

# **Dargues Gold Mine**

Annual Review

1 July 2021 – 30 June 2022

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# Appendices

Appendix A - Water Quality Monitoring Results

<b>Name of Operation</b>	Dargues Gold Mine (DGM)
<b>Name of Operator</b>	Big Island Mining Pty Ltd
<b>Development consent / project approval #</b>	PA 10_0054 MOD4
<b>Name of development consent / project approval</b>	Big Island Mining Pty Ltd
<b>Mining lease #</b>	ML 1675
<b>Name of holder of mining lease</b>	Big Island Mining Pty Ltd
<b>Water licence #</b>	WAL39281 WAL39282 WAL39287 WAL39292
<b>Name of holder of water licence</b>	Dargues Gold Mine Pty Ltd
<b>MOP/RMP start date</b>	18 December 2020
<b>MOP/RMP end date</b>	31 July 2022
<b>Annual Review start date</b>	1 July, 2021
<b>Annual Review end date</b>	30 June, 2022
<p>I, Angus Wyllie certify that this audit report is a true and accurate record of the compliance status of the Dargues Gold Mine for the period 1 July 2021 to 30 June 2022 and that I am authorised to make this statement on behalf of DGM.</p> <p>Note.</p> <p><i>a) The Annual Review is an 'environmental audit' for the purposes of section 9.39(2) of the Environmental Planning and Assessment Act 1979. Section 9.42 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.</i></p> <p><i>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).</i></p>	
<p><b>Name of authorised reporting officer</b></p> <p><b>Title of authorised reporting officer</b></p> <p><b>Signature of authorised reporting officer</b></p>  <p><b>Angus Wyllie</b></p> <p><b>General Manager</b></p> <p><b>Date 30\09\2022</b></p>	

# 1. Statement of Compliance

A summary of compliance at Dargues Gold Mine (DGM) during the 2020-2021 reporting period is provided in **Table 1**.

**Table 1 Statement of Compliance**

Relevant PGM Approvals	Compliance (Yes/No)
ML 1675	Y
PA 10_0054 MOD4 (SSD 3871)	N
EPL 20095	N

A summary of the non-compliances during the reporting period have been summarised in **Table 2**. The non-compliances during the 2021-2022 reporting period are discussed further in **Section 11**. The non-compliance categories are described in **Table 3**.

**Table 2 Non-Compliances**

Relevant Approval	Condition #	Condition Description	Compliance Status	Comment	Relevant Section of Annual Review
PA 10_0054 MOD4	Condition 2, Schedule 2	The Proponent shall carry out the project generally in accordance with the EA.	Non-compliant	During February and March 2022, waste rock was temporarily stockpiled at a height greater than the AHD values stated in the Indicative Layout of the Eastern Waste Rock Emplacement in the EA and Appendix 2 of the Project Approval	Section 11
PA 10_0054 MOD4	Schedule 3, Condition 41(b)	The Proponent shall ensure that: <i>the dispatch of concentrate from the site is limited to between the hours of 7am to 10pm Monday to Saturday and 8am-10pm Sundays and Public Holidays</i>	Non-Compliant	A Concentrate truck movement occurred during curfew hours on 30 June 2022 at 22:07.	Section 11
PA 10_0054 MOD4	Schedule 3, condition 47A	<i>The Proponent shall ensure that any paste fill used to fill mine voids on site: (a) complies with the leachable concentration (TCLP) criteria and specific contaminant concentration (SCC) criteria for general solid waste (non-putrescible); and (b) is not classified as a liquid waste, under the Waste Classification Guidelines (EPA, 2009), or its latest version</i>	Non-Compliant	Failed to comply with the monitoring schedule.	Section 11

Relevant Approval	Condition #	Condition Description	Compliance Status	Comment	Relevant Section of Annual Review
PA 10_0054 MOD4	Schedule 3, condition 29(d)	<i>The monitoring program to be prepared as part of the Surface Water Monitoring Program pursuant to condition 29(d) in schedule 3 of the approval is to include a program to monitor pH and electrical conductivity, in real time, from at least three locations, including locations within and downstream of the tailings storage facility</i>	Non-Compliant	Not all the required real-time pH and electrical conductivity monitors were installed as part of the Surface Water Monitoring Program as required under Statement of Commitments 15.12A	Section 11
PA 10_0054 MOD4	Schedule 3, Condition 17	<i>Dust deposition will be measured and reported on a monthly basis. Exposed gauges will be replaced on a monthly basis, with analysis conducted at a NATA accredited laboratory for insoluble solids and percentage ash.</i>	Non-Compliant	Failed to comply with the monthly monitoring schedule at dust deposition gauges	
EPL 20095	M2.3	Water and/or land monitoring requirements	Non-Compliant	Missing surface water monitoring data at 8 sites during the reporting period, as reported in the 2021 Annual Return.	Section 7.2 and 11
EPL 20095	M2.2	Air monitoring of particulates – deposited matter monthly at EPL ID 77	Non-Compliant	Failed to comply with monitoring schedule as property was sold.	Section 6.6 and 11

**Table 3 Compliance Status Categories**

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: <ul style="list-style-type: none"> <li>Potential for serious environmental consequences, but is unlikely to occur;</li> <li>Or potential for moderate environmental consequences, but is likely to occur.</li> </ul>
Low	Non-Compliant	Non-compliance with: <ul style="list-style-type: none"> <li>Potential for moderate environmental consequences, but is unlikely to occur;</li> <li>Or potential for low environmental consequences, but is likely to occur.</li> </ul>
Administrative Non-Compliance	Non-Compliant	Non-compliance which does not result in any risk of environmental harm.



## 2. Introduction

### 2.1 Mine Operation

Dargues Gold Mine (DGM) is located approximately 60km's southeast of Canberra, immediately to the north of the village of Majors Creek and approximately 13km's south of Braidwood (**Figure 1**). Modified Project Approval for State Significant Development 10\_0054 Modification 4 (PA 10\_0054 MOD4 or the Project Approval) and Mining Lease 1675 (ML1675) are held by Big Island Mining Pty Ltd (BIM) a wholly owned subsidiary of Aurelia Metals Limited (Aurelia).

This Annual Review has been prepared in accordance with the *Annual Review Guideline Post-Approval Requirements for State Significant Mining Developments October 2015* as published by the then Department of Planning and Environment NSW. This Annual Review is submitted in compliance with:

- Condition 5(3) of PA 10\_0054 MOD4; and
- Condition 3(f) of Mining Lease 1675

Plans of DGM showing the regional context and mine infrastructure are shown in **Figure 1** and **Figure 2**.

BIM recognises and respects the importance of stakeholders and considers positive relationships important to aid in continual improvement of its environmental management practice. This report is therefore provided to the following stakeholders:

- Department of Planning and Environment (DPE);
- Department of Planning and Environment - Water;
- Eurobodalla Shire Council (ESC);
- Queanbeyan – Palerang Regional Council (QPRC);
- NSW Environment Protection Agency (EPA);
- Biodiversity Conservation and Science Directorate (BCSD);
- Dargues Community Consultative Committee (CCC); and
- General public (available at [www.aureliametals.com](http://www.aureliametals.com)).

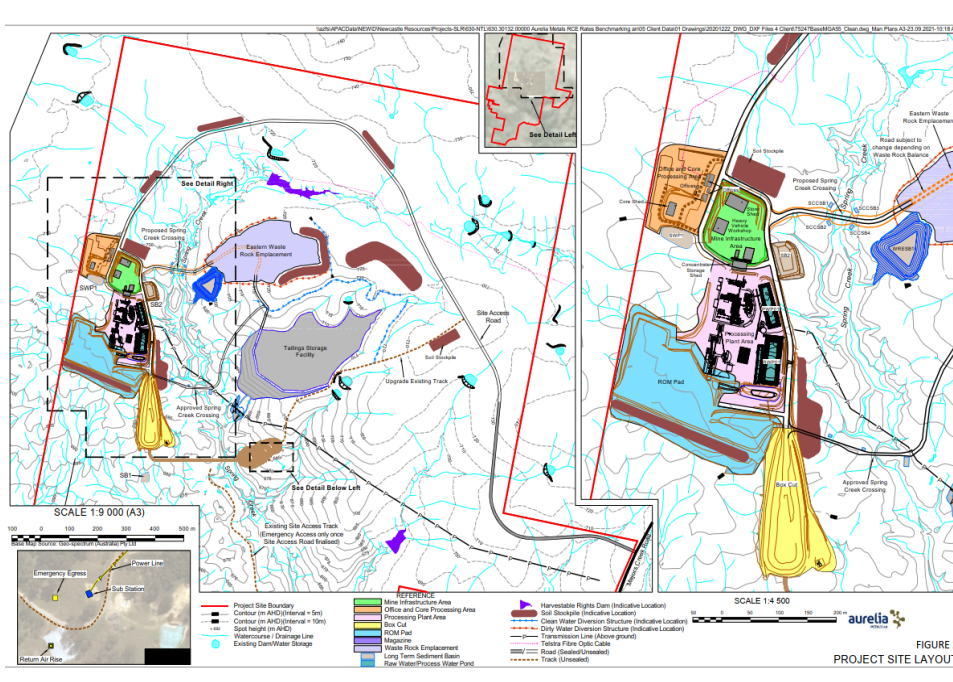
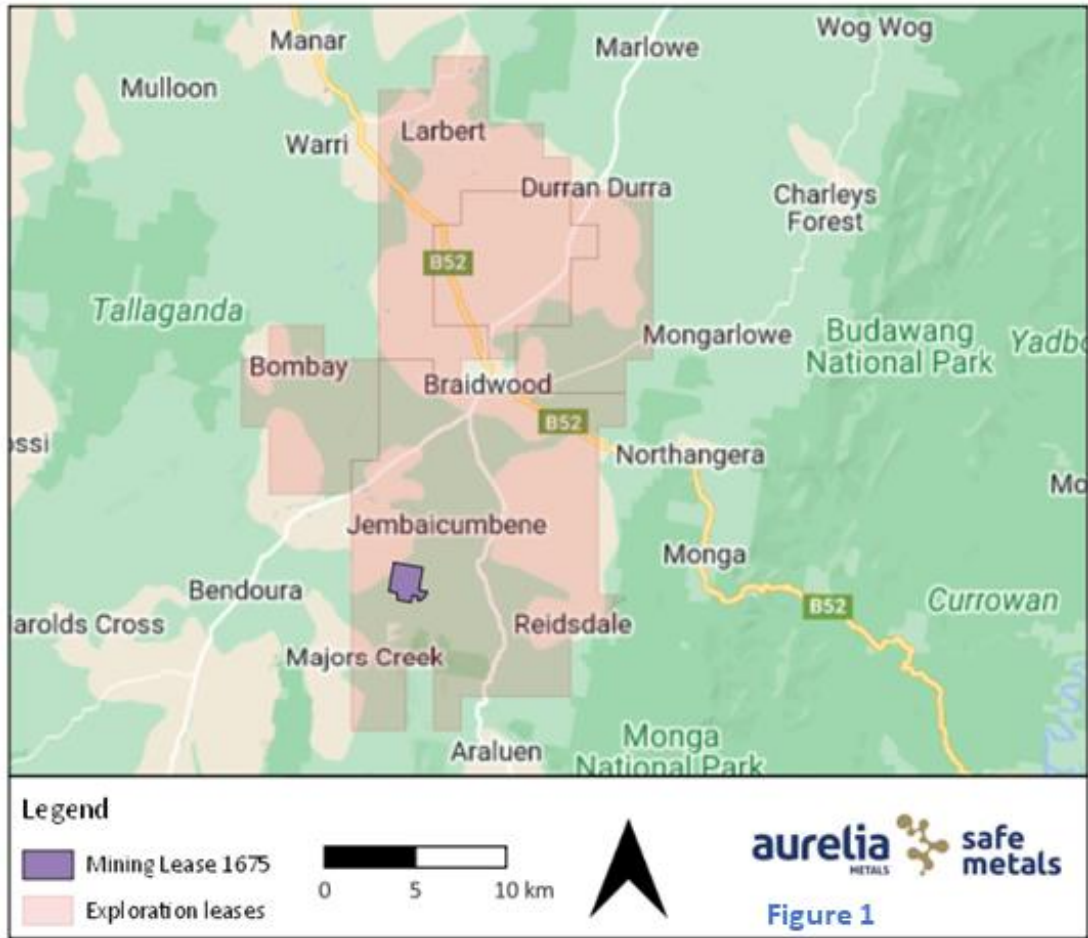
## 2.2 DGM Contacts

Contact details for the personnel responsible for environmental management and community relations of DGM during the 2021/2022 reporting year are provided in **Table 4**.

**Table 4 Primary Contacts for DGM**

Contact	Position	Contact Details
Angus Wyllie	General Manager	E: <a href="mailto:angus.wyllie@aureliametals.com.au">angus.wyllie@aureliametals.com.au</a>
Enzo Guarino	Environment and Community Superintendent	E: <a href="mailto:enzo.guarino@aureliametals.com.au">enzo.guarino@aureliametals.com.au</a>
Abigail Saunders	Environment and Social Responsibility Adviser	E: <a href="mailto:Abigail.saunders@aureliametals.com.au">Abigail.saunders@aureliametals.com.au</a>
DGM Information Line		T: 1800 732 002 E: <a href="mailto:dgm.community@aureliametals.com.au">dgm.community@aureliametals.com.au</a>

**Figure 1 Locality Plan – Dargues Gold Mine**



**Figure 2 Project Site Layout**

### 3. Approvals

DGM operations are regulated by a range of consents, mining tenements and licences which are summarised in the following sections.

#### 3.1 Consents

DGM operates under several consents. The details of these approvals are provided in **Table 5** DGM was assessed under Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act). Prior to approval of the mine, Part 3A of the EP&A Act was repealed and responsibility for assessment of DGM was passed to the Planning Assessment Commission (PAC) from the Department of Planning and Infrastructure. The PAC undertook further assessment and review of DGM before approving the mine on the 2 September 2011. Following two appeals to the Land and Environment Court, the Court subsequently granted project approval on 7 February 2012.

Following the repeal of Part 3A of the EP&A Act, DGM is considered a “transitional Part 3A project”, as defined in schedule 6A of the EP&A Act. As a result, modifications 1, 2 and 3 to DGM’s approval were subject to Section 75W of the EP&A Act, however, prior to submission of Modification 4, transitional Part 3A project status’s expired and DGM was transitioned to being a State Significant Development (SSD). As a result, Modification 4 was assessed under Part 4 of the EP&A Act.

The four Modifications to the Mine’s approval are briefly described below:

- Modification 1 (MP10\_0054 MOD1) for the use of paste fill at the Mine was approved on 12 July 2012.
- Modification 2 (MP10\_0054 MOD2) to regularise changes to the layout of the Mine was approved on 24 October 2013.
- Modification 3 (MP10\_0054 MOD3) for additional infrastructure and extension of the mine life was approved on 10 August 2016.
- Modification 4 (PA 10\_0054 MOD4) for additional infrastructure and extension of the mine life was approved on 23 May 2019.

DGM also operates in accordance with two Commonwealth approvals issued by the Department of Agriculture, Water and the Environment (DAWE) under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). EPBC 2010/5770 was approved on 27 September 2011, a second approval EBPC 2015/7539 was granted in February 2017 with modification of the project approval to extend the end date of mining operations.

**Table 5 Development Consents**

Consent	Details	Issue Date	Expiry Date
PA10_0054 (NSW)	Original project approval as prescribed by the Land and Environment Court	7 February 2012	13 August 2018
MP10_0054 MOD 1	Modification of the Project Approval to allow the use of Paste Fill	12 July 2012	13 August 2018
MP10_0054 MOD 2	Modification to regularise changes to the site layout	24 October 2013	13 August 2018
MP10_0054 MOD 3	Modification to allow the construction and use of the Eastern Waste Rock Emplacement, a crossing across Spring Creek, and an extension of mine life.	10 August 2016	30 June 2025
PA 10_0054 MOD-4 (SSD 3871)	Modification of Spring Creek Crossing and other minor administrative amendments.	23 May 2019	30 June 2025

Consent	Details	Issue Date	Expiry Date
EPBC 2010/5770	Approval under the Commonwealth Environment Protection and Biodiversity Act 1999	27 September 2011	31 August 2025
EPBC 2015/7539	Modification of the Project Approval to extend the end date of mining operations and for additional infrastructure	February 2017	30 June 2025

### 3.2 Authorisations

Mining Lease 1675 (ML1675 or the Mining Lease) was granted under the *Mining Act 1992* (the Mining Act), by the NSW’s Government, on 12 April 2012, and covers an area of 317 Hectares (Ha). The Mining Lease allows for the extraction of gold, silver and copper until 12 April 2045, subject to an approval under the EP&A Act being in force.

DGM is located within Mining Lease 1675 (ML1675) and part of Exploration Lease 8372 (EL8372). Exploration Lease 6548 (EL6548) and Exploration Lease 6444 (EL6444) surround the Mining lease. Details of the tenements including regional exploration licences are provided in **Table 6**.

**Table 6 Authorisations**

Number / Identifier	Grant Date	Expiry Date	Status
ML 1675	12 April 2012	12 April 2045	Current
EL6548	5 April 2006	5 April 2023	Current
EL8372	20 May 2015	20 May 2027	Current
EL6012	22 October 2002	22 October 2023	Current
EL8243	7 March 2014	7 March 2023	Current
EL8244	7 March 2014	7 March 2023	Current
EL8373	20 May 2015	20 May 2028	Current
EL9402	10 May 2022	10 May 2028	Current

#### 3.2.1 Mining Operations Plan Status

During the 2021/2022 reporting period, DGM operated under an existing Mining Operations Plan (MOP) for the period 1 August 2019 to 31 March 2022. An extension of the MOP from 31 March 2022 to 31 July 2022 was requested and granted by the Resources Regulator as part of the new Rehabilitation reforms. DGM operated in compliance with the MOP during the 2021-22 period. The MOP covers various aspects including mine activities, stakeholder consultation, environmental issues management, post mining land use, rehabilitation planning and management, performance indicators and rehabilitation implementation.

### 3.3 Licences

Environment Protection Licence (EPL) 20095 for DGM was amended on 6 December 2021 which incorporated changes to the monitoring location of EPA monitoring point 38 (DD-1).

Water licences for DGM have been issued by the Department of Primary Industries – Water (DPI – Water). Details of the licences are provided below in **Table 7**.

EPA radiation licence (5089849) to sell, possess, store or give away regulated material (including radiation apparatus, radioactive substances or items containing radioactive substances) was issued on 27 June 2022 (see **Table 7**) and requires annual renewal. The radiation licence covers seven (7) sealed source fixed radiation gauges located within the Processing Plant. These radiation gauges are used to measure the density of various slurry streams.

DGM periodically operates a Fuji Clean integrated multistage wastewater treatment plant to treat water from the ablutions, showers and sinks at DGM. This unit is approved and inspected by Queanbeyan Palerang Regional Council under approval number LGA.2018.255 (see Table 3-3). The approval to operate is valid from 6 February 2019 to 6 February 2024.

**Table 7 Licences held by DGM**

Licence	Grant Date	Expiry date	Details/Comments
Environment Protection Licence EPL 20095	18 May 2012	-	Issued by NSW Environment Protection Authority
WAL39281 (Water Act 2000) 10BL6050106 (Water Act 1912)	29 March 2017	-	Extraction of up to 320ML/y of groundwater from the DGM
WAL39282 (Water Act 2000) 10BL6050107 (Water Act 1912)	19 October 2017	-	Extraction of up to 39ML/y of groundwater from the Snobs workings
WAL39287 (Water Act 2000) 10BL6050108 (Water Act 1912)	29 March 2017	-	Extraction of up to 16ML/y of groundwater from the Steward and Merton’s workings
WAL39292 (Water Act 2000) 10BL6050109 (Water Act 1912)	29 March 2017	-	Extraction of up to 24ML/y of groundwater from the United Miners workings
WAL37848 (Water Act 2000) 10BL6050110 (Water Act 1912)	2018	-	Extraction of up to 1ML/y of groundwater from the Dargues Production Bores
Explosives Storage Licence XSTR200092	16 July 2018	23 April 2023	Licence holder is authorised to possess and store the following Class of Explosives 1.1.B, 1.1D and 1.4B
Radiation Licence 5089849	28 June 2019	27 June 2023	Sell, possess, store or give away regulated material (including radiation apparatus, radioactive substances or items containing radioactive substances) for 1 year. Requires annual renewal.
Wastewater Treatment Plant LGA2018.255	6 February 2019	6 February 2024	Approval for install and use of wastewater treatment plant.

### 3.4 Explosives Storage Licence

An application for an Explosives Storage licence at DGM was submitted in mid-2013 in conjunction with the establishment of the explosive’s storage magazines at DGM. However, following the placement of the mine into care and maintenance in December 2013 that application was withdrawn at the request of the then Division of Resources and Energy (DRE).

The original application was sought for the storage and use of emulsion however, DGM now uses ANFO at the site. As a result, the application was reviewed and varied, with approval for the storage and use of the explosive quantities included in **Table 8**, which was granted on 16 July 2018.

An application to increase the storage capacity of explosives submitted 30 June 2021 was approved in February 2022.

**Table 8 Explosives Storage Licences**

Storage Facility ID	Storage Facility Type	UN Number	Class Division	Proper Shipping Name	Typical Quantity	Maximum Storage Capacity (kg/L/No)
MAG3	Magazine	42	1.1D	Boosters without detonators	200Kg	
MAG2	Magazine	42	1.1D	Boosters without detonators	500Kg	
MAG3	Magazine	65	1.1D	Cord, detonating, flexible	200Kg	
MAG2	Magazine	65	1.1D	Cord, detonating, flexible	100Kg	
MAG3	Magazine	82	1.1D	Explosive, Blasting, Type B	10800Kg	14000Kg
MAG2	Magazine	82	1.1D	Explosive, Blasting, Type B	7600Kg	15000Kg
MAG3	Magazine	241	1.1D	Explosive, Blasting, Type E	1600Kg	
MAG2	Magazine	241	1.1D	Explosive, Blasting, Type E	5600Kg	
MAG1	Magazine	255	1.4B	Detonators, Electric for blasting	500No	
MAG1	Magazine	255	1.4B	Detonators, Electric for blasting	500No	
MAG1	Magazine	360	1.1B	Detonator assemblies, non-electric for blasting	12000No	20000No

### 3.5 Dam Safety NSW

The Tailings Storage Facility (TSF) at the site is a declared dam under the *Dams Safety Act 2015*. This Act is administered by Dams Safety NSW (DSNSW), a government statutory authority.

DSNSW conditionally approved underground mining in the Dargues Reef Notification Area, designated as Dargues Reef – 2, on the 4<sup>th</sup> of August 2021. Dargues has been submitting compliance reports as per the mining approval conditions since.

High-Risk Activity (HRA) for Dargues TSF Stage 3 & 4 construction was submitted to the NSW Regulator in December 2021 and was approved soon after. A letter notifying DSNSW of Significant Change to Dargues Mine Dam was submitted on the 25<sup>th</sup> of March 2022, with the construction activities of Stages 3 & 4.

DSNSW conducted one audit on Dargues, the audit was conducted in March 2022 targeting compliance against the mining conditions approvals.

### 3.6 Project Approval

The conditions of PA 10\_0054 MOD4 as relevant to this Annual Review, and where they have been addressed in this document, are provided in **Table 9** below.

**Table 9 PA 10\_0054 MOD4 Annual Review Conditions**

Condition	Where Addressed
<b>SCHEDULE 2</b>	
<b>Limits on Approval</b> 6. The Proponent shall not: (a) process more than 355 000 tonnes of ore at the site in a calendar year; (b) process more than 1.6 million tonnes of ore at the site over the life of the project; (c) use any cyanide or mercury on site to process or extract gold from the project; or (d) process or smelt any ore other than that extracted from the site.	Section 4.1
<b>SCHEDULE 3</b>	
<b>Operating Conditions</b> 4. The Proponent shall: (a) implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the operational and road traffic noise generated by the project; (b) investigate ways to minimise the noise generated by the project including any reversing alarms on machinery or vehicles; (c) minimise noise impacts during temperature inversions; and (d) report on these investigations and the implementation and effectiveness of these measures in the Annual Review, To the satisfaction of the Secretary.	Section 6.3
<b>SCHEDULE 5</b>	
3. By the end of each year following the commencement of construction, the Proponent shall review the environmental performance of the project to the satisfaction of the Secretary. This review must: (a) describe the development (including rehabilitation) that was carried out in the past year and the development that is proposed to be carried out over the next year;	Section 4 and 8
(b) include a comprehensive review of the monitoring results against the <ul style="list-style-type: none"> <li>• relevant statutory requirements, limits or performance measures/criteria;</li> <li>• the monitoring results of the previous years; and</li> <li>• the relevant predictions in the EA;</li> </ul>	Section 6 and 7
(c) identify any non-compliances over the past year, and describe what actions were (or are being) taken to ensure compliance;	Section 1 and 11
(d) identify any trend in the monitoring data over the life of the project;	Section 6 and 7
(e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and	Section 6 and 7
(f) describe what measures will be implemented over the next year to improve the environmental performance of the project.	Section 6 and 7
10. Prior to commencement of construction on site, the Proponent shall: (a) make copies of the following publicly available on its website:	Section 9.6



Condition	Where Addressed
<p>The documents refer to in Condition 2 of Schedule 2;</p> <ul style="list-style-type: none"> <li>• All current statutory approvals for the project;</li> <li>• All approved strategies, plans and programs required under the conditions of this approval;</li> <li>• The monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans and programs;</li> <li>• A complaints register, updated on a monthly basis;</li> <li>• Minutes of CCC meetings;</li> <li>• The annual reviews of the project;</li> <li>• Any independent environmental audit of the project, and the Proponent’s response to the recommendations in any audit;</li> <li>• Any other matter required by the Secretary;</li> <li>• Any incident report referred to in condition 6 of Schedule 5;</li> <li>• A certificate of currency of public liability insurance held by the Proponent as in force from time to time; and</li> </ul> <p>(b) keep this information up to date, within a reasonable period, and in any event no later than 28 days after the above information becomes available,</p> <p>To the satisfaction of the Secretary.</p>	

## 4. Operations Summary

### 4.1 Production Statistics

A summary of production figures for the reporting period is provided in **Table 10**. Also shown are the predicted production figures for the 2022-2023 reporting period.

**Table 10 Production Summary for the 2021-2022 Financial Year Period**

Material	Approved PA 10_0054 MOD4	2021 Reporting Period (actual)	This Reporting Period (actual)	2023 Reporting Period (forecast)
Waste Rock/ Overburden	N/A	270,509	248,623	198,608
Ore Mined (t)	N/A	288,649	342,192	357,637
Ore Processed <sup>1</sup> (t)	355,000	324,101	342,258	355,000
Fine Reject (tailings) (t)	N/A	303,699	322,715	337,434 (Total) 195,712 (to TSF) <sup>2</sup>
Saleable Product (wmt)	N/A	22,463	36,824.6	22,201

<sup>1</sup>Ore processed is calculated over Calendar year as per planning approval.  
<sup>2</sup>Remaining fine rejects go to backfill

**Table 11 Ore Processed Over the Life of The Project**

Reporting Period	Ore Processed cumulative total (t)
2018-2019	0
2019-2020	26,162
2020-2021	324,101
2021-2022	342,258
<b>Total</b>	<b>692,521</b>

Note - Processing plant commissioned in April 2020

DGM has processed a total of 692,521 tonnes of ore over the life of the mine, which is below the limit of 1.6 million tonnes of ore over the life of the project as per PA 10\_0054 MOD4, Schedule 2, Condition 6(b).

Mining operations within the reporting period remained below the limits specified in PA 10\_0054 MOD4 of 355,000 tonnes. Specific conditions from Schedule 2 of PA 10\_0054 MOD4 are presented in Table 12 with responses on the compliance of each also provided. Note that ore processed is calculated on a calendar year in line with the Project Approval.

**Table 12 Production Summary for the 2020-2021 Financial Year Period**

Project Approval Condition No. and Description	Compliance Response
5. The Proponent may carry out mining operations on site until 30 June 2025.	Compliant
6. The Proponent must not: (a) Process more than 355,000 tonnes of ore at site in a calendar year; (b) Process more than 1.6 million tonnes of ore at site over the life of the Project; (c) Use any cyanide or mercury on site to process or extract gold from the Project; or (d) Process or smelt any ore other than that extracted from the site.	Compliant, see <b>Table 10</b> .
7. The Proponent shall only store ore concentrate on the site within a covered, concrete-sealed and bunded area within the processing plant.	Compliant, all concentrate is stored within the designated concentrate shed.

## 4.2 Mining Operations

Mining operations are presented in detail in Section 2.4 of the Environmental Assessment for the Dargues Reef Gold Project, September 2010 (the EA). In summary, underground development commenced with development of the decline. Underground mining of ore is then undertaken using a sublevel open stoping mining method.

During mine operations, a number of development drives are established at intervals within the ore zone. A series of holes are then drilled from each drive and sequentially loaded with explosives prior to the ore being blasted. The ore is then removed from the stope or open void using an underground loader, operated remotely where required, and loaded into haul trucks for transportation to the ROM pad. Between stopes, pillars (vertical) and sills (horizontal) unmined material is left to provide support and prevent ground collapse.

In order to ensure stability of sections of the mine, once mining operations have been completed in those sections, mined-out stopes are backfilled using waste rock material sourced preferentially from concurrent underground development, with additional waste rock material transported from the temporary waste rock emplacement on surface, as required, or hydraulic backfill from the batch plant in the Processing Plant.

Approximately 70% of the total approved Eastern Waste Rock Emplacement footprint has been constructed since the approval of Modification 3. Due to record rainfall over 2021-2022, topsoil stripping activities at the mine were not possible, preventing BIM from constructing the remainder of the Eastern Waste Rock Emplacement. As a result, during February and March 2022, waste rock was temporarily stockpiled at a height greater than the AHD values stated in the Indicative Layout of the Eastern Waste Rock Emplacement in the EA and Appendix 2 of the Project Approval.

The Project Approval does not contain any specific conditions regarding the height of the Eastern Waste Rock Emplacement. However, the Environmental Assessment for Modification 3 (EA) for the Project Approval specified approximate design criteria for the Eastern Waste Rock Emplacement, along with a plan showing the indicative layout of the Eastern Waste Rock Emplacement. The indicative plan in the EA is also found in Appendix 2 of the Project Approval. On becoming aware of the non-compliance BIM notified the department and took immediate action to prevent reoccurrence including;

- Conducting additional training with all leaders at the mine regarding conditions in the development consent and BIM's obligations under relevant environmental and planning legislation
- Install prominent height indicator markers on the eastern waste rock emplacement

- Conduct regular surveys on the height

### 4.3 Processing Operations

Processing operations are described in detail in Section 2.6 of the EA. In summary, ore material is processed within the Processing Plant to produce a gold bearing sulphide concentrate and tailings material.

Ore material is fed into a three-stage crushing and screening circuit. Product screen undersize material (nominal <12 mm) is transferred to an enclosed fine ore bin. Material from the fine ore bin will be reclaimed using one or more feeders. Reclaimed material is directed to a primary ball mill for grinding.

The ground ore is directed to a rougher flotation circuit where rougher flotation concentrate and tail streams are separated by the addition of flotation reagents and low pressure air. The rougher concentrate is directed to the re-grind circuit whilst the rougher tail is dewatered via a thickener prior to transfer to the TSF.

Rougher concentrate is ground within a re-grind ball milling circuit. Re-ground rougher concentrate is transferred to the cleaner flotation circuit where further flotation produces the final concentrate. The tail from the cleaner flotation circuit is transferred back to the rougher circuit feed stream.

Concentrate is dewatered prior to being stacked within an enclosed shed with a bunded concrete floor, prior to being trucked offsite for further processing.

### 4.4 Tailings Operations

At the completion of processing of the ground ore (from which the gold and associated sulphides have been removed), the remaining material, namely tailings, is transferred to a thickener to recover process water for reuse within the Processing Plant. The thickened tailings slurry is then pumped to the TSF or used as hydraulic back fill underground.

The Stage 3 upgrade of the TSF continued during the reporting period. The upgrade will allow the storage of up to 0.820Mt of tailings material and will have a life of approximately 12 months, based on current assumptions.

### 4.5 Exploration Operations

DGM conducts exploration activities within ML1675. During the reporting period, 18 diamond drill holes were completed.

No non-compliances were recorded within the mining lease related to exploration or evaluation activities.

### 4.6 Other Operations

General activities within the Mining Lease Area have been consistent with the rural nature of the wider area and consist mainly of:

- Agriculture related activities, including the grazing of cattle;
- Maintenance of existing earthworks;
- Water management; and
- Environmental monitoring.

Construction activities during the reporting period included the following:

- Tailings Storage Facility – Stage 3;

## 4.7 Hours of Operation

During the reporting period, all activities (except a concentrate truck breaching the curfew time) were undertaken in accordance with the approved hours of operation.

- Vegetation clearing, topsoil stripping, construction of the box cut and rehabilitation – Day;
- Remainder of construction operations – Day/Evening/Night;
- Mining, paste filling, maintenance and processing operations – Day/Evening/Night;
- Crushing operations (including operation of front-end-loader) - 7am-7pm, 7 days per week;
- Transportation – Day/Evening;
- Surface blasting – 9am – 5pm Monday – Friday, excluding public holidays;
- Underground blasting – Anytime;
- Dispatch of concentrate from site – 7am – 10pm Monday to Saturday and 8am - 10pm Sundays and Public Holidays; and
- Heavy vehicle movements to or from site are prohibited on school days – 7am – 8:30am and 3pm – 5pm.

It should be noted that during the reporting period a non-compliance for heavy vehicle movements outside of the specified curfew time was reported. This occurrence took place June 2022. The non-compliance was self-reported to the department upon becoming aware of the situation. Following the incident, notification of the breach was sent to Qube and BIM has committed to hard access closures, familiarisation of the workforce and contractors with respect to the drivers code of conduct.

## 4.8 Next Reporting Period

The major capital works to be undertaken during the next reporting period are:

- Completion of the Stage 3 – TSF lift
- Construction of a proposed Water storage dam – (subject to regulatory approval)
- Installation of a ventilation fan silencer.

## 5. Actions Required from Previous Annual Review

The 2020/2021 AEMR was uploaded to the Planning Portal on 30 September 2021 and email acknowledgement received the same day by DPIE.

**Table 13** is a summary of the proposed actions from last year's Annual Review and the status of each item at the end of this reporting period.

**Table 13 Summary of Proposed Actions from Last Year's Annual Review and Status at the Completion of this Reporting Period**

Task	Comments
TSF Stage 3 planned to commence in March 2022	Works commenced as planned.
Application to modify the project approval for an additional water storage facility, emergency trucking of water and some administrative amendments to conditions	The application was prepared. Approval pending.
Works to remove the requirement for compensatory flow to be discharged to Majors Creek;	This work is currently underway and will be completed in the next reporting period
Investigation of further waste segregation opportunities	Complete.
Review erosion and sediment control in place and undertake upgrades/replacement works as required;	Ongoing
Noise Improvement Program to be undertaken	Complete.
A conceptual rehabilitation plan to address legacy shafts and exploration sites.	Complete.

## 6. Environmental Performance

### 6.1 Introduction

This section outlines the environmental performance of DGM during the reporting period. Environmental management, monitoring and key issues have been outlined for the relevant environmental aspects. It should be noted that as the mine is a hard rock metalliferous mine, issues such as subsidence, spontaneous combustion, and methane drainage/ventilation (requirements of the Annual Review Guideline) are not applicable.

### 6.2 Meteorology

In accordance with Schedule 3, Condition 18 of PA 10\_0054, and Condition L2.4 of EPL 20095, BIM continued to operate the meteorological station throughout the reporting period. The meteorological station is located on the northern side of the Eastern Waste Rock Emplacement (refer **Figure 2**), and collects continuous records of temperature, wind speed, wind direction and sigma-theta (a measure of the fluctuation of the horizontal wind direction).

Meteorology monitoring data has been summarised in **Table 14**. The meteorological monitoring results provide context for the environmental monitoring and management discussed further in this document.

Detailed meteorological monitoring data is available on Aurelia’s website:

<https://aureliametals.com/projects/dargues/monitoring>.

**Table 14 Meteorological Monitoring – Monthly Average for the Reporting Period**

Month	Air Temp at 2m (°C)	Air Temp at 10m (°C)	Wind Direction (°)	Wind Speed (m/s)	Sigma theta (°)	Rainfall (mm)	Relative humidity (%)
Jul-21	6.4	6.7	202.5	3.4	8.3	6.2	80.0
Aug-21	7.8	8.3	203.5	2.6	9.7	68.6	76.3
Sep-21	9.7	10.2	197.0	1.4	13.3	59.6	71.3
Oct-21	11.3	11.7	196.9	1.3	14.9	143.0	77
Nov-21	11.5	12.9	169.7	1.3	13.2	216.9	81.9
Dec-21	14.5	15.1	176.5	1.0	14.3	154.2	83.8
Jan-22	17.6	17.9	157.2	0.8	14.9	185.8	88.9
Feb-22	15.8	16.2	160.6	0.9	13.5	180.2	87.0
Mar-22	14.2	15.3	152.0	0.9	12.3	108.6	83.6
Apr-22	12.4	13.1	195.3	0.8	12.7	108.6	83.6
May-22	9.1	10.1	222.5	0.9	13.1	89.8	81.4
Jun-22	5.7	6.8	244.6	1.2	13.8	3.0	73.8

## 6.3 Noise

### 6.3.1 Environmental Management

Operational noise at DGM is managed in accordance with the *Noise Management Plan* (DMPL, 2020). Operational noise management activities during the reporting period included:

- Compliance with the approved hours of operation;
- The implementation or maintenance of engineering noise controls, such as but not limited to:
  - containing the primary and secondary crusher within an engineered building;
  - rubber lining the grinding circuit;
  - placement of the ventilation fan at least 10m below ground level;
  - maintaining a 5m high bund along the southern and western edge of the ROM pad; and
  - using alternative reversing alarm options.
- The implementation and maintenance of engineering noise controls, such as but not limited to:
  - mobile plant fitted with high efficiency mufflers where available and maintained to manufacturer’s specifications;
  - regular and effective maintenance by qualified persons of all equipment including vehicles moving on and off the DGM Site; and
  - all Project-related personnel, including contractors and their employees, will be made aware of their obligations and responsibilities with regard to minimising noise emissions.

BIM operates one unattended noise monitor (NM4) and has five attended noise monitoring locations (NM1, NM2, NM3, NM5, NM6), as shown on **Figure 3**. The PA 10\_0054 MOD4 and EPL 20095 criteria for noise is provided in Table 15 and Table 16.

**Table 15 PA 10\_0054 MOD4 and EPL 20095 Noise Criteria dB (A)**

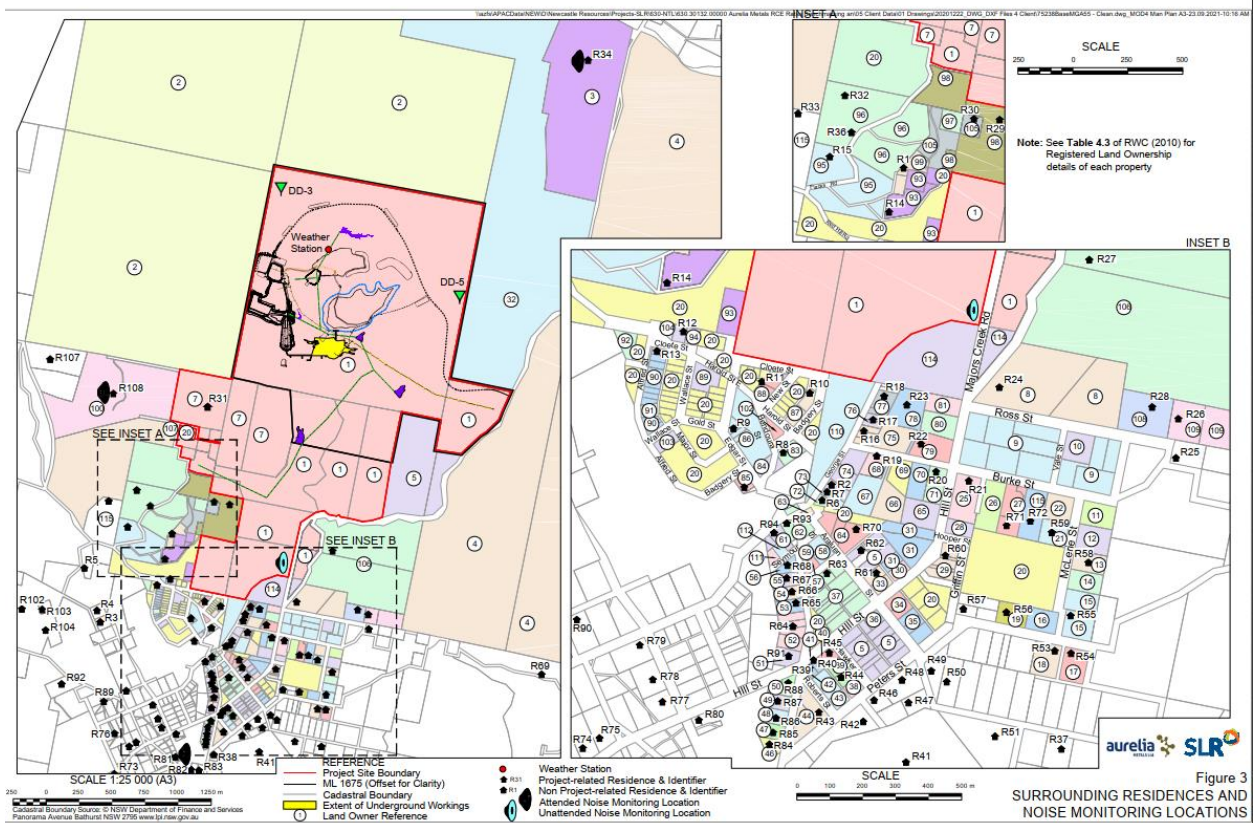
Location	Day	Evening	Night (10pm – 7am)	
	L <sub>Aeq</sub> (15 min)	L <sub>Aeq</sub> (15 min)	L <sub>Aeq</sub> (15 min)	L <sub>A1</sub> (1 min)
All privately owned land	35	35	35	45
Majors Creek State Conservation Area (when in use by any person)	35	35	35	45

**Table 16 PA 10\_0054 MOD4 Traffic Noise Impact Assessment Criteria dB (A)**

Location	Day L <sub>Aeq1</sub> hour	Evening L <sub>Aeq1</sub> hour
Majors Creek Road, Araluen road, Captains Flat Road, Coghill Street and Wallace Street	55	50



**Figure 3 Surrounding Residences and Noise Monitoring Locations**



### 6.3.2 Environmental Monitoring Results

#### Attended Noise Monitoring

Attended noise monitoring was conducted by Muller Acoustic Consulting Pty Ltd (MAC) in July 2021, December 2021, February 2022 and April 2022 at receptors NM1 (R29), NM2 (R108), NM3 (R20), NM5 (R27), NM6 (R34), and the results along with the PA 10\_0054 and EPL 20095 criteria, are provided in **Table 17**. Detailed monitoring data for attended noise monitoring is available on Aurelia’s website: <https://aureliametals.com/projects/dargues/monitoring>.

**Table 17 Summary of Attended Noise Monitoring Results for the Reporting Period**

Receiver	Date	Time	LA <sub>eq</sub> Noise Criteria Limit	LA <sub>max</sub> Limit (Night-time) (dB)	LA <sub>eq</sub> Site Contribution (dB)	LA <sub>max</sub> Site Contribution (dB)
NM1 (R29)	15/7/2021	17:25	35	-	<30	<35
	15/7/2021	21:15	35	-	<30	<35
	15/7/2021	23:14	35	45	<30	<35
	2/12/2021	11:45	35	-	<30	<35
	1/12/2021	21:24	35	-	<30	<35
	1/12/2021	22:21	35	45	<30	<35
	16/2/2022	12:14	35	-	<30	<35
	15/2/2022	20:58	35	-	<30	<35
	15/2/2022	22:22	35	45	<30	<35
	28/4/2022	12:55	35	-	<26	34
	28/4/2022	21:01	35	-	<20	<20
	28-04-2022	22:20	35	45	<20	<20
NM2 (R108)	15/7/2021	17:43	35	-	<30	<35
	15/7/2021	21:38	35	-	<30	<35
	15/7/2021	23:35	35	45	<30	<35
	2/12/2021	11:26	35	-	<30	<35
	1/12/2021	21:43	35	-	<30	<35
	1/12/2021	22:00	35	45	<30	<35
	16/2/2022	12:34	35	-	<30	<35
	15/2/2022	21:21	35	-	<30	<35
	15/2/2022	22:00	35	45	<30	<35
	28/4/2022	13:18	35	-	<25	<25
	28/4/2022	21:21	35	-	<20	<20
	28/4/2021	22:00	35	45	<21	<21
NM3 (R20)	15/7/2021	17:01	35	-	<30	<35
	15/7/2021	20:54	35	-	<30	<35
	15/7/2021	22:51	35	45	<30	<35
	2/12/2021	212:06	35	-	30	<35
	1/12/2021	20:54	35	-	<35	<35
	21/12/2021	22:44	35	45	<30	<35
	16/2/2022	11:48	35	-	<30	<35
	15/2/2022	20:35	35	-	<30	<35

Receiver	Date	Time	LA <sub>eq</sub> Noise Criteria Limit	LA <sub>max</sub> Limit (Night-time) (dB)	LA <sub>eq</sub> Site Contribution (dB)	LA <sub>max</sub> Site Contribution (dB)
	15/2/2022	22:43	35	45	<30	<35
	28/4/2022	12:56	35	-	<26	34
	28/4/2022	21:01	35	-	<20	<20
	28/4/2022	22:20	35	45	<20	<20
NM5 (R27)	15/12/2021	16:29	35	-	33	34
	15/7/2021	18:35	35	-	<33	34
	15/7/2021	22:30	35	45	<30	<35
	2/12/2021	12:24	35	-	<30	<35
	1/12/2021	20:34	35	-	<30	<35
	1/12/2021	23:04	35	45	<30	<35
	16/2/2022	11:29	35	-	<30	<35
	15/2/2022	20:16	35	-	<30	<35
	15/2/2022	23:04	35	45	<30	<35
	28/4/2022	12:11	35	-	<28	<28
	28/4/2022	20:21	35	-	<20	<20
	28/4/2021	23:01	35	45	<24	<24
NM6 (R34)	15/7/2021	16:06	35	-	<30	<35
	15/7/2021	18:11	35	-	<30	<35
	15/7/2021	22:06	35	45	<30	<35
	2/12/2021	12:46	35	-	<30	<35
	1/12/2021	20:13	35	-	<30	<35
	1/12/2021	23:26	35	45	<30	<35
	16/2/2022	11:06	35	-	<30	<35
	15/2/2022	19:53	35	-	<30	<35
	15/2/2022	23:27	35	45	<30	<35
	28/4/2022	11:50	35	-	<25	<25
	28/4/2022	19:58	35	-	<20	<20
	28/4/2022	23:23	35	45	<20	<20

Noise levels assessed as part of the monitoring program were within operational noise criteria. They were also lower than the noise levels predicted in the EA (Corkery, 2010), and did not exceed the sleep disturbance criteria at night.

### Unattended Noise Monitoring

As per the *Noise Management Plan*, an unattended noise monitor (NM4), recording real-time data, was in use for the reporting period, for use as a proactive internal noise management tool. MAC review this monitoring data monthly, comparing it against the 35dBA criteria and analysing the data for mining noise. The monthly reviews found that there were no criteria exceedances and low level mining noise was audible.

MAC performed unattended road noise surveys on the boundary of 664 Majors Creek Road, Jembaicumbene (R34) for a two-day period in July 2021, December 2021, February 2022 and April 2022, to assess road traffic noise levels associated with mine vehicles and found that the noise contribution of mine related traffic at this location remained below the relevant criteria.

Detailed monitoring data for unattended road noise monitoring is available on Aurelia's website: <https://aureliametals.com/projects/dargues/monitoring>.

### 6.3.3 Performance Issues and Proposed Improvements

BIM completed independent noise investigations in December 2021 and March 2022 with the aim of identifying dominant noise sources and quantifying the sound power levels of these sources. These investigations were undertaken as a result of noise continuing to be raised as an issue by the surrounding community throughout the reporting period (see section 9.1).

Results from both investigations indicated compliance with DGM EPL noise criteria. The March 2022 investigation noted that Community feedback has indicated that the ventilation fans are audible at some receptors and are potentially causing annoyance.

To address investigation results, a passive silencer will be installed on the ventilation fan during the next reporting period. The installation of the silencer aims to address the critical noise frequencies of 125Hz and 250Hz.

The Noise investigation Report will be utilised to review the effectiveness of current on-site controls described in the *Noise Management Plan* and provide specific site-based mitigation measures that will be implemented by BIM to improve noise management where required.

## 6.4 Blasting

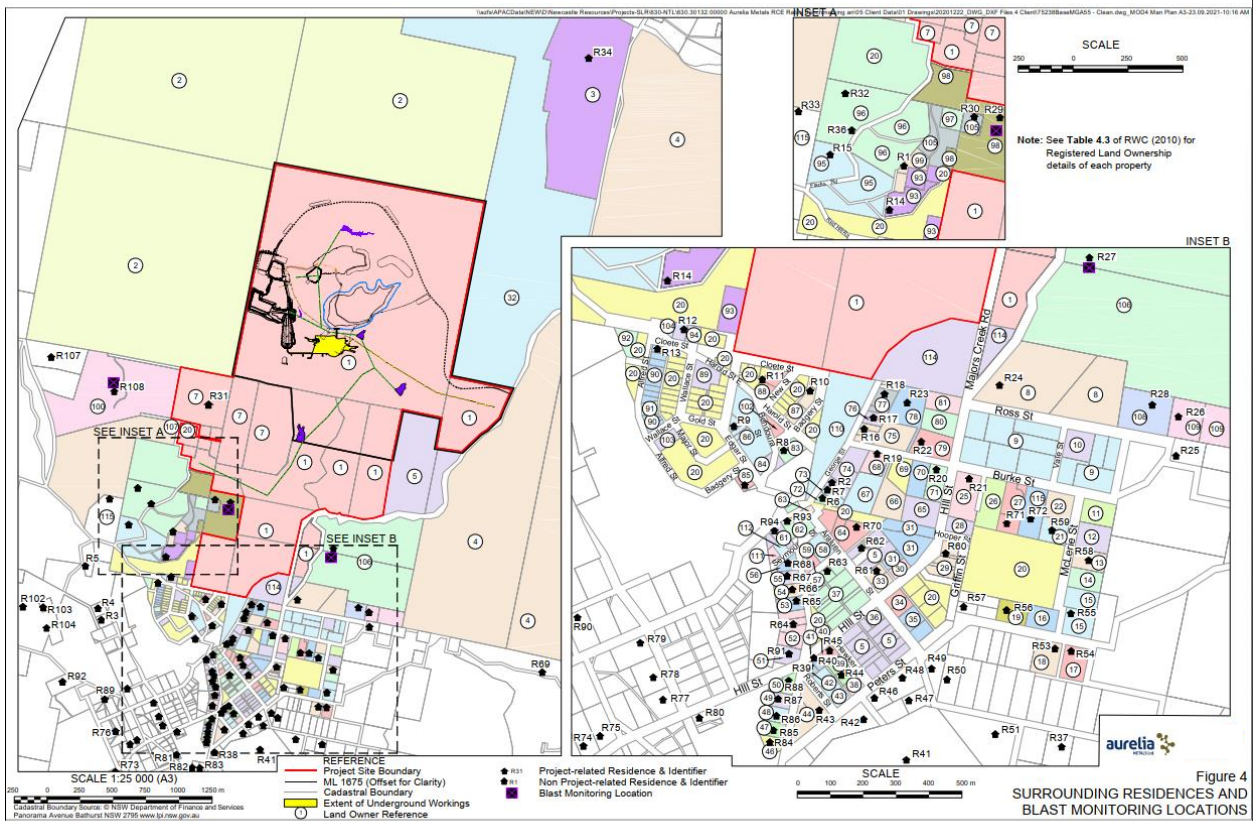
### 6.4.1 Environmental Management

Blasting at DGM is managed in accordance with the *Blasting Management Plan* (Corkery, 2019c). Management Measures undertaken include:

- All blasts designed by a suitably qualified and experienced blasting engineer.
- Blasts designed using suitable site law or industry standard formulas that ensure compliance with blast criteria.
- Underground blasting may be undertaken at any time. However, BIM will predominately undertake underground blasts at shift change, namely between 5:30am & 6:30am; and 5:30pm & 6:30pm.

Blasting criteria limits are provided in **Table 18** with blast monitoring locations shown on **Figure 4**.

**Figure 4 Surrounding Residences and Blast Monitoring Locations**



**Table 18 Blasting Criteria as per Schedule 3, Condition 6 of PA 10\_0054 MOD4**

Location	Time of Blasting	Airblast Overpressure (db Lin Peak)	Ground Vibrations (mm/s)	Allowable Exceedance
Residence on privately owned land	Any time	120	10	0%
	Day	115	5	5% of the total number of blasts over a period of 12 months
	Evening	-	2	
	Night and all day on Sundays and public holidays	-	1	0%

#### 6.4.2 Environmental Monitoring Results

Blast monitoring is undertaken at three locations surrounding DGM. The monitoring systems are managed by Saros with data web-hosted online via the Envirohub system that has the ability to allocate recorded data with manually entered blast times. A summary of the blast monitoring results are provided in **Table 19**.

**Table 19 Blasting Monitoring for the Reporting Period**

Month	BM1		BM2		BM3	
	PPVmax (mm/s)	PPVmax (99.9%) (mm/s)	PPVmax (mm/s)	PPVmax (99.9%) (mm/s)	PPVmax (mm/s)	PPVmax (99.9%) (mm/s)
Jul 21	0.62	0.05	0.24	0.05	3.47	0.05
Aug 21	1.14	0.06	0.35	0.05	0.62	0.05
Sept 21	1.23	0.05	12.68 <sup>1</sup>	0.05	0.92	0.05
Oct 21	0.39	0.05	0.28	0.05	0.53	0.05
Nov 21	0.90	0.05	0.28	0.05	0.50	0.05
Dec 21	0.26	0.06	1.18	0.05	0.50	0.05
Jan 22	0.35	0.06	0.39	0.05	0.83	0.05
Feb 22	1.39	0.06	0.59	0.05	1.21	0.06
Mar 22	0.42	0.06	0.43	0.05	0.99	0.06
Apr 22	0.69	0.06	0.46	0.05	1.03	0.07
May 22	0.65	0.05	0.56	0.05	5.04 <sup>1</sup>	0.06
Jun 22	1.94	0.05	0.47	0.05	0.50	0.05

<sup>1</sup> PPVmax were recorded outside the blasting period and were the result of an operations and maintenance of the unit.

There were no exceedances of ground vibration criteria throughout the reporting period. Air blast overpressure was not monitored as all blasting at Dargues mine is underground. Blast monitoring results were also lower than the levels predicted in the EA (Corkery, 2010). As per Schedule 3 and Condition 7 of PA 10\_0054, underground blasting can occur at anytime.

#### 6.4.3 Performance Issues and Proposed Improvements

No performance issues were identified during the reporting period. During the reporting period DGM received approval to increase explosive storage capacity.

BIM has commenced an improvement project to upload blasting times to the vibration monitoring system to ensure that monitoring is relevant to operational sources.

## 6.5 Waste

During the reporting period, waste produced at DGM was disposed of via a licenced waste contractor. The waste streams disposed of included general waste, hydrocarbon contaminated materials, steel, plastic and chemical drums. Where possible, waste materials are recycled or reused. For example, chemical containers are, where possible, returned to the supplier to be refilled, while steel and plastics are separated and sent for recycling.

### Underground Paste Fill

Monitoring results for paste fill must be below the trigger values presented in Table 20, as per the Waste Management Plan. During the reporting period the Independent environmental audit identified that the frequency of monitoring the chemical composition of Paste was not in accordance with the waste management plan. Upon identifying this, the proponent reported it to the Department of Planning and Environment and instigated change management. The changes included scheduling and staff training as well as an evaluation of the appropriate analytical methodology. DGM continued to use paste fill to backfill underground stopes during the reporting period. Chemical properties of the paste monitored was always below the trigger values.

**Table 20 Paste fill trigger criteria**

	Paste Fill	SSC Criteria
Contaminant	95% UCL Trigger Value	General Solid Waste (CT1)
Arsenic	≥100	100
Beryllium	≥20	20
Cadmium	≥20	20
Chromium (VI)	≥100	100
Lead	≥100	100
Mercury	≥4	4
Molybdenum	≥100	100
Nickel	≥40	40
Selenium	≥20	20
Silver	≥	100
Note 1: All units mg/kg		

There were no exceedances of the 95% UCL trigger values for paste fill during the reporting period (n=7).

## 6.6 Air Quality and Greenhouse Gas

### 6.6.1 Environmental Management

Management of air quality and greenhouse gas is undertaken in accordance with the *Air Quality and Greenhouse Gas Management Plan* (Corkery, 2019a). Management measures include:

- Implement appropriate management and controls to mitigate the generation of dust and particulate matter, including:
  - Minimising disturbance areas and stabilisation of disturbance areas not required for mining operations as soon as practicable following construction;
  - Maintain ore handling areas/ stockpiles in moist condition as required using water carts;

- Use conveyors within process plant to transport crushed ore minerals and use water sprayers on key transfer points within the plant; and
- Watering of all roads as required and enforce speed limit of 40km/h.
- Implement greenhouse gas management measures including:
  - Consider efficiency of all new diesel and electric mobile and fixed equipment during procurement;
  - Maintain equipment as per the manufacture’s specifications; and
  - Emissions and abatement strategies will be reported annually.

BIM operates five dust deposition gauges (DDGs) within or surrounding the site, which are measured on a monthly basis for insoluble solids and percentage ash; and one High Volume Air Sampler (HVAS) at Residence R20 to measure PM<sub>10</sub> on a 24-hour, one-day-in-six frequency, during operation. The location of air quality monitoring locations and surrounding receptors are shown in **Figure 5**. The criteria for deposited dust, Total Suspended Particles (TSP) and PM<sub>10</sub> are provided in **Table 21**.

**Table 21 Impact Assessment Predictions and PA 10\_0054 MOD4 Criteria**

Pollutant	Averaging Period	Impact Assessment / PA 10_0054 MOD4 Criterion		EA Predictions	
<b>Short-Term Impact Assessment Criteria</b>					
Particulate Matter <10 µm (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>		8 µg/m <sup>3</sup> <sup>1</sup>	
<b>Long-Term Impact Assessment Criteria</b>					
Particulate Matter <10 µm (PM <sub>10</sub> )	Annual	30 µg/m <sup>3</sup>		22 µg/m <sup>3</sup> <sup>2</sup>	
Total Suspended Particulate Matter (TSP)	Annual	90 µg/m <sup>3</sup>		54 µg/m <sup>3</sup> <sup>2</sup>	
Deposited Dust (insoluble solids)	Annual	<b>Max Increase</b>	<b>Max Total</b>	<b>Max Increase</b>	<b>Max Total</b>
		2g/m <sup>2</sup> /month	4g/m <sup>2</sup> /month	0.11g/m <sup>2</sup> /month <sup>1</sup>	2.5g/m <sup>2</sup> /month <sup>2</sup>
<sup>1</sup> Predictions based on Project only					
<sup>2</sup> Predications based On Cumulative					

### Greenhouse Gas Emissions

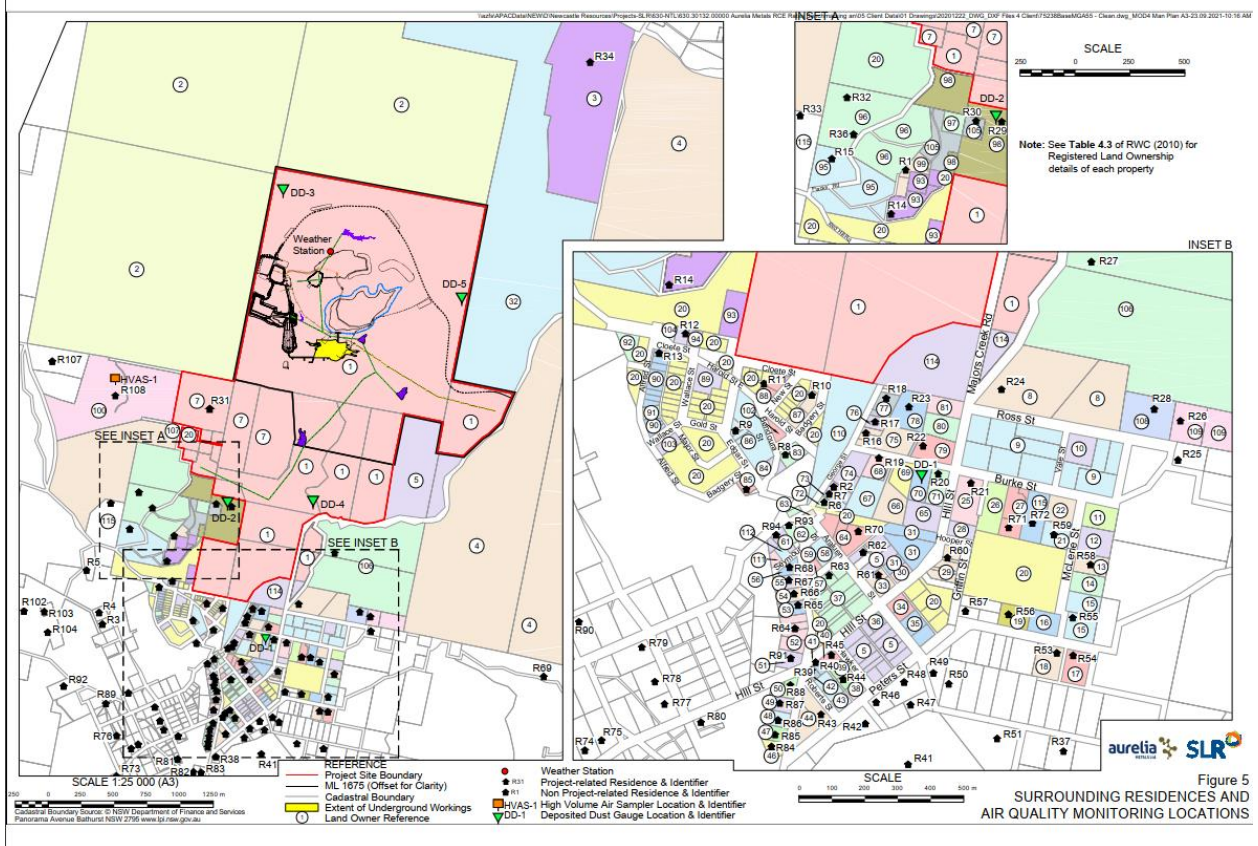
A summary of greenhouse gas emission data for the 2020/21 financial year is presented in **Table 22**. As the FY22 National Greenhouse and Energy Reporting (NGER) has not been completed, only FY21 data has been included.

**Table 22 National Greenhouse and Energy Reporting FY21**

Data (year)	Scope 1 <sup>a</sup> (t CO <sub>2-e</sub> )	Scope 2 <sup>b</sup> (t CO <sub>2-e</sub> )	Total (Scope 1 and Scope 2)
2020/21	3,529	12,703	16,232



Figure 5 Surrounding Residences and Air Quality Monitoring Locations



## 6.6.2 Environmental Monitoring Results

### Deposited Dust (Insoluble Solids)

Deposited dust monitoring was undertaken throughout the reporting period at monitoring locations DD1, DD2, DD3, DD4 and DD5. The monitoring results for the reporting period are shown and compared against Project Approval criteria and EA predictions, and where available long-term data is displayed, and trends discussed.

Deposited dust monitoring results of Insoluble Solids for the reporting period are provided in **Table 233**.

**Table 23 Deposited Dust for the Reporting Period**

Insoluble Solids g/m <sup>2</sup> /month					
Month	DD1	DD2	DD3	DD4	DD5
July 2021	0.6	3.5	0.3	0.8	0.5
August 2021	0.4	0.9	0.3	4.4 <sup>1</sup>	0.4
September 2021	1.1	3.6	3.8	0.9	0.9
October 2021	1.6	3	1.3	10.1 <sup>1</sup>	1.2
November 2021	1	1.2	1.2	3.3	0.8
December 2021	2.9	2.2	1.2	7.8 <sup>1</sup>	1.9
January 2022	No data	No data	No data	No data	No data
February 2022	No data	No data	No data	No data	No data
March 2022	No data	No data	No data	No data	No data
April 2022	No data	No data	No data	No data	No data
May 2022	1.9	1	1.9	2.6	2.6
June 2022	2.9	3.7	4.3 <sup>1</sup>	12.9 <sup>1</sup>	4.3 <sup>1</sup>
<b>Min</b>	0.4	0.9	0.3	0.8	0.4
<b>Max</b>	2.9	3.7	4.3	12.9	4.3
<b>Average</b>	1.6	2.4	1.8	5.4	1.6

<sup>1</sup>Project Approval Criteria and EA Prediction exceeded  
<sup>2</sup> EA Prediction exceeded  
<sup>3</sup>Non compliance

Deposited Dust results revealed that all sites excluding DD4 were below the annual average criteria of 4g/m<sup>2</sup>/month. Site DD4 is adjacent to the Majors Creek Road approximately 1.2 km south of the mine. The elevated readings were found to be a result, of insects. For example, at DD4 during the months of October, December and June high values of ash and combustible matter were reported and correlated with the higher insoluble solids reported, suggesting that insect fall was contributing to the higher emissions.

The majority of months (85%) were below the annual 4 g/m<sup>2</sup>/month Project Approval criteria. There were 17 monthly occurrences where the insoluble solids were >2g/m<sup>2</sup>/month criteria occurred during the reporting period, but when annualised. It was also noted that during the reporting period there were 16 occurrences above the EA prediction of 2.5 g/m<sup>2</sup>/month.

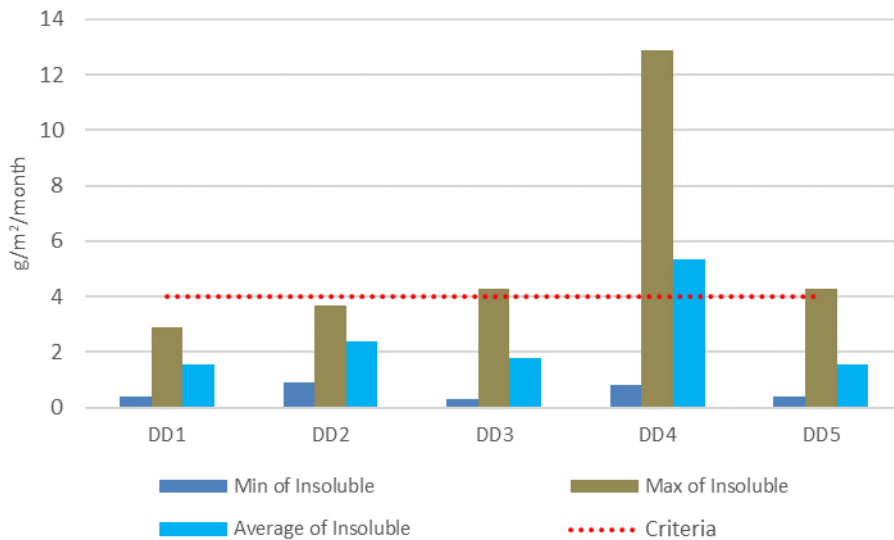
During the reporting period samples were not changed monthly between January and April 2022. Upon identification that dust monitoring was not generally in accordance with the frequency of monitoring as specified in the EA and EPL 20095, BIM immediately exchanged the sampling gauges at all the Dust deposition gauges.

Further, BIM implemented the following actions to prevent a reoccurrence:

- Implement automated alert notifications linked to frequency of monitoring.
- Conduct a monthly survey of all monitoring data.

A summary of the depositional dust monitoring results of Insoluble Solids for the reporting period are provided in

Figure 6.



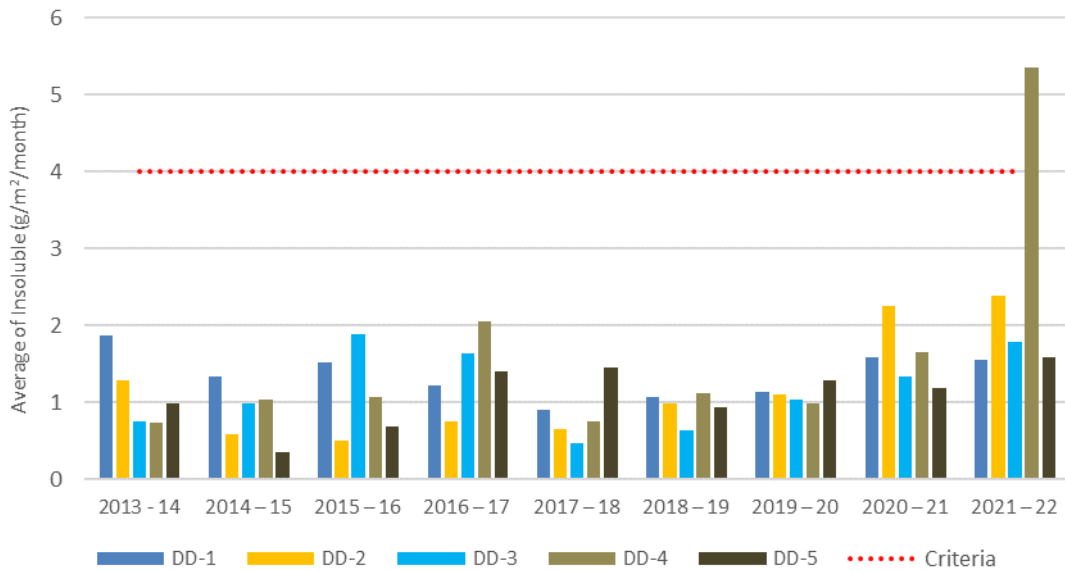
**Figure 6 Dust deposition for the reporting period**

Long term deposited dust monitoring results of Insoluble Solids from 2013 to 2022 are provided in Table 24 and graphically represented in Figure 7.

**Table 24 Long Term Deposited Dust Results**

Row Labels	DD-1	DD-2	DD-3	DD-4	DD-5
<b>Average of Insoluble (g/m²/month)</b>					
2013 - 2014	1.87	1.29	0.76	0.73	0.99
2014 – 2015	1.34	0.59	0.99	1.04	0.36
2015 – 2016	1.52	0.51	1.89	1.07	0.69
2016 – 2017	1.22	0.75	1.63	2.06	1.41
2017 – 2018	0.91	0.66	0.47	0.76	1.45
2018 – 2019	1.07	0.98	0.64	1.12	0.93
2019 – 2020	1.13	1.1	1.04	0.98	1.28
2020 – 2021	1.58	2.25	1.33	1.65	1.18
2021 – 2022	1.55	2.39	1.79	5.35	1.58
<b>Min of Insoluble (g/m²/month)</b>					
2013 - 2014	1.1	0.3	0.1	0.1	0.1
2014 – 2015	0.4	0.2	0.1	0.3	0.2
2015 – 2016	0.7	0.2	0.2	0.5	0.2
2016 – 2017	0.2	0.2	0.3	0.3	0.2

Row Labels	DD-1	DD-2	DD-3	DD-4	DD-5
2017 – 2018	0.2	0.2	0.2	0.3	0.2
2018 – 2019	0	0	0	0	0
2019 – 2020	0	0	0	0	0
2020 – 2021	0.4	0.8	0.5	0.3	0.4
2021 – 2022	0.4	0.9	0.3	0.8	0.4
<b>Max of Insoluble (g/m<sup>2</sup>/month)</b>					
2013 - 2014	3.1	3.2	3	3.2	2.4
2014 – 2015	2.8	1.2	2.2	2.5	0.6
2015 – 2016	3.2	0.9	3.3	3.1	2.1
2016 – 2017	2.7	2.1	3.5	3.5	3.5
2017 – 2018	2.6	1.1	1.4	1.7	3.4
2018 – 2019	2.7	3.3	2.2	4	3.3
2019 – 2020	2.6	3.5	3.2	3.6	3.3
2020 – 2021	4.3	8.2	5.9	7.2	4.0
2021 – 2022	2.9	3.7	4.3	12.9	4.3



**Figure 7 Average Long-Term Dust Deposition Results 2014 to 2021**

The depositional dust average results have, over the last nine reporting periods remained consistently within the Project Approval criteria of 4 g/m<sup>2</sup>/month and remain consistent with the predictions in the EA. Comparing all years there is no apparent “affected” monitoring location across the DGM network. Each monitoring location is the most affected site on at least one year, indicating that DGM is not contributing significantly to dust deposition levels in the surrounding environment.

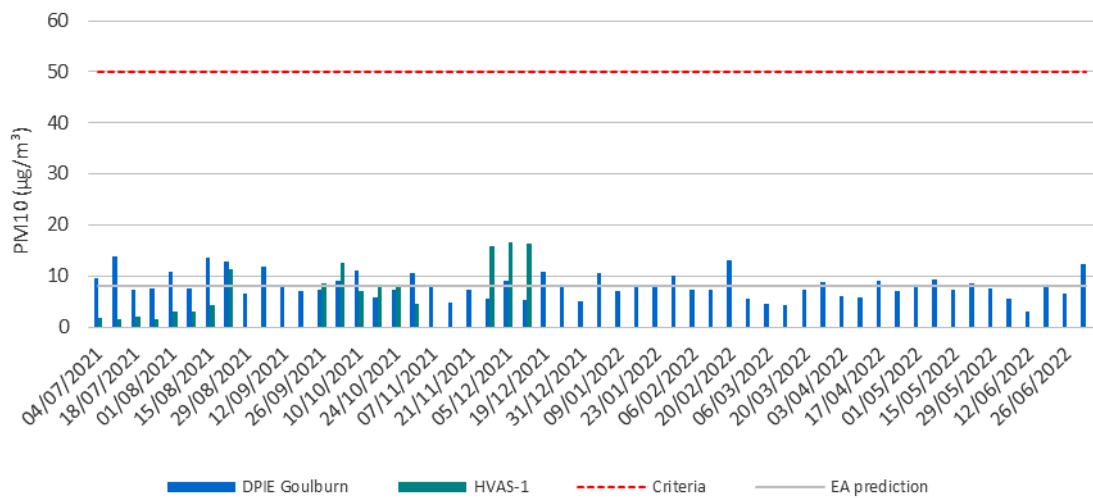
### High Volume Dust PM10

PM<sub>10</sub> dust was undertaken at monitoring location HV1 throughout the reporting period. The monitoring results for the reporting period are shown and compared against Project Approval criteria and EA predictions, and where available long-term data is displayed and trends discussed.

A summary of the High Volume dust PM<sub>10</sub> monitoring results for the reporting period are provided in [Table 25](#) and [Figure 8](#).

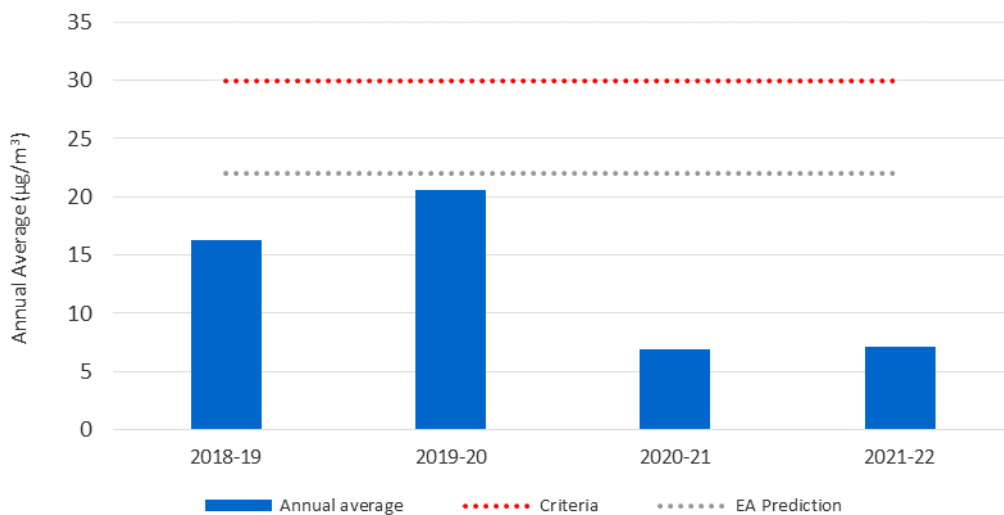
**Table 25 High Volume Dust PM<sub>10</sub> During Reporting Period**

Summary data	PM <sub>10</sub>
Average	7.09
Minimum	1.30
Maximum	16.60



**Figure 8 High Volume Dust PM<sub>10</sub> during Reporting Period**

As presented in [Table 25](#) and [Figure 8](#), PM<sub>10</sub> did not exceed the 50 µg/m<sup>3</sup> 24hr criteria throughout the reporting period, although 39% of recorded 24hr PM<sub>10</sub> was above the EA Project Prediction of 8 µg/m<sup>3</sup> from the project.. The maximum recorded PM<sub>10</sub> value was 16.6 µg/m<sup>3</sup> and the average was 7.09 µg/m<sup>3</sup>. Additionally, the annual average PM<sub>10</sub> result (7.09 µg/m<sup>3</sup>) was well below the 30 µg/ m<sup>3</sup> criteria, and below the EA annual average PM<sub>10</sub> prediction of 22 µg/m<sup>3</sup> (for receptor R6). Refer to [Figure 9](#).



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### Figure 9 High Volume Dust PM<sub>10</sub> during Reporting Period

The particulate matter concentrations recorded at the HVAS were considered representative of ambient background concentrations at sensitive receptors to the south. Annual average concentrations are below the applicable NSW EPA impact assessment criterion of 25 µg/m<sup>3</sup> across all reviewed monitoring years.

Concentrations from July 2021 to December 2021 recorded at the DGM HVAS are considered comparable to the DPE Goulburn data. This emphasises that the DGM HVAS location is representative of ambient background particulate matter concentrations.

There are established relationships between PM<sub>10</sub> and TSP from the extractive industry whereby if the PM<sub>10</sub> long-term impact assessment criterion is met, the TSP criterion may be expected to be satisfied. In view of this, PM<sub>10</sub> monitoring is proposed as a surrogate for demonstration of compliance with the TSP criterion and thus no TSP monitoring is to be undertaken, as outlined in the Air Quality and Greenhouse Gas Management Plan, **Section 7.1.3**.

#### **6.6.3 Performance Issues and Proposed Improvements**

During the reporting period, the property where the DGM HVAS was located was sold and DGM was requested to remove the HVAS from the property. Following the removal of the HVAS DGM discussed with the EPA to remove the HVAS from the monitoring program in line with the site Air Quality and Greenhouse Gas management plan which only committed to 12-months monitoring. Following consultation with the DPE, DGM was advised by DPE to reinstall the HVAS at another location. The HVAS has now been relocated.

DGM conducted a review of the dust monitoring network at DGM and concluded that the introduction of metals analysis to PM<sub>10</sub> and dust deposition gauges would increase data interpretation capabilities.

## 6.7 Biodiversity

### 6.7.1 Environmental Management

Flora and fauna are managed in accordance with the *Biodiversity Management Plan* (BMP) (Corkery, 2019d). Management measures undertaken include:

- Implement biodiversity offset strategy;
- Erosion and gully management;
- Fencing of Tableland Basalt Forest Endangered Ecological Community (EEC) within the on-site biodiversity offset area;
- Continued management of weeds and pests;
- Bushfire management;
- Agricultural operations to encourage re-establishment of Natural Temperate Grassland EEC in grassland/pasture covered areas;
- Grazing management;
- Management of disturbed and cleared land including stock exclusion and revegetation;
- Relocation of wombats in accordance with the Wombat Management Plan; and
- Undertake routine monitoring.

Biodiversity monitoring is implemented for the biodiversity offset areas at DGM as part of the BMP with results to be compared between monitoring locations both on and offsite and over time. Biodiversity monitoring includes:

- Terrestrial Flora and Fauna Monitoring;
- Aquatic Ecological Monitoring; and
- Stygofauna Monitoring.

During the reporting period DGM applied for an extension to the timeframe to secure off-site biodiversity offsets. Approval of this extension was granted by DPE March 2022.

### 6.7.2 Environmental Monitoring Results

#### Terrestrial Flora and Fauna

Ecological monitoring for terrestrial flora and fauna was carried out in 2021-22 as part of the BMPs monitoring program by Eco Logical (2021) including:

- Six flora monitoring sites (four on-site and two off-site references) in both Tableland Basalt Forest EEC and grassland areas; and
- Four fauna monitoring sites (including surveys for diurnal birds, nocturnal species, microchiropteran bats and ground fauna).

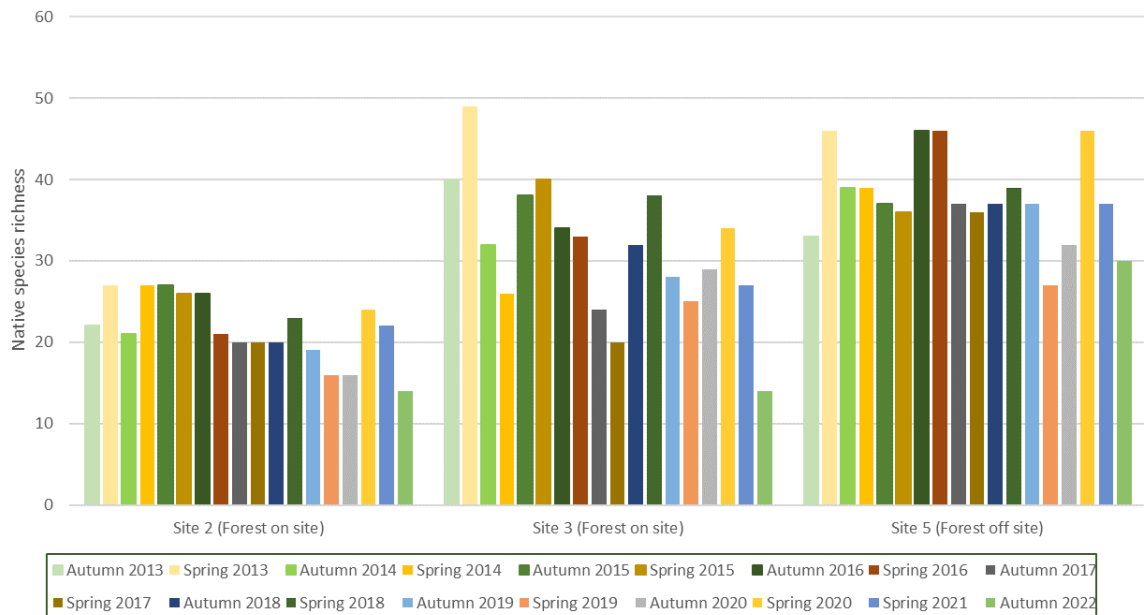
Terrestrial flora monitoring did not indicate any substantial changes in species composition or abundance since operations commenced at DGM. Higher than average rainfall and below average temperatures may have affected the composition and number of both native and exotic species. These results are still within the range recorded at sites since monitoring began and reflect seasonal variation.

During the spring survey in 2021 a total of 120 flora species (consisting of 73 native species, 46 exotic species and 1 species not determined as native or exotic) were recorded across the six floristic monitoring sites. Similar to 2020 the dominant groundcover species in the on-site open forest plots was

the native perennial grass *Microlaena stipoides* (Weeping grass). Other native species were also present in less than 5% cover.

Exotic groundcover was higher in the spring 2021 survey than in 2020 over both offsite plot sites. Native grasses decreased over all 3 open forest monitoring sites from 2020. Although a reduction in native species cover the levels remained above those recorded in 2019.

During the Autumn 2022 survey 99 flora species (consisting of 67 native species and 32 exotic species) were recorded across the six floristic monitoring sites. This is a decrease in species compared to Spring 2021 survey for all sites.

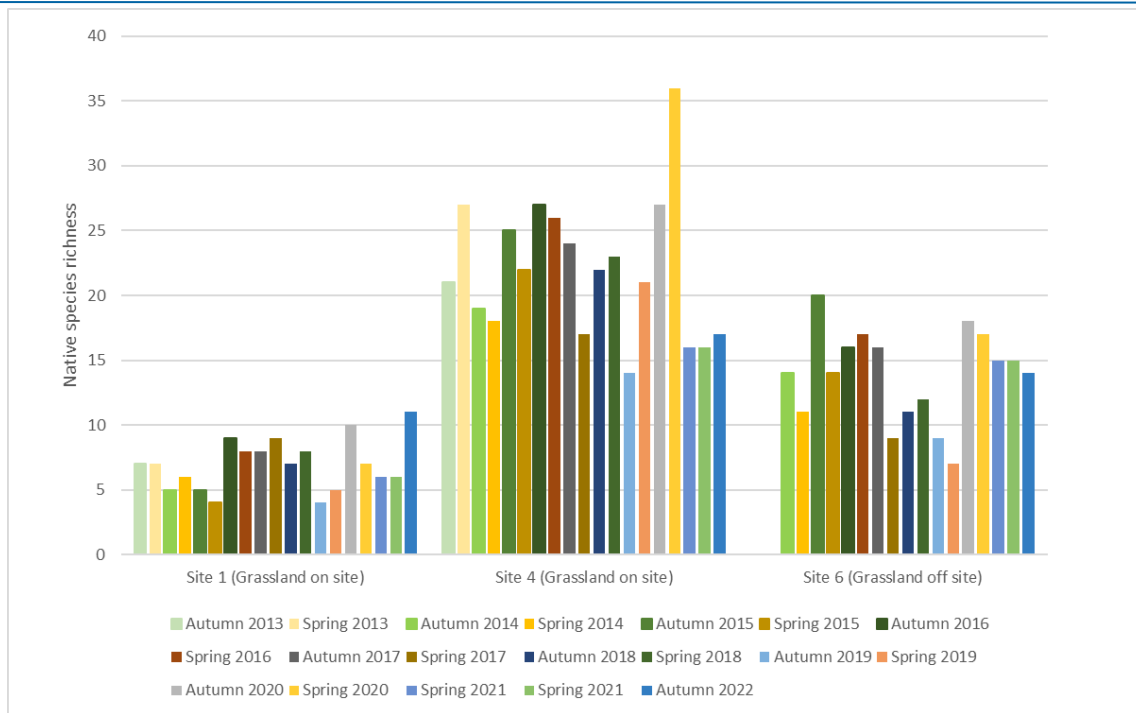


**Figure 10 Native Species Richness in Open Forest**

All grassland sites, particularly Site 1, contain a high cover of exotic species in the spring 2021 survey. The percent groundcover for native and exotic species varied between the two on-site grassland plots during the Autumn surveys, but site 1 and Site 6 both had relatively low native groundcover (18% and 22%) and high exotic ground cover (74% and 82%). Site 4 had 52% native groundcover and 48% exotic groundcover. Overall native species richness was higher than exotic species richness for all sites.

Exotic species richness has shown substantial fluctuations within the sites over the years surveys have been undertaken and continues to be lower in on-site monitoring sites than in the off-site open grassland sites. The high abundance and cover of exotic species at sites 1 and 6 are likely due to increased rainfall and the sites ongoing agricultural use.





**Figure 11 Native Species Richness in Open Grassland Sites**

During the 2021 terrestrial fauna monitoring a total of 95 species were detected with bird species the dominant species sited, a summary of the fauna monitoring results is shown in **Table 26**.

**Table 26 Fauna Monitoring Summary**

Group	2016	2017	2018	2020	2021
Birds	50	43	77	55	55
Frogs	7	8	8	9	7
Mammals (excl. mircobats)	8	9	7	6	12
Reptiles	8	6	7	6	5
Microchiropteran Bats	12	12	12	15	16
<b>Total number of species detected</b>	<b>85</b>	<b>78</b>	<b>111</b>	<b>91</b>	<b>95</b>

The terrestrial fauna monitoring results for spring 2021 were comparable to previous years, with bird diversity above the average range at all sites. Frog diversity was good, though lower than 2020, likely due to the weather conditions leading up to the survey period.

The diversity of habitat features associated with the open forest vegetation, such as hollow-bearing trees, large woody debris, rocks and creeks, have been shown in previous monitoring years to support a range of native fauna species.

### Aquatic Ecology

Aquatic ecological monitoring was carried out in spring 2021 and Autumn 2022 as part of the BMPs monitoring program by Eco Logical. Monitoring included a total of eight sites, three reference sites upstream of the mine, three sites downstream of the mine and two sites approximately 6km downstream of the mine.

Key outcomes of the monitoring for the reporting period include:

- Overall, the sites were in a similar condition in Autumn 2022 as they were in Spring 2021.
- Rainfall occurred prior to and during the surveys, leading to more turbid water across the sites monitored. Turbidity was high at all sites due to heavy rainfall on the night immediately preceding sampling.
- The riparian condition of sites was classes had either good, very good or excellent and there were no large changes to these classes between the spring 2021 and autumn 2022 surveys.
- Macroinvertebrate communities had 39 taxa across all sites.
- Fish communities had a lower catch per hour (CPH) compared to spring 2021 surveys with four species being collected during the survey: mountain galaxias, short-finned eel, Cox's gudgeon and Australian smelt.

### Stygofauna

Stygofauna monitoring was undertaken in Spring 2021 and Autumn 2022 as part of the aquatic ecology monitoring surveys completed by Eco Logical. Bores 1, 4, 6, and 8 were sampled for stygofauna and no stygofauna were detected in any samples taken.

### Weed and Pest Management

No pest management was undertaken onsite during the reporting period.

Weed management continued through to January 2022, after which extreme wet weather made for very wet soils and rendered access to non-mine areas very difficult.

### 6.7.3 Performance Issues and Proposed Improvement

There were no biodiversity related incidents during the reporting period. However, a number of recommendations were made from the 2020 terrestrial flora and fauna monitoring surveys (Eco Logical, 2021), including:

- Continue monitoring as per current schedule;
- Continue weed management activities for Stoch Broom (*Cytisus scoparius*) and Blackberry (*Rubus fruticosus* spp. agg) as needed; and

Proposed improvements include:

- Improvements to areas of fencing to manage livestock;
- Continued spraying and management.

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## 6.8 Heritage

No new heritage items were discovered and no heritage items were relocated during the reporting period. To date only Aboriginal sites GT OS1 and GT OS2 have had items resumed and relocated. This was performed under the guidance of archaeologists Veronica Norman and Michael Lever (Artefact Heritage) on 27 April 2017 with the participation of the following stakeholders:

- Buru Ngunawal Aboriginal Corporation Traditional Carer Group;
- Batemans Bay LALC; and
- Little Gudgenby River Tribal Council.

There are no future disturbances planned for previously identified aboriginal artefact sites. Maintenance on fences was completed as required throughout the reporting period.

## 7. Water Management

### 7.1 Water Management

Water management for the reporting period was undertaken in accordance with the *Water Management Plan* (DMPL, 2020). Water Management details for the reporting period are summarised in **Table 27**.

During the reporting period, BIM undertook the following water management activities, which are detailed further in the following subsections:

- Site dam general upkeep and maintenance;

#### 7.1.1 Water Balance

Water management for the reporting period was undertaken in accordance with the Dargues Gold Mine Water Management Plan. Water management details for the reporting period are summarised in **Table 27**.

**Table 27 Water Balance management details for the Reporting Period**

Water Management Element	Existing Conditions (July 2021 – June 2022) ML/year
<b>INPUTS</b>	
Direct rainfall	96
Catchment runoff	308
Groundwater inflows	49
Ore moisture	18
<b>TOTAL INPUTS</b>	<b>471</b>
<b>OUTPUTS</b>	
Evaporation	63
Water entrained in tailings	138
Dust suppression	12
Irrigation	124
Transfers to WTP	1
Offsite discharges	0
<b>TOTAL OUTPUTS</b>	<b>338</b>
<b>CHANGE IN STORAGE</b>	
Surface water storages	134
<b>TOTAL CHANGE IN STORAGE</b>	<b>134</b>
<b>BALANCE</b>	
Inputs – outputs – change in storage	0

## 7.2 Groundwater

### 7.2.1 Environmental Management

Groundwater is managed in accordance with the approved *Water Management Plan* (WMP).

DGM has four licenced groundwater extraction points (**Table 28**) that are potential raw water sources for the Site. The Snobs bore was installed and commissioned in 2019/20 but not used in 2021-22. Bores at Stewart and Mertons, United Miners and Dargues Production Bores are yet to be constructed. BIM is reviewing the feasibility of installing the bores due to several failed installation attempts.

**Table 28 Licenced Groundwater Extraction Points**

Description	Source ID	Extraction (Quantity (m <sup>3</sup> ))	Type	Details/Comments
WAL39281	LWB06	320,000	Raw	Dargues Gold Mine
WAL39282	LWB07	39,000	Raw	Snobs
WAL39287	LWB08	16,000	Raw	Stewart and Merton's
WAL39292	LWB09	24,000	Raw	United Miners
WAL37848	LWB10	1,000	Raw	Dargues Production Bores

BIM undertake a groundwater monitoring program which has been designed to provide timely warning of any unpredicted or adverse impacts so that remedial actions can be taken. In addition, the program will also provide information that will be used to refine the groundwater model during the life of the mine. Groundwater monitoring includes:

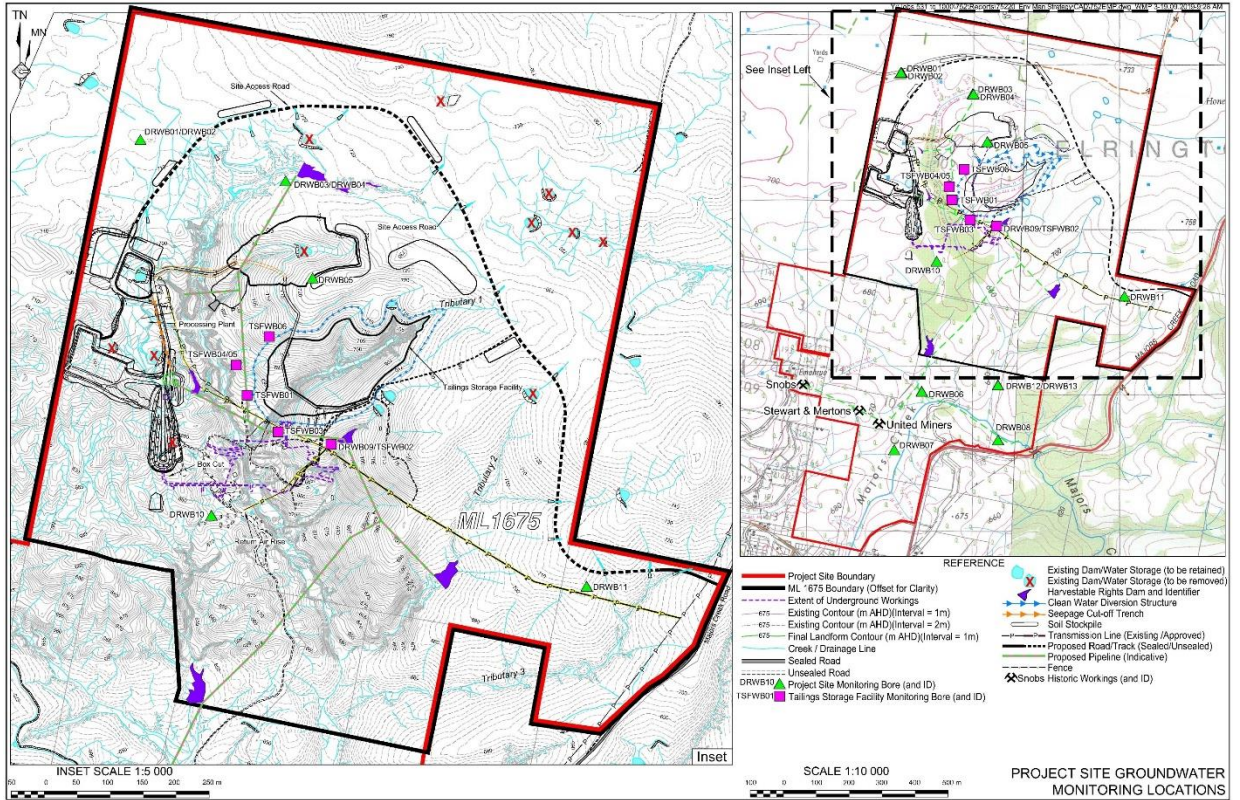
- 13 dedicated monitoring bores;
- One monitoring location near the base of the active workings. This monitoring location will be relocated as mine development progresses until the full depth of the approved workings is achieved;
- Six TSF monitoring bores; and
- Three bores accessing historic workings.

Table 29 displays the monitoring type and frequency of current groundwater monitoring program, with monitoring points shown on **Figure 12**. Groundwater monitoring includes quality trigger values as described in the WMP for groundwater within and surrounding DGM that would be implemented throughout the project lifetime. Where the water quality is worse than the trigger values, the Surface Water Quality Trigger Action Response Plan (TARP) is implemented.

**Table 29 Groundwater Monitoring Program**

Location	Frequency	Parameter <sup>1</sup>
<b>Project Site Monitoring Bores</b>		
DRWB01, DRWB02, DRWB04, DRWB06, DRWB07, DRWB08, DRWB09, DRWB10, DRWB012, DRWB013	Monthly/quarterly	<b>pH, EC, DO, REDOX, Temp</b> , Major cations, Major anions, TKN, TON, Ammonia Nitrogen, P, Metals, Xanthates, CaCO <sub>3</sub>
DRWB09, DRWB010	Monthly/quarterly	Pumping rate
DRWB03, DRWB011	Monthly/quarterly	SWL
DRWB05*	Annual	SWL
<b>Deep Granodiorite Aquifer</b>		
MW01	Monthly/quarterly	<b>pH, EC, DO, REDOX, Temp</b> , Major cations, Major anions, TKN, TON, Ammonia Nitrogen, P, Metals, Xanthates, CaCO <sub>3</sub>
<b>Tailings Storage Facility Monitoring Bores</b>		
TSWB01, TSWB02, TSWB03, TSWB04, TSWB05, TSWB06	Weekly/monthly	<b>pH, EC, DO, REDOX, Temp</b> , Major cations, Major anions, TKN, TON, Ammonia Nitrogen, P, Metals, Xanthates, CaCO <sub>3</sub>
<b>Historic Workings</b>		
Snobs, Stuart and Mertons, United Mines	Monthly/quarterly	<b>pH, EC, DO, REDOX, Temp</b> , Major cations, Major anions, TKN, TON, Ammonia Nitrogen, P, Metals, CaCO <sub>3</sub> , Pumping rate, SWL
<b>Registered Private Bores - &lt; 3km</b>		
GW100156, GW110023, GW101854	Quarterly/annual	<b>pH, EC, DO, REDOX, Temp</b> , Major cations, Major anions, TKN, TON, Ammonia Nitrogen, P, Metals, CaCO <sub>3</sub>
GW100156, GW110023	Quarterly/annual	SWL
<sup>1</sup> Monthly monitoring parameters are shown in bold SWL – Standing Water Level *Dry since construction		

Figure 12 Project Site Groundwater Monitoring Locations



## 7.2.2 Environmental Performance

### Groundwater Take

Extraction quantities for the licenced water bores is provide in **Table 30**.

**Table 30 Water Extracted During the Reporting Period**

Licence #	Source	Entitlement	Passive take / inflows	Active pumping	Total
<b>GROUNDWATER</b>					
WAL39281 (Water Act 2000) 10BL6050106 (Water Act 1912)	Dargues Gold Mine	Extraction of up to 320ML/y	48.8	0	48.8
WAL39282 (Water Act 2000) 10BL6050107 (Water Act 1912)	Snobs workings	Extraction of up to 39ML/y	0	0	0
WAL39287 (Water Act 2000) 10BL6050108 (Water Act 1912)	Stewart and Merton's workings	Extraction of up to 16ML/y	0	0	0
WAL39292 (Water Act 2000) 10BL6050109 (Water Act 1912)	United Miners workings	Extraction of up to 24ML/y	0	0	0
WAL37848 (Water Act 2000) 10BL6050110 (Water Act 1912)	Dargues Production Bores	Extraction of up to 1ML/y	0	0	0

Total groundwater take for the reporting period was 48.8 ML which is well below the total extraction limit of the mine. The total groundwater take has slightly increased during the reporting period in comparison to the previous year but remains lower than the 2019-20 year where 64.8ML was reported. Groundwater extraction for each WAL was well below the extraction limit & below the predictions in the EA.

Annual extraction results for the reporting periods 2017-18 to 2021-22 are shown in **Table 31**.



**Table 31 Long-Term Groundwater Take**

Source	Predicted (ML)	2017-18 <sup>1</sup> (ML)	2018-19 (ML)	2019-20 (ML)	2020-21 (ML)	2021-22 (ML)
Dargues Gold Mine	0	0	30.4	63	40.9	48.8
Snobs	39.4	0	0	1.8	0.2	0
Stewart and Merton's	15.8	0	0	0	0	0
United Miners	23.7	0	0	0	0	0
Dargues Production Bores <sup>2</sup>	0	-	-	-	0	0
<b>Total</b>	<b>78.9</b>	<b>0</b>	<b>30.4</b>	<b>64.8</b>	<b>41.1</b>	<b>78.8</b>

<sup>1</sup>No harvestable rights dams constructed  
<sup>2</sup>licensed from 2020-21 period

Groundwater take during the reporting period is greater than previous years however is comparable to the EA predicted quantity.

### Groundwater Levels

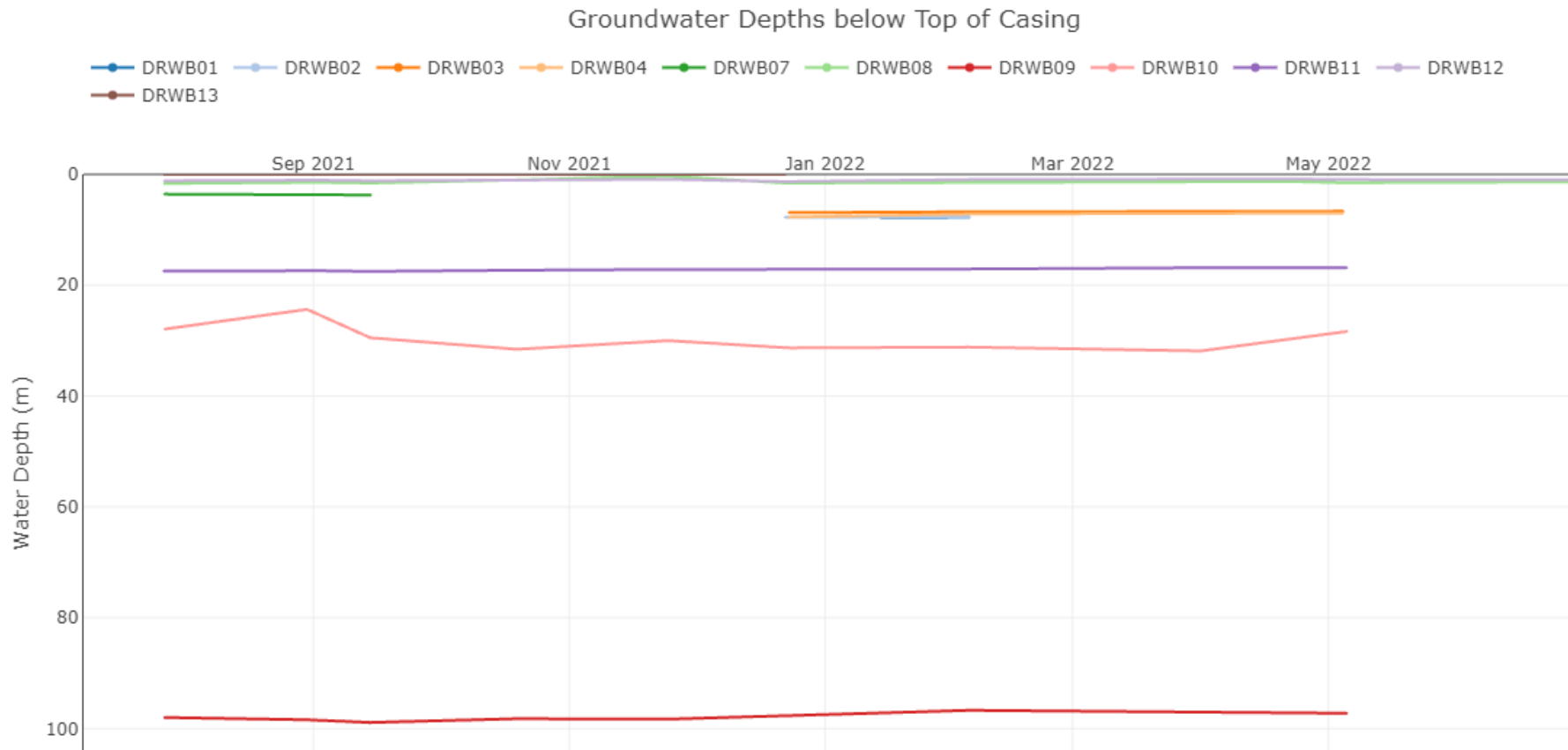
Groundwater levels (**Figure 13**) within the DGM site remained steady, with the exception of the following:

- DRWB10 is hydraulically connected to the old workings within the underground mine which have been dewatered to reduce the risk of inundation and inrush;
- DRWB09 is a production bore and is subject to occasional pumping which impacts on water levels; and
- Majority of standing water levels in monitoring bores have return to within pre-operative levels during the reporting period with alluvial aquifer bores remaining steady.

### Groundwater Water Quality

The groundwater quality monitoring program continued during the reporting period.

A summary of the water quality results for the reporting period for some key sampled parameters are provided in **Table 32** below, with a summary of the full monitoring results provided in **Appendix A**. It should be noted that DRWB05 has been dry since construction and has not been sampled and has since been removed from EPL 20095 via a variation. Additionally, on multiple occasions DRWB09 was too deep to sample on a number of occasions.



**Figure 13 Groundwater Levels**

**Table 32 Groundwater Monitoring Results**

Parameters	pH Value		Electrical Conductivity	Dissolved Oxygen
Unit	pH		µg/cm	%sat
Trigger Value	6.5-8.5		>1300	
<b>Project Site Monitoring Bores</b>				
DRWB06	Min	<b>6.45</b>	238	3.2
	Max	7.80	301	8.4
	Avg	7.11	268	5.1
DRWB07	Min	7.04	287	2.9
	Max	7.20	333	5.0
	Avg	7.13	304	4.1
DRWB08	Min	6.23	118	2.6
	Max	7.79	162	6.3
	Avg	6.82	137	4.3
DRWB09	Min	7.15	1102	5.1
	Max	7.95	1258	7.5
	Avg	7.40	1163	6.5
DRWB10	Min	6.78	453	1.7
	Max	7.45	669	7.8
	Avg	7.02	558	3.4
DRWB12	Min	7.26	288	5.1
	Max	7.61	<b>1522</b>	8.5
	Avg	7.40	572	6.6
DRWB13	Min	6.87	567	1.7
	Max	7.30	740	7.5
	Avg	7.08	641	3.4
<b>TSF Monitoring Bores</b>				
TSFMBO1B	Min	dry	dry	dry
	Max	dry	dry	dry
	Avg	dry	dry	dry
TSFMBO2A	Min	6.62	422	0.3
	Max	<b>12.28</b>	1006	9.8
	Avg	7.28	779	7.1
TSFMBO2B	Min	7.13	616	2.2
	Max	12.9	1073	10.1
	Avg	8.44	697	5.9
TSFMBO3A	Min	7.15	<b>1310</b>	1.5
	Max	<b>12.9</b>	<b>5914</b>	8.1
	Avg	<b>12.5</b>	<b>4998</b>	4.2
TSFMBO3B	Min	7.01	621	2.1

Parameters	pH Value		Electrical Conductivity	Dissolved Oxygen
Unit	pH		µg/cm	%sat
Trigger Value	6.5-8.5		>1300	
	Max	<b>8.72</b>	1210	7.1
	Avg	7.93	932	4.2
TSFMBO4B	Min	7.19	1219	2.8
	Max	8.22	<b>1449</b>	7.0
	Avg	7.62	<b>1354</b>	5.3
TSFMBO5B	Min	7.45	815	0.1
	Max	<b>9.57</b>	1007	8.1
	Avg	8.28	760	3.9

Note – values above parameter trigger levels are indicated in bold

Groundwater quality remained consistent with historical sampling with long term graphs for key parameters provided in **Appendix A**. Key observations include:

- pH was outside of trigger levels at TSF monitoring bores TSFMBO2A, TSFMBO2B, TSFMBO3A and TSFMBO5B;
- EC was elevated above trigger levels at the project site monitoring bore DRWB12 and TSF monitoring bores, TSFMBO3A, TSFMBO4B and TSFMBO5B;
- Arsenic was elevated above trigger levels in TSFMBO3A;
- Copper was elevated above trigger levels at all bores; and
- The TSF monitoring bores TSFMBO1B, TSFMBO3A, TSFMBO4B experienced elevated readings in a number of parameters during the report period.

Readings outside trigger levels were investigated in accordance with the TARP. All monitoring results were comparative to historical sampling data or directly related to seasonal variation, flow conditions or sampling error. No significant quality changes as a result of the mining operations were detected.

### 7.2.3 Performance Issues and Proposed Improvements

In the interests of transparency, BIM rolled out an online public portal for reporting its groundwater data. The data and reports are available at [Web Reports \(esdat.net\)](#).

No groundwater incidents were recorded during the reporting period, recordings above site trigger levels were observed on multiple occasion. Readings outside trigger levels were investigated and it was concluded that no significant quality changes because of the mining operations were detected.

It is noted an update and a review of the water quality monitoring program will occur during the next reporting period with the objective of refining the analytes, frequency and location of the monitoring that is being undertaken.

AGE consultants completed a revised groundwater model during the reporting period. The numerical groundwater model was updated to the MODFLOW-USG industry standard code. This included a rebuild from the previous MODFLOW-SURFACT model iteration developed in 2013. The approach taken in the rebuild was to add enhanced detail to sensitive locations through use

of a Voronoi mesh, and to provide revised predictions better aligned to observed inflows. The most significant changes to the model included:

- utilising the MODFLOW-USG software;
- adding three layers to further subdivide the relatively deep and thick Devonian-aged granodiorite units that form the country rock and host the ore body targeted by mining;
- calibrating to a greater number of observation targets (125) and a larger pool of data than in previous model iterations;
- modifying hydraulic properties;
- adjusting pumping rates and schedules for the flooded historic mine shafts;
- realigning the temporal progression of mining; and
- employing a soil moisture bucket model to better define recharge from rainfall and evaporation.

Overall, the updated model simulates lower inflow rates and a reduced drawdown footprint compared to previous model predictions. Baseflow impact predictions are predominantly localised to Spring Creek that traverses directly above the mine.

## 7.3 Surface Water

### 7.3.1 Environmental Management

Surface water at DGM is managed in accordance with the *Water Management Plan*, which identified that DGM has the potential to impact on water quantity and quality in local drainage lines. As such, a surface water monitoring program has been implemented throughout and following the life of the Project to achieve the following objectives.

- Establish baseline (i.e. existing) patterns and volumes of water flow in local drainage lines;
- Establish baseline (i.e. existing) water quality in local drainage lines;
- Monitor water quantities and flow volumes, primarily baseflow, in local drainage lines during and after mining operations; and
- Monitor water quality in local drainage lines during and after mining operations.

A summary of surface water management activities during the reporting period are summarised below:

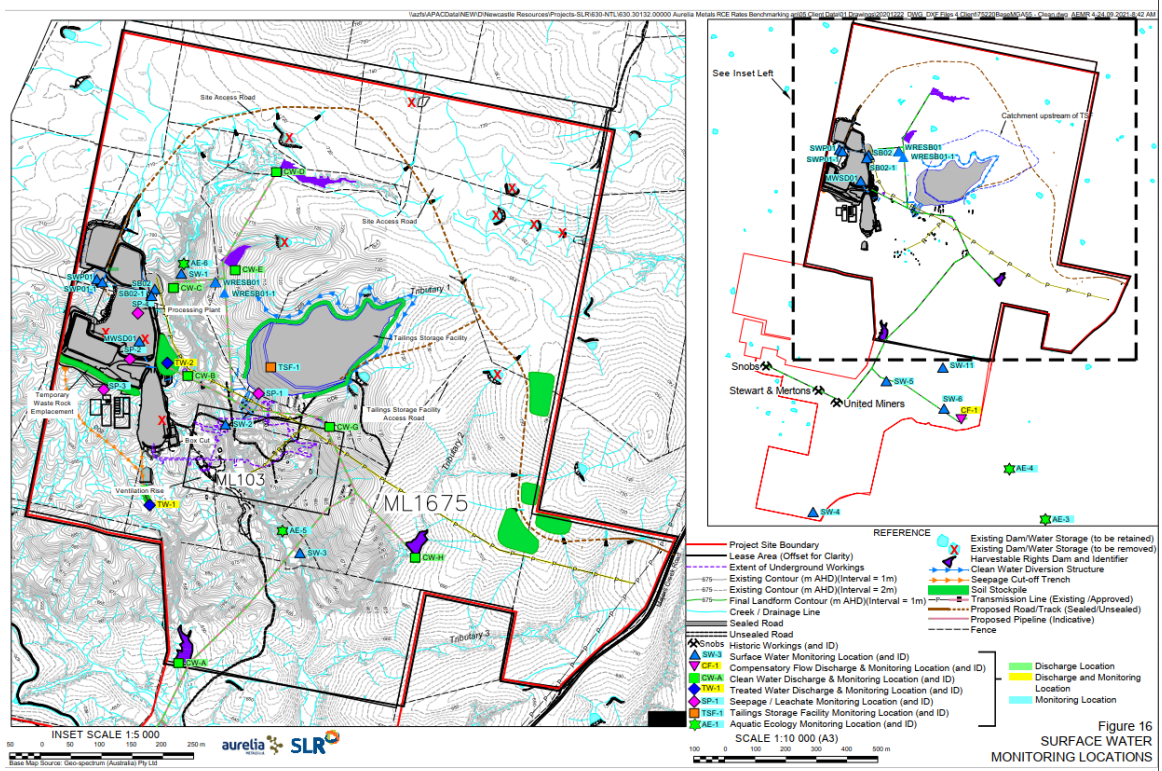
- Fuels and oils are stored in purpose-built facilities with appropriate bunding to minimise the potential for accidental discharging of hydrocarbons into the surrounding environment. Diesel is stored in above ground self-bunded tanks from where it is transferred direct to machinery. A licenced contractor is engaged to remove and recycle and/or dispose of used oil and grease products at licensed facilities;
- Once per quarter and after significant rainfall (> 25 mm in 24-hours), a site walkover and assessment of all surface water structures is undertaken; and
- Visual inspections of upstream and downstream waterways are undertaken at a number of locations in association with surface water quality monitoring to identify any instabilities that have formed as a result of the operations.

DGM undertakes surface water quality monitoring at several locations within the site (refer **Figure 14** and **Figure 15** and **Table 33**). EPL 20095 requires surface water quality sampling be undertaken

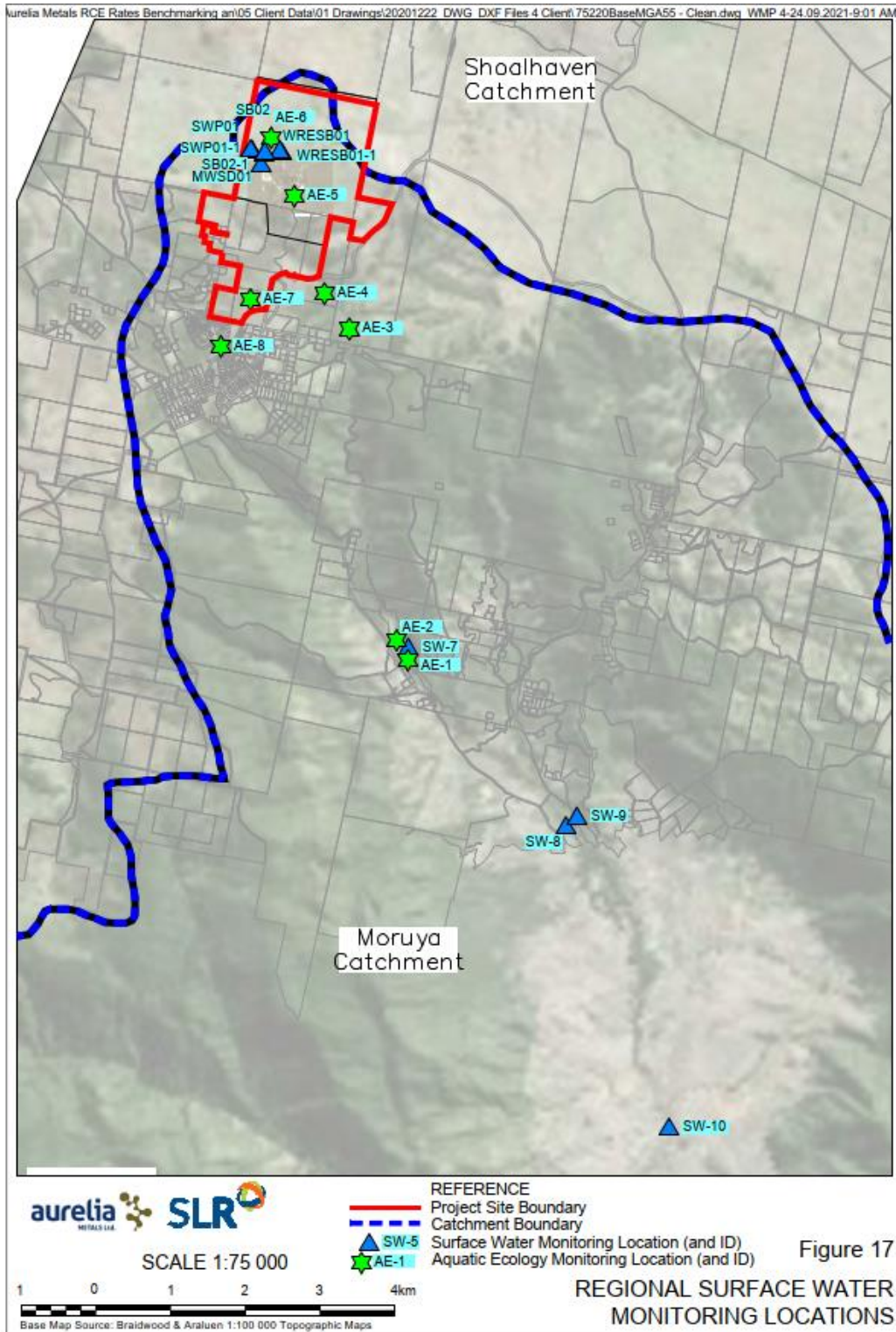
at seven locations; three in Spring Creek (SW-1, SW-2 and SW-3), and four in Majors Creek (SW-4, SW-5, SW-6 and SW-7).

**Table 33 Surface Water Monitoring Points**

Monitoring Point (EPA ID)	Frequency	Parameters
SW-1 (EPA ID 53)	Monthly	pH value, Oil and Grease, Total suspended solids, Electrical Conductivity, Bicarbonate Alkalinity as CaCO <sub>3</sub> , Carbonate Alkalinity as CaCO <sub>3</sub> , Hydroxide Alkalinity as CaCO <sub>3</sub> , Total Alkalinity as CaCO <sub>3</sub> , Chloride, Sulphate, Calcium, Magnesium, Sodium, Potassium, Nitrate as N, Nitrite as N, Total Oxidized Nit. As N, Total Phosphorus as P, Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc
SW-2 (EPA ID 54)		
SW-3 (EPA ID 55)		
SW-4 (EPA ID 56)		
SW-5 (EPA ID 57)		
SW-6 (EPA ID 58)		
SW-7 (EPA ID 59)		



**Figure 14 Surface Water Monitoring Locations**



**Figure 15 Regional Surface Water Monitoring Locations**



### 7.3.1 Environmental Monitoring Results

#### Water Quality

Summarised results for pH, Total Suspended Solids (TSS) and Electrical Conductivity (EC) are outlined below for the EPA NSW licenced monitoring locations of SW-1 to SW-7.

**Table 34 Surface Water Quality Results**

Parameter	pH value		Total suspended solids (TSS)	Electrical Conductivity (EC)
Unit	pH		mg/L	µS/cm
Trigger Value	6.5-8.5		>50	>450
SW-1 (EPA ID 53)	Min	6.7	2.0	98.3
	Max	7.9	<b>103.0</b>	368.7
	Mean	7.5	15.6	241.8
SW-2 (EPA ID 54)	Min	6.8	3.0	183.1
	Max	8.1	<b>191.0</b>	<b>613.0</b>
	Mean	7.5	37.6	411.1
SW-3 (EPA ID 55)	Min	6.6	3.0	114.9
	Max	8.1	<b>237.0</b>	<b>673.0</b>
	Mean	7.4	26.4	426.8
SW-4 (EPA ID 56)	Min	6.7	3.0	50.4
	Max	7.8	<b>97.0</b>	174.2
	Mean	7.2	15.4	113.5
SW-5 (EPA ID 57)	Min	6.6	5.0	57.4
	Max	7.7	<b>438</b>	334
	Mean	7.1	49.8	164.7
SW-6 (EPA ID 58)	Min	6.6	3.0	59.2
	Max	7.8	<b>297</b>	295
	Mean	7.2	38.1	192.7
SW-7 (EPA ID 59)	Min	7.7	2.0	257.7
	Max	8.1	4.0	440.8
	Mean	7.9	3.0	328.9

Note – values above parameter trigger levels are indicated in bold

Surface water pH levels across all sites was slightly alkaline, ranging from 6.6 to 8.1, with an average pH of 7.3 which is similar to previous years. TSS results ranged from 2 mg/L to 438 mg/L, with an average of 26.6 mg/L which is greater than the 12.5 average for 2020 – 2021 period. EC results ranged from 50.4 µS/cm to 673 µS/cm, with an average of 314 µS/cm which is less than the 368 average reported in 2020 - 2021. Readings outside trigger levels were investigated in accordance with the TARP and found to remain consistent with historical monitoring and elevated levels were primarily a result of seasonal or localised natural influences following a period of above average rainfall. All readings returned to baseline levels and no environmental harm was observed. No trend or significant water quality changes as a result of the mining operations were detected.

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### **7.3.1 Performance issues and improvements**

During the 2021-2022 review period BIM rolled out an online public portal for reporting its surface water data. The data and reports are available at [Web Reports \(esdat.net\)](https://esdat.net).

The reporting period presented significant challenges with site access due to health and safety reasons, impacting occasional monitoring.

A significant improvement to the site based monitoring was the installation of realtime water quality monitoring of pH, turbidity and conductivity. The reporting is available on the company portal [Dargues | Weather Station - Aurelia Metals](#).

### **7.3.2 Compensatory Flow**

During the reporting period, no compensatory flow was discharged to Majors Creek or was required. A consultant has been engaged to investigate the compensatory flow program as the review to the groundwater impact model has shown the project is having a negligible impact on stream flows in Majors Creek.

## 8. Rehabilitation During the Reporting Period

### 8.1 Rehabilitation Reforms

The NSW Resources Regulator recently released a new set of compliance and reporting requirements for rehabilitation (known as the Rehab reforms) through the development of a new regulation under the Mining Act 1992. The Mining Amendment (Standard Conditions of Mining Leases – Rehabilitation) Regulation 2021 and the Form and Way documents set out the mandatory requirements under the new conditions. The Rehab Reforms set clear, achievable requirements. During the reporting period BIM prepared the documentation and plans required to comply with the Rehab reforms. The Rehabilitation Management Plan was prepared as part of this reform process replacing the previous Mining Operations Plan which expired, July 1 2022. The Rehabilitation management plan together with the Forward program are available on the BIM website [Rehabilitation Management \(aureliametals.com.au\)](http://aureliametals.com.au).

### 8.2 Planned Rehabilitation Activities

There are no rehabilitation activities planned for the next reporting period. BIM has recently completed construction of DGM and, as such, the mine footprint is now at its maximum extent and being fully utilised, as a result, no rehabilitation is required at this time.

BIM has minimal areas of rehabilitation requiring maintenance due to the small rehabilitation footprint and active nature of the mine. Regular site inspections identify any maintenance tasks required on existing rehabilitated areas. Corrective action will be put in place where rehabilitation is not tracking towards rehabilitation objectives and completion criteria.

### 8.3 Rehabilitation Trials and Research

During the reporting period no rehabilitation trials or research were conducted within the Mining Lease Area.

During the preparation of the rehabilitation management plan BIM completed a risk assessment which identified knowledge gaps. These knowledge gaps have been documented as treatment plans to be actioned over the 3-year forward program period. The following treatment plans will be actioned as part of an improvement plan:

- Develop a rehabilitation procedure prior to commencing rehabilitation activities
- Develop a quality assurance signoff process for reach stage of rehabilitation
- Prepare a soils and material balance
- Develop a historical mining register for all mining impacts
- Develop a historical mining register for impacts on the lease

### 8.4 Rehabilitation schedule

Dargues Gold Mine will undertake rehabilitation as soon as reasonably practical once areas of disturbance are made available for rehabilitation activities. This will be dependent on factors such as availability of land for rehabilitation, current and future use of infrastructure and disturbance areas. Rehabilitation works for the forecast period is limited to minor rehabilitation works of exploration disturbance areas and field tracks. Table 35 outlines the three yearly forecast cumulative disturbance and rehabilitation progression. Table 36 provides a breakdown of the areas to be treated over the course of 2021-22.

**Table 35 Three-yearly forecast cumulative disturbance and rehabilitation progression**

Forecast	Unit	Year 1	Year 2	Year 3
Total surface disturbance footprint	ha	68.25	68.25	68.25
Total active disturbance	ha	68.25	68.25	68.25
Land prepared for rehabilitation	ha	0	0	0
Area proposed for active rehabilitation	ha	0	0.18	0.18
Total new active disturbance area	ha	7.59		
* Categories included in 2021-22 data				

**Table 36 Area Treated**

	Area Treated (ha)		Comment/Control Strategies/Treatment Details
	Report Period	Next Period	
Additional Erosion Control Works	0	0	All erosion controls for operation of the site are now in place.
Re-Covering	0	0	No further re-covering work is planned for the next reporting period.
Treatment/Management	200	200	Grazing by cattle to control grass and potential fire risk.
Re-Seeding/Replanting	0	0	No re-seeding or planting is planned for the next reporting period.
Adversely Affected by Weeds	40	40	The area treated and planned to be treated is subject to maintenance spraying for weeds including Broome and Blackberry
Feral Animal Control	0	0	Control of foxes is planned to occur next reporting period.

## 9. Community Relations

### 9.1 Complaints

BIM operates a 24-hour, 7 day a week, information line (1800 732 002) and email address (dgm.community@aureliametals.com.au) which may be used by the public or other stakeholders to make enquires in relation to DGM or to lodge a complaint.

BIM has implemented a complaint handling and response management system, with the principal aim being, to respond promptly and comprehensively to each complaint received by BIM.

During the reporting period, a total of 114 complaints were received by the mine. **Table 37** shows most complaints were related to noise (95%), with traffic and blasting making up the remaining complaints. The number of complaints reported represents a significant decrease compared to the previous reporting periods where 395 complaints were received. A noise improvement project is scheduled for 2022-23.

**Table 37 Nature of Complaints Received during Reporting Period**

Pollution Complaint Category	Complaints
Air	0
Water	0
Noise	108
Waste	0
Traffic	0
Other	6
Total complaints recorded by the licensee during the reporting period	114

### 9.2 Community Consultative Committee

Four meetings of the Dargues Reef Community Consultative Committee (DRCCC) were held during the reporting period, namely:

- 18 October 2021
- 13 December 2021
- 28 March 2022
- 8 June 2022

Minutes from each of the DRCCC meetings are presented on the Aurelia website (<https://aureliametals.com/projects/dargues/cc-minutes>).

### 9.3 Community Meetings

Three community information meeting were held during the reporting period. They were held on 15 December 2021, 19 December 2021 and 14 June 2022. The information sessions were held to update interested members of the community on the proposed modification, inform the community and planned future activities.

### 9.4 Community Grants Program

During the reporting period, a Community Grants Program was implemented by BIM. The Community Grants Program aims to assist community groups to undertake a wide range of activities that contribute to the social, educational, recreational, environmental and community development aspects of the local communities. Grants of up to \$3,000 are available to eligible applicants. The aim of these grants is to

support organisations that provide specific sustainable outcomes which have long lasting benefit/s to the wider community.

During the reporting period, Grants were awarded to the following organisations:

- Anglican Parish of Braidwood.
- Araluen Progress Association.
- Araluen Recreation Reserve Land Management.
- Braidwood Gold Club.
- Majors Creek Bushfire Brigade.
- Reidsdale Community Association.
- Braidwood Old Sunday School Hall
- Braidwood Apex Club
- Braidwood FM Inc

## **9.5 Other Community Support**

DGM also provided the following community support:

- Rural and Remote Health (Braidwood medical centre)
- Dargues Gold Mine School Environmental Program;
- Inaugural Dargues Gold Mine Scholarship – recipient, Max Bigg
- Partnership with WIRES & other environmental groups to deliver additional environmental education awareness material in the community.

## **9.6 Other Community Consultation**

The Downstream Water User Register was reactivated. Consultations also occurred through Community Information Session, Facebook and LinkedIn.

Aurelia also operates and updates a company website where it provides operational, environmental and cash flow reports, environmental monitoring data, management plans and independent audits.

## 10. Independent Audit

An Independent Environment Audit (IEA) was conducted at DGM in February 2022 as a result of two years passing since the previous audit and as per Schedule 5, Condition 8 of the Project Approval. The IEA assessed the environmental performance of the site against the conditions of the Project Approval, EPL, ML and EPBC approvals as well as the adequacy of management strategies and plans currently in place.

Consultation with stakeholder agencies was undertaken as part of the IEA with responses from DPIE, NSW Resources Regulator, Dargues Gold Mine CCC and Queanbeyan-Palerang Council incorporated into the audit.

The Environmental Management Strategy (EMS) and associated management plans that form the strategy were reviewed and assessed as being generally adequate to address the approval and licence requirements. Some recommended revisions were received and will be incorporated into subsequent reviews of the management plans.

The IEA was undertaken in accordance with the DPIE (2020) *Independent Audit Post Approval Requirements* and identified 11 non-compliances (see Table 37). In addition, recommendations for improvement for 13 conditions were also provided even though the intent of the condition was deemed complaint.

Table 38 details the conditions and audit recommendations. The full audit report can be found on the Aurelia website.

**Table 38 Independent Environmental Audit non-compliances and recommendations**

Condition	Comment/Audit finding/Recommendations/Progress
Schedule 2, Condition 2 – Terms of Approval Schedule 3, Condition 20 – Water Supply	Non-compliant (NC2) <u>Recommendation</u> Submit an application to amend the Project Approval to include contingency water sources <u>Progress</u> Modification 5 application was submitted to the Department for assessment and approval.
Schedule 3, Condition 1 – Noise Criteria	Non-compliant (NC1) Noise survey not completed in December 2019 due to bushfire
Schedule 3, Condition 41 – Transport Operating Conditions	Non-compliant (NC3) <u>Recommendation</u> Append the Drivers Code of Conduct to the next revision of the Traffic Management Plan and provide to all transport contractors <u>Progress</u> The drivers code of conduct has been appended to the Traffic management plan. The traffic management plan has been uploaded to the Major projects portal for consultation by stakeholders and review and approval by the Department.
Schedule 3, Condition 47A – Waste Performance Measures – Paste Fill Statements of Commitments 6.13: Paste Fill	Non-complaint (NC4) <u>Recommendation</u> The paste fill monitoring program outlined in the approved Waste Management Plan must be adhered to and reported in the Annual Review reports. The next version of the Waste Management Plan should reassess the method of paste fill testing to also include Australian Standard Leaching Procedure (ASLP) analysis. Consider

Condition	Comment/Audit finding/Recommendations/Progress
	<p>also assessing leachate against the Australian and New Zealand Guidelines (ANZG) criteria</p> <p><u>Progress</u></p> <p>Paste samples are collected in line with the waste management plan and sent to a NATA approved laboratory for analysis. The results are uploaded directly to the Laboratory information system.</p>
<p>Schedule 3, Condition 47 – Waste Operating Conditions</p> <p>Statement of Commitments 6.5: Minimisation of Groundwater Contamination</p>	<p>Non-compliant (NC5)</p> <p><u>Recommendation</u></p> <p>All chemicals and wastes should be stored within a bunded and ideally roofed area. Waste should be disposed of appropriately.</p> <p><u>Progress</u></p> <p>The bunded area has been built and all chemicals and waste are stored within the bunded area. Waste continues to be managed by an accredited waste management contractor.</p>
<p>Schedule 5, Condition 4 – Revision of Strategies, Plans and Programs</p> <p>EPBC 2015 7539</p> <p>8. Project Area</p>	<p>Non-complaint (NC6)</p> <p><u>Recommendation</u></p> <p>Clarify document control sections for each management plan to differentiate between document reviews, revisions and submissions to stakeholders. A number of management plans are non-compliance for approval from the Department/Secretary following the latest revisions.</p> <p><u>Progress</u></p> <p>All management plans have been revised and track changes uploaded to the Major Projects Portal for consultation, review and approval by the Department. At the time of writing the management plans were still awaiting feedback from the feedback from determined stakeholders.</p>
<p>Schedule 5, Condition 10 – Access to Information</p> <p>EPBC 2015 7539</p> <p>8. Project Area</p>	<p>Non-compliant (NC7)</p> <p><u>Recommendation</u></p> <p>Provide the following documents on the website:</p> <ul style="list-style-type: none"> <li>EPBC approvals</li> <li>Current Confirmation of Cover</li> <li>Ecology Monitoring data</li> <li>Incident Investigation reports</li> <li>Environmental Management Strategy</li> <li>Construction Environmental Management Plan</li> <li>Cardno (2011) Aquatic Ecological Assessment</li> </ul> <p><u>Progress</u></p> <p>The EPBC approval, Ecology monitoring data (reports), Environmental management strategy, Construction environmental management plan and Cardno assessment have been uploaded to the Company website.</p>
<p>Statement of Commitments 2: Area of Activities</p>	<p>Non-compliant (NC8)</p> <p><u>Recommendation</u></p> <p>Apply to modify the Project Approval</p> <p><u>Progress</u></p> <p>The Modification 5 application was submitted to the Department for assessment and approval.</p>
<p>Statement of Commitments 15.21A: Ongoing Monitoring</p>	<p>Non-compliant (NC9)</p> <p><u>Recommendation</u></p>



Condition	Comment/Audit finding/Recommendations/Progress
	<p>Clarify this commitment in the Water Management Plan, including listing the locations to be monitored. Monitoring results to be included on the website in the Annual Review reports.</p> <p><u>Progress</u></p> <p>The sensors to monitoring water level and quality have been installed and the data is available in real time on the Company website.</p>
<p>Environment Protection Licence L2.3-4</p>	<p>Non-Complaint (NC10)</p> <p><u>Recommendation</u></p> <p>Noise monitoring reports should include parameters measured at 10metres (m) above the ground as reported by the on-site weather station, not as observed by the operator at perhaps 1.5m above the ground.</p> <p><u>Progress</u></p> <p>Noise monitoring reports now report parameters measured at 10 meters above the ground as reported by the on-site weather station.</p>
<p>Environment Protection Licence L2.6</p>	<p>Non-complaint (NC11)</p> <p><u>Recommendation.</u></p> <p>Noise monitoring reports should include modifying factors (particularly tonal and low frequency noise) as required by the NSW Industrial Noise Policy (and its successor the Noise Policy for Industry)</p> <p><u>Progress</u></p> <p>Noise monitoring reports apply modifying factors where applicable.</p>

## 11. Incidents and Non-Compliances During the Reporting Period

A full summary of incidents and non-compliances have been provided in **Table 39** below.

BIM has communicated with the community via Facebook, CCC notification, the Community Information sessions, and on the Aurelia Website.

(<https://aureliametals.com/projects/dargues/media-statements>).

**Table 39 Summary of Incidents and Non-Compliances during the Annual Review Period**

Relevant Approval	Condition #	Condition Description	Comment	Relevant Section of Annual Review
PA 10_0054 MOD4	Condition 2, Schedule 2	The Proponent shall carry out the project generally in accordance with the EA.	During February and March 2022, waste rock was temporarily stockpiled at a height greater than the AHD values stated in the Indicative Layout of the Eastern Waste Rock Emplacement in the EA and Appendix 2 of the Project Approval  The department assessed the breach in accordance with its Compliance Policy and issued BIM with a warning for the breach.	Section 4.2
PA 10_0054 MOD4	Schedule 3, Condition 41(b)	The Proponent shall ensure that: <i>the dispatch of concentrate from the site is limited to between the hours of 7am to 10pm Monday to Saturday and 8am-10pm Sundays and Public Holidays</i>	A Concentrate truck movement occurred during curfew hours on 30 June 2022 at 22:07.  The department assessed the breach in accordance with its Compliance Policy and issued BIM with a warning for the breach.	Section 4.7
PA 10_0054 MOD4	Schedule 3, condition 47A	<i>The Proponent shall ensure that any paste fill used to fill mine voids on site: (a) complies with the leachable concentration (TCLP) criteria and specific contaminant concentration (SCC) criteria for general solid waste (non-putrescible); and (b) is not classified as a liquid waste, under the Waste Classification Guidelines (EPA, 2009), or its latest version</i>	Monitoring was not conducted in accordance with management plan requirements.  The department assessed the breach in accordance with its Compliance Policy and issued BIM with a warning for the breach.	Section 6.5
PA 10_0054 MOD4	Schedule 3, condition 29(d)	<i>The monitoring program to be prepared as part of the Surface Water Monitoring Program pursuant to condition 29(d) in schedule 3 of the approval is to include a program to monitor pH and electrical conductivity, in real time, from at least three locations, including locations within and downstream of the tailings storage facility</i>	Not all the required real-time pH and electrical conductivity monitors were installed as part of the Surface Water Monitoring Program as required under Statement of Commitments 15.12A  The department assessed the breach in accordance with its Compliance Policy and issued BIM with a warning for the breach.	Section 10
PA 10_0054 MOD4	Schedule 3, Condition 17	<i>Dust deposition will be measured and reported on a monthly basis. Exposed gauges will be replaced on a monthly basis, with analysis conducted at a NATA accredited laboratory for insoluble solids and percentage ash.</i>	Monitoring schedule at dust deposition gauges was not in accordance with the schedule  The department assessed the breach in accordance with its Compliance Policy and issued BIM with a warning for the breach.	Section 6.62
EPL 20095	M2.3	Water and/or land monitoring requirements	Missing surface water monitoring data at 8 sites during the reporting period, as reported in the 2021 Annual Return.	Section 7.2

Relevant Approval	Condition #	Condition Description	Comment	Relevant Section of Annual Review
EPL 20095	M2.2	Air monitoring of particulates – deposited matter monthly at EPL ID 77	Failed to comply with monitoring schedule as property was sold.	Section 6.6

## **12. Activities To Be Completed During the Next Reporting Period**

During the next reporting period, BIM will be in steady state operations and, as a result, activities to be completed are principally associated with underground mining and processing of ore, with the exception of Stage 3 construction of the TSF.

Other activities proposed for the next reporting period include:

- Completion of the TSF Stage 3 lift construction activities;
- Application to modify the project approval for an additional water storage facility, emergency trucking of water and some administrative amendments to conditions;
- Studies to investigate the requirement for compensatory flow discharge to Majors Creek;
- Noise Improvement Program to be undertaken; and
- Treatment plans to address gaps in rehabilitation management.

## 13. References

- Big Island Mining Pty Ltd (BIML) (2021) *Pollution Incident Response Plan (PIRMP)*
- Diversified Minerals Pty Ltd (DMPL) (2020) *Noise Management Plan (NMP)*
- Diversified Minerals Pty Ltd (DMPL) (2020) *Water Management Plan (WMP)*
- EcoLogical (2021) *Terrestrial Flora and Fauna Monitoring Surveys*
- EcoLogical (2021) *Aquatic Ecological Monitoring*
- R.W. Corkery & Co. Pty Limited (Corkery) (2010) *Environmental Assessment (EA)*
- R.W. Corkery & Co. Pty Limited (Corkery) (2017) *Mining Operations Plan (MOP)*
- R.W. Corkery & Co. Pty Limited (Corkery) (2019) *Aboriginal Heritage Management Plan (AHMP)*
- R.W. Corkery & Co. Pty Limited (Corkery) (2019a) *Air Quality and Greenhouse Gas Management Plan*
- R.W. Corkery & Co. Pty Limited (Corkery) (2019b) *Biodiversity Management Plan (BMP)*
- R.W. Corkery & Co. Pty Limited (Corkery) (2019c) *Blast Management Plan (BMP)*
- R.W. Corkery & Co. Pty Limited (Corkery) (2019d) *Bushfire Management Plan (BMP)*
- R.W. Corkery & Co. Pty Limited (Corkery) (2019e) *Traffic Management Plan (BMP)*
- R.W. Corkery & Co. Pty Limited (Corkery) (2019f) *Waste Management Plan (BMP)*

# **Appendix A – Water Quality Monitoring Results**

Table A1 - Groundwater Quality Monitoring

Monitoring location	Parameter	pH value	EC	Dissolved Oxygen	REDOX	Carbonate Alkalinity as CaCO3	T.Alkalinity as CaCO3	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium	Nitrate as N	Total Oxidized Nit. As N	Total Phosphorus as P	Aluminium	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Zinc	
	Unit	pH	µS/cm	%sat	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	Trigger Value	6.5-8.5	>1300	3.21		>0.1	>200	>300	>110	>110	>50	>60	>1.8	>3.2	>3.2				>0.002	>0.0005	>0.001	>0.0007		>0.0012	>0.0002	>0.003	>0.057
DRWB06	Min	6.5	309	8.45	60	<0.1	68	9	54.9	32	9	13.8	0.5	<0.05	0.2	0.030	0.010	<0.001	>0.0005	<0.001	<b>0.0040</b>	<0.01	<0.0002	<0.0001	<0.001	0.0090	
	Max	7.3	326	5.10	285	<0.1	79	11.8	70.1	37.3	10.3	14.9	0.6	<0.05	0.2	0.060	0.010	<0.001	>0.0005	<0.001	<b>0.0040</b>	<0.01	<0.0002	<0.0001	<0.001	0.0300	
	Avg	6.8	319	2.93	178	<0.1	73.3	10.6	63.3	35	9.7	14.3	0.5	<0.05	0.2	0.050	0.010	<0.001	>0.0005	<0.001	<b>0.0040</b>	<0.01	<0.0002	<0.0001	<0.001	0.0173	
DRWB07	Min	6.7	312	2.93	9	<0.1	113	24.1	9.4	26.4	10.4	19.5	1.1	0.1	<b>3.4</b>	0.600	<0.01	<0.001	>0.0005	<0.001	<0.001	9.830	<0.0002	<0.0001	<0.001	0.0330	
	Max	6.7	312	5.01	9	<0.1	113	24.1	9.4	26.4	10.4	19.5	1.1	0.1	<b>3.4</b>	0.600	<0.01	<0.001	>0.0005	<0.001	<0.001	9.830	<0.0002	<0.0001	<0.001	0.0330	
	Avg	6.7	312	4.16	9	<0.1	113	24.1	9.4	26.4	10.4	19.5	1.1	0.1	<b>3.4</b>	0.600	<0.01	<0.001	>0.0005	<0.001	<0.001	9.830	<0.0002	<0.0001	<0.001	0.0330	
DRWB08	Min	6.5	165	2.68	167	<0.1	64	12.1	5	15.5	3.5	10.5	0.6	0.2	0.1	0.020	<0.01	<0.001	>0.0005	<0.001	<0.001	<0.01	<0.0002	<0.0001	0.0030	0.0060	
	Max	7.1	183	6.33	300	<0.1	79	18.2	5.8	17.3	3.9	11.6	0.7	0.2	0.2	0.150	<0.01	<0.001	>0.0005	<0.001	<0.001	<0.01	<0.0002	<0.0001	0.0039	0.0350	
	Avg	6.7	176	4.34	234	<0.1	69.7	14.6	5.4	16.3	3.7	10.9	0.6	0.2	0.2	0.063	<0.01	<0.001	>0.0005	<0.001	<0.001	<0.01	<0.0002	<0.0001	0.0034	0.0203	
DRWB09	Min	7.2	<b>1320</b>	5.06	148	<0.1	197	296	48.1	<b>176</b>	23	<b>70.9</b>	1.5	1.2	1.4	0.080	0.020	<0.001	>0.0005	0.0060	<0.001	<0.01	<0.0002	<0.0001	0.0018	<b>0.1380</b>	
	Max	7.2	<b>1320</b>	7.48	148	<0.1	197	296	48.1	<b>176</b>	23	<b>70.9</b>	1.5	1.2	1.4	0.080	0.020	<0.001	>0.0005	0.0060	<0.001	<0.01	<0.0002	<0.0001	0.0018	<b>0.1380</b>	
	Avg	7.2	<b>1320</b>	6.53	148	<0.1	197	296	48.1	<b>176</b>	23	<b>70.9</b>	1.5	1.2	1.4	0.080	0.020	<0.001	>0.0005	0.0060	<0.001	<0.01	<0.0002	<0.0001	0.0018	<b>0.1380</b>	
DRWB10	Min	7.1	579	1.70	203	<0.1	182	32.6	4.4	70.4	11	31.2	<b>3.2</b>	<0.05	1.1	0.110	0.040	<0.001	>0.0005	0.0020	<b>0.0020</b>	0.010	<0.0002	<0.0001	<0.001	<0.005	
	Max	7.7	719	7.82	234	<0.1	<b>237</b>	65.6	26.3	92.3	15.3	35.3	<b>4.6</b>	<0.05	1.8	0.190	0.050	<0.001	>0.0005	0.0020	<b>0.0020</b>	1.230	<0.0002	<0.0001	<0.001	<0.005	
	Avg	7.3	671	3.36	219	<0.1	<b>217</b>	50.2	14.9	84.5	13.8	33.1	<b>4</b>	<0.05	1.5	0.160	0.047	<0.001	>0.0005	0.0020	<b>0.0020</b>	0.433	<0.0002	<0.0001	<0.001	<0.005	
DRWB12	Min	7.1	524	5.06	135	<0.1	139	42.3	23.4	59.7	11.8	27.6	1.3	0.7	0.8	0.010	0.020	<0.001	>0.0005	<0.001	<0.001	<0.01	<0.0002	<0.0001	<0.001	0.0070	
	Max	8.1	631	8.47	219	<0.1	<b>205</b>	66	43.5	76.8	15.6	28.1	1.5	1.3	1.3	0.020	0.020	<0.001	>0.0005	<0.001	<0.001	<0.01	<0.0002	<0.0001	<0.001	<b>0.0120</b>	
	Avg	7.6	577	6.61	183	<0.1	175.3	52.8	33.4	69.2	13.9	27.9	1.4	0.9	1.1	0.017	0.020	<0.001	>0.0005	<0.001	<0.001	<0.01	<0.0002	<0.0001	<0.001	0.0095	
DRWB13	Min	7.1	703	1.72	106	<0.1	<b>210</b>	84	16.9	87.3	18.3	30.4	1.6	<0.05	<0.05	0.020	0.020	<0.001	>0.0005	<0.001	<0.001	0.850	<0.0002	<0.0001	<0.001	<0.005	
	Max	7.8	752	7.47	234	<0.1	<b>227</b>	92.8	19.7	90.9	19.3	32	1.7	<0.05	<0.05	0.020	0.020	<0.001	>0.0005	<0.001	<0.001	0.850	<0.0002	<0.0001	<0.001	<0.005	
	Avg	7.4	732	3.40	183	<0.1	<b>216</b>	88.6	17.8	88.6	18.9	31.1	1.7	<0.05	<0.05	0.020	0.020	<0.001	>0.0005	<0.001	<0.001	0.850	<0.0002	<0.0001	<0.001	<0.005	
Tailings Storage Facility Monitoring Bores																											
TSFMBO2A	Min	<b>5.8</b>	884	0.33	39.2	<0.1	123	115	19.8	82	28.2	45.8	1.2	<b>3.9</b>	<b>4.2</b>	0.030	0.010	<0.001	0.0001	0.0010	<b>0.001</b>	<0.01	<0.0002	<0.0001	0.0012	0.0060	
	Max	7.7	<b>1400</b>	9.84	404	<0.1	<b>313</b>	194	54.4	94.3	34.1	59.4	<b>2.2</b>	<b>5.9</b>	<b>5.9</b>	0.200	0.040	<0.001	0.0001	0.0020	<b>0.001</b>	<0.01	<0.0002	<0.0001	0.0034	<b>0.0960</b>	
	Avg	7.1	947	7.05	246	<0.1	151.6	178.2	33.6	87.7	31.4	52.2	1.5	<b>4.4</b>	<b>4.8</b>	0.070	0.022	<0.001	0.0001	0.0017	<b>0.001</b>	<0.01	<0.0002	<0.0001	0.0020	0.0159	
TSFMBO2B	Min	<b>6.1</b>	720	2.22	52	<b>5.5</b>	24	110	21.4	62.8	14.5	44.1	<b>2.6</b>	1.4	3.1	0.010	0.010	<0.001	>0.0005	0.0040	<b>0.001</b>	<0.01	0.0009	<0.0001	<0.001	0.0050	
	Max	8.5	1130	10.19	450	<b>7.4</b>	132	188	57.6	86.4	22.2	56.2	<b>6.8</b>	<b>4.5</b>	<b>5.2</b>	0.040	0.130	<0.001	>0.0005	0.0110	<b>0.006</b>	<0.01	0.0009	<0.0001	<0.001	0.0370	
	Avg	7.3	825.2	5.93	231	<b>6.5</b>	56.2	173	42.7	75.4	18.8	49.6	<b>4.2</b>	<b>3.2</b>	<b>3.6</b>	0.018	0.021	<0.001	>0.0005	0.0062	<b>0.002</b>	<0.01	0.0009	<0.0001	<0.001	0.0107	
TSFMBO3A	Min	7.2	1220	1.52	0.1	<b>13.6</b>	<b>146</b>	24.5	2.8	<b>134</b>	43.4	48.9	1.7	0.1	1.2	0.010	0.030	0.001	>0.0005	0.0010	<b>0.001</b>	0.030	0.0002	0.0001	<b>0.0087</b>	0.0050	
	Max	<b>12.9</b>	<b>9240</b>	8.10	308	<b>1130</b>	<b>2070</b>	240	88.6	<b>719</b>	43.4	<b>212</b>	<b>63.7</b>	<b>9.7</b>	<b>10.2</b>	0.070	1.800	0.001	>0.0005	0.0030	<b>0.007</b>	0.100	0.0010	0.0001	<b>0.0215</b>	0.0520	
	Avg	<b>12.5</b>	<b>4980</b>	4.22	85	<b>100.8</b>	<b>1487.7</b>	87.2	10.1	<b>552.4</b>	43.4	<b>90.3</b>	<b>30.3</b>	1	2.3	0.021	0.811	0.001	>0.0005	0.0020	<b>0.002</b>	0.070	0.0003	0.0001	<b>0.0138</b>	0.0140	
TSFMBO3B	Min	7	1040	2.13	46	<b>78.9</b>	142	129	22.8	78	25.8	39.6	1	0.1	1.6	0.020	0.010	0.002	>0.0005	0.0010	<b>0.001</b>	0.010	<0.0002	<0.0001	0.0010	0.0060	
	Max	<b>8.7</b>	<b>1680</b>	12.07	363	<b>78.9</b>	<b>235</b>	257	<b>112</b>	<b>142</b>	47.6	<b>62.2</b>	<b>19.9</b>	<b>12.8</b>	<b>15.1</b>	0.070	0.080	0.002	>0.0005	0.0020	<b>0.004</b>	0.060	<0.0002	<0.0001	0.0010	0.0470	
	Avg	7.9	1157	3.98	189	<b>78.9</b>	176.4	221.6	62	<b>120.2</b>	39.1	50.9	<b>1.8</b>	<b>4</b>	<b>4.5</b>	0.035	0.028	0.002	>0.0005	0.0013	<b>0.002</b>	0.030	<0.0002	<0.0001	0.0010	0.0155	
TSFMBO4B	Min	7.2	<b>1590</b>	2.86	50	<0.1	189	<b>344</b>	<b>138</b>	<b>180</b>	21.2	<b>151</b>	<b>6.1</b>	1.2	3	0.520	0.020	0.001	0.0001	<0.001	<b>0.001</b>	0.010	<0.0002	<0.0001	0.0020	0.0070	
	Max	8.2	<b>1810</b>	51.00	244	<0.1	<b>236</b>	<b>360</b>	<b>155</b>	<b>361</b>	33.1	<b>172</b>	<b>8</b>	3	<b>5.5</b>	<b>7.530</b>	0.070	0.001	0.0002	<0.001	<b>0.001</b>	0.030	<0.0002	<0.0001	<b>0.0032</b>	<b>0.3460</b>	
	Avg	7.6	<b>1675</b>	8.19	135	<0.1	<b>212.5</b>	<b>353.8</b>	<b>143.5</b>	<b>250</b>	28.2	<b>161.6</b>	<b>7.1</b>	1.9	<b>4</b>	<b>2.636</b>	0.028	0.001	0.0001	<0.001	<b>0.001</b>	0.024	<0.0002	<0.0001	0.0026	<b>0.1352</b>	
TSFMBO5B	Min	7.5	700	0.08	26	<b>5.4</b>	31	104	33	30.4	15	50.5	1.2	0.1	0.9	0.010	0.010	0.001	0.0001	0.0010	<b>0.001</b>	0.010	<0.0002	<0.0001	0.0010	0.0050	
	Max	<b>9.6</b>	1100	8.02	255	<b>137</b>	<b>303</b>	223	72	<b>122</b>	39.2	<b>67.2</b>	<b>29.6</b>	3.1	<b>3.3</b>	0.050	0.060	0.002	0.0001	0.0020	<b>0.002</b>	0.080	<0.0002	<0.0001	0.0014	0.0120	
	Avg	8.3																									

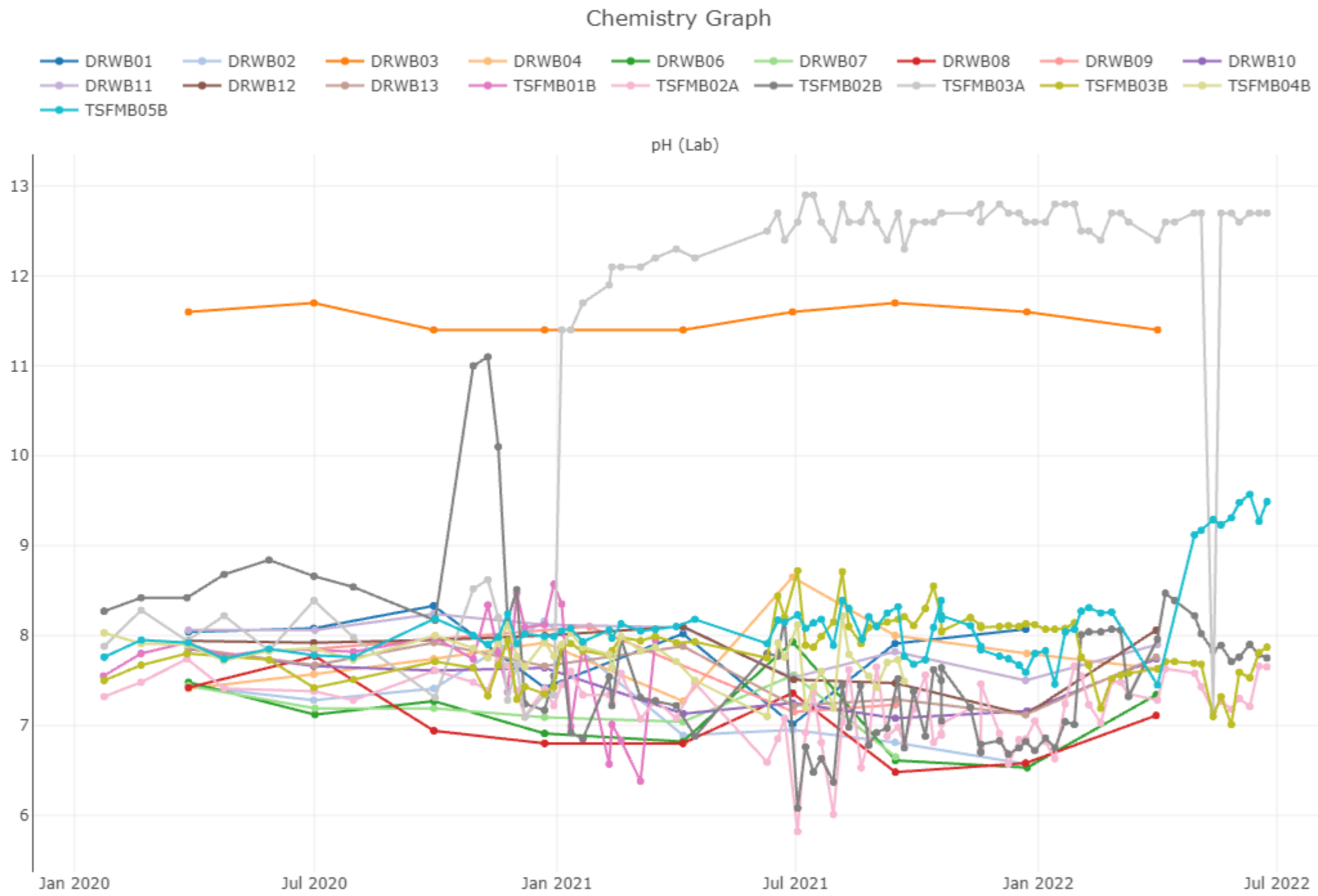


Figure A1 – Groundwater Bore Monitoring pH – 2020-22



### Chemistry Graph

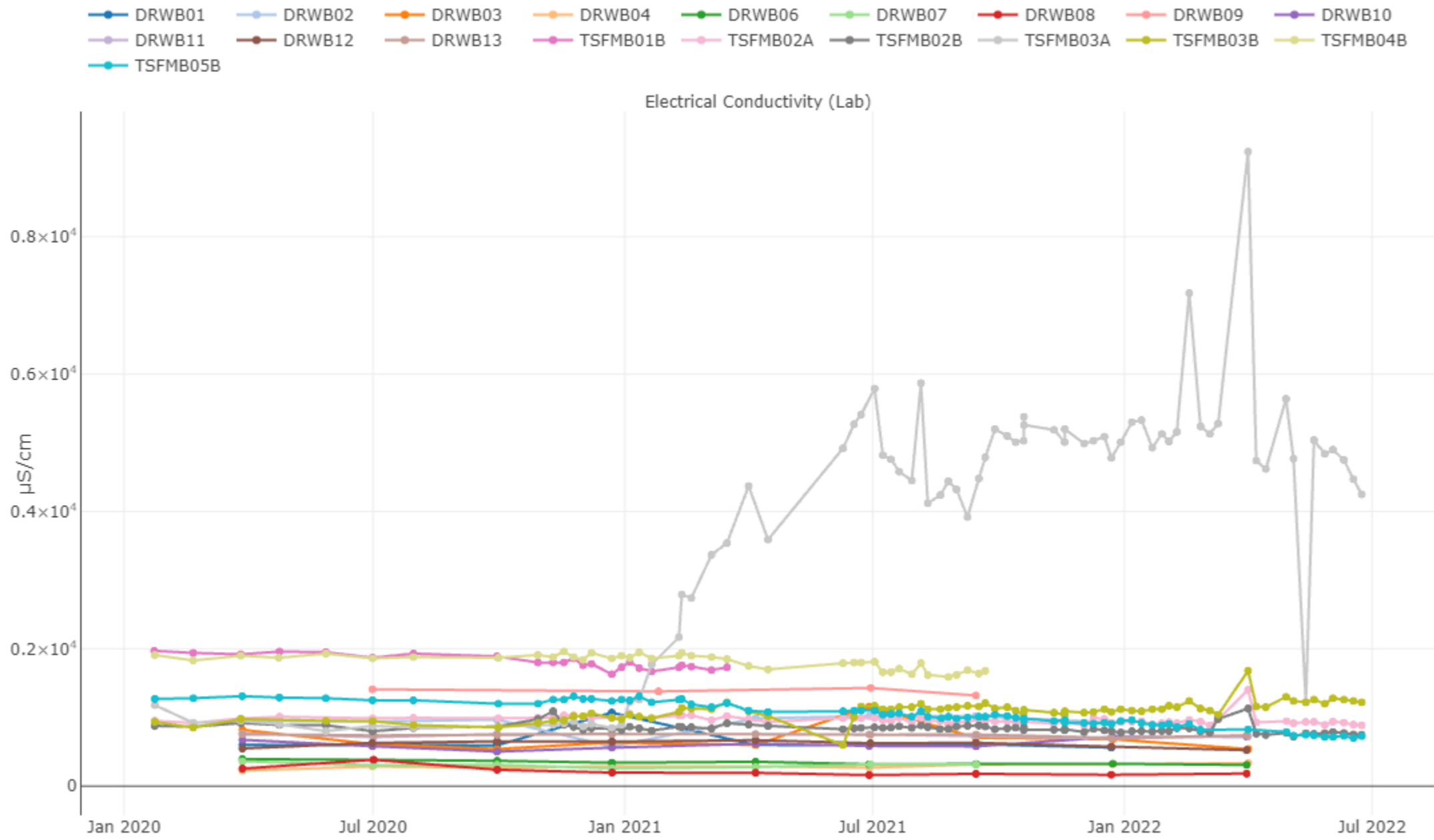


Figure A2 – Groundwater Bore Monitoring EC – 2020 to 2022

Table A2 - Surface Water Quality Monitoring

Monitoring Location	Parameter	pH value	Oil and Grease	TSS	Electrical Conductivity	Redox	Carbonate Alkalinity as CaCO <sub>3</sub>	Total Alkalinity as CaCO <sub>3</sub>	Iron	Chloride	Sulphate	Calcium	Magnesium	Sodium	Potassium	Nitrate as N	Total Oxidized Nit. As N	Total Phosphorus as P	Aluminium	Arsenic <sup>1</sup>	Cadmium	Chromium	Copper	Lead	Mercury	Nickel
	Unit	pH	mg/L	mg/L	µS/cm	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	Trigger Value	6.5-8.5	>10	>50	>450		>1.0	>85		>75	>25	>35	>15	>25	>2.5	>0.65		>0.20		>0.013	>0.0016	>0.001	>0.0099	>0.063	>0.0006	>0.078
SW-1 (53)	Min	6.7	<10	2.0	98.3	102	<0.1	24.0	0.130	5.1	10.0	9.6	2.2	5.2	0.4	0.4	1.2	<0.01	0.02	<0.001	<0.05	<0.001	0.001	0.0002	<0.0001	0.001
	Max	7.9	<10	<b>103.0</b>	368.7	402	<0.1	<b>132.0</b>	1.340	36.4	<b>65.5</b>	<b>61.3</b>	10.9	<b>26.0</b>	<b>3.5</b>	<b>16.1</b>	17.9	0.1	0.47	<0.001	<0.05	<0.001	<b>0.096</b>	0.0060	<0.0001	0.003
	Mean	7.5	<10	15.6	241.8	223	<0.1	<b>88.9</b>	0.573	21.6	21.8	32.5	7.9	19.0	1.9	<b>2.9</b>	3.9	<0.01	0.15	<0.001	<0.05	<0.001	<b>0.011</b>	0.0013	<0.0001	0.002
SW-2 (54)	Min	6.8	<10	3.0	183.1	97	<0.1	28.0	0.050	5.6	21.4	27.6	3.1	9.6	1.0	<b>1.2</b>	1.7	<0.01	0.02	<0.001	<0.05	<0.001	0.001	0.0002	<0.0001	0.009
	Max	8.1	<10	<b>191.0</b>	613.0	382	<0.1	<b>184.0</b>	0.610	<b>90.5</b>	<b>61.8</b>	<b>72.6</b>	<b>18.9</b>	<b>31.5</b>	<b>3.5</b>	<b>15.4</b>	17.4	0.1	0.36	<0.001	<0.05	<0.001	0.003	0.0004	<0.0001	0.009
	Mean	7.5	<10	37.6	<b>411.1</b>	219	<0.1	<b>91.4</b>	0.324	45.5	<b>38.6</b>	<b>53.9</b>	11.9	23.9	2.0	<b>6.8</b>	7.8	<0.01	0.13	<0.001	<0.05	<0.001	0.002	0.0003	<0.0001	0.009
SW-3 (55)	Min	6.6	<10	3.0	114.9	128	<0.1	26.0	0.040	5.6	15.4	15.3	2.7	6.7	1.0	<b>1.0</b>	1.3	<0.01	0.02	<0.001	<0.05	<0.001	0.001	0.0002	<0.0001	0.001
	Max	8.1	<10	<b>237.0</b>	<b>673.0</b>	374	<0.1	<b>191.0</b>	0.820	<b>99.2</b>	<b>88.1</b>	<b>69.0</b>	<b>18.4</b>	<b>66.2</b>	<b>15.3</b>	<b>24.8</b>	27.5	<b>0.2</b>	0.59	<0.001	<0.05	<0.001	0.004	0.0006	<0.0001	0.001
	Mean	7.4	<10	26.4	426.8	228	<0.1	84.8	0.311	44.5	<b>36.1</b>	<b>52.1</b>	11.9	<b>25.6</b>	2.8	<b>6.9</b>	7.9	<0.01	0.16	<0.001	<0.05	<0.001	0.003	0.0003	<0.0001	0.001
SW-4 (56)	Min	6.7	<10	3.0	50.4	124	<0.1	13.0	0.210	5.0	3.7	4.1	1.5	4.2	0.4	0.1	0.6	<0.01	0.05	<0.001	<0.05	<0.001	0.001	0.0002	<0.0001	<0.001
	Max	7.8	<10	<b>97.0</b>	174.2	366	<0.1	79.0	1.530	18.4	8.9	13.9	6.4	15.8	2.2	0.3	1.9	<b>0.3</b>	1.56	<0.001	<0.05	<0.001	0.002	0.0010	<0.0001	<0.001
	Mean	7.2	<10	15.4	113.5	228	<0.1	45.2	0.953	11.8	5.2	8.8	3.9	11.7	1.6	0.2	1.1	0.1	0.57	<0.001	<0.05	<0.001	0.002	0.0007	<0.0001	<0.001
SW-5 (57)	Min	6.6	<10	5.0	57.4	155	<0.1	17.0	0.250	5.5	6.1	4.9	1.5	5.0	1.0	0.1	0.6	<0.01	0.04	<0.001	<0.05	<0.001	0.001	0.0002	<0.0001	<0.001
	Max	7.7	<10	<b>438</b>	334	364	<0.1	<b>206.0</b>	1.500	24.2	23.2	27.1	8.9	21.9	<b>3.3</b>	3.0	4.1	0.1	1.18	<0.001	<0.05	<0.001	0.004	0.0009	<0.0001	<0.001
	Mean	7.1	<10	49.8	164.7	238	<0.1	61.3	0.942	14.3	9.8	13.7	5.1	13.0	1.8	0.5	1.5	<0.01	0.45	<0.001	<0.05	<0.001	0.002	0.0006	<0.0001	<0.001
SW-6 (58)	Min	6.6	<10	3.0	59.2	139	<0.1	16.0	0.240	5.2	5.7	5.5	1.8	4.8	1.0	0.3	0.9	<0.01	0.03	<0.001	<0.05	<0.001	0.001	0.0002	<0.0001	<0.001
	Max	7.8	<10	<b>297</b>	295	359	<0.1	<b>103.0</b>	1.270	35.1	21.6	28.4	9.6	20.1	<b>3.6</b>	3.8	4.6	0.1	1.55	<0.001	<0.05	<0.001	0.004	0.0008	<0.0001	<0.001
	Mean	7.2	<10	38.1	192.7	242	<0.1	53.9	0.846	19.3	13.2	18.9	6.1	14.1	1.9	1.3	2.2	<0.01	0.43	<0.001	<0.05	<0.001	0.002	0.0005	<0.0001	<0.001
SW-7 (59)	Min	7.7	<10	2.0	257.7	53	<0.1	46.0	0.090	29.3	<b>30.2</b>	31.1	10.2	17.1	1.4	0.4	0.6	<0.01	0.02	<0.001	<0.05	<0.001	0.001	<0.0002	<0.0001	<0.001
	Max	8.1	<10	4.0	440.8	231	<0.1	<b>104.0</b>	0.260	42.4	<b>36.9</b>	<b>42.0</b>	15.2	<b>25.8</b>	2.3	1.1	1.4	<0.01	0.14	<0.001	<0.05	<0.001	0.001	<0.0002	<0.0001	<0.001
	Mean	7.9	<10	3.0	328.9	134	<0.1	75.3	0.163	35.5	<b>34.3</b>	<b>37.6</b>	13.0	20.8	1.8	0.8	1.0	<0.01	0.08	<0.001	<0.05	<0.001	0.001	<0.0002	<0.0001	<0.001

Note: values above parameter trigger levels are indicated in bold