



## 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: 10-6-2020 To: 9-6-2021

### 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
<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					



# Annual Return

ILUKA RESOURCES LIMITED

Licence 20795

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					

<b>Name of the uploaded file containing point data ▼</b>
2021 Balranald EPA Licence 20795 Annual Return - Monitoring Data.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)?	Yes
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## 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?	Yes
Is the PIRMP available in a prominent position on a publicly accessible website?	Yes
Address of the web page where the PIRMP can be accessed ▼	
<a href="http://www.iluka.com">www.iluka.com</a>	
Has the PIRMP been tested?	Yes
The PIRMP was last tested on	22-9-2020



Has the PIRMP been updated?	<b>Yes</b>
The PIRMP was last updated on	<b>1-1-2020</b>
Number of times the PIRMP was activated in this reporting period?	<b>0</b>
The PIRMP was activated on	<b>NA</b>

## 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?	<b>Yes</b>
Do you operate a website?	<b>Yes</b>
Is the pollution monitoring data published on your website in accordance with the EPA's written requirements for publishing pollution monitoring data?	<b>Yes</b>
Address of the web page where the pollution monitoring data can be accessed ▼	
<b>www.iluka.com</b>	

## 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?	<b>No</b>
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?	<b>Yes</b>
Have you established and implemented an operational maintenance program, including preventative maintenance?	<b>Yes</b>
Do you keep records of regular inspections and maintenance of plant and equipment?	<b>Yes</b>
Do you conduct regular (at least yearly) environmental audits at the premises that are conducted by a competent and independent person?	<b>Yes</b>
Have you undertaken an independent environmental audit covering documented environmental practices, procedures and systems in place during the annual return period?	<b>Yes</b>
Have you established and implemented an environmental improvement or management plan?	<b>Yes</b>
Do you train staff in environmental issues that may arise from your activities and operations at the premises and keep records of this?	<b>Yes</b>



# Annual Return

ILUKA RESOURCES LIMITED

Licence 20795



## 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	Nigel George Tinley	Name	Thomas Joseph Patrick O'Leary
Position	COMPANY SECRETARY	Position	MANAGING DIRECTOR
Date	2 / 8 / 2021	Date	3 / 8 / 2021
<b>Declaration</b> 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.		<b>Declaration</b> 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.	

**A Statement of Compliance - Licence Details****Fusion # 00020888****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 2021 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 on EPA files DOC16/230523**

	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	4	3	0.3195	0.5938	0.9678
Monitoring Point 2 (Bal 2)	Particulates - Deposited Matter	g/m2/month	4	4	0.2237	0.6486	0.9975
Monitoring Point 3 (Bal 3)	Particulates - Deposited Matter	g/m2/month	4	4	0.2212	0.4745	0.9947
Monitoring Point 4 (Bal 4)	Particulates - Deposited Matter	g/m2/month	4	4	0.2701	0.6436	0.9898
Monitoring Point 5 (Bal 5)	Particulates - Deposited Matter	g/m2/month	4	4	0.183	0.4505	0.968

Monthly during site-based operations and 1 x monthly monitoring event post- operations.


## Monitoring Point 6

**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 2016 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	Highest Sample Value	Highest Sample Date
Calcium	milligrams per litre	5	6	598	6/05/2021	610	637	23/08/2020
Chemical Oxygen Demand	milligrams per litre	0	0					
Chloride	milligrams per litre	5	6	16,000	15/10/2020	18,683	20,800	6/05/2021
Depth	metres	8	20	12.88	12/08/2020	13.80	17.51	15/10/2020
Electrical Conductivity	microsiemen per centimetre	8	8	19,777	6/05/2021	48,904	59,283	15/11/2020
Iron (dissolved) (total)	milligrams per litre	0	0					
		5	1	<0.01	23/08/2020	<0.01	<0.01	23/08/2020
Magnesium	milligrams per litre	5	6	1,430	23/08/2020	1,530	1,610	15/11/2020
pH	pH	8	8	5.54	6/05/2021	6.76	7.14	27/10/2020
Potassium	milligrams per litre	5	6	35	15/10/2020	52	62	23/08/2020
Sodium	milligrams per litre	5	6	10,500	23/08/2020	11,016	11,400	6/05/2021
Sulfate	milligrams per litre	5	6	3,400	11/09/2020	3,945	4,400	05/02/2021 06/05/2021
Sulfide (total)	milligrams per litre	5	6	<0.1	all bar one	1	5.80	23/08/2020
Total Alkalinity	milligrams of calcium carbonate per litre	5	5	365	15/10/2020	396	443	23/08/2020
Total Dissolved Solids	milligrams per litre	0	5	12,855	6/05/2021	30,408	38,534	15/11/2020

### Notes:

< denotes below the laboratory limit of reporting.

 Denotes non-compliance




## 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 24th April 2016 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	Highest Sample Value	Highest Sample Date
Calcium	milligrams per litre	5	6	557	6/05/2021	583	598	19/08/2020
Chemical Oxygen Demand	milligrams per litre	0	0					
Chloride	milligrams per litre	5	6	17,000	17/10/2020	19,367	21,200	5/02/2021
Depth	metres	8	20	13.98	5/02/2021	14.920	18.82	15/10/2020
Electrical Conductivity	microsiemen per centimetre	8	6	40,307	19/08/2020	52,396	57,204	27/10/2020
Iron (dissolved) (total)	milligrams per litre	0	0					
		5	1	4.69	19/08/2020	4.69	4.69	19/08/2020
Magnesium	milligrams per litre	5	6	1,490	17/10/2020	1,563	1,640	16/11/2020
pH	pH	8	6	6.7	19/08/2020	6.8	6.87	2/09/2020
Potassium	milligrams per litre	5	6	37	17/10/2020	49	54	19/08/2020 5/02/2021
Sodium	milligrams per litre	5	6	10,700	12/09/2020	11,300	11,600	16/11/2020
Sulfate	milligrams per litre	5	6	3,640	12/09/2020	4,100	4,500	5/02/2021
Sulfide (total)	milligrams per litre	5	6	<0.01	all	<0.01	<0.01	all
Total Alkalinity	milligrams of calcium carbonate per litre	5	5	385	19/08/2020	398	429	16/11/2020
Total Dissolved Solids	milligrams per litre	0	4	26,200	19/08/2020	33,232	35,839	27/09/2020

Notes:

< denotes below the laboratory limit of reporting.

 Denotes non-compliance


## 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 24th April 2016 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	Highest Sample Value	Highest Sample Date
Calcium	milligrams per litre	5	5	573	15/10/2020	576	586	15/09/2020
Chemical Oxygen Demand	milligrams per litre	0	0					
Chloride	milligrams per litre	5	5	16,700	15/10/2020	19,320	22,000	23/08/2020
Depth	metres	8	20	14.69	5/02/2021	15.74	19.90	15/10/2020
Electrical Conductivity	microsiemen per centimetre	8	8	48,382	5/02/2021	53,714	57,794	15/11/2020
Iron (dissolved) (total)	milligrams per litre	0	0					
		5	1	1.87	23/08/2020	1.87	1.87	23/08/2020
Magnesium	milligrams per litre	5	5	1,480	15/10/2020	1,566	1,600	15/09/2020
								15/11/2020
								05/02/2021
pH	pH	8	8	6.550	23/08/2020	6.730	6.91	28/10/2020
Potassium	milligrams per litre	5	5	37	15/10/2020	49	55	23/08/2020
Sodium	milligrams per litre	5	5	11,100	23/08/2020	11,340	11,700	05/02/2021
Sulfate	milligrams per litre	5	5	2,650	15/09/2020	3,818	4,510	15/09/2020
Sulfide (total)	milligrams per litre	5	5	<0.01	all	<0.01	<0.01	all
Total Alkalinity	milligrams of calcium carbonate per litre	5	5	370	23/08/2020	390	411	5/02/2021
Total Dissolved Solids	milligrams per litre	0	5	31,449	5/02/2021	34,724	37,567	15/11/2020

Notes:

< denotes below the laboratory limit of reporting.

 Denotes non-compliance

## Monitoring Point 9

Groundwater quality monitoring, Groundwater well labelled BH-M16D 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 by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample	Highest Sample Value	Highest Sample Date
Calcium	milligrams per litre	5	6	533	5/05/2021	563	601	19/10/2020
Chemical Oxygen Demand	milligrams per litre	0	0					
Chloride	milligrams per litre	5	6	18,500	19/10/2020 13/11/2020	19,533	21,200	4/02/2021
Depth	metres	8	20	14.09	12/08/2020	15.05	16.25	15/10/2020
Electrical Conductivity	microsiemen per centimetre	8	8	51,306	19/10/2020	53,883	58,375	13/11/2020
Iron (dissolved) (total)	milligrams per litre	0	0					
		5	1	2.18	22/08/2020	2.18	2.18	22/08/2020
Magnesium	milligrams per litre	5	6	1,520	11/09/2020	1,570	1,600	13/11/2020 04/02/2021
pH	pH	8	8	6.48	5/05/2021	6.70	6.8	5/05/2021
Potassium	milligrams per litre	5	6	39	19/10/2020	50.20	56	22/08/2020 04/02/2021
Sodium	milligrams per litre	5	6	10,800	11/09/2020	11,267	11,900	19/10/2020
Sulfate	milligrams per litre	5	6	3,830	19/10/2020	4,212	4,620	4/02/2021
Sulfide (total)	milligrams per litre	5	6	<0.1	all	<0.1	<0.1	all
Total Alkalinity	milligrams of calcium carbonate per litre	5	6	417	11/09/2020	430	462	13/11/2020
Total Dissolved Solids	milligrams per litre	0	5	34,248	5/09/2020	35,496	37,944	13/11/2020

### Notes:

< denotes below the laboratory limit of reporting.

Denotes non-compliance

## 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 by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample	Highest Sample Value	Highest Sample Date
Calcium	milligrams per litre	5	6	525	4/05/2021	539	561	16/10/2020
Chemical Oxygen Demand	milligrams per litre	0	0					
Chloride	milligrams per litre	5	6	17,800	16/11/2020	18,733	20,000	23/08/2020
Depth	metres	8	24	15.010	3/02/2021	15.560	16.4	27/08/2020
Electrical Conductivity	microsiemen per centimetre	8	8	47,392	3/02/2021	52,894	61,934	16/11/2020
Iron (dissolved) (total)	milligrams per litre	0	0					
		5	1	2.01	23/08/2020	2.01	2.01	23/08/2020
Magnesium	milligrams per litre	5	6	1,480	12/09/2020 16/10/2020	1,525	1,570	4/05/2021
pH	pH	8	8	6.40	23/08/2020	6.60	7.12	3/10/2020
Potassium	milligrams per litre	5	6	38	16/10/2020	52	58	23/8/2020 03/02/2021
Sodium	milligrams per litre	5	6	10,600	12/09/2020	10,867	11,100	23/08/2020 16/10/2020
Sulfate	milligrams per litre	5	6	3,010	12/09/2020	3,817	4,290	16/11/2020
Sulfide (total)	milligrams per litre	5	7	<0.1	all bar one	0.07	0.2	12/09/2020
Total Alkalinity	milligrams of calcium carbonate per litre	5	6	411	23/08/2020 12/09/2020	427	460	16/11/2020
Total Dissolved Solids	milligrams per litre	0	4	30,805	3/02/2021	34,800	40,257	16/11/2020

### Notes:

< denotes below the laboratory limit of reporting.

    Denotes non-compliance

## 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 by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample	Highest Sample Value	Highest Sample Date
Calcium	milligrams per litre	5	6	550	5/05/2021	581	631	19/10/2020
Chemical Oxygen Demand	milligrams per litre	0	0					
Chloride	milligrams per litre	5	6	19,600	3/05/2021	19,417	20,600	5/05/2021
Depth	metres	8	19	13.47	3/02/2021	14.27	15.63	27/08/2020
Electrical Conductivity	microsiemen per centimetre	8	6	50,906	19/10/2020	54,134	58,836	13/11/2020
Iron (dissolved) (total)	milligrams per litre	0	0					
		5	1	0.7	23/04/2020	0.7	0.7	23/04/2020
Magnesium	milligrams per litre	5	6	1,360	11/09/2020	1,578	1,670	13/11/2020
pH	pH	8	7	6.48	24/08/2020	6.68	7.02	3/10/2020
Potassium	milligrams per litre	5	6	40	24/08/2020	50	56	11/09/2020 03/02/2021
Sodium	milligrams per litre	5	6	10,800	24/08/2020	11,450	12,400	19/10/2020
Sulfate	milligrams per litre	5	6	3,350	3/10/2020	4,060	4,540	5/05/2021
Sulfide (total)	milligrams per litre	5	6	<0.1	all bar 2	0.08	0.2	19/10/2020
Total Alkalinity	milligrams of calcium carbonate per litre	5	6	416	11/09/2020	436	452	19/10/2020 13/11/2020
Total Dissolved Solids	milligrams per litre	0	4	33,509	24/08/2020	35,443	38,244	13/11/2020

### Notes:

< denotes below the laboratory limit of reporting.

    Denotes non-compliance


## 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 by Licence	No. of Samples you Collected and Analysed	Lowest Sample Value	Lowest Sample Date	Mean of Sample	Highest Sample Value	Highest Sample Date
Calcium	milligrams per litre	5	6	554	4/05/2021	581	628	16/10/2020
Chemical Oxygen Demand	milligrams per litre	0	0					
Chloride	milligrams per litre	5	6	16,200	16/10/2020	17,833	19,000	21/08/2020
Depth	metres	8	24	12.490	2/02/2021	13.040	13.68	20/08/2020
Electrical Conductivity	microsiemen per centimetre	8	10	49,099	21/08/2020	52,128	60,506	16/11/2020
Iron (dissolved) (total)	milligrams per litre	0	0					
		5	1	2.11	21/08/2020	2.11	2.11	21/08/2020
Magnesium	milligrams per litre	5	6	1,520	21/08/2020	1,555	1,580	2/02/2021
pH	pH	8	10	6.42	16/11/2020 05/05/2021	6.59	7.06	3/10/2020
Potassium	milligrams per litre	5	6	44	16/10/2020	54	60	21/08/2020
Sodium	milligrams per litre	5	6	10,400	21/08/2020 02/02/2021	10,650	11,200	16/10/2020
Sulfate	milligrams per litre	5	6	3,310	15/09/2020	3,903	4,500	4/05/2021
Sulfide (total)	milligrams per litre	5	6	<0.1	all	<0.1	<0.1	all
Total Alkalinity	milligrams of calcium carbonate per litre	5	6	398	15/09/2020	417	445	16/11/2020
Total Dissolved Solids	milligrams per litre	0	6	32,359	3/09/2020	34,525	39,329	16/11/2020

Notes:

< denotes below the laboratory limit of reporting.

 Denotes non-compliance



# Memo

**To:** Lisa McGrath  
**From:** Patrick Nolan  
**CC:** Joel Butcher  
**Subject:** PIRMP Test  
**Date:** 22 September 2020

## SUMMARY

Iluka’s Pollution Incident Response Management Plan (PIRMP) details how potential pollution risks associated with the Balranald Project and more specifically the activity licenced under Environment Protection Licence (EPL) 20795 will be minimised.

Under Part 5.7A of the POEO Act, holders of an EPL are required to prepare, keep, implement and test a PIRMP.

The PIRMP was updated and reissued on 11 June 2020 for the T3 mining period. A test of the site evacuation procedure was undertaken on 18/07/20 and a follow up on 13/08/20. This memo documents a review of the PIRMP.

The following actions are identified in this review and will be addressed as follows

Action	Responsibility
Develop Dangerous Goods Manifest and keep readily available on site	Patrick Nolan
Install shadecloth on stockpiles to contain windblown material	Joel Butcher
Update Figure 5.1 Density Gauges	Jeremy Goodieson
Update PIRMP and reissue	Lisa McGrath
Provide update PIRMP to Balranald Fire Service	Patrick Nolan
Review updated PIRMP with Emergency Management Team	Patrick Nolan

## SECTION 4 NOTIFICATION AND COMMUNICATION

All telephone numbers in Table 4.1 (with exception of 000) were tested on 26/08/20. All telephone numbers and positions in Table 4.2 are correct and up to date. All landowner details in Table 4.3 are correct and up to date.

Local emergency services were briefed on the project on 11/12/19 and provided with the Balranald Emergency Control & Response Plan. An offer of a site tour has been made to Balranald Emergency Services Paramedics. They visited site to attend to an emergency on 19/06/20, so are aware of the location and from the previous two mining trials.

## SECTION 5 MAJOR HAZARDS

The hazardous materials as listed in table 5.1 are correct. The mitigation measures on page 16 have been inspected and are all in place.

The FRM7436 is used to introduce any new chemical to site.

### **Inventory of Pollutants:**

A dangerous goods manifest as per Section 5.1.2 is currently not maintained or kept on site. This will be addressed. It is recommended the manifest is kept within a weatherproof area/tube etc. at the front gate with the most current information. Update as materials and quantities change. Density gauge locations, bulk diesel, flocculant, current drawings/maps inclusive of all dams, watercourses.

**Action: Develop Dangerous Goods Manifest and keep readily available on site – Patrick Nolan**

### **Fuel storage and use:**

Diesel fuel is stored in double skinned self-bunded fuel tanks and dispensed as per the description and to AS1940. Hydrocarbons spills are managed in accordance with Iluka incident response guideline (GUI-1148).

Bulk diesel not dangerous or hazardous by the ADG code, but delivery tankers must adhere to all ADG rules and standards.

### **Chemical storage and use:**

Chemicals stored on site as per list in Table 5.1. Compliance to Iluka hazardous substance procedure is maintained including SDS register, chemical site entry approvals, adequate storage of quantities on site.

### **Ionising Radiation:**

The Radiation Safety Officer (Daniel Emes) is undertaking ~monthly site visits to undertake monitoring, inspections and training.

All controls listed in 5.1.3 currently in place including

- Density gauges managed by a qualified radiation officer (RSO).
- Management of ore stockpiles on engineered pads - this will need continued focus as stockpiles build.
- Management of site access through fencing – in place.
- Management of NORM requirements including transportation chain of responsibility requirements (National Heavy Vehicle Regulator) – completed for commissioning and planned for decommissioning.
- Prevent stockpile windblown loss – this will need continued focus as stockpiles build.
- Maintain housekeeping and hygiene standard to reduce exposure to product – ongoing focus and clean-up required due to water management issues in plant.

### **Air Quality**

Air Quality is monitored and inspected by RSO and fortnightly environmental inspections. Dust monitoring is conducted monthly.

All controls listed in 5.1.4 currently in place including



- Ore stockpiles limited to 6 metres – this will need continued focus as stockpiles build.
- Sub-soil/topsoil stockpiles limited to 3 metres.
- Dust suppression in place – continued focus as stockpiles build and enter dry months.
- Speed limits reduced in areas where excessive dust can be produced.
- Shadecloth installed around stockpiles to contain windblown material – this is a work in progress as stockpiles change locations.
- Vehicle and equipment emissions to conform to manufacturers requirements.

**Action: Install shadecloth on stockpiles to contain windblown material – Joel Butcher**

**Noise management:**

Noise emissions are monitored and inspected through monthly noise monitoring. To date, all results below criteria in Table 5.3.

All controls listed in 5.1.6 currently in place including

- Maintain all plant and equipment to manufactures requirements as above.
- Update landholder of activities regularly. No excessive noise issues or complaints have been received but would be managed in accordance with HSEC Group Standard 2 as listed.

**Water management:**

Performance measures for water management are being actioned as listed in Table 5.4.

Sediment control basin has partially filled with mineral ore from water management issues in plant. Will need to be cleaned out.

Water management on stockpile area has proved difficult with ponding with insufficient drainage to site drainage system. Pad remains in place as per design.

Hydrogeologists on site monitoring groundwater as per Table 5.5 and to meet Groundwater Management Plan (GMP). Mitigation measures in place as per GMP.

**Acid Mine Drainage:**

Acid generation managed as per design, mitigation measures in 5.1.7 in place.

**Subsidence Management:**

SMP mitigation measures in 5.1.8 in place

**Description and Likelihood of Hazards & Risk Management:**

Risk assessment in place and regularly reviewed and maintained.

Adherence to the project EH&S Plan in place.

As required by Section 5.4 and 5.5, Iluka has developed and implemented the following pre-emptive actions and procedures for potential emergency and pollution incidents at the activity site:

- Provision of adequate safety and pollution control equipment onsite including spill kits, access to a water
- cart, safety showers and firefighting equipment.
- Established clear evacuation routes, assembly points and procedures.
- Personal protective equipment (PPE) required for all personnel and visitors on the site.
- Pre-mobilisation inspection of plant and equipment prior to accessing site.
- Dangerous goods review in accordance with SafeWork NSW requirements.

Refer to Emergency Control & Response Plan for list of emergency equipment and protocols.

As required by Section 5.6, to minimise harm to individuals the following actions and arrangements are in place to minimise the risk of harm to persons on the premises should a pollution incident occur:

- Emergency evacuation procedure.
- Emergency isolation and shutdown systems for all plant machinery.
- Clearly signposted emergency assembly point.

The density gauge locations in Figure 5.1 require updating to reflect installed locations. An updated copy of the PIRMP will be provided to the Balranald Fire Service.

**Action: Update Figure 5.1 – Jeremy Goodieson**

**Action: Provide update PIRMP to Balranald Fire Service – Patrick Nolan**

## SECTION 6 INCIDENT MANAGEMENT

Incident reporting and investigation is being undertaken in accordance with Schedule 5, Condition 6 of the development consent and Iluka standard.

Several drills have been conducted to test the incident response procedure is working in accordance with Figure 6, Section 6.2 and the referenced Emergency Control and Response Procedure. It is recommended at the next meeting of the emergency management team this PIRMP is discussed and included in all future agendas.

Further to setting up a site manifest an improved process is to document responsible person/s to manage HAZMAT information for currency in the event of an incident, where the location and maximum quantities and documents are part of the handover process upon their arrival at site of the fire department/external emergency services.

<https://www.safework.nsw.gov.au/hazards-a-z/hazardous-chemical>

Keep a manifest



You may need to keep a manifest of hazardous chemicals. Your manifest must include the type, quantity and location of the chemicals, a site plan and contact details for emergency services.

## **SECTION 7 TRAINING, TESTING AND REVIEW**

Staff are trained in emergency response and pollution incidents through the induction and through implementation of site processes as outlined below.

### **Inventory of pollutants:**

Communicated to emergency management team.

### **Fuel storage & use:**

Procedure in place while decanting fuel trailers into bulk diesel storage tanks. Managed by logistics coordinator. Procedures for reporting and cleaning up spillages are communicated and understood.

### **Chemical Storage:**

Communicated in inductions, risk & hazard management training.

### **Ionising Radiation:**

Those process workers whose tasks involve being in the proximity of density gauges have received radiation training as provided by the Iluka Balranald radiation officer (RSO). This training includes information on the wearing of monitoring devices and exposure rates (feedback to crews).

Controlled area and task.

### **Air Quality:**

No issues at time of drill. Increased diesel usage as mining commences requires health and hygiene monitoring. Ongoing communication via pre-shift meetings.

### **Noise Management:**

As per site standard. Mandatory hearing protection as sign posted. Communicated at induction.

### **Water Management:**

No issues. Environmental team to advice of further education and training as required.

### **Description and Likelihood of Hazards & Risk Management:**

Drill learnings communicated to all crews via pre-shift meetings and correspondence. Further action required to verify pollution controls in a mining environment.

## **SECTION 8 PIRMP DETAILS**

PIRMP is available on site through TRIM and site administrator. A copy can be made available to an EPA officer on request. The PIRMP is available to the public through [www.iluka.com](http://www.iluka.com) Balranald web page.

To further raise awareness of site it is proposed to include in agenda for next emergency management team meeting as an environmental initiative.

***Action: Review updated PIRMP with Emergency Management Team – Patrick Nolan***

Relationship with other plans remains current.

## **SECTION 9 MAPS**

Attach revised maps for density gauges as outlined above.

Refer to PIRMP appendix A & B