

## A. Statement of Compliance - Licence Details

**ALL Licence holders must check that the Licence details in Section A are correct.**

If there are changes to any of these details, **you must advise Environment Protection Authority (EPA) and apply as soon as possible for a variation to your Licence or for a Licence transfer.**

Licence variation and transfer application forms are available on the EPA website at: <http://www.epa.nsw.gov.au/licensing-and-regulation/licensing> or from regional offices of the EPA, or by contacting by telephone 02 9995 5700.

If you are applying to vary or transfer your Licence, you must still complete and submit this Annual Return.

### A1. Licence holder

**Licence number** : 20795  
**Licence holder** : ILUKA RESOURCES LIMITED  
**Trading name (if applicable)** :  
**ABN** : 34 008 675 018  
**ACN** :  
**Reporting period** : From: 10-6-2019 To: 9-6-2020

### A2. Premises to which Licence Applies (if applicable)

**Common name (if any)** : KARRA STATION  
**Premises** : BALRANALD 2715 NSW

### A3. Activities to which Licence Applies

Mineral processing  
 Mining for minerals

### A4. Other Activities (if applicable)

Waste processing  
 Waste disposal

### A5. Fee-Based Activity Classifications

**Note** that the fee based activity classification is used to calculate the administrative fee.

Fee-based activity	Activity scale	Unit of measure
Mineral processing	> 30,000.00 - 100,000.00	T annual processing capacity

Mining for minerals	> 50,000.00 - 100,000.00	T annual production capacity
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## A6. Assessable Pollutants (if applicable)

**Note** that the identification of assessable pollutants is used to calculate the **load-based fee**.  
The following assessable pollutants are identified for the fee-based activity classifications in the licence:

## B. Monitoring and Complaints Summary

### B1. Number of Pollution Complaints

Pollution Complaint Category	Complaints
Air	0
Water	0
Noise	0
Waste	0
Other	0
<b>Total complaints recorded by the licensee during the reporting period</b>	<b>0</b>

### B2. Concentration Monitoring Summary

For each concentration monitoring point identified in your licence, details are displayed below. If concentration monitoring is not required by your licence, **no data** will appear below.

If data was provided from an uploaded file, the file name will be displayed below instead of any data.

**Note** that this does not exclude the need to conduct appropriate concentration monitoring of assessable pollutants as required by load-based licensing (if applicable).

#### Monitoring Point 1

**Air quality monitoring, The dust gauge identified as Bal1 in the map and email attachment titled 'Bulk Sampling Activity Depositional Gauges - Location Plan' dated 27 May 2016 and kept on EPA file DOC16/230523**

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Particulates - Deposited Matter	grams per square metre per month					

#### Monitoring Point 2

**Air quality monitoring, The dust gauge identified as Bal2 in the map and email attachment titled 'Bulk Sampling Activity Depositional Gauges - Location Plan' dated 27 May 2016 and kept on EPA file DOC16/230523**

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Particulates - Deposited Matter	grams per square metre per month					

### Monitoring Point 3

**Air quality monitoring, The dust gauge identified as Bal3 in the map and email attachment titled 'Bulk Sampling Activity Depositional Gauges - Location Plan' dated 27 May 2016 and kept on EPA file DOC16/230523**

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Particulates - Deposited Matter	grams per square metre per month					

### Monitoring Point 4

**Air quality monitoring, The dust gauge identified as Bal4 in the map and email attachment titled 'Bulk Sampling Activity Depositional Gauges - Location Plan' dated 27 May 2016 and kept on EPA file DOC16/230523**

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Particulates - Deposited Matter	grams per square metre per month					

### Monitoring Point 5

**Air quality monitoring, The dust gauge identified as Bal5 in the map and email attachment titled 'Bulk Sampling Activity Depositional Gauges - Location Plan' dated 27 May 2016 and kept on EPA file DOC16/230523**

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Particulates - Deposited Matter	grams per square metre per month					

## Monitoring Point 6

Groundwater quality monitoring, Groundwater well labelled UGM-M1D identified in Figure B and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24 April 2016 and kept on EPA file DOC16/230523.

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Calcium	milligrams per litre					
Chemical oxygen demand	milligrams per litre					
Chloride	milligrams per litre					
Depth	metres					
Electrical conductivity	microsiemens per centimetre					
Iron	milligrams per litre					
Magnesium	milligrams per litre					
pH	pH					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Sulfate	milligrams per litre					
Sulfide (total)	milligrams per litre					
Total alkalinity	milligrams of calcium carbonate per litre					
Total dissolved solids	milligrams per litre					

## Monitoring Point 7

Groundwater quality monitoring, Groundwater well labelled UGM-M2D identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24 April 2016 and kept on EPA file DOC16/230523.

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Calcium	milligrams per litre					
Chemical oxygen demand	milligrams per litre					
Chloride	milligrams per litre					
Depth	metres					
Electrical conductivity	microsiemens per centimetre					
Iron	milligrams per litre					
Magnesium	milligrams per litre					
pH	pH					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Sulfate	milligrams per litre					
Sulfide (total)	milligrams per litre					
Total alkalinity	milligrams of calcium carbonate per litre					
Total dissolved solids	milligrams per litre					

### Monitoring Point 8

Groundwater quality monitoring, Groundwater well labelled UGM-M4D identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24 April 2016 and kept on EPA file DOC16/230523.

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Calcium	milligrams per litre					

Chemical oxygen demand	milligrams per litre					
Chloride	milligrams per litre					
Depth	metres					
Electrical conductivity	microsiemens per centimetre					
Iron	milligrams per litre					
Magnesium	milligrams per litre					
pH	pH					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Sulfate	milligrams per litre					
Sulfide (total)	milligrams per litre					
Total alkalinity	milligrams of calcium carbonate per litre					
Total dissolved solids	milligrams per litre					

## Monitoring Point 9

Groundwater quality monitoring, Groundwater well labelled BH-M16 identified in Figure 5.1 and Table 5.2 of the document titled 'Groundwater Management Plan - Bulk Sampling Activities, Balranald Mineral Sands Project' dated 22 October 2019 and kept on EPA file DOC20/269429.

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Calcium	milligrams per litre					
Chemical oxygen demand	milligrams per litre					
Chloride	milligrams per litre					
Depth	metres					
Electrical conductivity	microsiemens per centimetre					
Iron	milligrams per litre					

Magnesium	milligrams per litre					
pH	pH					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Sulfate	milligrams per litre					
Sulfide (total)	milligrams per litre					
Total alkalinity	milligrams of calcium carbonate per litre					
Total dissolved solids	milligrams per litre					

### Monitoring Point 10

Groundwater quality monitoring, Groundwater well labelled BH-M23 identified in Figure 5.1 and Table 5.2 of the document titled 'Groundwater Management Plan - Bulk Sampling Activities, Balranald Mineral Sands Project' dated 22 October 2019 and kept on EPA file DOC20/269429.

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Calcium	milligrams per litre					
Chemical oxygen demand	milligrams per litre					
Chloride	milligrams per litre					
Depth	metres					
Electrical conductivity	microsiemens per centimetre					
Iron	milligrams per litre					
Magnesium	milligrams per litre					
pH	pH					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Sulfate	milligrams per litre					

Sulfide (total)	milligrams per litre					
Total alkalinity	milligrams of calcium carbonate per litre					
Total dissolved solids	milligrams per litre					

### Monitoring Point 11

Groundwater quality monitoring, Groundwater well labelled BH-M24 identified in Figure 5.1 and Table 5.2 of the document titled 'Groundwater Management Plan - Bulk Sampling Activities, Balranald Mineral Sands Project' dated 22 October 2019 and kept on EPA file DOC20/269429.

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Calcium	milligrams per litre					
Chemical oxygen demand	milligrams per litre					
Chloride	milligrams per litre					
Depth	metres					
Electrical conductivity	microsiemens per centimetre					
Iron	milligrams per litre					
Magnesium	milligrams per litre					
pH	pH					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Sulfate	milligrams per litre					
Sulfide (total)	milligrams per litre					
Total alkalinity	milligrams of calcium carbonate per litre					
Total dissolved solids	milligrams per litre					

### Monitoring Point 12



Groundwater quality monitoring, Groundwater well labelled BH-M25 identified in Figure 5.1 and Table 5.2 of the document titled 'Groundwater Management Plan - Bulk Sampling Activities, Balranald Mineral Sands Project' dated 22 October 2019 and kept on EPA file DOC20/269429.

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Calcium	milligrams per litre					
Chemical oxygen demand	milligrams per litre					
Chloride	milligrams per litre					
Depth	metres					
Electrical conductivity	microsiemens per centimetre					
Iron	milligrams per litre					
Magnesium	milligrams per litre					
pH	pH					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Sulfate	milligrams per litre					
Sulfide (total)	milligrams per litre					
Total alkalinity	milligrams of calcium carbonate per litre					
Total dissolved solids	milligrams per litre					

**Name of the uploaded file containing point data ▼**

2020 Balranald EPA Licence 20795 Annual Return - Monitoring Data FINAL.xlsx

### B3. Volume or Mass Monitoring Summary

For each volume or mass monitoring point identified in your licence, details are displayed below. If volume or mass monitoring is not required by your licence, **no data** will appear below.

If data was provided from an uploaded file, the file name will be displayed below instead of any data.

**Note** that this does not exclude the need to conduct appropriate volume or mass monitoring of assessable pollutants are required by load-based licensing (if applicable).

## C. Statement of Compliance - Licence Conditions

### C1. Compliance with Licence Conditions

Were all conditions of the licence complied with (including monitoring and reporting requirements)?	<b>No</b>
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### C2. Details of Non-Compliance with Licence

<b>Licence condition number not complied with ▼</b>
Monitoring Point 25
<b>Summary of particulars of the non-compliance ▼</b>
Monitoring point 25 - M4S - not sampled
<b>Further details on particulars of non-compliance, if required ▼</b>
<b>Number of times occurred ▼</b>
1
<b>Date(s) when the non-compliance occurred, if applicable ▼</b>
December 2019
<b>Cause of non-compliance ▼</b>
Well blocked and unable to be sampled - as per previous Annual Returns. The blockage was the result of the drillers backing the rig into the well and subsequently un-lodging the data logger (April 2016). Numerous attempts were made to recover and unblock this well however all proved to be unsuccessful.
<b>Action taken or that will be taken to mitigate any adverse effects of the non-compliance ▼</b>
No adverse effects
<b>Action taken or that will be taken to prevent a recurrence of the non-compliance ▼</b>
Iluka updated the GMP and removed M4S from the monitoring program in April 2020.
<b>Uploaded Document Name ▼</b>
<b>Uploaded Document Description ▼</b>

<b>Licence condition number not complied with ▼</b>
Monitoring point 34 and 35
<b>Summary of particulars of the non-compliance ▼</b>
Monitoring point 34 (M9D) and monitoring point 35 (M9S) not sampled
<b>Further details on particulars of non-compliance, if required ▼</b>

<b>Number of times occurred ▼</b>
1
<b>Date(s) when the non-compliance occurred, if applicable ▼</b>
December 2019
<b>Cause of non-compliance ▼</b>
As reported in previous Annual Returns, land subsidence occurred in the near vicinity of monitoring points 34 and 35. Due to safety concerns an exclusion zone was instated around the monitoring wells and thus were inaccessible for sampling from mid-July 2019 - as per Iluka correspondence to EPA dated 5th August 2016 (Iluka Trim Reference:1877748).
<b>Action taken or that will be taken to mitigate any adverse effects of the non-compliance ▼</b>
No adverse effects
<b>Action taken or that will be taken to prevent a recurrence of the non-compliance ▼</b>
Iluka updated the GMP and removed M9D and M9S from monitoring program in April 2020.
<b>Uploaded Document Name ▼</b>
<b>Uploaded Document Description ▼</b>

<b>Licence condition number not complied with ▼</b>
Monitoring Points 22 and 23
<b>Summary of particulars of the non-compliance ▼</b>
Monitoring points 22 (M3D) and monitoring point 23 (M3S) were not installed and thus not sampled at the frequency details in the licence.
<b>Further details on particulars of non-compliance, if required ▼</b>
<b>Number of times occurred ▼</b>
1
<b>Date(s) when the non-compliance occurred, if applicable ▼</b>
December 2019
<b>Cause of non-compliance ▼</b>
Monitoring points 22 (M3D) and monitoring point 23 (M3S) were not installed and thus not sampled at the frequency details in the licence.
<b>Action taken or that will be taken to mitigate any adverse effects of the non-compliance ▼</b>
No adverse effects
<b>Action taken or that will be taken to prevent a recurrence of the non-compliance ▼</b>
Iluka updated the GMP and removed M3D and M3S from the monitoring program in April 2020.
<b>Uploaded Document Name ▼</b>

<b>Uploaded Document Description ▼</b>

## D. Statement of Compliance - Load Based Fee Calculation

If you are not required to monitor assessable pollutants by your licence, **no data** will appear below.

If assessable pollutants have been identified on your licence, the following worksheets for each assessable pollutant will determine your load based fee for the licence fee period to which this Annual Return relates.

**Loads of assessable pollutants must be calculated using any of the methods provided in EPA's Load Calculation Protocol for the relevant activity.** A Load Calculation Protocol would have been already sent to you with your licence. If you require additional copies, you can download the Protocol from the EPA's website or you can contact us on telephone 02 9995 5700.

You are required to keep all records used to calculate licence fees for four years after the licence fee was paid or became payable, whichever is the later date.

## E. Statement of Compliance - Requirement to Prepare PIRMP

<b>Have you prepared a Pollution Incident Response Management Plan (PIRMP) as required under section 153A of the Protection of the Environment Operations (POEO) Act 1997?</b>	<b>Yes</b>
Is the PIRMP available at the premises?	<b>Yes</b>
Is the PIRMP available in a prominent position on a publicly accessible website?	<b>No</b>
Has the PIRMP been tested?	<b>Yes</b>
The PIRMP was last tested on	<b>4-8-2020</b>
Has the PIRMP been updated?	<b>Yes</b>
The PIRMP was last updated on	<b>9-6-2020</b>
Number of times the PIRMP was activated in this reporting period?	<b>0</b>
The PIRMP was activated on	

## F. Statement of Compliance - Requirement to Publish Pollution Monitoring Data

<b>Are there any conditions attached to your licence that require pollution monitoring to be undertaken as required under section 66(6) of the Protection of the Environment Operations (POEO) Act 1997?</b>	<b>No</b>
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## G. Statement of Compliance - Environment Management System and Practices

Do you have an ISO 14001 certified Environmental Management System (EMS) OR any other system that EPA considers is equivalent to the accountability, procedures, documentation and record keeping requirements of an ISO 14001 certified EMS?	No
Have you conducted an assessment of your activities and operations to identify the aspects that have a potential to cause environmental impacts and implemented operational controls to address these aspects?	Yes
Have you established and implemented an operational maintenance program, including preventative maintenance?	Yes
Do you keep records of regular inspections and maintenance of plant and equipment?	Yes
Do you conduct regular (at least yearly) environmental audits at the premises that are conducted by a competent and independent person?	Yes
Have you undertaken an independent environmental audit covering documented environmental practices, procedures and systems in place during the annual return period?	Yes
Have you established and implemented an environmental improvement or management plan?	Yes
Do you train staff in environmental issues that may arise from your activities and operations at the premises and keep records of this?	Yes



## H. Signature and Certification

This Annual Return may only be signed by person(s) with legal authority to sign it as set out in following categories: an Individual, a Company, a Public authority or a Local council.

It is an offence under section 66 of the Protection of the Environment Operations Act 1997 to supply any information in this form that is false or misleading in a material respect, or to certify a statement that is false or misleading in a material respect. There is a maximum penalty of \$250,000 for a corporation and \$120,000 for an individual.

I/We

- declare that the information in the Monitoring and Complaints Summary in Section B of this Annual Return application is correct and not false or misleading in a material respect, and
- certify that the information in the Statement and Compliance in sections A, C, D, E, F, G and H and any other pages attached to Section C is correct and not false or misleading in a material respect.

Signature		Signature	
Name	THOMAS O'LEARY	Name	Nigel George Tinley



Position	MANAGING DIRECTOR	Position	Company Secretary
Date	7 / 8 / 2020	Date	6 / 8 / 2020
<p><b>Declaration</b></p> <p>I declare that the information in the Monitoring and Complaints Summary in section B of this Annual Return is correct and not false or misleading in a material respect, and</p> <p>I certify that the information in the Statement of Compliance in section A,C,D,E,F and G and any pages attached to Section C is correct and not false or misleading in a material respect.</p>		<p><b>Declaration</b></p> <p>I declare that the information in the Monitoring and Complaints Summary in section B of this Annual Return is correct and not false or misleading in a material respect, and</p> <p>I certify that the information in the Statement of Compliance in section A,C,D,E,F and G and any pages attached to Section C is correct and not false or misleading in a material respect.</p>	

**A Statement of Compliance - Licence Details****Trim # 2055386****A1 Licence Holder**

Licence Number 20795  
 Licence Holder ILUKA RESOURCES LIMITED  
 Trading Name (if applicable)  
 ABN 34 008 675 018

*Monitoring data associated with the 2020 Annual Return was submitted electronically via the eConnect EPA Licence portal (see <http://> address below).*

*This is the spreadsheet submitted for the Annual Return.*

<http://www.epa.nsw.gov.au/profileapp/auth>

**A2 Premises to which Licence Applies (if applicable)**

Common Name (if any) KARRA STATION  
 Premises BALRANALD NSW 2715

**A3 Activities to which Licence Applies**

Mineral Processing  
 Mining for minerals

**A4 Other Activities (if applicable)**

Waste processing  
 Waste disposal

**A5 Fee-Based Activity Classifications**

Fee based activity	Activity Scale	Unit of measure
Mining for minerals	> 50,000.00 - 100,000.00	T annual production capacity
Mineral processing	> 30,000.00 - 100,000.00	T annual processing capacity

**A6 Assessable Pollutants (not applicable)**

**B Monitoring and Complaints Summary****B1 Number of Pollution Complaints**

Number of pollution complaints recorded by the licensee during the reporting period If no complaints were received enter nil in the attached box, otherwise complete the table below	See below
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Pollution Complaint Category	Number of Complaints
Air	0
Water	0
Noise	0
Waste	0
Other	0



## Monitoring Point(s) 1-5

**Air quality monitoring, The dust gauge identified as Bal1, Bal2, Bal3, Bal4 and Bal5 in the map and email attachment titled 'Bulk Sampling Activity Depositional Gauges - Location Plan' dated 27 May 2016 and kept**

	Pollutant	Unit of measure	No of samples required by licence	No of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Monitoring Point 1 (Bal 1)	Particulates - Deposited Matter	g/m2/month	5	1	0.4942	0.4942	0.4942
Monitoring Point 2 (Bal 2)	Particulates - Deposited Matter	g/m2/month	5	2	0.5437	0.7706	0.9975
Monitoring Point 3 (Bal 3)	Particulates - Deposited Matter	g/m2/month	5	2	0.2754	0.63505	0.9947
Monitoring Point 4 (Bal 4)*	Particulates - Deposited Matter	g/m2/month	0	2	0.9133	0.95155	0.9898
Monitoring Point 5 (Bal 5)	Particulates - Deposited Matter	g/m2/month	5	2	0.5762	1.1243	1.6724

## Monitoring Point 6

**Groundwater quality monitoring, Groundwater well labelled UGM-M10D identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	1	1	412	7/12/2019	412
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	1	1	18,100	7/12/2019	18,100
Depth	metres	1	1	13.074	7/12/2019	13.074
Electrical Conductivity	microsiemen per centimetre	1	0	-	-	-
Iron (dissolved) (total)	milligrams per litre	1	0	-	-	-
		1	0	-	-	-
Magnesium	milligrams per litre	1	1	1,350	7/12/2019	1,350
pH	pH	1	1	7.7	7/12/2019	7.70
Potassium	milligrams per litre	1	1	42	7/12/2019	42
Sodium	milligrams per litre	1	1	10,800	7/12/2019	10,800
Sulfate	milligrams per litre	1	1	3,880	7/12/2019	3,880
Sulfide (total)	milligrams per litre	1	0	-	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	1	1	422	7/12/2019	422
Total Dissolved Solids	milligrams per litre	1	1	32,900	7/12/2019	32,900

Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. No activity in these stopes during period.

This well was not monitored in April 2020 as not part of the revised GMP monitoring program (approved on revised licence 9 April 2020).

## Monitoring Point 7

**Groundwater quality monitoring, Groundwater well labelled UGM-M10S identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**


Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	1	1	479	7/12/2019	479
Chemical Oxygen Demand	milligrams per litre	1	1	-	-	-
Chloride	milligrams per litre	1	1	18,000	7/12/2019	18,000
Depth	metres	1	1	18.816	7/12/2019	18.816
Electrical Conductivity	microsiemen per centimetre	1	0	-	-	-
Iron (dissolved) (total)	milligrams per litre	1	0	-	-	-
		1	0	-	-	-
Magnesium	milligrams per litre	1	1	1,400	7/12/2019	1,400
pH	pH	1	1	7.57	7/12/2019	7.57
Potassium	milligrams per litre	1	1	50	7/12/2019	50
Sodium	milligrams per litre	1	1	11,000	7/12/2019	11,000
Sulfate	milligrams per litre	1	1	4,110	7/12/2019	4,110
Sulfide (total)	milligrams per litre	1	0	-	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	1	1	424	7/12/2019	424
Total Dissolved Solids	milligrams per litre	1	1	33,300	7/12/2019	33,300

Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

This well was not monitored in April 2020 as not part of the revised GMP monitoring program (approved on revised licence 9 April 2020).

 Denotes non-compliance

## Monitoring Point 8

**Groundwater quality monitoring, Groundwater well labelled UGM-M11D identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**


Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	1	1	443	7/12/2019	443
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	1	1	17,900	7/12/2019	17,900
Depth	metres	1	1	13.686	7/12/2019	13.686
Electrical Conductivity	microsiemen per centimetre	1	1	51,800	7/12/2019	51,800
Iron (dissolved) (total)	milligrams per litre	1	0	-	-	-
		1	0	-	-	-
Magnesium	milligrams per litre	1	1	1,290	7/12/2019	1,290
pH	pH	1	1	7.28	7/12/2019	7.28
Potassium	milligrams per litre	1	1	48	7/12/2019	48
Sodium	milligrams per litre	1	1	9,540	7/12/2019	9,540
Sulfate	milligrams per litre	1	1	3,300	7/12/2019	3,300
Sulfide (total)	milligrams per litre	1	0	-	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	1	1	470	7/12/2019	470
Total Dissolved Solids	milligrams per litre	1	1	33,700	7/12/2019	33,700

Notes:

< denotes below the laboratory limit of reporting.

This well is located near Stope 4. Stope 4 was mined for a total of 7 days in late August 2016. Backfilling was undertaken for a short period of time on the 14 & 15 Sept 2016

This well was not monitored in April 2020 as not part of the revised GMP monitoring program (approved on revised licence 9 April 2020).

 Denotes non-compliance

## Monitoring Point 9

**Groundwater quality monitoring, Groundwater well labelled UGM-M11S identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**


Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	1	1	690	7/12/2019	690
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	1	1	26,400	7/12/2019	26,400
Depth	metres	1	1	13.545	7/12/2019	13.545
Electrical Conductivity	microsiemen per centimetre	1	1	70,000	7/12/2019	70,000
Iron (dissolved) (total)	milligrams per litre	1	0	-	-	-
		1	0	-	-	-
Magnesium	milligrams per litre	1	1	1,780	7/12/2019	1,780
pH	pH	1	1	7.38	7/12/2019	7.38
Potassium	milligrams per litre	1	1	39	7/12/2019	39
Sodium	milligrams per litre	1	1	14,800	7/12/2019	14,800
Sulfate	milligrams per litre	1	1	5,050	7/12/2019	5,050
Sulfide (total)	milligrams per litre	1	0	-	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	1	1	386	7/12/2019	386
Total Dissolved Solids	milligrams per litre	1	1	45,500	7/12/2019	45,500

Notes:

< denotes below the laboratory limit of reporting.

This well is located near Stope 4. Stope 4 was mined for a total of 7 days in late August 2016. Backfilling was undertaken for a short period of time on the 14 & 15 Sept 2016

This well was not monitored in April 2020 as not part of the revised GMP monitoring program (approved on revised licence 9 April 2020).

 Denotes non-compliance

## Monitoring Point 10


**Groundwater quality monitoring, Groundwater well labelled UGM-M12D identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	359	7/12/2019	424
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	16,600	23/04/2020	17,850
Depth	metres	2	2	13.14	23/04/2020	14
Electrical Conductivity	microsiemen per centimetre	2	2	44,153	23/04/2020	50,127
Iron (dissolved) (total)	milligrams per litre	2	1	<0.1	23/04/2020	-
		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1,180	23/04/2020	1,370
pH	pH	2	2	7.05	7/12/2019	7.10
Potassium	milligrams per litre	2	2	29	23/04/2020	42
Sodium	milligrams per litre	2	2	9,520	23/04/2020	10,410
Sulfate	milligrams per litre	2	2	3,130	23/04/2020	3,530
Sulfide (total)	milligrams per litre	2	1	8.9	23/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	417	7/12/2019	482
Total Dissolved Solids	milligrams per litre	2	2	31,044	23/04/2020	33,772

Notes:

< denotes below the laboratory limit of reporting.

This well is located near Stope 4. Stope 4 was mined for a total of 7 days in late August 2016. Backfilling was undertaken for a short period of time on the 14 & 15 Sept 2016

 Denotes non-compliance

## Monitoring Point 11


**Groundwater quality monitoring, Groundwater well labelled UGM-M12S identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	514	28/04/2020	548
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	24,500	7/12/2019	25,850
Depth	metres	2	2	13.26	28/04/2020	13
Electrical Conductivity	microsiemen per centimetre	2	2	58,697	28/04/2020	63,049
Iron (dissolved) (total)	milligrams per litre	2	2	<0.1	28/04/2020	-
		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1,650	28/04/2020	1,710
pH	pH	2	2	7.4	7/12/2019	7.71
Potassium	milligrams per litre	2	2	21	28/04/2020	29
Sodium	milligrams per litre	2	2	14,000	7/12/2019	14,300
Sulfate	milligrams per litre	2	2	5,040	28/04/2020	5,065
Sulfide (total)	milligrams per litre	2	1	<0.01	28/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	266	28/04/2020	307
Total Dissolved Solids	milligrams per litre	2	2	43,800	7/12/2019	43,970

Notes:

< denotes below the laboratory limit of reporting.

This well is located near Stope 4. Stope 4 was mined for a total of 7 days in late August 2016. Backfilling was undertaken for a short period of time on the 14 & 15 Sept 2016

 Denotes non-compliance

## Monitoring Point 12


**Groundwater quality monitoring, Groundwater well labelled UGM-M13D identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	1	1	485	7/12/2019	485
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	1	1	19,100	7/12/2019	19,100
Depth	metres	1	1	13.615	7/12/2019	13.62
Electrical Conductivity	microsiemen per centimetre	1	1	56,300	7/12/2019	56,300
Iron (dissolved) (total)	milligrams per litre	1	0	-	-	-
		1	0	-	-	-
Magnesium	milligrams per litre	1	1	1,540	7/12/2019	1,540
pH	pH	1	1	6.98	7/12/2019	6.98
Potassium	milligrams per litre	1	1	53	7/12/2019	53
Sodium	milligrams per litre	1	1	11,100	7/12/2019	11,100
Sulfate	milligrams per litre	1	1	3,940	7/12/2019	3,940
Sulfide (total)	milligrams per litre	1	0	-	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	1	1	410	7/12/2019	410
Total Dissolved Solids	milligrams per litre	1	1	36,600	7/12/2019	36,600

Notes:

< denotes below the laboratory limit of reporting.

This well is located near Stope 4. Stope 4 was mined for a total of 7 days in late August 2016. Backfilling was undertaken for a short period of time on the 14 & 15 Sept 2016. This well was not monitored in April 2020 as not part of the revised GMP monitoring program (approved on revised licence 9 April 2020).

 Denotes non-compliance



## Monitoring Point 13


**Groundwater quality monitoring, Groundwater well labelled UGM-M13S identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	1	1	915	7/12/2019	915
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	1	1	24,900	7/12/2019	24,900
Depth	metres	1	1	13.395	7/12/2019	13.395
Electrical Conductivity	microsiemen per centimetre	1	1	67,400	7/12/2019	67,400
Iron (dissolved) (total)	milligrams per litre	1	1	<0.1	7/12/2019	-
		1	0	-	-	-
Magnesium	milligrams per litre	1	1	1550	7/12/2019	1,550
pH	pH	1	1	7.67	7/12/2019	7.7
Potassium	milligrams per litre	1	1	37	7/12/2019	37
Sodium	milligrams per litre	1	1	14,000	7/12/2019	14,000
Sulfate	milligrams per litre	1	1	5,240	7/12/2019	5,240
Sulfide (total)	milligrams per litre	1	0	-	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	1	1	138	7/12/2019	138
Total Dissolved Solids	milligrams per litre	1	1	43,800	7/12/2019	43,800

Notes:

< denotes below the laboratory limit of reporting.

This well is located near Stope 4. Stope 4 was mined for a total of 7 days in late August 2016. Backfilling was undertaken for a short period of time on the 14 & 15 Sept 2016. This well was not monitored in April 2020 as not part of the revised GMP monitoring program (approved on revised licence 9 April 2020).

 Denotes non-compliance

## Monitoring Point 14

**Groundwater quality monitoring, Groundwater well labelled UGM-M14D identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**


Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	1	1	484	7/12/2019	484
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	1	1	19,600	7/12/2019	19,600
Depth	metres	1	1	13.876	7/12/2019	13.876
Electrical Conductivity	microsiemen per centimetre	1	1	56,400	7/12/2019	56,400
Iron (dissolved) (total)	milligrams per litre	1	0	-	-	-
		1	0	-	-	-
Magnesium	milligrams per litre	1	1	1,540	7/12/2019	1,540
pH	pH	1	1	7.01	7/12/2019	7.01
Potassium	milligrams per litre	1	1	53	7/12/2019	53
Sodium	milligrams per litre	1	1	11,100	7/12/2019	11,100
Sulfate	milligrams per litre	1	1	3,890	7/12/2019	3,890
Sulfide (total)	milligrams per litre	1	0	-	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	1	1	421	7/12/2019	421
Total Dissolved Solids	milligrams per litre	1	1	36,700	7/12/2019	36,700

### Notes:

< denotes below the laboratory limit of reporting.

This well is located near Stope 4. Stope 4 was mined for a total of 7 days in late August 2016. Backfilling was undertaken for a short period of time on the 14 & 15 Sept 2016

This well was not monitored in April 2020 as not part of the revised GMP monitoring program (approved on revised licence 9 April 2020).

 Denotes non-compliance

## Monitoring Point 15


**Groundwater quality monitoring, Groundwater well labelled UGM-M14S identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	1	1	599	7/12/2019	599
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	1	1	28,500	7/12/2019	28,500
Depth	metres	1	1	13.555	7/12/2019	13.56
Electrical Conductivity	microsiemen per centimetre	1	1	68,400	7/12/2019	68,400
Iron (dissolved) (total)	milligrams per litre	1	1	<0.1		-
		1	0	-	-	-
Magnesium	milligrams per litre	1	1	1,760	7/12/2019	1,760
pH	pH	1	1	7.45	7/12/2019	7.45
Potassium	milligrams per litre	1	1	34	7/12/2019	34
Sodium	milligrams per litre	1	1	14,400	7/12/2019	14,400
Sulfate	milligrams per litre	1	1	5,230	7/12/2019	5,230
Sulfide (total)	milligrams per litre	1	0	-	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	1	1	369	7/12/2019	369
Total Dissolved Solids	milligrams per litre	1	1	44,500	7/12/2019	44,500

### Notes:

< denotes below the laboratory limit of reporting.

This well is located near Stope 4. Stope 4 was mined for a total of 7 days in late August 2016. Backfilling was undertaken for a short period of time on the 14 & 15 Sept 2016. This well was not monitored in April 2020 as not part of the revised GMP monitoring program (approved on revised licence 9 April 2020).

 Denotes non-compliance

## Monitoring Point 16


**Groundwater quality monitoring, Groundwater well labelled UGM-M15D identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	416	24/04/2020	434
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	18,800	24/04/2020	19,000
Depth	metres	2	2	13.34	24/04/2020	14
Electrical Conductivity	microsiemen per centimetre	2	2	50,986	24/04/2020	53,143
Iron (dissolved) (total)	milligrams per litre	2	1	3.87	24/04/2020	3.87
		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1,440	24/04/2020	1,445
pH	pH	2	2	6.78	24/04/2020	6.95
Potassium	milligrams per litre	2	2	32	24/04/2020	42
Sodium	milligrams per litre	2	2	10,700	7/12/2019	11,200
Sulfate	milligrams per litre	2	2	3,640	7/12/2019	3,730
Sulfide (total)	milligrams per litre	2	1	<0.01	24/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	387	24/04/2020	423
Total Dissolved Solids	milligrams per litre	2	2	20,010	24/04/2020	27,955

### Notes:

< denotes below the laboratory limit of reporting.

This well is located near Stope 4. Stope 4 was mined for a total of 7 days in late August 2016. Backfilling was undertaken for a short period of time on the 14 & 15 Sept 2016

 Denotes non-compliance

## Monitoring Point 17


**Groundwater quality monitoring, Groundwater well labelled UGM-M15S identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	623	24/04/2020	679
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	26,100	24/04/2020	27,250
Depth	metres	2	2	13.11	24/04/2020	13.25
Electrical Conductivity	microsiemen per centimetre	2	2	56,417	24/04/2020	62,359
Iron (dissolved) (total)	milligrams per litre	2	2	<0.1	24/04/2020	-
		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1590	24/04/2020	1,600
pH	pH	2	2	7.39	7/12/2019	7.46
Potassium	milligrams per litre	2	2	24	24/04/2020	32
Sodium	milligrams per litre	2	2	14,000	7/12/2019	14,350
Sulfate	milligrams per litre	2	2	5,080	7/12/2019	5,125
Sulfide (total)	milligrams per litre	2	1	<0.1	24/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	247	7/12/2019	254
Total Dissolved Solids	milligrams per litre	2	2	37,765	24/04/2020	41,083

Notes:

< denotes below the laboratory limit of reporting.

This well is located near Stope 4. Stope 4 was mined for a total of 7 days in late August 2016. Backfilling was undertaken for a short period of time on the 14 & 15 Sept 2016

 Denotes non-compliance

## Monitoring Point 18


**Groundwater quality monitoring, Groundwater well labelled UGM-M1D identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	314	7/12/2019	351
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	18,000	23/04/2020	18,350
Depth	metres	2	2	13.14	23/04/2020	13.54
Electrical Conductivity	microsiemen per centimetre	2	2	45,561	23/04/2020	49,831
Iron (dissolved) (total)	milligrams per litre	1	1	1.87	23/04/2020	1.87
		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,440	7/12/2019	1,520
pH	pH	2	2	6.52	7/12/2019	6.66
Potassium	milligrams per litre	2	2	48	23/04/2020	52
Sodium	milligrams per litre	2	2	10,500	7/12/2019	10,800
Sulfate	milligrams per litre	2	2	3,690	23/04/2020	3,815
Sulfide (total)	milligrams per litre	2	1	<0.1	23/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	314	7/12/2019	351
Total Dissolved Solids	milligrams per litre	2	2	20,010	23/04/2020	27,605

### Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

 Denotes non-compliance

## Monitoring Point 19


**Groundwater quality monitoring, Groundwater well labelled UGM-M1S identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	1060	7/12/2019	1,115
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	24,100	23/04/2020	25,800
Depth	metres	2	2	13.796	7/12/2019	13.49
Electrical Conductivity	microsiemen per centimetre	2	2	64,456	23/04/2020	65,328
Iron (dissolved) (total)	milligrams per litre	1	1	0.48	23/04/2020	0.48
		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,380	7/12/2019	1,435
pH	pH	2	2	7.52	7/12/2019	7.54
Potassium	milligrams per litre	2	2	41	23/04/2020	44
Sodium	milligrams per litre	2	2	13,600	7/12/2019	14,100
Sulfate	milligrams per litre	2	2	4,970	23/04/2020	4,975
Sulfide (total)	milligrams per litre	2	1	0.5	23/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	132	23/04/2020	143
Total Dissolved Solids	milligrams per litre	2	2	42,900	7/12/2019	42,950

### Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

 Denotes non-compliance

## Monitoring Point 20


**Groundwater quality monitoring, Groundwater well labelled UGM-M2D identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	454	7/12/2019	463
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	17,800	7/12/2019	18,000
Depth	metres	2	2	14.18	24/04/2020	14.451
Electrical Conductivity	microsiemen per centimetre	2	1	57,267	24/04/2020	-
Iron (dissolved) (total)	milligrams per litre	1	2	<0.1	24/04/2020	-
		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,370	7/12/2019	1,395
pH	pH	2	2	7.17	24/04/2020	7.5
Potassium	milligrams per litre	2	2	31	24/04/2020	37
Sodium	milligrams per litre	2	2	11,000	7/12/2019	11,050
Sulfate	milligrams per litre	2	2	3,980	24/04/2020	4,080
Sulfide (total)	milligrams per litre	2	1	<0.1	24/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	419	7/12/2019	451
Total Dissolved Solids	milligrams per litre	2	2	34,500	7/12/2019	35,158

### Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

 Denotes non-compliance



## Monitoring Point 21


**Groundwater quality monitoring, Groundwater well labelled UGM-M2S identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	546	7/12/2019	575
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	20,900	7/12/2019	22,300
Depth	metres	2	2	14.010	25/04/2020	14.201
Electrical Conductivity	microsiemen per centimetre	2	1	59,935	25/04/2020	-
Iron (dissolved) (total)	milligrams per litre	1	1	<0.1	25/04/2020	-
		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,430	7/12/2019	1,500
pH	pH	2	2	6.48	25/04/2020	6.88
Potassium	milligrams per litre	2	2	27.0	25/04/2020	31.5
Sodium	milligrams per litre	2	2	11,200	7/12/2019	11,700
Sulfate	milligrams per litre	2	2	4,710	7/12/2019	4,810
Sulfide (total)	milligrams per litre	2	2	<0.01	25/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	302	25/04/2020	310
Total Dissolved Solids	milligrams per litre	2	2	38,600	7/12/2019	39,098

### Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

 Denotes non-compliance

## Monitoring Point 22

**Groundwater quality monitoring, Groundwater well labelled UGM-M3D identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Mean of Sample	Highest Sample Value
Calcium	milligrams per litre					
Chemical Oxygen Demand	milligrams per litre					
Chloride						
Dissolved Oxygen						
Electrical Conductivity						
Iron						
Manganese						
pH						
Phosphate						
Securium						
Sulfate	milligrams per litre					
Sulfide (total)	milligrams per litre					
Total Alkalinity	milligrams of calcium carbonate per litre					
Total Dissolved Solids	milligrams per litre					

Monitoring well not installed

**Notes:**

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

Denotes non-compliance

### Monitoring Point 23


**Groundwater quality monitoring, Groundwater well labelled UGM-M3S identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Mean of Sample	Highest Sample Value	
Calcium	milligrams per litre						
Chemical Oxygen Demand	milligrams per litre						
Chloride	milligrams per litre						
De	<b>Monitoring well not installed</b>						
Ele							
Iro							
Ma							
pH							
Po							
So							
Su							
Sulfide (total)	milligrams per litre						
Total Alkalinity	milligrams of calcium carbonate per litre						
Total Dissolved Solids	milligrams per litre						

**Notes:**

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

 Denotes non-compliance

## Monitoring Point 24


**Groundwater quality monitoring, Groundwater well labelled UGM-M4D identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	450	26/04/2020	492
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	17,700	26/04/2020	17,850
Depth	metres	2	2	14.280	26/04/2020	14.531
Electrical Conductivity	microsiemen per centimetre	2	2	49,693	26/04/2020	52,247
Iron (dissolved) (total)	milligrams per litre	1	1	<0.1	26/04/2020	-
		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,330	26/04/2020	1,415
pH	pH	2	2	6.97	7/12/2019	7.05
Potassium	milligrams per litre	2	2	29	26/04/2020	40
Sodium	milligrams per litre	2	2	10,300	7/12/2019	10,450
Sulfate	milligrams per litre	2	2	3,980	26/04/2020	4,025
Sulfide (total)	milligrams per litre	2	1	<0.1	26/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	403	7/12/2019	426
Total Dissolved Solids	milligrams per litre	2	2	35,314	26/04/2020	35,457

### Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

 Denotes non-compliance

### Monitoring Point 25


**Groundwater quality monitoring, Groundwater well labelled UGM-M4S identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Mean of Sample	Highest Sample Value
Calcium	milligrams per litre					
Chemical Oxygen Demand	milligrams per litre					
Chloride	milligrams per litre					
Dept	<b>Well blocked and unable to be accessed</b>					
Elect						
Iron						
Mag						
pH						
Pota						
Sodi						
Sulfate						
Sulfide (total)	milligrams per litre					
Total Alkalinity	milligrams of calcium carbonate per litre					
Total Dissolved Solids	milligrams per litre					

**Notes:**

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

 Denotes non-compliance

## Monitoring Point 26

**Groundwater quality monitoring, Groundwater well labelled UGM-M5D identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	1	1	511	7/12/2019	511
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	1	1	19,300	7/12/2019	19,300
Depth	metres	1	1	13.253	7/12/2019	13.25
Electrical Conductivity	microsiemen per centimetre	1	0	-	-	-
Iron (dissolved) (total)	milligrams per litre	1	0	<0.01	7/12/2019	<0.01
		1	1	-	-	-
Magnesium	milligrams per litre	1	1	1,610	7/12/2019	1,610
pH	pH	1	1	7.91	7/12/2019	7.91
Potassium	milligrams per litre	1	1	53	7/12/2019	53
Sodium	milligrams per litre	1	1	12,400	7/12/2019	12,400
Sulfate	milligrams per litre	1	1	3,750	7/12/2019	3,750
Sulfide (total)	milligrams per litre	1	0	-	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	1	1	477	7/12/2019	477
Total Dissolved Solids	milligrams per litre	1	1	32,200	7/12/2019	32,200

### Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

This well was not monitored in April 2020 as not part of the revised GMP monitoring program (approved on revised licence 9 April 2020).

## Monitoring Point 27

**Groundwater quality monitoring, Groundwater well labelled UGM-M5S identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	1	1	594	7/12/2019	594
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	1	1	20,700	7/12/2019	20,700
Depth	metres	1	1	13.879	7/12/2019	13.88
Electrical Conductivity	microsiemen per centimetre	1	0	-	-	-
Iron (dissolved) (total)	milligrams per litre	1	0	-	-	-
		1	0	-	-	-
Magnesium	milligrams per litre	1	1	1,550	7/12/2019	1,550
pH	pH	1	1	7.93	7/12/2019	7.93
Potassium	milligrams per litre	1	1	38	7/12/2019	38
Sodium	milligrams per litre	1	1	11,700	7/12/2019	11,700
Sulfate	milligrams per litre	1	1	4,550	7/12/2019	4,550
Sulfide (total)	milligrams per litre	1	0	-	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	1	1	373	7/12/2019	373
Total Dissolved Solids	milligrams per litre	1	1	37,300	7/12/2019	37,300

### Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

This well was not monitored in April 2020 as not part of the revised GMP monitoring program (approved on revised licence 9 April 2020).

## Monitoring Point 28


**Groundwater quality monitoring, Groundwater well labelled UGM-M6D identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	401	7/12/2019	409
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	18,200	26/04/2020	18,550
Depth	metres	2	2	12.93	26/04/2020	13.18
Electrical Conductivity	microsiemen per centimetre	2	1	50,604	26/04/2020	-
Iron (dissolved) (total)	milligrams per litre	1	1	<0.1	26/04/2020	-
		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,330	7/12/2019	1,345
pH	pH	2	2	7.07	26/04/2020	7.43
Potassium	milligrams per litre	2	2	30	26/04/2020	36
Sodium	milligrams per litre	2	2	10,600	26/04/2020	10,650
Sulfate	milligrams per litre	2	2	3,840	26/04/2020	3,880
Sulfide (total)	milligrams per litre	2	2	2.5	26/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	436	7/12/2019	471
Total Dissolved Solids	milligrams per litre	2	2	32,700	7/12/2019	34,225

### Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

 Denotes non-compliance



## Monitoring Point 29

**Groundwater quality monitoring, Groundwater well labelled UGM-M6S identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**


Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	470	7/12/2019	518
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	18,700	7/12/2019	21,200
Depth	metres	2	2	12.840	26/04/2020	13.135
Electrical Conductivity	microsiemen per centimetre	2	1	56,983	26/04/2020	-
Iron (dissolved) (total)	milligrams per litre	1	2	<0.1	26/04/2020	-
		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,340	7/12/2019	1,465
pH	pH	2	2	6.54	26/04/2020	7.19
Potassium	milligrams per litre	2	2	31	26/04/2020	40
Sodium	milligrams per litre	2	2	10,900	7/12/2019	11,950
Sulfate	milligrams per litre	2	2	4,110	7/12/2019	4,285
Sulfide (total)	milligrams per litre	2	1	<0.1	26/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	353	26/04/2020	386
Total Dissolved Solids	milligrams per litre	2	2	33,400	7/12/2019	36,948

Notes:

< denotes below the laboratory limit of reporting.

\* equal to the laboratory limit of reporting.

This well is located near Stope's 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling

 Denotes non-compliance

## Monitoring Point 30

**Groundwater quality monitoring, Groundwater well labelled UGM-M7D identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**


Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	1	1	457	7/12/2019	457
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	1	1	19,900	7/12/2019	19,900
Depth	metres	1	1	13.989	7/12/2019	13.99
Electrical Conductivity	microsiemen per centimetre	1	0	-	-	-
Iron (dissolved) (total)	milligrams per litre	1	0	-	-	-
		1	0	-	-	-
Magnesium	milligrams per litre	1	1	1,520	7/12/2019	1,520
pH	pH	1	1	7.71	7/12/2019	7.71
Potassium	milligrams per litre	1	1	48	7/12/2019	53
Sodium	milligrams per litre	1	1	12,000	7/12/2019	12,000
Sulfate	milligrams per litre	1	1	4,010	7/12/2019	4,010
Sulfide (total)	milligrams per litre	1	0	-	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	1	1	415	7/12/2019	415
Total Dissolved Solids	milligrams per litre	1	1	33,800	7/12/2019	33,800

### Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

This well was not monitored in April 2020 as not part of the revised GMP monitoring program (approved on revised licence 9 April 2020).

 Denotes non-compliance

## Monitoring Point 31

**Groundwater quality monitoring, Groundwater well labelled UGM-M7S identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**


Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	1	1	475	7/12/2019	475
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	1	1	18,800	7/12/2019	18,800
Depth	metres	1	1	13.619	7/12/2019	13.619
Electrical Conductivity	microsiemen per centimetre	1	0	-	-	-
Iron (dissolved) (total)	milligrams per litre	1	0	-	-	-
		1	0	-	-	-
Magnesium	milligrams per litre	1	1	1,370	7/12/2019	1,370
pH	pH	1	1	7.65	7/12/2019	7.65
Potassium	milligrams per litre	1	1	40	7/12/2019	40
Sodium	milligrams per litre	1	1	10,800	7/12/2019	10,800
Sulfate	milligrams per litre	1	1	4,290	7/12/2019	4,290
Sulfide (total)	milligrams per litre	1	0	-	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	1	1	405	7/12/2019	405
Total Dissolved Solids	milligrams per litre	1	1	34,400	7/12/2019	34,400

### Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

This well was not monitored in April 2020 as not part of the revised GMP monitoring program (approved on revised licence 9 April 2020).

 Denotes non-compliance

## Monitoring Point 32


**Groundwater quality monitoring, Groundwater well labelled UGM-M8D identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	416	7/12/2019	428
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	18,800	25/04/2020	18,950
Depth	metres	2	2	13.81	25/04/2020	14.012
Electrical Conductivity	microsiemen per centimetre	2	1	48,436	25/04/2020	-
Iron (dissolved) (total)	milligrams per litre	1	1	0.32	25/04/2020	-
		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,350	7/12/2019	1,370
pH	pH	2	2	7.06	25/04/2020	7.42
Potassium	milligrams per litre	2	2	32	7/12/2019	37
Sodium	milligrams per litre	2	2	10,700	7/12/2019	10,750
Sulfate	milligrams per litre	2	2	3,920	25/04/2020	3,960
Sulfide (total)	milligrams per litre	2	1	<0.1	25/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	412	7/12/2019	446
Total Dissolved Solids	milligrams per litre	2	2	34,125	25/04/2020	34,363

### Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

 Denotes non-compliance

## Monitoring Point 33


**Groundwater quality monitoring, Groundwater well labelled UGM-M8S identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample
Calcium	milligrams per litre	2	2	614	7/12/2019	636
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	22,800	7/12/2019	24,250
Depth	metres	2	2	13.730	25/04/2020	13.80
Electrical Conductivity	microsiemen per centimetre	2	1	61,714	25/04/2020	-
Iron (dissolved) (total)	milligrams per litre	1	2	<0.1	25/04/2020	-
		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,640	7/12/2019	1,715
pH	pH	2	2	6.32	25/04/2020	6.98
Potassium	milligrams per litre	2	2	30	7/12/2019	35
Sodium	milligrams per litre	2	2	12,200	7/12/2019	12,800
Sulfate	milligrams per litre	2	2	4,830	25/04/2020	4,845
Sulfide (total)	milligrams per litre	2	1	<0.1	25/04/2020	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	272	25/04/2020	272
Total Dissolved Solids	milligrams per litre	2	2	39,000	7/12/2019	40,073

### Notes:

< denotes below the laboratory limit of reporting.

This well located near Stopes 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling.

 Denotes non-compliance

### Monitoring Point 34

**Groundwater quality monitoring, Groundwater well labelled UGM-M9D identified in Figure 8 and Table B-7 of the document titled 'Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Mean of Sample	Highest Sample Value						
Calcium	milligrams per litre	2										
Chemical Oxygen Demand	milligrams per litre	1										
Chloride	<b>No data collected.</b>											
Depth												
Electrical												
Iron (dissolved)												
Iron (total)												
Magnesium												
pH												
Potassium												
Sodium							milligrams per litre	2				
Sulfate							milligrams per litre	2				
Sulfide (total)	milligrams per litre	2										
Total Alkalinity	milligrams of calcium carbonate per litre	2										
Total Dissolved Solids	milligrams per litre	2										

**Notes:**

< denotes below the laboratory limit of reporting.

This well is located near Stope's 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling

Denotes non-compliance

Reason for non-compliance: due to safety concerns, cavity formed around well & access was restricted from mid/late July 2016.

### Monitoring Point 35

**Groundwater quality monitoring, Groundwater well labelled UGM-M9S identified in Figure 8 and Table B-7 of the document titled Balranald Project, Groundwater Operating Strategy and Management Plan' dated 24th April and kept on EPA file DOC 16/230523**

Pollutant	Unit of Measure	No. of Samples Required by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Mean of Sample	Highest Sample Value
Calcium	milligrams per litre	2				
Chemical Oxygen Demand	milligrams per litre	1				
Chloride	milligrams per litre	2				
Dep						
Elec						
Iron						
Mag						
pH						
Pota						
Sodi						
Sulfate	milligrams per litre	2				
Sulfide (total)	milligrams per litre	2				
Total Alkalinity	milligrams of calcium carbonate per litre	2				
Total Dissolved Solids	milligrams per litre	2				

No data collected.

**Notes:**

< denotes below the laboratory limit of reporting.

This well is located near Stope's 1, 1B and 3. Stopes 1, 1B and 3 were mined for a total of 14 days. No Backfilling

Denotes non-compliance

Reason for non-compliance: due to safety concerns, cavity formed around well & access was restricted from mid/late July 2016.