0.001		0.002	< 0.001			0.27	0.05		< 0.01	< 0.01	0.24	8.88	1.18		\neg	\neg	\neg	
Reg 14 11-Pe-18 21.25 75.5 948 25 85.5 55.5 588 1 29 332 361 45 81 26 9 189 2 40.01 0.03 0.03 0.001 0.										,					- '`			T -	1 -70	1		1		1	1																1	1		-	-	\neg	-
Reg 14 11-0e-18 21.25 751 948 75 555 951 588 41 79 332 361 45 81 26 9 189 2 40.01 0.003 0.002 0.003 0.001 0.003 0.002 0.003 0.001 0.003 0.002 0.003 0.001 0.003 0.002 0.003 0.003 0.002 0.003 0.									_			1	_		1			1	1	1		1	1	t —	1				1	1											1			\neg	-	\neg	-
Reg 14 1.1-feb-19 22.07	Reg 14	11-Dec-18		21.25	7.51	948	25	8.55	951	588	<1	29	332	361	45	81	26	9	189	2	< 0.01	0.003		0.038		< 0.0001		< 0.001	< 0.001		0.003	0.001			0.08	0.03		< 0.01	< 0.01	0.23	10.4	0.6		-	-	\neg	
Reg14				22.07				0.00																							0.000	0.002			0.00	0.00			.0.00	0.20				\neg		\neg	
Reg14				22.05											_						1																							-	-	\neg	
Reg 14 2-Mg-19 21.33					7.67	988	29.4	7.6	993	608	<1	<1	269	269	58	92	26	- 8	185	2	<0.01	0.003		0.021		<0.0001		<0.001	<0.001	1	0.003	0.002			<0.05	0.08		<0.01	<0.01	0.16	9.18	4 56		-	-	+	+-
Reg14 S-May-19 21.01					7.07	300	23.4	7.0	333	000	- 12	1.0	20.	20.	- 50				203		10.01	0.003		0.022		10.0001		40.001	40.001	1	0.003	0.002			10.05	0.00		10.01	40.01	0.10	3.10	4.50		-	-	+	+-
Reg14 4-Jul-19 21 21 21 21 21 21 21																																												-	-	+	+-
Reg 14					7 51	1017	23.8	8 22	972	588	- <1	<1	300	300	41	88	25	q	177	2	<0.01	0.003		0.032		<0.0001		<0.001	<0.001		0.005	0.006			0.06	0.08		<0.01	<0.01	0.21	9.43	1.61		-	-	+	-
Reg14 4-Sep.9 21.38 7.78 1240 670 < 1 265 265 70 157 29 14 202 4 < 0.01 0.003 0.034 < 0.0001 < 0.001 0.001 0.012 0.013 0.15 0.02 0.02 0.06 1.12 1.36					7.31	1017	25.0	U.LL	3,2	300	- 12	1.0	50.	50.	7.						10.01	0.003		0.032		10.0001		40.001	40.001	1	0.003	0.000			0.00	0.00		10.01	40.01	0.22	3.43	1.01		-	-	+	+-
Reg14 4-Sep-19 20.91 7.22 12.23 31.2 7.8 14.00 670 <1 <1 265 765 70 157 29 14 20.2 4 <0.01 0.003 0.034 <0.0001 <0.001 <0.001 <0.001 <0.001 <0.011 0.13 0.15 0.02 0.02 0.16 11.2 136																																												-	-	+	+-
Reg 14					7 22	1222	21.7	7.0	1240	670	-/1	- 21	265	265	70	10	70	1/	202	- 4	<0.01	0.002		0.024		<0.0001		<0.001	<0.001		0.013	0.011			0.12	0.15		0.02	0.02	0.16	11.7	1 26		-	-	+	-
Reg14 24-Nov-19 21-14 7-48 1435 30 7.75 1360 713 <1 2.55 2.55 2.43 148 5.0 1.2 2.2 7 <0.01 0.003 0.032 <0.0001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <						ILLU	JALL	7.0	12.40	0,0	- 12	1.2	20.	20.	,,,	13.	- 23	- 27	LUL		10.01	0.003		0.054	1	40.0001		40.001	40.001		0.011	0.011			0.13	0.13		0.02	0.02	0.10	11.1	1.50		-	-	+	-
Reg 14 14-lan 20 12-l7 14-l4 7.48 143 30.9 7.75 1360 7.13 <1 <1 255 255 243 158 50 12 222 7 <0.01 0.003 0.032 <0.0001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01							\vdash		_			1	_		1	_	_	+	+	1	_	1	_	1	1		_		+	+					_						1			+	+	+	-
Reg 14 13-ft-b20 21.25						1435	30.9	7.75	1360	713	<1	<1	250	259	24	168	50	12	222	7	< 0.01	0.003	_	0.032	1	< 0.0001	_	< 0.001	< 0.001	1	0.009	0.029			< 0.05	0.12		< 0.01	< 0.01	0.1	14.9	5.58		+	+	+	-
Reg.14 13-feb-20 21.25						- 733	23.3			. 29	- 12	1 1		123	1	100		1	+	Ť	.0.01	2.003	_	2.032			_			1	2.303	2.323						.5.01			1 -7.5	2.50		+	+	+	-
Reg 14 11-Mar-20 20.85 7.75 994 1.4 7.72 1010 654 <1 61 337 337 54 114 29 9 175 2 <0.01 0.003 <0.05 0.026 <0.0001 <0.0001 0.009 <0.001 0.009 <0.001 0.008 <0.05 0.15 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01									_			1			1			1	1	1		1	1	1	1				1	1											1			\neg	-	\neg	-
Reg 14					7.75	994	21.4	7.72	1010	654	- 61	- 21	337	337	5.4	11/	29	q	175	2	<0.01	0.003	<0.05	0.026		<0.0001	_		<0.001	1	0.009	<0.001			0.008	<0.05		0.15	<0.01	<0.01	<0.01	11.1	9.85 5	84	+	+	-
Reg 14 12-May-20 20.5					,./5	334	22.4	1.72	1010	554	-11	1	33,	33,	1 34	110	23	-	1/3	+ -	-0.01	0.003	-0.03	0.020	1	-0.0001	_		-0.001	+	0.003	10.001			0.000	-0.03		0.13	10.01	-0.01	-5.01	44.4	3.03	<u></u>	+	+	-
Reg 14 10-lun-20 20.5 7.77 1048 19.2 7.58 1040 488 <1 1 320 320 49 126 24 9 199 2 <0.01 0.003 <0.05 0.034 <0.0001 0.001 0.001 0.001 <0.005 0.05 <0.01 0.01 0.01 11 10.6 1.49 Reg 14 7-lun-20 20.44							\vdash		_			1	_		1	_	_	+	+	1	_	1	_	1	1		_		+	+					_						1			+	+	+	-
Reg 14 73-01-20 20.45					7 27	1048	19.2	7 58	1040	488	- 21	- 21	320	320	49	126	24	q	199	2	<0.01	0.003	<0.05	0.034	1	<0.0001	_		0.001	1-	0.011	<0.001		1	0.02	<0.05		0.05	<0.01	0.01	0.01	11	10.6 1	49	+-	+	-
Reg 14 11-Aug-20 20.44						1040	13.2	,	10-10	700	-11	- ``	320	320	49	120	24	-	133	+ -	-0.01	0.003	-0.03	0.034	1	10.0001	_		0.001	1-	0.011	10.001		1	0.02	-0.03		0.03	10.01	0.01	0.01	- 11	10.0 1		+-	+	-
Reg 14 10-Sep-20 20.41 7.45 1034 17 7.47 1060 646 <1 <1 343 343 81 106 28 9 194 2 <0.01 0.003 <0.05 0.031 <0.0001 <0.001 0.004 <0.001 0.004 <0.005 0.06 <0.01 0.04 0.04 11.5 10.6 4.07						_	-	_				+	+		_	+	_	+	+	+	+	1-	+	1-	1		_	_	+	+	_		_	\vdash	_	_		_		_	+	1	\vdash	-	-	+	-
Reg 14 19-0ct-20 20.65 Reg 14 4 40-00-20 20.57 Reg 15 4 10-0ct-20 10.65 Reg 16 10-0ct-20 10.65 Reg 17 10-0ct-20 10.65 Reg 18 10-0ct-20 10					7.45	1024	17	7.47	1060	646	-1	-1	2/12	2/12	91	100	. 70	0	10/	2	<0.01	0.002	<0.05	0.021	1-	<0.0001	_		<0.001	1	0.004	<0.001			0.016	<0.05		0.06	<0.01	0.04	0.04	11.5	10.6 /	07	-	+	
Reg 14 4-Nov-20 20.57					7.43	1034	/	1.41	1000	5-10	- 1		34.	34.	. 61	100	. 20	-	134	-	-0.01	0.003	-0.03	0.031	1-	-0.0001	_		-5.001	+	0.004	10.001			0.010	-0.03		0.00	10.01	0.04	J.04	41.3	10.0 4	<u> </u>	-	+	
						-	\vdash	_	-			+	+	+-	+-	+	+-	-	-	+-	1	+	1	+	+		_		1	1				1	_			_		_	+	+		+	+-	+	-
					7.52	472	20 E	7.54	1040	604	-1	-1	2//5	2/10	70	100	76		10/	2	<0.01	0.002	<0.05	0.027	1	<0.0001	_		<0.001	1	0.004	<0.001			0.012	<0.05		0.04	<0.01	0.02	0.02	11.6	10 7	CO	-	+	