



# L10013 ANNUAL REPORT

REPORTING PERIOD: 01 JULY 2023 TO 30 JUNE 2024

## GROUNDWATER EXTRACTION LICENCE L10013

Document No: NRE-0000-H-RPT-N-0007

Project Name: Nolans Rare Earths



## REVISION HISTORY

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25/09/2024	Rev 1.0	Issue for Use to DEPWS	G. Calderon Environmental Scientist	D. Jordan Manager Environment	S. Macnaughton Chief Operations Officer
Date	Revision	Description	Prepared	Reviewed	Approved

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**GROUNDWATER EXTRACTION LICENCE L10013 ANNUAL REPORT 2024**

**OPERATOR NAME:** ARAFURA RARE EARTHS LIMITED


**PROJECT NAME:** NOLANS RARE EARTHS

**GROUNDWATER EXTRACTION LICENCE:** L10013

**REPORTING PERIOD:** 01 JULY 2023 TO 30 JUNE 2024

**DISTRIBUTION:** DEPARTMENT OF ENVIRONMENT, PARKS AND WATER SECURITY (DEPWS)

The annual report must be endorsed by a senior representative of the company who has the appropriate level of delegation.

<b>Declaration of Accuracy</b>	
I <b>Stuart Macnaughton</b> , Chief Operations Officer declare that to the best of my knowledge the information contained in this Annual Report is true and correct and all operational activities undertaken during the reporting period were in accordance with the water licence L10013, and in accordance with all the relevant Local, Northern Territory and Commonwealth Government legislation.	
Signed:	
Full name:	Stuart Macnaughton
Position:	Chief Operations Officer
Organisation:	Arafura Rare Earths Limited
Date:	25/09/2024

## **1.0 INTRODUCTION**

Arafura Rare Earths Pty Ltd, now operating as Arafura Nolans Project Pty Ltd (hereinafter referred to as Arafura), owner and operator of the Nolans Rare Earths Project (Nolans, or the Project), was granted Groundwater Extraction Licence – GWEL L10013 (the licence) on 20 March 2023, and amendment granted on 8 August 2023. This licence permits the extraction of 4800 ML/year from the Reaphook Palaeovalley aquifer. The preparation of this annual report is in accordance with Condition 10 of the licence, as stated below:

*3.10 – the licence holder must submit to the department an annual compliance report on or before 30 September of each year of this licence. The annual report must:*

- a) detail compliance with the conditions of this licence in the previous financial year;*
- b) identify exceedances of triggers values in the licence documents and actions taken in response; and*
- c) detail any changes to triggers values in the licence documents.*

The report will be submitted to the Department of Environment, Parks, and Water Security (DEPWS) (the department), and will be available on the Arafura website as required in Condition 3.11(e) of the licence, as stated below:

*3.11 – the licence holder must publish on a website which is publicly available:*

- e) copies of the annual reports prepared in accordance with Condition 3.10.*

## **1.1 Project and Operator Details**

The Nolans site is located 135 km northwest of Alice Springs, and approximately 10 km west of the Aileron Roadhouse in the Northern Territory (NT). Arafura is an Australian mineral exploration and development company focusing on Neodymium (Nd) and Praseodymium (Pr) rare earths, and Nolans is their flagship Project. The Project will encompass a rare earths mine, process plant (comprising beneficiation, extraction and separation plants) and related infrastructure to be constructed and operated at the Nolans site. Arafura is headquartered in Perth, Western Australia with a second office in Darwin, Northern Territory (NT). The company was listed on the Australian Stock Exchange (ASX) in 2003. A summary of the Project and Operator details are presented in Table 1—1 below.

**Table 1—1 Project and Operator Details**

Operator Details	
<b>Groundwater Extraction Licence</b>	L10013
<b>Project Name</b>	Nolans Rare Earths
<b>Location</b>	135 km northwest of Alice Springs, Northern Territory
<b>Approval Holder</b>	Arafura Nolans Project Pty Ltd
<b>Approval Holder and Operator Details</b>	<p>Arafura Nolans Project Pty Ltd ACN 118 158 900 ABN 88 118 158 900</p> <p>Arafura Rare Earths Ltd ACN 080 933 455 ABN 22 080 933 455</p> <p><i>Head Office:</i> Address: Level 6, 432 Murray St Perth WA 6000 PO Box: 5773 St Georges Terrace Perth WA 6831 Phone: +61 8 6370 2800 Email: arafura@arultd.com</p>

## 1.2 Project Activities in the Reporting Period

Project enabling and early construction works for the Nolans Project commenced on 27 February 2023 and continued until mid-October 2023. In relation to water infrastructure, these activities included the installation of 39 additional groundwater monitoring bores across the Borefield, Minesite and RSF areas (GHD, 2023i), two production bores and three observation monitoring bores at Borefield D (GHD, 2023j). One of the production bores drilled was not viable (RN043564), and so the existing production bore (RN019034) plus one of the new bores (RN043563) were established as the extraction bores at Borefield D. Headworks were fitted to the two viable production bores, with the third (non-viable) bore being capped and made safe. Headworks included the installation of bore pumps, collection tank, transfer water pumps, generating set and associated equipment at borefield D. A water pipeline was installed from Borefield D to the process area for use of the extracted water during early construction works. Construction of a turkey's nest of approximately 0.7 ha (designed to hold approximately 7,500 m<sup>3</sup> of water).

## 1.3 Assessment of Compliance

The following Table 1—2 shows the compliance designation categories used to assess Arafura's compliance with each of the Conditions of the licence during the reporting period. These categories have been adapted from the Australian Government *Annual Compliance Report Guidelines 2023* (DCCEEW, 2023).

**Table 1—2 Assessment of compliance**

<b>Designation</b>	<b>Description</b>
<b>Compliant</b>	Compliant with all requirements of the condition
<b>Partially Compliant</b>	Compliant with some requirements of the condition
<b>Non-compliant</b>	Non-compliant with the requirements of the condition
<b>Not Applicable</b>	Requirements in the condition are outside of scope in the reporting period

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## **2.0 COMPLIANCE AGAINST LICENCE CONDITIONS**

Table 2—1 below provides a summary of Arafura’s compliance with the Conditions of the Groundwater Extraction Licence – GWEL L10013.





**Table 2—1 Compliance with Conditions in Water Licence L10013**

Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments																										
1	<p><u>Condition 1.1</u></p> <p>The licence holder must extract no more than the Entitlement specified in Column 2 of Table 1 for the period listed in Column 1 of Table 1 for the Groundwater Resource.</p> <p><i>Table 1. Total Maximum Water Entitlement per Period</i></p> <table border="1"> <thead> <tr> <th>Column 1</th> <th>Column 2</th> </tr> <tr> <th>Period</th> <th>Entitlement</th> </tr> </thead> <tbody> <tr> <td>20-Mar-2023 to 30-Jun-2023</td> <td>1433 ML</td> </tr> <tr> <td>01-Jul-2023 to 30-Jun-2024</td> <td>4800 ML</td> </tr> <tr> <td>01-Jul-2024 to 30-Jun-2025</td> <td>4800 ML</td> </tr> <tr> <td>01-Jul-2025 to 30-Jun-2026</td> <td>4800 ML</td> </tr> <tr> <td>01-Jul-2026 to 30-Jun-2027</td> <td>4800 ML</td> </tr> <tr> <td>01-Jul-2027 to 30-Jun-2028</td> <td>4800 ML</td> </tr> <tr> <td>01-Jul-2028 to 30-Jun-2029</td> <td>4800 ML</td> </tr> <tr> <td>01-Jul-2029 to 30-Jun-2030</td> <td>4800 ML</td> </tr> <tr> <td>01-Jul-2030 to 30-Jun-2031</td> <td>4800 ML</td> </tr> <tr> <td>01-Jul-2031 to 30-Jun-2032</td> <td>4800 ML</td> </tr> <tr> <td>01-Jul-2032 to 19-Mar-2033</td> <td>4600 ML</td> </tr> </tbody> </table>	Column 1	Column 2	Period	Entitlement	20-Mar-2023 to 30-Jun-2023	1433 ML	01-Jul-2023 to 30-Jun-2024	4800 ML	01-Jul-2024 to 30-Jun-2025	4800 ML	01-Jul-2025 to 30-Jun-2026	4800 ML	01-Jul-2026 to 30-Jun-2027	4800 ML	01-Jul-2027 to 30-Jun-2028	4800 ML	01-Jul-2028 to 30-Jun-2029	4800 ML	01-Jul-2029 to 30-Jun-2030	4800 ML	01-Jul-2030 to 30-Jun-2031	4800 ML	01-Jul-2031 to 30-Jun-2032	4800 ML	01-Jul-2032 to 19-Mar-2033	4600 ML	Compliant	<p>Arafura extracted the following amounts for the periods listed in Table 1 of the licence:</p> <ul style="list-style-type: none"> <li>20-Mar-2023 to 30-Jun-2023: 6.06 ML extracted from Borefield D</li> <li>01-Jul-2023 to 30-Jun-2024: 8.83 ML extracted from Borefield D</li> </ul> <p>Water extraction ceased in October 2023 and did not recommence during the reporting period.</p>
Column 1	Column 2																												
Period	Entitlement																												
20-Mar-2023 to 30-Jun-2023	1433 ML																												
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2	<p><u>Condition 1.2</u></p> <p>The licence holder must ensure water extracted under this licence is not wasted. For the purpose of this condition water is wasted where, irrespective of intention:</p> <ul style="list-style-type: none"> <li>a) more water is used than is reasonably necessary for the immediate purpose for which water is taken, including used for irrigation;</li> <li>b) an unnecessary or excessive flow or flood of water is allowed to occur; or</li> <li>c) water is taken without adequate control or supervision of its taking.</li> </ul>	Compliant	<p>All construction and operation activities at Borefield D, including the water extraction activities were completed under supervision to ensure water was not wasted and was used for the approved activities. The extracted water was mainly used for dust suppression during the construction activities. Note that on 19 August 2023 there was a loss of ~0.15 ML of water at Borefield D due to a procedural breach where the pumping bore was not turned off overnight. The event was managed as soon as it was reported, and an investigation was conducted immediately after reporting with actions to address the situation undertaken.</p> <p>Water extracted in the reporting period was mainly used for dust suppression on the existing unsealed roads and roads under maintenance during the early works construction activities.</p> <p>Details addressing each of the items in the condition is shown below:</p> <ul style="list-style-type: none"> <li>a) The amount of water extracted and used during the reporting period was limited to project requirements. Controls were implemented to ensure that no more than necessary was used. Water extraction was limited to daytime activities when site personnel were present, enabling the personnel to supervise and manage the pumping. The extracted water was pumped directly to the water storage tank at Borefield D and/or to the turkey's nest, where water carts were loaded.</li> <li>b) As provided in item (a) above, pumping at Borefield D was consistently carried out under supervision. However, there was one event during the reporting period when the pump failed to be turned off overnight leading to the loss of ~0.15 ML as specified above.</li> </ul>



Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
			c) Flow meters installed at the production bores provided precise measurement records. Readings were recorded and tabulated to monitor water consumption.
3	<p><u>Condition 1.3</u></p> <p>The licence holder may only extract water under this licence from a bore listed on this licence.</p>	Compliant	During the reporting period, water was extracted predominantly from production bore RN019034 and a small amount (76.45 m <sup>3</sup> ) of water was extracted from RN043563. Both of these bores are listed within this licence.
4	<p><u>Condition 1.4</u></p> <p>The licence holder must maintain the bores used for extracting water under this licence in accordance with the National Uniform Drillers Licensing Committee 'Minimum Construction Requirement for Water Bores in Australia' as amended.</p>	Compliant	<p>Two production bores are listed in the water licence L10013. Both production bores were drilled in accordance with the Australian Minimum Construction Requirements for Water Bores.</p> <ul style="list-style-type: none"> <li>• Production bore RN019034 was installed by L2 drilling company in 2014.</li> <li>• Production bore RN043563 was installed by Silver City drilling company 2023.</li> </ul>
5	<p><u>Condition 1.5</u></p> <p>The licence holder may only extract water under this licence for use on a property listed on this licence.</p>	Compliant	The water extracted during the reporting period was used entirely within the NT Portion 703 (6300 Stuart Highway Anmatjere), which is the Aileron Station Perpetual Pastoral Lease. That is the property listed in this licence.
6	<p><u>Condition 2.1</u></p> <p>Extraction from the listed groundwater resource must be recorded by a meter or</p>	Compliant	All water extraction under this licence was recorded by a flow meter. The flow meters at the production bores listed in water licence L10013 are associated with Borefield D. These were installed prior to commencement of extraction, in accordance with the



Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments																
	meters supplied, installed and maintained by the licence holder in accordance with the Northern Territory Non-Urban Water Metering Code of Practice for Water Extraction Licence, as amended from time to time.		<p>Northern Territory Non-Urban Water Metering Code of Practice for Water Extraction Licences. The installation at production bore RN019034 was completed by <i>Greenlands</i> in March 2023. The flow meter was replaced in August 2023 by <i>Plummers Project Services</i>, which also completed the flow meter installation at production bore RN043563.</p> <p>A summary of the installed flow meters and specifications is shown in Table 2—2 below.</p> <p style="text-align: center;">Table 2—2 Flow meter specifications</p> <table border="1"> <thead> <tr> <th>Production Bore #</th> <th>Type</th> <th>Flow Meter Serial #</th> <th>Installation Date</th> </tr> </thead> <tbody> <tr> <td>RN019034</td> <td>Octave Ultrasonic</td> <td>212018882</td> <td>14-Mar-23</td> </tr> <tr> <td>RN019034</td> <td>Siemens Sitrans FM Mag 5100W</td> <td>517841D063</td> <td>29-Aug-23</td> </tr> <tr> <td>RN043563</td> <td>Siemens Sitrans FM Mag 5100W</td> <td>518541D063</td> <td>29-Aug-23</td> </tr> </tbody> </table>	Production Bore #	Type	Flow Meter Serial #	Installation Date	RN019034	Octave Ultrasonic	212018882	14-Mar-23	RN019034	Siemens Sitrans FM Mag 5100W	517841D063	29-Aug-23	RN043563	Siemens Sitrans FM Mag 5100W	518541D063	29-Aug-23
Production Bore #	Type	Flow Meter Serial #	Installation Date																
RN019034	Octave Ultrasonic	212018882	14-Mar-23																
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RN043563	Siemens Sitrans FM Mag 5100W	518541D063	29-Aug-23																
7	<p><u>Condition 2.2</u></p> <p>Within two (2) weeks of 30 September, December, March and June of each year, and within two weeks of the expiry date, the licence holder must supply the Controller with a record of water extraction, reported by calendar month, from each of the listed bores.</p>	Compliant	<p>Flow meter readings are reported quarterly by Arafura via the My Meter App <a href="https://www.ntlis.nt.gov.au/walaps-portal/environment/water/water-meter-reading-form?licenceGUID=09ba054b-fdc7-4c06-9d69-7e41199c7937">https://www.ntlis.nt.gov.au/walaps-portal/environment/water/water-meter-reading-form?licenceGUID=09ba054b-fdc7-4c06-9d69-7e41199c7937</a>, as required by this condition.</p> <p>Reporting was completed on the following dates:</p> <ul style="list-style-type: none"> <li>• 04 September 2023</li> <li>• 12 September 2023</li> </ul>																



Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
			<ul style="list-style-type: none"> <li>• 04 January 2024</li> <li>• 15 April 2024</li> <li>• 01 July 2024.</li> </ul>
8	<p><u>Condition 3.1</u></p> <p>Where a condition of this licence requires a program, plan, report or other document to be approved by the Controller, the licence holder must:</p> <p>a) see approval of the document, via email to <a href="mailto:water.regulation@nt.gov.au">water.regulation@nt.gov.au</a>; and</p> <p>b) the document must be peer reviewed by a suitable qualified professional, unless otherwise agreed in writing by the Controller.</p>	Compliant	<p>There was no program, plan, report or other document required to be approved by the Controller within the reporting period.</p> <p>Arafura will seek approval by the Controller for any other documents required under this licence as specified by this Condition.</p>
9	<p><u>Condition 3.2</u></p> <p>A document submitted under condition 3.1 may be returned by an authorised officer or the Controller to the licence holder for amendment. The licence holder shall resubmit the document to the Controller within the timeframe specified in writing by the Controller</p>	Compliant	<p>As per item 8 above, there was no program, plan, report or other document required to be submitted, or requests for amendments by the Controller within the reporting period.</p> <p>Any comments from the Controller to any such future documents conditioned under this licence will be addressed, and the amended document resubmitted within the timeframe specified by the Controller, as outlined in this condition.</p>



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	or authorised officer.		
10	<p><u>Condition 3.3</u></p> <p>The licence holder must <b>undertake the minimum monitoring</b> requirements specified in <b>Schedule 2</b> and <b>Schedule 3</b> and <b>Schedule 4</b> in accordance with monitoring commencement timing specified in the schedules.</p>	Compliant	<p>Arafura has undertaken an extensive groundwater monitoring program, which meets the minimum monitoring requirements specified in Schedule 2, Schedule 3, and Schedule 4 of the water licence L10013.</p> <p>In accordance with Schedule 2, groundwater levels are recorded by loggers at daily intervals, and the data is downloaded at monthly intervals, at all of the bores listed (RN019035, RN043611, RN043613, RN043580, and RN019017). The monitoring commenced in May 2023 and has been ongoing to date.</p> <p>In accordance with Schedule 3, groundwater levels are recorded by loggers at daily intervals, and the data is downloaded at monthly intervals, at all of the bores listed (RN043581, RN18869, RN043582, and RN043583). This monitoring commenced in May 2023 and it has been ongoing to date.</p> <p>In accordance with Schedule 4, basic water quality parameters (temperature, electrical conductivity, and pH) and general parameters (alkalinity, total dissolved solids, sodium, potassium, calcium, magnesium, chloride, and sulfate) were monitored on 08 August 2023 at the bore from which water was extracted (RN019034). Water sampling is currently taken quarterly in the neighboring monitoring bore RN019027 (there is approximately 20 m between the two bores) ongoing as part of the regular monitoring program.</p>



Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
11	<p><u>Condition 3.4</u></p> <p>Until an adaptive management plan is approved under condition 3.5, if the <b>limits in Schedule 2 or Schedule 3 are exceeded</b> at any time the licence holder must:</p> <ul style="list-style-type: none"> <li>a) cease to take water under this licence;</li> <li>b) submit a record of water extraction from each of the listed bores to the Controller within 24 hours of limit exceedance being identified; and</li> <li>c) provide a report of non-compliance to the Controller of Water Resources in accordance with condition 3.9.</li> </ul> <p><i>For the sake of clarity, alternative adaptive management measures for Schedule 2 and 3 limits may be developed by the licence holder for approval by the Controller. An approved adaptive management plan supersedes condition 3.4</i></p>	Compliant	<p>Arafura has undertaken the minimum monitoring requirements at the specified monitoring/production bores in Schedule 2, 3 and 4 of the water licence L10013, including standard water levels (SWLs) and water sampling. Ongoing data analysis is undertaken to monitor for any exceedances in the trigger levels (e.g. GHD, 2024a-2024e).</p> <p>It has been identified that the SWL had a deviation larger than 0.1 m during the monitoring period at a number of monitoring bores. This occurred after cessation of the extraction period from Borefield D. Similar patterns of natural variation are also seen in historical readings. Deviations observed during the monitoring period are therefore attributed to natural variation. The SWL baseline is yet to be determined for all monitoring bores within the area. Arafura is currently in discussion with DEPWS to establish appropriate baseline SWLs.</p>



Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
12	<p><u>Condition 3.5</u></p> <p>Within <b>1 year</b> of commencement of extraction, the licence holder must develop and submit for approval by the Controller, an <b>adaptive management plan</b>. The adaptive management plan must:</p> <p><u>Objectives</u></p> <p>a) include clear, measurable objectives which can be used to demonstrate that:</p> <ul style="list-style-type: none"> <li>i) impact of groundwater level decline will not exceed rates or levels which may impact culturally significant groundwater dependent ecosystems at Day Creek.</li> <li>ii) impact of groundwater level decline will not adversely affect groundwater dependent ecosystems at an ecologically significant scale in the local region.</li> <li>iii) rights of groundwater users to access groundwater for the beneficial use of rural stock and domestic will not be adversely</li> </ul>	Compliant	<p>Licensed extraction commenced on 8 August 2023. The Adaptive Management Plan was submitted as required to DEPWS on 8 August 2024 and is currently under assessment. The Adaptive Management Plan was developed by GHD with inputs from CDM Smith, both of whom are qualified consultants, in accordance with the NT EPA Guidance on Adaptive Management (EPA, 2018). This development included stakeholder consultation, which was conducted during June 2024, as detailed further in the Adaptive Management Plan (GHD, 2024f). The Adaptive Management Plan was peer reviewed by EMM Consulting prior to submission.</p> <p>Objectives of the Adaptive Management Plan will be met and further discussed in the next reporting period.</p>





Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
	<p>affected by groundwater level decline.</p> <p>iv) access to groundwater at Laramba community borefield and Alyuen outstation will not be adversely affected by groundwater level decline or decline in groundwater quality as a result of extraction.</p> <p>v) the ability of the resource to support key Aboriginal cultural values is not adversely impacted by the licensed extraction.</p> <p><u>Stakeholder consultation</u></p> <p>b) be developed in consultation with local Aboriginal people identified with the Central Land Council in regards to <b>Objectives (a)(i) and (a)(v)</b>;</p> <p>c) be developed in consultation with land holders in regards to <b>Objective (a)(iii)</b>;</p> <p>d) be developed in consultation with Power and Water Corporation and Alyuen Aboriginal Corporation in regards to</p>		



Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
	<p><b>Objective (a)(iv);</b></p> <p><u>Limits and triggers</u></p> <p>e) incorporate limits specified in <b>Schedule 3</b> which can be used to implement adaptive management actions;</p> <p>f) incorporate quantitative vegetation community scale trigger values which can ne used to implement adaptive management actions to achieve <b>Objectives (a)(i) and (a)(ii);</b></p> <p>g) incorporate trigger values based in the findings of the <b>hydro-census</b> which can ne used to implement adaptive management actions to achieve <b>Objective (a)(iii);</b></p> <p>h) incorporate trigger values based which can be used to implement adaptive management actions to achieve <b>Objective (a)(iv);</b></p> <p>i) incorporate trigger which can be used to implement adaptive management actions to achieve <b>Objective (a)(iv);</b></p>		



Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
	<p><u>Management actions</u></p> <p>j) define management actions that are capable of being implemented in response to the trigger and limits developed under parts 3.5(b) through 3.5(f), to achieve the objectives;</p> <p>k) establish timeframes for implementation of this actions;</p> <p>l) establish who in the licence holder’s organisation makes the decision to implement management actions, and the evidence on which such decision will be made;</p> <p><u>Continuous improvement</u></p> <p>m) incorporate the feedback system to ensure appropriate actions are initiated when triggered, and impacts do not exceed those presented in the <b>assessed groundwater model</b>;</p> <p>n) include a process to ensure management actions are updated as knowledge improves;</p>		



Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
	<p>o) include a process to integrate information obtained through the completion of Condition 3.14 – groundwater dependent ecosystems verification and Condition 3.15 – groundwater model verification and improvement; and</p> <p><u>Implementation</u></p> <p>p) be implemented immediately following the Controller’s approval.</p>		
13	<p><u>Condition 3.6</u></p> <p>Within <b>1 year</b> of commencement of extraction, the licence holder must develop and submit for approval by the Controller a <b>monitoring program</b> to support the adaptive management plan. The monitoring program must:</p> <p>a) be prepared by a suitable qualified professional;</p> <p>b) include the minimum monitoring measures specified in <b>Schedule 3</b>;</p> <p>c) include the minimum groundwater quality</p>	Compliant	<p>Licence extraction commenced on 8 August 2023. The Monitoring Program submitted to DEPWS for approval on 8 August 2024 and is currently under assessment. The Monitoring Program was under development during the reporting period (by a suitably qualified professional, GHD) in accordance with the stipulations of this licence Condition. The Monitoring Program was peer reviewed by EMM Consulting prior to submission.</p> <p>Objectives of the Monitoring Program will be met and further discussed in the next reporting period.</p>



Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
	<p>monitoring measures specified in <b>Schedule 4</b>;</p> <p>d) include monitoring measures suitable to identify an exceedance of any trigger value or limit in the adaptive management plan;</p> <p>e) specify the parameters, methodology and frequency for each monitoring measure;</p> <p>f) include a review process to ensure continues improvement of the monitoring program; and</p> <p>g) be implemented immediately following the Controller’s approval.</p>		
14	<p><u>Condition 3.7</u></p> <p>The licence holder must seek approval on revisions to the adaptive management plan or monitoring program from the Controller, prior to implementing (other than typographical changes or revisions to formatting or referencing).</p> <p>The proposed revisions:</p>	Compliant	<p>Once approved, Arafura will seek approval by the Controller of any revisions of the Adaptive Management Plan and/or Monitoring Program prior to implementation, as required in this condition.</p>



Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
	<p>a) must be prepared by a suitable qualified professional;</p> <p>b) include a tabulated summary of amendments;</p> <p>c) may be returned by the Controller or an authorised officer to the licence holder for amendment and the licence holder shall resubmit the document to the Controller within the timeframe specified in writing.</p>		
15	<p><u>Condition 3.8</u></p> <p>The licence holder must <b>report adaptive management action undertaken</b>, in writing to the Controller, within 10 business days after the action has been undertaken. The report must outline:</p> <p>a) what triggered the requirement to undertake the action;</p> <p>b) the action taken; and</p> <p>c) the expected outcome from the action.</p>	Compliant	<p>No adaptive management action was required to be undertaken during the reporting period. Arafura will report to the department (the Controller) any adaptive management actions undertaken within 10 business days as specified in this condition. Management actions are to be taken in response to exceedance of monitoring triggers and limits, in accordance with the adaptive management approach outlined in the Adaptive Management Plan (GHD, 2024f).</p>



Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
16	<p><u>Condition 3.9</u></p> <p>The licence holder must immediately <b>notify the department on becoming aware of non-compliance</b> (or suspected non-compliance) with any condition of this licence. A notification under this condition must:</p> <ul style="list-style-type: none"> <li>a) contain particulars of the non-compliance, including the identified or potential impacts associated with the non-compliance;</li> <li>b) identify the steps that have or will be taken to minimise the impacts of the non-compliance; and</li> <li>c) identify the steps that have or will be taken to prevent a reoccurrence or minimise the risk or further non-compliance.</li> </ul>	Compliant	<p>No non-compliances occurred during the reporting period. On two occasions the download of data from water level loggers was delayed longer than the monthly cadence specified in Schedule 2 and Schedule 3. This occurred in November 2023 and in March 2024, when data was unable to be downloaded due to weather conditions (flooding which prevented access to the groundwater bores). In both cases, this was reported to the department via email, and the data was downloaded the following month with no loss of data. The data loggers used have ample battery life to ensure over 6 months of data storage.</p>
17	<p><u>Condition 3.10</u></p> <p>The licence holder must submit to the department an <b>annual compliance report</b> on or before <b>30 September</b> of each year of this licence. The annual report must:</p>	Compliant	<p>The preparation and submission of this annual report to DEPWS prior to 30 September 2024 fulfills the requirements of this condition for the 2023-2024 reporting period.</p> <p>In relation to (a) this table provides details of compliance with the conditions of this licence in the previous financial year.</p>



Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
	a) detail compliance with the conditions of this licence in the previous financial year; b) identify exceedances of trigger values in the licence documents and actions taken in response; and c) detail any changes to trigger values in the licence documents.		In relation to (b) no exceedances of the trigger values (limits) attributable to Arafura’s extraction as stipulated in the schedules of the licence occurred during the reporting period. As discussed under Condition 3.4, there has been recorded natural variation in the SWL at the monitoring bores that is currently in discussion with DEPWS to agree upon appropriate baseline levels.  In relation to (c) no changes to the trigger values (limits) identified in the licence were made during the reporting period.
18	<u>Condition 3.11</u> The licence holder must <b>publish on a website</b> which is publicly available: a) a copy of this licence; b) the approved <b>adaptive management plan</b> c) the <b>approved monitoring program</b> d) details of <b>non-compliance reported</b> in accordance with Condition 3.9 e) copies of <b>annual reports</b> prepared in accordance with Condition 3.10. f) other documents related to this licence, or	Compliant	Documents prepared to date have been published on the Arafura website which is publicly available, as follows: a) A copy of the water licence L10013 is available online on the Arafura website, available at: <a href="https://www.arultd.com/projects/nolans/approvals/">https://www.arultd.com/projects/nolans/approvals/</a> . b) The Adaptive Management Plan will be published on the Arafura website following approval by the Controller. c) The Monitoring Program will be published on the Arafura website following approval by the Controller. d) There have been no non-compliances under this licence to date. e) A copy of the first Annual Report 2022-2023 prepared in accordance with Condition 3.10 is available on the Arafura website: <a href="https://www.arultd.com/commitments/sustainability/">https://www.arultd.com/commitments/sustainability/</a> . This will be the second annual report prepared in accordance with Condition 3.10, a copy





Item	Commitment and/or Conditions	Is the Project Compliant with this Condition?	Evidence/Comments
	the activities conducted under it, as directed by the Controller.		of this report will be available following submission through the same link above. f) To date no other documents related to this licence, or activities conducted under it, have been directed to be published by the Controller under this licence.
19	<p><u>Condition 3.12</u></p> <p>The licence holder may only extract water under this licence for <b>Approved Mining Activities</b>.</p>	Compliant	Water extracted under this licence during the reporting period was used solely for the approved mining activities outlined in the Mining Management Plan, approved under Mining Authorisation 1127-01: <a href="https://www.arultd.com/projects/nolans/approvals/">https://www.arultd.com/projects/nolans/approvals/</a> .
20	<p><u>Condition 3.13</u></p> <p>If the mine management plan associated with the Approved Mining Activity is revoked or expires, the licence holder must inform the Controller in writing 7 days via email to <a href="mailto:water.regulation@nt.gov.au">water.regulation@nt.gov.au</a>.</p>	Compliant	The Mining Management Plan, approved under Authorisation 1127-01, remains active.



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21	<p><u>Condition 3.14</u></p> <p>The licence holder must undertake <b>groundwater dependent ecosystems (GDE) verification</b>, including:</p> <ul style="list-style-type: none"> <li>a) undertake a baseline assessment of groundwater dependent ecosystem using remote sensing techniques consistent with <i>Information Guidelines Explanatory Note: Assessing Groundwater Dependent Ecosystems 2019</i>.</li> <li>b) quantify the spatial extent of groundwater dependent ecosystems at vegetation community level.</li> <li>c) quantify the proportion of groundwater ecosystems determined under 3.14(b) which is anticipated to be impacted by drawdown in the life of mine using the <b>assessed groundwater model</b>, or a model updated in accordance with condition 3.15 (<b>Model improvement</b>).</li> <li>d) provide a report to the Controller for</li> </ul>	Compliant	<p>Arafura has undertaken a number of studies to assess the presence and spatial extent of potential GDEs in the mine and borefield areas. The focus of mapping of potential GDEs has been on the area of predicted water drawdown, according to the current groundwater model as presented in the Water Abstraction Management Plan (GHD, 2023, 2024).</p> <p>Potential GDEs have been identified and mapped based on depth to groundwater and the presence of vegetation indicator species – as described in the Project’s Environmental Impact Statement (GHD, 2017) and Water Abstraction Management Plan (GHD, 2023, 2024). This mapping was based on a number of inputs including mapping of depth to groundwater, field vegetation surveys of floristics and vegetation structural data within the area of predicted water drawdown, and use of remote imagery to assess vegetation boundaries more broadly. Surveying of vegetation across the depth to groundwater level gradient suggested that potential GDE indicator species are more likely to be present at a depth to groundwater below 15 m than above it. Areas were therefore mapped as potential GDEs if they had a depth to groundwater of <math>\leq 15\text{m}</math> and contained GDE indicator species.</p> <p><i>Corymbia opaca</i> and <i>Hakea divaricata</i> were identified through these studies as species more likely to indicate the presence of potential GDEs, with Schubert (2019) suggesting these correlate the most with depth to groundwater and less canopy stress after a prolonged dry period in 2018. A range of other species were also identified in previous studies and literature as potential GDE indicators including River Red Gums near Day Creek, <i>Eucalyptus</i> spp. mallees, and others (Schubert 2018; DWS 2016; Cook &amp; Eamus</p>



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	<p>approval which:</p> <ul style="list-style-type: none"> <li>i. documents the assessment under parts (a), (b) and (c) of this condition;</li> <li>ii. documents any updates to the adaptive management plan to mitigate impact to GDEs; and</li> <li>iii. verifies that impact to groundwater dependent ecosystems at an ecologically significant scale as a result of drawdown will be avoided.</li> </ul>		<p>2018; Cook <i>et al.</i> 2008).</p> <p>Building on these previous studies, a field-based vegetation monitoring program commenced during the reporting period (May 2024) which established twelve (12) vegetation monitoring sites which will be used to monitor vegetation health on a biannual basis. Vegetation monitoring sites were chosen according to the previous studies’ predictions of where GDEs are likely to be within the landscape according to vegetation type and depth to groundwater; with sites chosen across the predicted drawdown area and with control sites. At each vegetation monitoring site, five (5) trees were chosen for ongoing monitoring. The tree species were chosen according to those expected to be more likely to access groundwater according to the previous studies - primarily <i>Corymbia opaca</i>. The initial vegetation monitoring report can be provided on request.</p> <p>Additionally, a remote sensing program to analyse vegetation health at a community scale was also developed during the reporting period (with the first study completed in July 2024, just outside of the reporting period). This study meets the requirement at (a) for a baseline assessment of GDEs using remote sensing – and was undertaken in accordance with the <i>Information Guidelines Explanatory Note: Assessing Groundwater Dependent Ecosystems 2019</i> as specified. This report can be provided on request.</p> <p>The methodology for remote sensing will be further developed and implemented on an ongoing basis as the Project progresses. This provides an opportunity to better map and define vegetation characteristics - and potential GDEs - across the borefield area and monitor changes in vegetation health and ‘greenness’ across seasonal changes, and</p>



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			<p>when water extraction commences.</p> <p>These ongoing monitoring activities are defined within the Monitoring Program (GHD, 2024g) which was prepared in accordance with Condition 3.6 of this Licence. This ongoing monitoring program continues the process of GDE verification to meet requirements (b) and (c). Once sufficient information is available to verify and quantify GDEs, a report in accordance with requirement (d) will be developed and submitted to the Controller for approval.</p>
22	<p><u>Condition 3.15</u></p> <p><b>Model improvement and verification</b> the licence holder must, within <b>2 years</b> of commencement of the extraction, undertake a program of improvement, and verification of the <b>assessed groundwater model</b>, which:</p> <ul style="list-style-type: none"> <li>a) provides for independent peer review, and integration of peer reviewer recommendations to the satisfaction of the peer reviewer, at each stage of the program;</li> <li>b) includes a predictive uncertainty analysis;</li> <li>c) sets aquifer investigation and modelling</li> </ul>	Compliant	<p>Groundwater data and initial testing undertaken to date are being used to better understand and refine the current groundwater model. This is evidenced by the groundwater assessment reports (GHD, 2024a-2024e) and the Assessed Groundwater Model Report (GHD, 2024) produced by GHD during the reporting period. These reports can be provided on request.</p> <p>Sufficient data to undertake model verification and improvement as specified in this Condition will not however be available until more ongoing water extraction occurs. This Condition specifies this must be undertaken within two years of commencement of extraction. Although Arafura officially commenced licenced abstraction in August 2023, the amount of extraction was relatively small and of short duration (as detailed above within the comments against Condition 1.1). The data gained from those months of extraction (August to October 2023) therefore do not provide sufficient data to review the groundwater model in accordance with this Condition. Arafura has therefore</p>



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	<p>goals based on reducing predictive uncertainty;</p> <p>d) includes obtaining site specific aquifer data, in accordance with goals set under 3.15(c);</p> <p>e) updates the model, based on data obtained through 3.15(c);</p> <p>f) includes assessment of the updated model with respect to Class 2 requirements of a groundwater model in the Australian Groundwater Modelling Guidelines (<i>Barnett et al, 2012</i>), and the goals set in part 3.15(c); and</p> <p>g) concludes with a detailed model report consistent with the Australian Groundwater Modelling Guidelines (<i>Barnett et al, 2012</i>), outlining:</p> <ul style="list-style-type: none"> <li>i) the program undertaken;</li> <li>ii) predicted drawdown impacts at five yearly intervals for the remainder of the life of mine – displayed as both drawdown contours and hydrographs at</li> </ul>		<p>requested DEPWS to review this condition, for the timeframe to begin from the date of recommencement of extraction. This will allow a more meaningful review of the groundwater model to be undertaken at that time, informed by actual drawdown data.</p>



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	<p>representative or sensitive locations;</p> <p>iii) comparison of the magnitude and extent of the predicted drawdown in the updated model and <b>assessed groundwater model</b>, demonstrating that impacts will not be of greater magnitude or extent than in the <b>assessed groundwater model</b>; and</p> <p>any revision to the pumping regime or borefield design which will be implemented to achieve 3.15(g)(iii).</p>		

### 3.0 ABBREVIATIONS AND DEFINITIONS

Abbreviation	Meaning
Arafura	Arafura Rare Earths Limited (previously Arafura Resources Limited, also trading as Arafura Nolans Project Pty Ltd)
DEPWS	Department of Environment, Parks and Water Security
GDEs	Groundwater Dependent Ecosystems
GWEL	Groundwater Extraction Licence
DCCEEW	Department of Climate Change, Energy, the Environment and Water
EIS	Environmental Impact Statement
Mining Authorisation	Mining Authorisation 1127-01
MMP	Mining Management Plan
NdPr	Neodymium and Praseodymium
NT	Northern Territory
SWL	Standard Water Level
The department	Department of Environment, Parks and Water Security
The water licence L10013	Groundwater Extraction Licence L10013
Operator	Arafura Rare Earths Limited (previously Arafura Resources Limited, also trading as Arafura Nolans Project Pty Ltd)
WAMP	Water Abstraction Management Plan

## 4.0 REFERENCES

Title
CDM Smith, 2024a. <i>Nolans Project: Groundwater Dependent Ecosystems Monitoring – Vegetation Survey May 2024</i> Rev 1. Prepared 2 August 2024. Ref. 1001586-01-R.
CDM Smith, 2024b. <i>Nolans Project Groundwater Dependent Ecosystems – Remote Sensing Monitoring</i> Rev 2. Prepared 2 August 2024. Ref. 1001586-02-R.
DCCEEW, 2023. <i>Annual Compliance Report Guidelines 2023</i> , Department of Climate Change, Energy, the Environment and Water, Australian Government. Available at: <a href="https://www.dcceew.gov.au/environment/epbc/publications/annual-compliance-report-guidelines">https://www.dcceew.gov.au/environment/epbc/publications/annual-compliance-report-guidelines</a>
EPA, 2018. <i>Guidance on Adaptive Management</i> Version 1.0, Northern Territory Environment Protection Authority. Prepared December 2018. Available at: <a href="https://ntepa.nt.gov.au/_data/assets/pdf_file/0003/622092/guideline_adaptive_management.pdf">https://ntepa.nt.gov.au/_data/assets/pdf_file/0003/622092/guideline_adaptive_management.pdf</a>
GHD, 2024a. <i>Nolans SWL Data Assessment - L10013 Groundwater Level Reporting</i> . Prepared 23 January 2024. Ref. 12629481.
GHD, 2024b. <i>Nolans SWL Data Assessment - L10013 Groundwater Level Reporting</i> Rev 0. 01. Prepared 1 February 2024. Ref. 12622417.
GHD, 2024c. <i>Nolans SWL Data Assessment - L10013 Groundwater Level Reporting April 2024</i> Update. Prepared 22 May 2024. Ref. 12622417.
GHD, 2024d. <i>Nolans SWL Data Assessment - L10013 Groundwater Level Reporting June 2024</i> Update. Prepared 11 July 2024. Ref. 12622417.
GHD, 2024e. <i>Nolans SWL Data Assessment - L10013 Groundwater Level Reporting July 2024</i> Update. Prepared 27 August 2024. Ref. 12622417.
GHD, 2024f. <i>Nolans Reaphook Palaeovalley Adaptive Management Plan</i> Rev 3. Prepared 2 August 2024. Ref. 12629481.
GHD, 2024g. <i>Nolans Borefield Monitoring Program</i> Rev 3. Prepared 6 August 2024. Ref. 12629481.
GHD, 2024h. <i>Nolans Reaphook Palaeovalley Assessed Groudwater Model</i> , Rev 0. Prepared 30 May 2024. Ref. 12629481.
GHD, 2023i. <i>Shallow Monitoring Bore Drilling Program Report, Rev 0</i> . Prepared 19 October 2023. Ref. 12587465.
GHD, 2023j. <i>BCD Production and Monitoring Bore Drilling, Test Pumping Analysis Report, Rev 0</i> . Prepared 20 October 2023. Ref. 12587465.