Our reference : Licence No. 20795
Contact : Regulatory and Compliance Support Unit, 02 9995 5700

ILUKA RESOURCES LIMITED
11 Dequettville Terrace
KENT TOWN SA 5067

Your Annual Return is due by 08-Aug-2019.

Reminder - Submit your Annual Return via eConnect

I am writing to you as a reminder that the Annual Return for the period 10-Jun-2018 to 09-Jun-2019 relating to your Environment Protection Licence No. 20795, issued by the Environment Protection Authority (EPA), is due shortly.

As time is running out, the quickest way to submit your Annual Return is via eConnect EPA at www.epa.nsw.gov.au.

If you have not already registered to use eConnect EPA please contact us at econnect.epa@epa.nsw.gov.au to request access, providing your name, email address, company (if applicable) and licence number. If you have any questions concerning the use of eConnect EPA or your Annual Return you can also contact us by phone on 02 9995 5700.

The information provided in your Annual Return will be used to determine your environmental management category and to calculate your annual licence administrative fee. Your invoice will be sent to you after your annual return has been checked by the EPA.

Your licence fees are due for payment by 08-Oct-2019.

If you are not able to submit your Annual Return through eConnect EPA contact us on 9995 5700.

Yours sincerely

PETER STUART
Head - Regulatory and Compliance Support
Environment Protection Authority

10-Jul-2019

PO Box A290 Sydney South NSW 1232
59-61 Goulburn St Sydney NSW 2000
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Annual Return

ILUKA RESOURCES LIMITED

Licence 20795

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: 10-6-2018 To: 9-6-2019

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

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
Total complaints recorded by the licensee during the reporting period	**0**

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-M10D 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 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 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-M11D 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 UGM-M11S 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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					

Name of the uploaded file containing point data ▼
Iluka - Balranald - Lic 20795 - AR 2019 - Monitoring Data_Final 190725.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)?	**No**

C2. Details of Non-Compliance with Licence

Licence condition number not complied with ▼
B2 Monitoring point 22 and 23
Summary of particulars of the non-compliance ▼
B2 Monitoring points 22 (M3D) and monitoring point 23 (M3S) were not installed and thus not sampled at the frequency details in the licence.
Further details on particulars of non-compliance, if required ▼
April 2016 not installed and not sampled in July 2018 or January 2019
Number of times occurred ▼
2
Date(s) when the non-compliance occurred, if applicable ▼
Cause of non-compliance ▼
Monitoring points 22 (M3D) and monitoring point 23 (M3S) were not installed – As per previous Annual Returns

Action taken or that will be taken to mitigate any adverse effects of the non-compliance ▼
No adverse effects
Action taken or that will be taken to prevent a recurrence of the non-compliance ▼
Iluka to update GOMS prior to further site works to reflect monitoring bores were not installed.
Uploaded Document Name ▼
Figure 1 - Groundwater Well Location Plan.pdf
Uploaded Document Description ▼

Licence condition number not complied with ▼
B2 Monitoring point 25
Summary of particulars of the non-compliance ▼
B2 Monitoring point 25 – M4S – not sampled
Further details on particulars of non-compliance, if required ▼
Number of times occurred ▼
2
Date(s) when the non-compliance occurred, if applicable ▼
July 2018 and January 2019
Cause of non-compliance ▼
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.
Action taken or that will be taken to mitigate any adverse effects of the non-compliance ▼
No adverse effects
Action taken or that will be taken to prevent a recurrence of the non-compliance ▼
Iluka to update GOMS prior to further site works to reflect monitoring bore not accessible.
Uploaded Document Name ▼
Figure 1 - Groundwater Well Location Plan.pdf
Uploaded Document Description ▼

Licence condition number not complied with ▼
B2 Monitoring point 34 and 35
Summary of particulars of the non-compliance ▼
B2 Monitoring point 34 (M9D) and monitoring point 35 (M9S) – not sampled

Further details on particulars of non-compliance, if required ▼
Number of times occurred ▼
2
Date(s) when the non-compliance occurred, if applicable ▼
July 2018 and January 2019
Cause of non-compliance ▼
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).
Action taken or that will be taken to mitigate any adverse effects of the non-compliance ▼
No adverse effects
Action taken or that will be taken to prevent a recurrence of the non-compliance ▼
Iluka to update GOMS prior to further site works to reflect monitoring bores not accessible.
Uploaded Document Name ▼
Figure 1 - Groundwater Well Location Plan.pdf
Uploaded Document Description ▼

Licence condition number not complied with ▼
B2. Monitoring point 13 - M13S - Calcium content
Summary of particulars of the non-compliance ▼
B2 monitoring point 13 measured elevated Calcium content in July sample. Other indicators were variable in particular Chloride concentration, TDS and pH (which is declining overtime) but still within specified limits.
Further details on particulars of non-compliance, if required ▼
Site was in non-operational care and maintenance mode for the entire Annual Return reporting period. This non compliance reflects a reducing Ca result from previous Annual Returns and is within the yellow SSTL threshold of the GOMS
Number of times occurred ▼
1
Date(s) when the non-compliance occurred, if applicable ▼
18 July 2018
Cause of non-compliance ▼
The location of the well is in proximity to 2016 mining related activity. High Ca value measured at time of well installation and in the 2017 monitoring, and thus maybe more representative of background conditions. Ca levels have decreased from 1,660 in 2017 and were below trigger levels in the latest January 2019 sampling. Possible sources of Calcium include calcretes and Calcium bearing sediments in the unsaturated zones of the Shepparton formation.

Action taken or that will be taken to mitigate any adverse effects of the non-compliance ▼
Monitoring will continue in 2019.
Action taken or that will be taken to prevent a recurrence of the non-compliance ▼
Monitoring will continue in 2019.
Uploaded Document Name ▼
Uploaded Document Description ▼
Figure 1 - Groundwater Well Location Plan.pdf

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

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?	**Yes**
Is the PIRMP available at the premises?	**No**
Is the PIRMP available in a prominent position on a publicly accessible website?	**No**
Has the PIRMP been tested?	**Yes**
The PIRMP was last tested on	**4-12-2018**
Has the PIRMP been updated?	**No**
Number of times the PIRMP was activated in this reporting period?	**0**
The PIRMP was activated on	

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

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?	**No**

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 site audits to assess compliance with environmental legal requirements and assess conformance to the requirements of any documented environmental practices, procedures and systems in place?	**Yes**
Are the audits of documented environmental practices, procedures and systems undertaken by a third party?	**No**
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 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 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

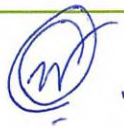
- declare that the information in the Monitoring and Complaints Summary in Section B of this Annual Return application is correct and not false or misleading in a material respect, and
- certify that the information in the Statement and Compliance in sections A, C, D, E, F, G and H and any other pages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

Signature	T O'Leary
Name	THOMAS O'LEARY
Position	DIRECTOR
Date	29/7/19

Declaration

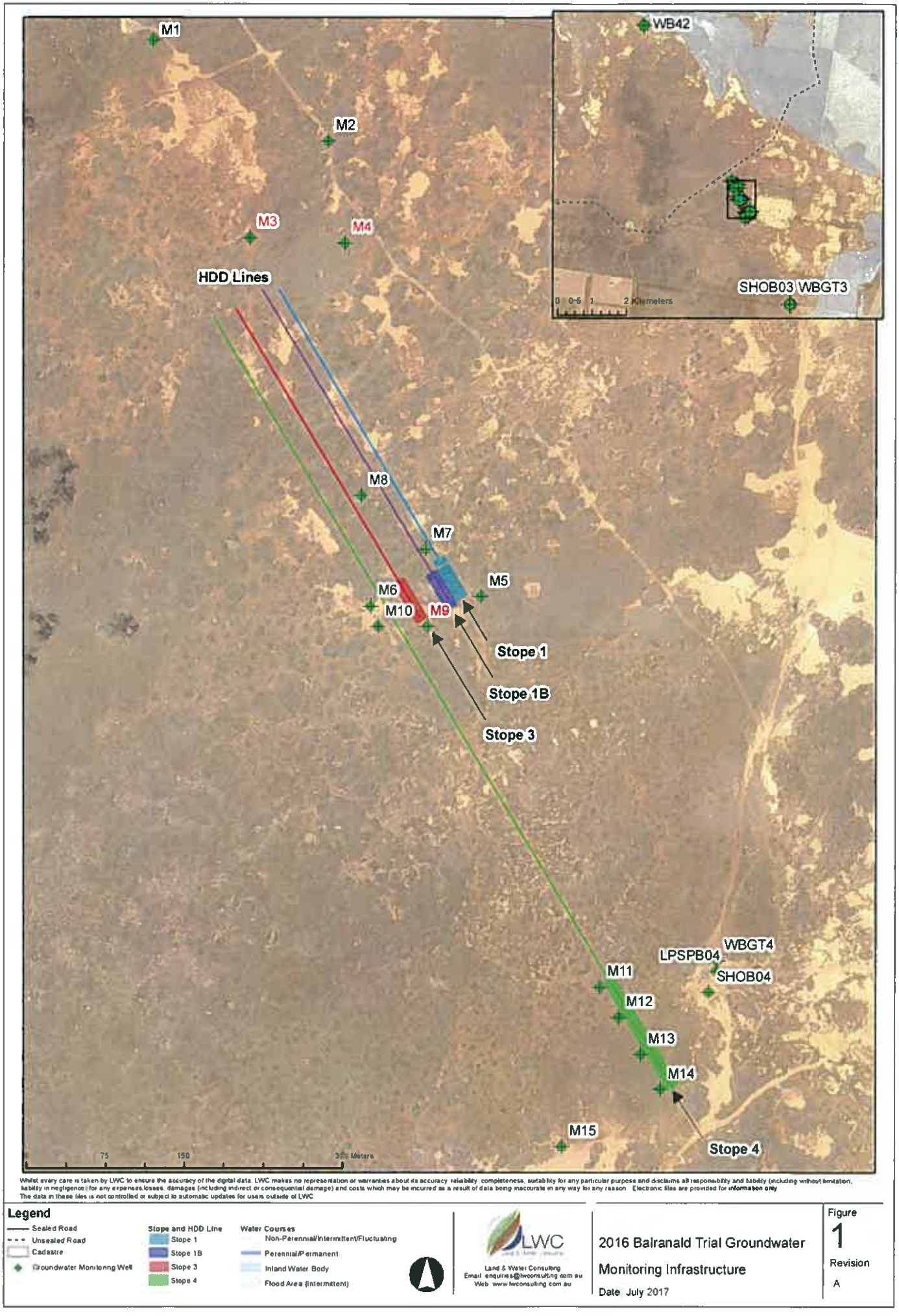
I declare that the information in the Monitoring and Complaints Summary in section B of this Annual Return is correct and not false or misleading in a material respect, and

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.



Nigel George Tinley
Company Secretary
29 July 2019

Trim # 1976890



Whilst every care is taken by LWC to ensure the accuracy of the digital data, LWC makes no representation or warranties about its accuracy, reliability, completeness, suitability for any particular purpose and disclaims all responsibility and liability (including without limitation, liability in negligence) for any expenses, losses, damages (including indirect or consequential damage) and costs which may be incurred as a result of data being inaccurate in any way for any reason. Electronic files are provided for information only. The data in these files is not controlled or subject to automatic updates for users outside of LWC.

Legend

- Sealed Road
- Unsealed Road
- Cadastre
- Groundwater Monitoring Well

Stope and HDD Line
- Stope 1
- Stope 1B
- Stope 3
- Stope 4

Water Courses
- Non-Perennial/Intermittent/Fluctuating
- Perennial/Permanent
- Inland Water Body
- Flood Area (Intermittent)

LWC
Land & Water Consulting
Email enquiries@lwconsulting.com.au
Web www.lwconsulting.com.au

2016 Balranald Trial Groundwater Monitoring Infrastructure

Date July 2017

Figure 1 Revision A

A Statement of Compliance - Licence Details

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 2018 Annual Return was submitted electronically via the eConnect EPA Licence portal (see http:// address below).

This is the spreadsheet submitted 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

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 Activtity 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				
Monitoring Point 2 (Bal 2)	Particulates - Deposited Matter	g/m2/month	5				
Monitoring Point 3 (Bal 3)	Particulates - Deposited Matter	g/m2/month	5				
Monitoring Point 4 (Bal 4)*	Particulates - Deposited Matter	g/m2/month	0				
Monitoring Point 5 (Bal 5)	Particulates - Deposited Matter	g/m2/month	5				

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	2	2	446	1/02/2019	469
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	17,200	22/07/2018	17,900
Depth	metres	2	2	13.013	1/02/2019	13.014
Electrical Conductivity	microsiemen per centimetre	2	2	51,400	1/02/2019	55,150
Iron (dissolved)	milligrams per litre	1	2	1.64	1/02/2019	1.82
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,420	1/02/2019	1,475
pH	pH	2	2	7.15	22/07/2018	7.17
Potassium	milligrams per litre	2	2	44	1/02/2019	46
Sodium	milligrams per litre	2	2	10,500	-	10,500
Sulfate	milligrams per litre	2	2	3,890	1/02/2019	3,925
Sulfide (total)	milligrams per litre	2	2	0.012	22/07/2018	0.122
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	397	1/02/2019	413
Total Dissolved Solids	milligrams per litre	2	2	33,400	1/02/2019	35,850

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 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	2	2	502	30/01/2019	529
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	18,400	22/07/2018	19,650
Depth	metres	2	2	12.715	22/07/2018	12.721
Electrical Conductivity	microsiemen per centimetre	2	2	51,800	30/01/2019	54,750
Iron (dissolved)	milligrams per litre	1	2	3.26	30/01/2019	3.37
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,400	30/01/2019	1,450
pH	pH	2	2	7.18	30/01/2019	7.24
Potassium	milligrams per litre	2	2	47	30/01/2019	50
Sodium	milligrams per litre	2	2	10,200	22/07/2018	10,300
Sulfate	milligrams per litre	2	2	4,010	22/07/2018	4,110
Sulfide (total)	milligrams per litre	2	2	0.014	30/01/2019	0.076
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	423	30/01/2019	445
Total Dissolved Solids	milligrams per litre	2	2	33,700	30/01/2019	35,600

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 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	2	2	422	30/01/2019	456
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	19,900	30/01/2019	20,550
Depth	metres	2	2	13.590	17/07/2018	13.61
Electrical Conductivity	microsiemen per centimetre	2	2	51,800	30/01/2019	54,200
Iron (dissolved)	milligrams per litre	2	2	2.32	30/01/2019	2.44
(total)		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1,390	30/01/2019	1,530
pH	pH	2	2	7.21	30/01/2019	7.28
Potassium	milligrams per litre	2	2	47	17/07/2018	48
Sodium	milligrams per litre	2	2	10,400	30/01/2019	11,150
Sulfate	milligrams per litre	2	2	3,480	17/07/2018	3,920
Sulfide (total)	milligrams per litre	2	2	<0.01	30/01/2019	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	397	30/01/2019	410
Total Dissolved Solids	milligrams per litre	2	2	33,700	30/01/2019	35,250

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 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	2	2	607	30/01/2019	647
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	29,200	30/01/2019	29,800
Depth	metres	2	2	13.468	17/07/2018	13.500
Electrical Conductivity	microsiemen per centimetre	2	2	66,100	30/01/2019	68,000
Iron (dissolved)	milligrams per litre	2	2	1.13	17/07/2018	1.45
(total)		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1,620	30/01/2019	1,770
pH	pH	2	2	7.38	30/01/2019	7.43
Potassium	milligrams per litre	2	2	35	-	35
Sodium	milligrams per litre	2	2	13,900	30/01/2019	15,100
Sulfate	milligrams per litre	2	2	4,050	17/07/2018	4,785
Sulfide (total)	milligrams per litre	2	2	0.013	30/01/2019	0.015
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	368	30/01/2019	374
Total Dissolved Solids	milligrams per litre	2	2	43,000	30/01/2019	44,200

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 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	427	30/01/2019	457
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	20,200	30/01/2019	20,900
Depth	metres	2	2	13.82	18/07/2018	13.82
Electrical Conductivity	microsiemen per centimetre	2	2	52,000	30/01/2019	54,700
Iron (dissolved)	milligrams per litre	2	2	0.26	30/01/2019	1.90
(total)		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1,400	30/01/2019	1,535
pH	pH	2	2	7.23	30/01/2019	7.32
Potassium	milligrams per litre	2	2	47	18/07/2018	48
Sodium	milligrams per litre	2	2	10,500	30/01/2019	11,250
Sulfate	milligrams per litre	2	2	3,700	18/07/2018	3,930
Sulfide (total)	milligrams per litre	2	2	<0.01	18/07/2018	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	404	30/01/2019	419
Total Dissolved Solids	milligrams per litre	2	2	33,800	30/01/2019	35,550

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	530	30/01/2019	601
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	26,200	18/07/2018	27,300
Depth	metres	2	2	13.485	18/07/2018	13.49
Electrical Conductivity	microsiemen per centimetre	2	2	64,900	30/01/2019	67,050
Iron (dissolved)	milligrams per litre	2	2	<0.1	18/07/2018	-
(total)		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1,590	30/01/2019	1,710
pH	pH	2	2	7.62	30/01/2019	7.68
Potassium	milligrams per litre	2	2	30	-	31
Sodium	milligrams per litre	2	2	13,000	30/01/2019	13,950
Sulfate	milligrams per litre	2	2	4,520	18/07/2018	5,185
Sulfide (total)	milligrams per litre	2	2	<0.01	30/01/2019	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	273	18/07/2018	295
Total Dissolved Solids	milligrams per litre	2	2	42,200	30/01/2019	43,600

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
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	2	2	423	29/01/2019	466
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	17,600	29/01/2019	19,300
Depth	metres	2	2	13.530	18/07/2018	13.54
Electrical Conductivity	microsiemen per centimetre	2	2	45,800	29/01/2019	52,250
Iron (dissolved)	milligrams per litre	2	2	0.33	29/01/2019	1.14
(total)		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1,310	29/01/2019	1,530
pH	pH	2	2	7.39	18/07/2018	7.40
Potassium	milligrams per litre	2	2	48	29/01/2019	49
Sodium	milligrams per litre	2	2	10,300	29/01/2019	11,350
Sulfate	milligrams per litre	2	2	1,740	29/01/2019	2,410
Sulfide (total)	milligrams per litre	2	2	0.121	18/07/2018	3.29
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	420	18/07/2018	455
Total Dissolved Solids	milligrams per litre	2	2	29,800	29/01/2019	34,000

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 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	2	2	1,030	29/01/2019	1,220
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	27,300	18/07/2018	27,800
Depth	metres	2	2	13.355	18/07/2018	13.363
Electrical Conductivity	microsiemen per centimetre	2	2	63,900	29/01/2019	66,750
Iron (dissolved)	milligrams per litre	2	2	<0.1	-	-
(total)		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1270	29/01/2019	1,280
pH	pH	2	2	7.9	18/07/2018	7.9
Potassium	milligrams per litre	2	2	35	-	35
Sodium	milligrams per litre	2	2	13,200	29/01/2019	14,250
Sulfate	milligrams per litre	2	2	4,330	18/07/2018	4,855
Sulfide (total)	milligrams per litre	2	2	<0.01	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	74	18/07/2018	90
Total Dissolved Solids	milligrams per litre	2	2	41,500	29/01/2019	43,350

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 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	2	2	413	29/01/2019	467
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	21,400	18/07/2018	21,600
Depth	metres	2	2	13.815	18/07/2018	13.826
Electrical Conductivity	microsiemen per centimetre	2	2	54,600	29/01/2019	56,350
Iron (dissolved)	milligrams per litre	2	2	2.07	29/01/2019	2.25
(total)		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1,410	29/01/2019	1,605
pH	pH	2	2	7.21	29/01/2019	7.31
Potassium	milligrams per litre	2	2	45	29/01/2019	48
Sodium	milligrams per litre	2	2	11,300	29/01/2019	12,100
Sulfate	milligrams per litre	2	2	2,520	29/01/2019	2,790
Sulfide (total)	milligrams per litre	2	2	<0.01	18/07/2018	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	401	29/01/2019	413
Total Dissolved Solids	milligrams per litre	2	2	35,500	29/01/2019	36,650

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 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	2	2	521	29/01/2019	586
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	27,400	18/07/2018	27,900
Depth	metres	2	2	13.49	18/07/2018	13.51
Electrical Conductivity	microsiemen per centimetre	2	2	66,300	29/01/2019	69,000
Iron (dissolved)	milligrams per litre	2	2	<0.1	-	-
(total)		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1,580	29/01/2019	1,805
pH	pH	2	2	7.67	18/07/2018	7.77
Potassium	milligrams per litre	2	2	30	18/07/2018	31
Sodium	milligrams per litre	2	2	13,500	29/01/2019	15,150
Sulfate	milligrams per litre	2	2	4,790	18/07/2018	5,125
Sulfide (total)	milligrams per litre	2	2	<0.01	18/07/2018	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	353	29/01/2019	360
Total Dissolved Solids	milligrams per litre	2	2	43,100	29/01/2019	44,850

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 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	436	1/02/2019	493
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	20,300	22/07/2018	20,350
Depth	metres	2	2	13.785	22/07/2018	13.80
Electrical Conductivity	microsiemen per centimetre	2	2	56,200	1/02/2019	58,550
Iron (dissolved)	milligrams per litre	2	2	5.48	22/07/2018	5.57
(total)		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1,460	1/02/2019	1,625
pH	pH	2	2	7.18	1/02/2019	7.22
Potassium	milligrams per litre	2	2	46	1/02/2019	50
Sodium	milligrams per litre	2	2	11,100	1/02/2019	11,850
Sulfate	milligrams per litre	2	2	3,580	22/07/2018	3,715
Sulfide (total)	milligrams per litre	2	2	<0.01	1/02/2019	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	402	1/02/2019	425
Total Dissolved Solids	milligrams per litre	2	2	36,500	1/02/2019	38,050

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	693	1/02/2019	759
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	23,800	22/07/2018	25,100
Depth	metres	2	2	13.33	22/07/2018	13.34
Electrical Conductivity	microsiemen per centimetre	2	2	64,700	1/02/2019	68,100
Iron (dissolved)	milligrams per litre	2	2	<0.1	22/07/2018	-
(total)		2	0	-	-	-
Magnesium	milligrams per litre	2	2	1480	1/02/2019	1,535
pH	pH	2	2	7.67	1/02/2019	7.68
Potassium	milligrams per litre	2	2	30	1/02/2019	33
Sodium	milligrams per litre	2	2	14,000	1/02/2019	14,050
Sulfate	milligrams per litre	2	2	5,260	22/07/2018	5,325
Sulfide (total)	milligrams per litre	2	2	<0.01	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	244	1/02/2019	256
Total Dissolved Solids	milligrams per litre	2	2	42,000	1/02/2019	44,250

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	645	13/12/2018	678
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	19,700	18/07/2018	19,850
Depth	metres	2	2	13.917	18/07/2018	13.93
Electrical Conductivity	microsiemen per centimetre	2	2	51,900	13/12/2018	52,800
Iron (dissolved)	milligrams per litre	1	2	0.86	18/07/2018	0.93
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,300	13/12/2018	1,360
pH	pH	2	2	7.52	18/07/2018	7.67
Potassium	milligrams per litre	2	2	54	13/12/2018	55
Sodium	milligrams per litre	2	2	10,300	13/12/2018	10,800
Sulfate	milligrams per litre	2	2	3,020	18/07/2018	3,450
Sulfide (total)	milligrams per litre	2	2	<0.01	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	318	13/12/2018	320
Total Dissolved Solids	milligrams per litre	2	2	33,700	13/12/2018	34,300

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.
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	13/12/2018	1,080
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	24,700	17/07/2018	26,100
Depth	metres	2	2	13.74	17/07/2018	13.75
Electrical Conductivity	microsiemen per centimetre	2	2	63,300	13/12/2018	63,800
Iron (dissolved)	milligrams per litre	1	2	0.3	17/07/2018	0.43
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,350	13/12/2018	1,375
pH	pH	2	2	7.68	-	7.68
Potassium	milligrams per litre	2	2	42	13/12/2018	44
Sodium	milligrams per litre	2	2	14,200	13/12/2018	14,300
Sulfate	milligrams per litre	2	2	4,200	17/07/2018	4,500
Sulfide (total)	milligrams per litre	2	2	<0.01	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	132	17/07/2018	139
Total Dissolved Solids	milligrams per litre	2	2	41,100	13/12/2018	41,450

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	595	16/07/2018	618
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	20,200	16/07/2018	20,550
Depth	metres	2	2	14.655	16/07/2018	14.664
Electrical Conductivity	microsiemen per centimetre	2	2	54,700	16/12/2018	55,700
Iron (dissolved)	milligrams per litre	1	2	0.31	16/12/2018	2.07
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,610	16/12/2018	1,695
pH	pH	2	2	7.3	16/07/2018	7.4
Potassium	milligrams per litre	2	2	37	16/12/2018	44
Sodium	milligrams per litre	2	2	12,000	16/12/2018	12,250
Sulfate	milligrams per litre	2	2	3,350	16/07/2018	3,970
Sulfide (total)	milligrams per litre	2	2	<0.01	16/12/2018	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	308	16/12/2018	359
Total Dissolved Solids	milligrams per litre	2	2	35,600	16/12/2018	36,200

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.
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	548	16/12/2018	645
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	19,200	16/12/2018	20,300
Depth	metres	2	2	14.285	16/07/2019	14.298
Electrical Conductivity	microsiemen per centimetre	2	2	48,100	16/12/2018	53,750
Iron (dissolved)	milligrams per litre	1	2	1.42	16/07/2019	2.70
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,530	16/12/2018	1,745
pH	pH	2	2	7.25	16/07/2019	7.36
Potassium	milligrams per litre	2	2	45.0	16/12/2018	46.0
Sodium	milligrams per litre	2	2	10,900	16/12/2018	12,250
Sulfate	milligrams per litre	2	2	3,890	16/07/2019	3,960
Sulfide (total)	milligrams per litre	2	2	<0.01	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	342	16/07/2019	400
Total Dissolved Solids	milligrams per litre	2	2	31,300	16/12/2018	34,950

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 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					
Cl						
D						
El						
Ir						
M						
pl						
P						
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 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						
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					

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 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	483	29/01/2019	516
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	20,100	16/07/2018	20,850
Depth	metres	2	2	14.700	16/07/2018	14.717
Electrical Conductivity	microsiemen per centimetre	2	2	51,800	29/01/2019	54,450
Iron (dissolved)	milligrams per litre	1	2	1.81	16/07/2018	1.84
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,410	29/01/2019	1,535
pH	pH	2	2	7.19	29/01/2019	7.24
Potassium	milligrams per litre	2	2	44	29/01/2019	46
Sodium	milligrams per litre	2	2	10,400	29/01/2019	11,050
Sulfate	milligrams per litre	2	2	3,920	16/07/2018	4,255
Sulfide (total)	milligrams per litre	2	2	<0.01	16/07/2018	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	375	29/01/2019	383
Total Dissolved Solids	milligrams per litre	2	2	33,700	29/01/2019	35,400

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.
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					
Dep						
Elec						
Iron						
Mag						
pH						
Pota						
Sodi						
Sulfate	milligrams per litre					
Sulfide (total)	milligrams per litre					
Total Alkalinity	milligrams of calcium carbonate per litre					
Total Dissolved Solids	milligrams per litre					

Well blocked and unable to be accessed

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	2	2	470	12/12/2018	496
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	20,700	17/07/2018	20,700
Depth	metres	2	2	13.93	17/07/2018	13.94
Electrical Conductivity	microsiemen per centimetre	2	2	54,200	12/12/2018	55,650
Iron (dissolved)	milligrams per litre	1	2	1.35	12/12/2018	1.49
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,510	12/12/2018	1,605
pH	pH	2	2	7.29	17/07/2018	7.52
Potassium	milligrams per litre	2	2	45	12/12/2018	47
Sodium	milligrams per litre	2	2	11,300	12/12/2018	11,650
Sulfate	milligrams per litre	2	2	3,030	17/07/2018	3,375
Sulfide (total)	milligrams per litre	2	2	<0.01	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	402	12/12/2018	410
Total Dissolved Solids	milligrams per litre	2	2	35,200	12/12/2018	36,150

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 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	2	2	534	12/12/2018	577
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	19,800	17/07/2018	19,950
Depth	metres	2	2	13.55	17/07/2018	13.57
Electrical Conductivity	microsiemen per centimetre	2	2	52,300	12/12/2018	54,050
Iron (dissolved)	milligrams per litre	1	2	3.94	12/12/2018	3.57
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,460	12/12/2018	1,610
pH	pH	2	2	7.22	17/07/2018	7.47
Potassium	milligrams per litre	2	2	44	12/12/2018	46
Sodium	milligrams per litre	2	2	10,400	12/12/2018	11,350
Sulfate	milligrams per litre	2	2	3,290	17/07/2018	3,595
Sulfide (total)	milligrams per litre	2	2	<0.01	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	402	12/12/2018	414
Total Dissolved Solids	milligrams per litre	2	2	34,000	12/12/2018	35,150

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 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	516	17/07/2018	523
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	20,300	17/07/2018	21,050
Depth	metres	2	2	13.36	17/07/2018	13.37
Electrical Conductivity	microsiemen per centimetre	2	2	53,900	30/01/2019	54,650
Iron (dissolved)	milligrams per litre	1	2	2.19	30/01/2019	2.48
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,660	30/01/2019	1,675
pH	pH	2	2	7.22	30/01/2019	7.47
Potassium	milligrams per litre	2	2	44	17/07/2018	46
Sodium	milligrams per litre	2	2	10,400	17/07/2018	11,350
Sulfate	milligrams per litre	2	2	3,290	17/07/2018	3,595
Sulfide (total)	milligrams per litre	2	2	<0.01	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	402	30/01/2019	414
Total Dissolved Solids	milligrams per litre	2	2	34,000	30/01/2019	35,150

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	512	30/01/2019	557
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	19,800	17/07/2018	20,300
Depth	metres	2	2	13.140	17/07/2018	13.147
Electrical Conductivity	microsiemen per centimetre	2	2	51,500	30/01/2019	53,200
Iron (dissolved)	milligrams per litre	1	2	<0.1	17/07/2018	-
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,400	30/01/2019	1,570
pH	pH	2	2	7.08	30/01/2019	7.15
Potassium	milligrams per litre	2	2	46	30/01/2019	48
Sodium	milligrams per litre	2	2	10,400	30/01/2019	11,300
Sulfate	milligrams per litre	2	2	3,300	17/07/2018	3,835
Sulfide (total)	milligrams per litre	2	2	<0.01	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	395	30/01/2019	409
Total Dissolved Solids	milligrams per litre	2	2	33,500	30/01/2019	34,600

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	2	2	506	12/12/2018	558
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	21,600	17/07/2018	22,550
Depth	metres	2	2	14.18	17/07/2018	14.19
Electrical Conductivity	microsiemen per centimetre	2	2	55,300	12/12/2018	57,800
Iron (dissolved)	milligrams per litre	1	2	0.97	17/07/2018	1.20
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,580	12/12/2018	1,765
pH	pH	2	2	7.33	17/07/2018	7.47
Potassium	milligrams per litre	2	2	48	12/12/2018	53
Sodium	milligrams per litre	2	2	11,800	12/12/2018	12,700
Sulfate	milligrams per litre	2	2	2,670	17/07/2018	3,375
Sulfide (total)	milligrams per litre	2	2	<0.01	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	390	12/12/2018	403
Total Dissolved Solids	milligrams per litre	2	2	35,900	12/12/2018	37,550

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 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	2	2	586	12/12/2018	652
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	21,500	17/07/2018	21,750
Depth	metres	2	2	13.820	17/07/2018	13.881
Electrical Conductivity	microsiemen per centimetre	2	2	55,600	12/12/2018	57,900
Iron (dissolved)	milligrams per litre	1	2	0.9	17/07/2018	1.2
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,350	12/12/2018	1,605
pH	pH	2	2	7.33	17/07/2018	7.47
Potassium	milligrams per litre	2	2	48	12/12/2018	53
Sodium	milligrams per litre	2	2	11,800	12/12/2018	12,700
Sulfate	milligrams per litre	2	2	2,670	17/07/2018	3,375
Sulfide (total)	milligrams per litre	2	2	<0.01	12/12/2018	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	390	12/12/2018	403
Total Dissolved Solids	milligrams per litre	2	2	35,900	12/12/2018	37,550

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 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	496	12/12/2018	505
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	20,500	16/07/2018	20,550
Depth	metres	2	2	14.143	16/07/2018	14.149
Electrical Conductivity	microsiemen per centimetre	2	2	52,800	12/12/2018	55,000
Iron (dissolved)	milligrams per litre	1	2	2.66	12/12/2018	2.97
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,520	12/12/2018	1,590
pH	pH	2	2	7.28	16/07/2018	7.49
Potassium	milligrams per litre	2	2	47	-	47
Sodium	milligrams per litre	2	2	10,800	12/12/2018	11,200
Sulfate	milligrams per litre	2	2	3,070	16/07/2018	3,445
Sulfide (total)	milligrams per litre	2	2	<0.01	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	386	12/12/2018	399
Total Dissolved Solids	milligrams per litre	2	2	34,300	12/12/2018	35,750

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	682	12/12/2018	714
Chemical Oxygen Demand	milligrams per litre	1	0	-	-	-
Chloride	milligrams per litre	2	2	24,800	16/07/2018	25,050
Depth	metres	2	2	13.815	16/07/2018	13.82
Electrical Conductivity	microsiemen per centimetre	2	2	58,700	12/12/2018	61,500
Iron (dissolved)	milligrams per litre	1	2	0.34	16/07/2018	0.35
(total)		1	0	-	-	-
Magnesium	milligrams per litre	2	2	1,780	12/12/2018	1,870
pH	pH	2	2	7.13	16/07/2018	7.37
Potassium	milligrams per litre	2	2	40	12/12/2018	41
Sodium	milligrams per litre	2	2	12,800	12/12/2018	13,000
Sulfate	milligrams per litre	2	2	4,090	16/07/2018	4,410
Sulfide (total)	milligrams per litre	2	2	<0.01	-	-
Total Alkalinity	milligrams of calcium carbonate per litre	2	2	251	12/12/2018	257
Total Dissolved Solids	milligrams per litre	2	2	38,200	12/12/2018	40,000

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						
Depth						
Electrica						
Iron (dis (tot						
Magnesi						
pH						
Potassiu						
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				

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.

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						
Sod						
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.