

Water Extraction Licence Decision

Application

1. The following application (**application**) for a licence to take water from a bore was lodged in accordance with section 60 of the *Water Act 1992* (**Act**) by Arafura Rare Earths Pty Ltd (**applicant**).

Table 1. Overview of the Application

Applicant:	Arafura Rare Earths Pty Ltd										
Date licence applied for:	23 March 2022										
Licence applied for:	Licence to take water from a bore section 60 of the <i>Water Act 1992</i>										
Purpose for which licence is sought:	Mining activity										
Maximum quantity of water proposed to be taken annually for each beneficial use: Mining Activity	40 ML/yr										
Land from which water will be taken	Mineral Lease 26659 NT Portion 703; Aileron PPL 0197; Aileron Station 6300 Stuart Highway, Anmatjere, Northern Territory										
Land on which water will be used	Mineral Leases 26659, 30702, 30703, 30704 NT Portion 703; Aileron PPL 0197; Aileron Station 6300 Stuart Highway, Anmatjere, Northern Territory										
Extraction point(s) where water will be taken:	Bores to be drilled with the boundary of GPS coordinates GDA94 (DD) <table><thead><tr><th>Latitude</th><th>Longitude</th></tr></thead><tbody><tr><td>-22.5964879</td><td>133.2189751</td></tr><tr><td>-22.5708998</td><td>133.2419778</td></tr><tr><td>-22.5964879</td><td>133.2574529</td></tr><tr><td>-22.5708998</td><td>133.2574529</td></tr></tbody></table>	Latitude	Longitude	-22.5964879	133.2189751	-22.5708998	133.2419778	-22.5964879	133.2574529	-22.5708998	133.2574529
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Water resource:	Local aquifer										
Management zone	Low Yield										
Water control district:	Ti Tree										
Water allocation plan:	Ti Tree Water Allocation Plan 2020-2030										

Decision

2. In accordance with sections 60 and 71C of the Act and for the reasons given below, I have decided to grant a new groundwater extraction licence, L10010 (licence), as detailed in Table 1.

Context

3. This application is for a new groundwater extraction licence to facilitate open cut mining of rare earth metals at the abandoned Nolans Bore on Aileron Station, approximately 135 km north-west of Alice Springs.

4. The mining activity proposes to remove the aquifer that coincides with the target ore-body and the groundwater inflows to the mine pit, thereby allowing access to the ore-body and ensuring the safety of mining operations. This activity is commonly referred to as dewatering of a mine pit.
5. The projected life of mine is 55 years.

Procedural requirements

6. I am satisfied that all substantive procedural requirements relating to the making of an application have been met. This includes that:
 - (a) the application was duly made in the approved form and includes all information required under the Act and the *Water Regulations 1992*
 - (b) the applicant is a legal entity
 - (c) the applicant is a lawful occupier of the land from which water is proposed to be taken under the licence, and on which the water will be used (**land**).

Advertisement of NOI

7. Section 71B(1) of the Act provides that within 20 business days after lodgement of an application to which Part 6A of the Act applies, the Controller of Water Resources (**Controller**) must give notice of the Controller's intention to make a water extraction licence decision (**NOI**). Section 71B(2) of the Act requires a copy of the NOI to be published in a newspaper circulating in the general locality to which the application relates.
8. In accordance with *Operational Policy: Publishing Notices Under the Water Act 1992*, the NOI was published in the NT News on 8 April 2022.

Provision of NOI to the owners and occupiers of adjacent land

9. A copy of the NOI was sent to each known owner and occupier of land adjacent to the subject land as required by section 71B(6) of the Act. Relevant owners and occupiers were identified by mapping tool NR Maps, tenure database STRIKE and land search database ILIS.
10. A copy of the NOI was also sent to the Central Land Council as a representative or potential representative body of an owner or registered native title holders or applicants both exclusive and non-exclusive who are occupiers of the land or land adjoining the land.
11. The land owners and occupiers and the Central Land Council were invited to comment on the application and given 20 business days in which to respond to the NOI.

Responses to NOI

12. One response to the NOI was received within the timeframe set out in section 71B(4) of the Act supporting the mining activity. No response was received outside of the 20 business day timeframe.

Decision-maker

13. In accordance with section 18 of the Act, I was appointed the Controller on 19 December 2016. That appointment remains current and there are no limitations on the terms of my appointment that would prevent me from deciding this application.
14. There are no known professional or personal reasons that would disqualify me from making the decision.

Assessment undertaken and evidence used

15. My decision about the application is a groundwater extraction licence decision under section 60 of the Act.

16. Section 90(1) of the Act provides that in making a water extraction licence decision I must take into account any of the factors specified in that section that are relevant to the decision. The following is an assessment against each of the relevant factors in section 90(1) of the Act:

(a) the availability of water in the area in question;

17. The area in question is the Low Yield management zone of the Ti Tree Water Allocation Plan 2020-2030 (**plan**).

18. The Ti Tree Water Allocation Plan 2020-30 reports an estimated sustainable yield for the zone of 2840 ML/yr with allocations for the beneficial uses of environment, rural stock and domestic, and 2470 ML/yr allocated to other consumptive beneficial uses including mining activity. Table 2 provides a breakdown of how water is allocated to consumptive and non-consumptive uses in the Low Yield management zone under the plan.

Table 2. Allocations (ML/yr) to beneficial uses in the Low Yield management zone, Ti Tree Water Allocation Plan 2020-2030

	Volume (ML/yr)
Consumptive allocation	2840
• environment	20
• public water supply	0
• rural stock and domestic	350
• Agriculture, aquaculture, cultural, industry, mining activity and petroleum activity	2470
• Strategic Aboriginal Water Reserve	0
Estimated sustainable yield	2840
Non-consumptive allocation (environment and cultural)	1080

19. There are no water extraction licences granted in the area leaving the full allocation for beneficial uses agriculture, aquaculture, cultural, industry, mining activity and petroleum activity available for licensing.

20. Further, the water is proposed to be taken from a localised aquifer that coincides with the ore-body and is confined by surrounding low permeability rock.

21. The information provided by the applicant indicates the ore-body contains a volume of approximately 250 ML from the water table to the bottom of the proposed pit, receives recharge from overlying ephemeral creeks and some inflows from adjacent low-permeability rocks.

22. This application to take 40 ML/yr which is estimated to reduce over the proposed term of the licence accounts for the estimated volume of water contained within the ore-body and potential recharge.

23. Based on the above information, I am of the view that there is water available to support the licence.

(ab) any water allocation plan applying to the area in question;

24. The area in question is within the Low Yield management zone of the Ti Tree Water Allocation Plan 2020-2030 (**plan**) area.

25. The plan was declared under section 22B of the Act and applies to the district.

26. The purpose of a water allocation plan is defined in section 22B of the Act is to ensure that in a water control district:
- 22B(4): water resource management is in accordance with the water allocation plan declared in respect of the district
 - 22B(5)(a): water is allocated to beneficial uses within the estimated sustainable yield
 - 22B(5)(b): the total water use of all beneficial uses (including those through rural stock and domestic use and licences) is less than sum of the allocations to each beneficial use.
27. As discussed in my consideration of water availability in the area, the application volume is less than the volume of water allocated to beneficial uses. Consequently the total licensed water for all beneficial uses is less than the sum of the allocations to each beneficial use.
28. The plan contemplates the dewatering activity proposed by the applicant and that this activity is not expected to impact on the Ti Tree aquifer.
29. The plan also suggests that water extraction in the Low Yield management zone be considered on a case by case basis, subject to the Act and the characteristics of the local aquifer, and limiting annual extraction to no more than 10 per cent of the annual average recharge.
30. For the purposes of dewatering the mine pit it is impractical to limit the annual extraction as proposed. In effect the mining of the ore-body will remove the water resource (the ore-body) and dewatering will also remove inflows from adjacent formations. I consider the volume of inflows would be relatively insignificant with respect to volume of water in the Low Yield management zone due to the geological formations low transmissivity.
31. The plan outlines a water management arrangement framework identifying certain activities associated with licensing which I have grouped into three broad categories:
- the **estimated sustainable yield** is not exceeded – this is explained above and in my consideration of water availability
 - **licence conditions** include monitoring of water, groundwater dependent ecosystems and cultural values with triggers and reporting requirements – licence conditions are addressed below and under the heading: Conditions of licence
 - Central Land Council is notified of licence applications when a notice of intention is advertised – this is explained above under the heading: Provision of NOI to the owners and occupiers of adjacent land.

Groundwater dependent ecosystems and Aboriginal cultural values

32. The plan states that protecting GDEs (including terrestrial vegetation) from impact will protect cultural values of these sites, where such values exist.
33. The plan delineates a GDE protection area in the Ti Tree basin based on depth to groundwater at 20 meters and specifies certain criteria for the protection of GDEs in this area and outside this area where there is a potential to impact on locally occurring GDEs.
34. The proposed extraction is not within the GDE protection area identified in the plan. However, Environmental Assessment Report 84 identifies a potential for the mine pit to act as an ongoing groundwater sink to impact on groundwater dependent ecosystems. To understand and mitigate these risks the NT EPA recommends monitoring of GDEs.
35. The Arafura Resources Ltd Water Abstraction Plan, September 2021 (**Abstraction Plan**) submitted with the application discusses the applicant's ongoing work to understand GDEs, and commitments to monitor potential impacts and establish trigger values to initiate corrective actions.
36. Licence conditions can be used to ensure these monitoring and reporting requirements are met.

37. Accordingly, I believe the grant of a licence with conditions would be in accordance with the plan.

(b) the existing and likely future demand for water for domestic purposes in the area in question;

38. The area in question is the Low Yield management zone within the plan area.

39. Existing and future demand for water for domestic purposes is accounted for in the water allocated for rural stock and domestic beneficial use. I have considered this previously when I considered water availability in the area; and the water allocation plan.

40. Accordingly the grant of a licence to support this application is unlikely to impact current or future demand for water for domestic purposes.

(c) any adverse effects likely to be created as a result of activities under the permit, licence or consent on the supply of water to which any person other than the applicant is entitled under this Act;

41. Environment Assessment Report 84 states that the groundwater drawdown in the mine site area would be likely to impact on entitlements to take water for stock in the area; and, due to the permanent groundwater sink of the final pit, Aileron station stock water bores would be irreversibly impacted, with this source of water no longer available. The report further states this uncertainty may be addressed by including specific elements in a water abstraction plan.

42. The applicant's Abstraction Plan includes monitoring and commits to measures to ensure bores remain operational or provide an alternative water bore or supply if required.

43. There are no licensed entitlements in the area in question.

44. Licence conditions can be used to monitor and implement measures for the ongoing supply of water for stock.

45. On the basis of the above I am satisfied that any adverse effects on the supply of water to any other persons entitlement can be mitigated with the grant of a licence with conditions.

(d) the quantity or quality of water to which the applicant is or may be entitled from other sources;

46. The applicant has no other entitlements to water from other sources.

(e) the designated beneficial uses of the water and the quality criteria pertaining to the beneficial uses;

47. Beneficial uses declared for Low Yield management zone in the district in Gazette No. G31 (31 July 2019) are: environment, cultural, rural stock and domestic, public water supply, aquaculture, agriculture, industry, petroleum activity and mining activity.

48. The water quality objectives that apply in relation to the water in the district, according to the beneficial use of water, are as specified in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality dated 2018, available at www.waterquality.gov.au/anz-guidelines.

49. The applicant proposes to use the water for the beneficial use of mining activity, which is a designated beneficial use of the district.

50. Environment Assessment Report 84 raises concern for water quality in the pit lake that will remain after mine closure. However, I consider during the life of the mine and for the limited period for which a licence can be granted (10 years) it is unlikely that the proposed take of water will impact on the beneficial use of the water.

(f) the provisions of any agreement made by or on behalf of the Territory with a State of the Commonwealth concerning the sharing of water;

51. There is no agreement between the Territory and the Commonwealth or a State concerning the sharing of water that is relevant to the water resource. This factor is not relevant to my decision.

(g) existing or proposed facilities on, or in the area of, the land in question for the retention, recovery or release of drainage water, whether surface or sub-surface drainage water

52. Mine facilities are regulated through mine management plans under the *Mining Management Act 2001*.

53. As a result of this other regulatory control I have not considered this issue any further in this decision.
- (h) **the adverse effects, if any, likely to be created by such drainage water resulting from activities under the licence on the quality of any other water or on the use or potential use of any other land**
54. Drainage on a mineral lease associated with a mining activity is regulated through mine management plans under the *Mining Management Act 2001*.
55. No discharge beyond the mineral lease is considered in this application.
56. As a result of the other regulatory control and that there will be no discharge beyond the mineral lease boundary, this factor does not prevent the granting of the application.
- (j) **the provisions under the *Planning Act 1999* relating to the development to use of the land in question;**
57. The Northern Territory Planning Scheme (NTPS) does not apply to the land. This factor is not relevant to my decision.
- (k) **other factors the Controller considers should be taken into account or that the Controller is required to take into account under any other law in force in the Territory.**

Environment Assessment Report 84

58. The dewatering activity is a part of the Nolans Project Arafura Resources Ltd (**project**) which was assessed at the level of environmental impact assessment in Environment Assessment Report 84 (**Report 84**) prepared under the *Environmental Assessment Act 1982*. The Northern Territory Environment Protection Authority (NT EPA) considered in Report 84 that, subject to the implementation of the recommendations, the project can be managed in a manner that is likely to meet the NT EPA's objectives and avoids significant or unacceptable environmental impacts and risks.
59. Following notice of changes to the project, the NT EPA further decided in September 2019 the Nolans project had been altered in such a manner that its environmental significance had changed, but that Assessment Report 84 adequately addresses the potential impacts that could be significant.
60. Report 84 describes how the removal of the localised aquifer that coincides with the ore-body will permanently alter hydrological processes at the mine site creating a permanent groundwater sink resulting in a continuous drawdown of groundwater surrounding the pit. At the end of mine life the open pit would contain a pit lake that would reach equilibrium where evaporation matches inflows, at a level 80 m below the original aquifer depth.
61. The NT EPA reports that the groundwater sink from the pit is not predicted to have any significant impact on the high quality aquifers of the Ti Tree basin and Southern basin on mine closure because the rock basement connecting these aquifers has very low transmissivity.
62. The NT EPA also reports groundwater drawdown in the mine site area would be likely to impact on some of the current use of stock water in the area; and due to the permanent groundwater sink of the final pit, Aileron Station stock water bores would be irreversibly impacted, with this source of water no longer available. Groundwater drawdown is also likely to impact on groundwater dependent ecosystems.
63. In response to these risks the NT EPA made the following recommendations relevant to this licence application:
64. **Recommendation 3** requires a water abstraction management plan be developed and implemented.
65. The applicant provided with its application the Arafura Resources Ltd Water Abstraction Plan, September 2021. An independent peer review of Abstraction Plan by a suitably qualified independent professional is yet to be completed.
66. **Recommendation 4** requires the water abstraction plan include assessment and management of any stock or drinking water bores that could be impacted by the project, in agreement with the owners or operators of those bores.
67. The Abstraction Plan includes groundwater level and water quality triggers; and optional contingency measures that should be agreed with groundwater users within the Southern basins.
68. **Recommendation 5** requires the water abstraction plan to incorporate an assessment of groundwater dependent ecosystems.

69. The Abstraction Plan discusses the work that has been undertaken and is ongoing for the assessment of groundwater dependent ecosystems. It has not been independently peer reviewed.
70. To meet the requirements of the NT EPA recommendations, water extraction licence conditions may require that a peer review of the Abstraction Plan and its implementation is undertaken.
71. The NT EPA also discusses the sustainable water use with reference to mining approvals under **Recommendation 6**. I do not have authority with regard to mining approvals, however this recommendation includes attributes that are relevant to this decision:
- abstract water from bores only when equipped with operating flow meters
 - record the volume of water abstracted from the mine site
 - provide an annual water management report to stakeholders
 - public disclosure of plans and reports.
72. Each of these attributes may be conditioned in a licence.
73. I am satisfied that, with the inclusion of conditions in a licence, the relevant recommendations (3, 4, 5 and 6) of Assessment Report 84 can be met.

Processing Water Extraction Licence Applications Policy

74. As a new water extraction licence application under section 60 of the Act this policy applies to the extent that it is the next application in chronological order for this water resource.

Summary of section 90(1) factors

75. In consideration of the section 90 factors, I have decided to grant the application on the basis that:
- there is water available to support the application;
 - it accords with the Ti Tree Water Allocation Plan 2020-2030;
 - the proposed extraction is unlikely to impact on the supply of water to other users, including existing and future users for domestic water;
 - the designated beneficial uses and the quality criteria pertaining to the beneficial uses are met; and
 - licence conditions can satisfy the relevant recommendations of Environment Assessment Report 84.

Licence period

76. The Act provides that a licence is granted for a period not exceeding 10 years unless special circumstances justify a longer period.

77. I do not consider special circumstances apply and therefore grant the licence for a period of 10 years.

Conditions of licence

78. The conditions of the licence reflect my decision and the assessment above. In summary these include:

- an independent peer review and implementation of the Arafura Resources Ltd Water Abstraction Plan, September 2021 which includes monitoring of groundwater levels, groundwater quality and groundwater dependent ecosystems;
- limiting the take of water from specified bores equipped with water meters that comply with the Non-Urban Water Meter Code of Practice;
- requirements to record and report the volume of water taken under the licence; and
- public reporting requirements.



JOANNE TOWNSEND
Controller of Water Resources

25/8 / 2022