

Water Resources Review Panel

Re: Controller's Decision to Grant Groundwater Extraction Licence TLAM10002

Review Applicant 1:	Environment Centre NT Inc
Review Applicant 2:	The Northern Land Council (on behalf of The Wubulawan Aboriginal Land Trust and The Mangarrayi Aboriginal Land Trust)
Licence Holder:	NT Land Corporation
Property:	NT Portion 4478; NT Land Portion 4663
Water Source:	Tindall Limestone Aquifer (Mataranka-South)
Licensed Volume:	10,000 megalitres per annum
Beneficial use category/purpose:	Agriculture

Decision of the Water Resources Review Panel

1. Pursuant to section 30(3)(b) of the *Water Act 1992* (NT) (the '*Water Act*'), the Minister for Environment, the Hon Eva Lawler (the 'Minister'), requested that the Water Resources Review Panel (the 'Review Panel') advise her by 10 May 2021¹ on what action the Minister should take regarding applications for review of a decision of the Acting-Controller of Water Licences (the 'Controller') to grant groundwater extraction licence TLAM10002 (the 'NT Land Corp licence'). The applications for review were made by the Environment Centre NT Inc (the 'ECNT') and the Northern Land Council on behalf of The Wubulawan Aboriginal Land Trust and The Mangarrayi Aboriginal Land Trust (collectively referred to as the 'NLC'). The water extraction licence, which was granted to NT Land Corporation ('NT Land Corp'), permits the NT Land Corp to extract 10,000 megalitres per annum from the Tindal Limestone Aquifer (Mataranka-South). The licence term is for three years.
2. The Review Panel constituted to consider the NT Land Corp licence consisted of Emeritus Professor Les McCrimmon (Acting-Chairperson), Mr Neil Power, Mr Philip Howie and Mr George Roussos. The Review Panel met on four occasions, including a procedural hearing on 20 April 2021 and a substantive hearing on 29 April 2021. Representatives of the NLC, ECNT, NT Land Corp and the Department of Environment and Natural Resources ('DENR') made representations to the Review Panel at the hearing on 29 April 2021.

¹ A request was made to the Minister to amend the Review Panel's reporting date to 21 May 2021.

3. Given that the matter was referred to the Review Panel by the Minister, the advice the Review Panel may give to the Minister is stipulated in section 30 of the *Water Act*. Pursuant to section 30(4) the Minister, having received the advice of the Review Panel, can either uphold the decision of the Controller (section 30(3)(a)(i)) or substitute for the decision of the Controller “the decision that, in the opinion of the Minister, the Controller should have made in the first instance” (section 30(3)(a)(ii)). The referral of the matter to the Review Panel means that the Minister does not have power to refer the matter back to the Controller for reconsideration (section 30(4)).

Background Facts

4. On 23 December 2019, NT Land Corp submitted to the DENR an application to extract 12,500 megalitres per year from the Tindal Limestone Aquifer (Mataranka-South). If successful, NT Land Corp anticipated that up to 10 proposed bores would be used to extract the water.
5. NT Land Corp is a body corporate established pursuant to the *Northern Territory Land Corporation Act 1986* (NT). Pursuant to section 4(2)(a) of the Act, it is “a body corporate with perpetual succession and a common seal”.
6. The notice of intention to make a water extraction licence decision was published in the *Katherine Times* on 3 June 2020. Section 71B(1) of the *Water Act* provides that such notice is to be published “[w]ithin 30 days after lodgment of an application to which this Part applies”. It is not contested that the publication of the notice was outside of the statutory period provided for in section 71B(1).
7. The Tindal Limestone Aquifer (Mataranka-South) is in the Daly Roper Beetaloo Water Control District. It is a regional, highly connected geologic and hydraulic groundwater resource encompassing both Arid Zone recharge characteristics and Top End Zone seasonal recharge (discussed in greater detail below). No declared water allocation plan applies to the area covered by NT Land Corp’s application however, a Mataranka Water Advisory Committee was in existence to provide advice and recommendations to DENR on water management for the Tindal Limestone Aquifer in the Mataranka-Daly Waters region. In the absence of a water allocation plan, the governing policy is the Northern Territory Water Allocation Planning Framework.
8. The NT Water Allocation Planning Framework divides the Northern Territory into two zones for the purpose of water allocation, the Top End Zone and the Arid Zone. The Top End Zone is described in the NT Water Allocation Planning Framework as the “northern one third of the Northern Territory”. The Arid Zone is described as the “southern two thirds of the Northern Territory”. Based on this description the Tindal Limestone Aquifer (Mataranka-South) underlying NT Land Corp’s property falls within the Top End Zone.

9. Different criteria for water extraction apply depending on the zone in which the aquifer falls. For aquifers in the Top End Zone:

At least 80 per cent of annual recharge is allocated as water for environmental and other public benefit water provision, and extraction for consumptive uses will not exceed the threshold level equivalent to 20 per cent of annual recharge.²

10. The criteria applying to aquifers in the Arid Zone differs markedly from that applying to the Top End Zone. The Arid Zone criteria provides:

There will be no deleterious change in groundwater discharges to dependent ecosystems, and total extraction over a period of at least 100 years will not exceed 80 per cent of the total aquifer storage at start of extraction.³

11. Water resources modelling indicates that the Tindal Limestone Aquifer (Mataranka-South) is divided into two areas, the Mataranka-South area and the Larrimah area. The Mataranka-South area receives seasonal rainfall and recharge, which is a characteristic of the Top End Zone for the purposes of the NT Water Allocation Framework. The Larrimah area receives episodic recharge, which is a characteristic of the Arid Zone under the framework.⁴ Seasonal recharge is an important component of the water balance in the Mataranka-South area, which contributes to groundwater throughflow to the Roper River and other groundwater related ecosystems such as Rainbow Springs and Bitter Springs.
12. With one exception,⁵ before the NT Land Corp licence was granted decisions of the Controller classified the Tindal Limestone Aquifer (Mataranka-South) as falling within the Top End Zone. For example, in July 2019 a water extraction licence decision (the 'Vermelha decision') relating to the same general area as the property owned by NT Land Corp was made by the Controller. In the Vermelha decision the groundwater system response to recharge of the Tindal Limestone Aquifer (Mataranka-South) was characterised as being in the Top End Zone. A similar characterisation was made in the water extraction licence decision relating to Lakefield Station, which is discussed in greater detail below.
13. In granting the NT Land Corp licence, the Controller characterised the Tindal Limestone Aquifer (Mataranka-South) as being in the Arid Zone. This change in characterisation was based on a report entitled The Tindal

² Northern Territory Water Allocation Planning Framework at [2.1.2] (available at: https://depws.nt.gov.au/__data/assets/pdf_file/0011/476669/nt-water-allocation-planning-framework.pdf).

³ Ibid at [2.2.2].

⁴ Water Resources Modelling of the Mataranka-Daily Waters Region Mataranka Tindall Limestone Aquifer Water Allocation Plan Area Natural Groundwater Balance Technical Report 26/2018, [6.1.1].

⁵ Controller's Decision to Grant Groundwater Extraction Licence TLAM1001 to North Star Pastoral Pty Ltd (29 October 2020).

Limestone Aquifer (Mataranka-South): NT Land Corporation Larrimah Water Resources Division Technical Report 45/2020 ('Technical Report 45/2020').

14. The NT Land Corp application differs from other applications for a water extraction licence in that it is speculative in nature. The NT Land Corp intends to subdivide into four parcels the land identified in the water extraction licence application and sub-lease the parcels to as yet unascertained sub-lessees. As the business case submitted as part of NT Land Corp's application for a water extraction licence indicated, the

Larrimah Agricultural Precinct (LAP) provides the opportunities to meet the NT Government's objectives for the Mapping the Futures Program, job creation projects and Australian Government's initiative for sustainable regional development in line with the "Our North, Our Future" White Paper.⁶

15. In the hearing on 29 April 2021, the Review Panel was told that NT Land Corp is currently seeking expressions of interest in the project. Once sub-lessees are secured, NT Land Corp proposes to transfer to such sub-lessees a portion of the water extraction licence attributed to the parcel leased. At the end of the three-year licence term, it is expected that the sub-lessees will either seek a renewal of the water extraction licence or make a new application in their own right. At such time, the new licence or renewal will be subject to the management arrangements existing at that time, including a water allocation plan if such a plan has been declared.

Grounds of application for review

NLC

16. The grounds on which the NLC maintains the Minister should set aside the Controller's decision and substitute a decision to refuse the NT Land Corp licence are as follows:
 - the Controller's decision will impact on sites of cultural significance;
 - the Controller's decision will impact on the availability of water in the Aboriginal Water Reserve once water allocation plans are declared;
 - the Controller's decision is inconsistent with the NT Water Allocation Planning Framework;
 - the Controller's decision to grant the NT Land Corp licence is inconsistent with other decisions made by the Controller in that such other decisions applied the Top End Zone characterisation to the Tindal Limestone Aquifer (Mataranka-South);

⁶ *NT Land Corporation Land for Tomorrow* [2.2].

- the Controller’s decision invents a new ‘transition zone’ which is inconsistent with the NT Water Allocation Planning Framework;
- the NT Water Allocation Planning Framework’s Arid Zone criteria is based on aquifer depletion rather than maintaining storage which is inadequate;
- the modelling on which the Controller’s decision is based uses a time period of 59 years rather than 100 years as required by the NT Water Allocation Planning Framework;
- the Controller failed to apply “all scientific research directly related to the environment and other public benefit requirements to the water resource”⁷ when granting the NT Land Corp licence;
- the Controller’s decision failed to take into account the impact of the grant of the water extraction licence on groundwater dependent ecosystems within the flow path of the Tindal Limestone Aquifer;
- the Controller’s decision fails to take into account the impact of climate change on the Tindal Limestone Aquifer;
- the Controller’s decision failed to take into account section 90(1)(ab) of the the *Water Act*;
- the Controller’s decision failed to take into account deliberations of the Mataranka Water Advisory Committee;
- the Controller failed to take into account the NT Government’s Strategic Aboriginal Water Reserve Policy;
- the Controller failed to take into account the future impacts of climate change.

ECNT

17. In its application for review the ECNT set out the following grounds for review which it submits warrant the Minister’s setting aside of the Controller’s decision and substituting a decision to refuse the NT Land Corp licence. The grounds for review are:
 - failure to comply with section 71B of the *Water Act*;
 - the grant of the NT Land Corp licence constitutes mismanagement of a public resource;
 - the Controller’s decision is flawed in that:
 - it invents a new ‘transition zone’ which is inconsistent with the NT Water Allocation Planning Framework;
 - it is inconsistent with the 2020 Announced Annual Allocation Decision which applies the Top End Zone characterisation to the Tindal Limestone Aquifer (Mataranka-South);
 - it is inconsistent with other decisions made by the Controller in that such other decisions applied the Top End Zone

⁷ NT Water Allocation Planning Framework [1].

characterisation to the Tindal Limestone Aquifer (Mataranka-South);

- the application of the Arid Zone characterisation is inconsistent with advice given by the Mataranka Water Advisory Committee;
- the application of the Arid Zone characterisation to the Tindal Limestone Aquifer (Mataranka-South) is unacceptable given that the aquifer has a high connectivity to the Roper River;
- the behaviour of an aquifer is not relevant to whether an aquifer should be characterised as being in the Top End Zone or the Arid Zone;
- it failed to apply “all scientific research directly related to the environment and other public benefit requirements to the water resource”⁸ when granting the NT Land Corp licence;
- the NT Land Corp licence over allocates the consumptive pool, which reduces the amount available in the Strategic Aboriginal Water Reserve to zero;
- the NT Land Corp licence was granted for an improper purpose;
- the Controller’s decision does not take into account the impacts on all groundwater dependent ecosystems;
- the Controller’s decision does not take into account the impact on the Tindal Limestone Aquifer (Mataranka-South) of climate change.

Consideration

18. The objections raised by the ECNT and the NLC to the grant of a water extraction licence to NT Land Corp fall into five broad categories: failure to accord procedural fairness to interested parties; failure to comply with the NT Water Allocation Planning Framework; errors in the modelling underpinning the Controller’s decision; and failure to take into account the NT Government’s Strategic Aboriginal Water Reserve policy. These categories are an appropriate way to analyse whether the Controller’s decision should be affirmed.

Failure to accord procedural fairness to interested parties

19. The ECNT submitted that the DENR failed to comply with the notice requirements in section 71B of the *Water Act*. As has been noted above, the Controller acknowledged that the notice in the *Katherine Times* was not published within 30 days after NT Land Corp lodged its water extraction application. It follows, therefore, that the publication of the notice failed to comply with section 71B(1).

⁸ NT Water Allocation Planning Framework [1].

20. The ECNT also submitted that the notice published failed to comply with sections 71B(3)(b)(iii) and 71B(3)(iv) of the *Water Act*. These sub-sections provide:

The notice must include the following information: ...

(b) if the application is for the grant of a water extraction licence – the following details: ...

(iii) the point of the waterway, or the bore, from which the water will be taken;

(iv) a description of the areas of land on which the waterway or bore is located and on which the water will be used; ...

21. The ECNT maintained the section 71B notice was deficient in that it did not indicate specifically the location of the “proposed bores yet to be drilled”⁹ referred to in the published notice. The ECNT also submitted that the notice should have been published in the *NT News* rather than the *Katherine Times*, given that the former has a much wider circulation. Finally, the ECNT submitted that Technical Report 45/2020 should have been made publicly available at the time the notice was published.
22. The submission of the ECNT that a breach of section 71B(1) of the *Water Act*, in the circumstances of this review, should result in the decision of the Controller being set aside is not accepted by the Review Panel. The Controller noted that the delay occasioned by the failure to comply with the requirements of section 71B(1) would not have any effect on the validity of his decision.¹⁰ While the Controller provided no reasons for coming to this conclusion, the Review Panel agrees for the reasons noted below.
23. The legal effect of a failure to comply with the 30-day requirement in section 71B(1) is not stipulated in the *Water Act*. Further, neither the Explanatory Memorandum nor the Second Reading Speech to the amending Act which resulted in the inclusion of section 71B into the *Water Act*¹¹ assists in the determination of the consequences of a failure to comply. Consequently, reference must be made to the common law.¹²
24. To establish a breach of procedural fairness the ECNT must show that a practical injustice has resulted from the failure to comply strictly with section 71B(1). In these proceedings, the ECNT has “lost no opportunity to advance [its] case”.¹³ The notice published in the *Katherine Times* alerted the ECNT to the Controller’s intention to make a water extraction licence decision. It also identified the applicant for the water extraction licence, the

⁹ Notice of Intention to make a water extraction licence decision (*Katherine Times*, 3 June 2020).

¹⁰ Controller’s decision dated 27 November 2020, [14].

¹¹ *Water Amendment Act 2007*, s 6.

¹² *Doe d Rochester (Bishop) v Bridges* (1831) 1 B & Ad 854, 859; 109 ER 1001, 1006.

¹³ *Re Minister for Immigration and Multicultural Affairs; Ex parte Lam* (2003) 214 CLR 1, [38] (per Gleeson CJ).

amount of water the applicant was seeking, the aquifer from which such water was proposed to be taken, the use for which such water was sought, and the description of the areas of land on which bores would be drilled. Further, in advance of the substantive hearing held by the Review Panel on 29 April 2021, the ECNT and the NLC were provided with a copy of Technical Report 45/2020 and NT Land Corp's application for a water extraction licence. This allowed both interested parties to raise with the Review Panel any additional issues they did not address in their applications for review. It is the Review Panel's view that the failure to comply with the 30-day requirement in section 71B(1) did not breach the rules of procedural fairness.

25. While not constituting a breach of the rules of procedural fairness, or a breach of section 71B(2) of the *Water Act*, the Review Panel questions why the notice was not published in *NT News* rather than, or in addition to, the *Katherine Times*. As Hiley J noted in *Environment Centre Northern Territory (NT) Incorporated v Minister for Land Resource Management* [2015] NTSC 30 at [147], "[i]n Australia, water and rights to use water are of critical importance, not just to those that are immediately interested in particular water rights, but to society as a whole". The Review Panel acknowledges that section 71B(2) only requires that the notice be published "in a newspaper circulating in the general locality to which the application relates", and that the *Katherine Times* meets this criteria. The Review Panel notes, however, that the *NT News* also meets the criteria and circulates in Darwin and Alice Springs where interested parties, such as the ECNT and NLC, are more likely to see the notice.
26. The published notice in the *Katherine Times* on 3 June 2020 did not comply with section 71B(3)(b)(iii) of the *Water Act*. The failure to comply with section 71B(3)(b)(iii) is of greater substantive effect than the failure to comply with section 71B(1).
27. The notice refers only to "proposed bores yet to be drilled". The number of bores to be drilled is not specified in the notice. Further, while reference to NT Land Corp's application for a water extraction licence does indicate that it is anticipated that 10 bores will be drilled, no information was provided as to where on the land such bores would be located. While this is understandable given the speculative nature of the NT Land Corp application, the notice nonetheless failed to comply with statutory requirements for notices contained in section 71B(3)(b)(iii) of the *Water Act*.
28. As has been stated above, the legal effect of a breach of the notice requirements in section 71B(3)(b)(iii) of the *Water Act* falls to the common law for determination. The Review Panel has concluded that the breach of section 71B(3)(b)(iii) has impacted adversely on the ability of both the ECNT and the NLC to present their case. Where the bores are placed may have an impact on sacred sites and sites of cultural significance to Aboriginal people. Further, where the bores are placed may have an impact

- on the rights of adjacent occupiers of the land. While it is not necessary for an applicant for a water licence to indicate specifically where a bore will be drilled, section 71B(3)(b)(iii) does require that affected parties are notified of the number of bores to be drilled. Further, affected parties should have some ability to ascertain the approximate location of such bores.
29. Putting in the notice the description “proposed bores yet to be drilled” does nothing more than state the obvious. It is self-evident that water from an aquifer will be extracted through bores. The purpose of section 71B(3)(b)(iii) is to alert affected parties to the bores from which the water will be taken. At the very least this requires an indication in the notice of the number of bores that the applicant intends to drill to access the water. The notice published in the *Katherine Times* did not meet the requirements of section 71B(3)(b)(iii) of the *Water Act* nor did the notice meet the requirements of procedural fairness in this respect.
 30. While the NT Land Corp has failed to specify in its application where the proposed 10 bores would be located, the Review Panel has concluded that the requirements in section 71B(3)(b)(iv) have been met. The notice published in the *Katherine Times* does describe, at least in general terms, the areas of land on which the bores will be located and on which the water will be used.

Failure to comply with the NT Water Allocation Planning Framework

31. No water allocation plan has yet been developed for the Tindal Limestone Aquifer (Mataranka-South). While such a plan has been in development for a substantial period of time, and a Mataranka Water Advisory Committee is in existence, there is no draft plan to which the Controller could have referred before making his decision.¹⁴ In the absence of a water allocation plan, the only policy governing water allocations from the Tindal Limestone Aquifer (Mataranka-South) is the NT Water Allocation Planning Framework.
32. It follows that the submission of the NLC that the Controller’s decision failed to take into account section 90(1)(ab) of the *Water Act* cannot be sustained. This section provides that the Controller must take into account “any water allocation plan applying to the area in question”. The evidence provided to the Review Committee established clearly that no such water allocation plan has been declared for the Tindal Limestone Aquifer (Mataranka-South). Consequently, the Controller’s decision did not breach section 90(1)(ab) of the Act.
33. As has been noted above, NT Land Corp’s property falls within the Top End Zone for the purposes of the NT Water Allocation Planning Framework. With one exception, previous decisions of the Controller have applied the

¹⁴ Had a draft plan been in existence, the Controller could have considered it under section 90(1)(k) of the *Water Act 1992: MacFarlane v Minister for Natural Resources, Environment and Heritage* [2012] NTSC 98, [32] (per Kelly J).

Top End Zone criteria, and in particular the 80-20 rule, to water extraction licences pertaining to the Tindal Limestone Aquifer (Mataranka-South). For example, in a water extraction licence decision of the Controller relating to Greenview Farm Pty Ltd (aka 'Lakefield Station') (the 'Lakefield licence decision') the Controller stated at [25]-[26]:

The Technical Report indicates that the System behaves like an Arid Zone aquifer as recharge occurs unreliably via large episodic events, rather than as reliable annual wet season recharge. This is supported by groundwater level monitoring, from two bores, in the area which shows step increases rather than annual oscillations.

However, the Top End water allocation principles of the [NT Water Allocation] Framework have been used to assess the Application. This is because, in accordance with the Framework, the Land is within the top third of the Territory. Further, this is consistent with other water extraction licence decisions in the area. This also represents a more precautionary approach because it relies on average annual recharge rather than allowing aquifer depletion. This is appropriate where monitoring data is limited.

34. Notwithstanding the conclusions in Lakefield Station Technical Report 2/2020, the Controller in the Lakefield licence decision applied the more precautionary Top End zone criteria. A different approach was adopted by the Controller in granting the NT Land Corp licence.
35. Based on Technical Report 45/2020, the Controller applied the Arid Zone criteria in his assessment of the NT Land Corp water extraction licence application. The Controller stated at [32]:

The Technical Report describes how the [Tindal Limestone Aquifer (Mataranka-South)] behaves like an Arid Zone aquifer because recharge occurs unreliably via large episodic events, rather than as a reliable annual wet season recharge as seen in Top End aquifers. ... Accordingly, the Arid Zone water allocation principles of the Framework were applied in the Technical Report.

36. It is not clear why the Controller did not take a precautionary approach when assessing the NT Land Corp licence. What is clear, however, is that the reclassification resulted in 80% of the water in the Tindal Limestone Aquifer (Mataranka-South) being available for extraction over a period of 100 years. This is the basis on which the Controller assessed the NT Land Corp application, as evidenced by [41] of the Controller's decision.
37. As has been noted above at [11] the Larrimah area within the Tindal Limestone Aquifer (Mataranka-South) does receive episodic water recharge, a characteristic of the Arid Zone criteria. The Review Panel is of

the view, however, that the Controller erred in applying the Arid Zone criteria when granting the NT Land Corp licence. The bases of this conclusion are expanded upon below.

Modelling underpinning the Controller's decision - Technical Report 45/2020

Groundwater flow

38. Underlying the Controller's decision was Technical Report 45/2020. As evidenced by Figure 2-3, the groundwater flow of the Tindal Limestone Aquifer (Mataranka-South) beneath NT Land Corp's land is northward. "These groundwater flows discharge to lower elevation rivers and springs in the north including the Roper River, and Rainbow and Bitter Springs."¹⁵
39. In earlier modelling done by DENR, the Water Resources Modelling of the Mataranka-Daily Waters Region Mataranka Tindall Limestone Aquifer Water Allocation Plan Area Natural Groundwater Balance Technical Report 26/2018 ('Technical Report 26/2018'), it was noted at [6.1.3.2]:

Of particular note is the effect of the significant groundwater level rise in the Larrimah Zone over the past 30 years. This has resulted in a steepening of the groundwater gradient flow on the southern side of the [Roper] river and a regime of increased discharge. Approximately 80% discharge to the river emanates from the southern groundwater flow regime.

40. The Review Panel notes that the conclusions relating to groundwater flow reached in Technical Report 45/2020 do not appear to accord with the DENR's earlier modelling. In Technical Report 45/2020 the authors, without reference to the modelling in Technical Report 26/2018, stated at [4.4.2]:

Table 7 compares the throughflow contribution from the TLA (Mataranka-South) resource to the discharge in the [Roper] river averaged over 10 year periods. This analysis indicates that the throughflow across the northern boundary of the TLA (Mataranka-South) contributes approximately 20% of the total groundwater discharge to the Roper River. This means that 80% of the river's flow is sourced from the aquifer in proximity to the river, and north of the river.

41. The inconsistency in the DENR's own modelling of groundwater flows within the Tindall Limestone Aquifer supports a conservative approach to water extraction from the Tindall Limestone Aquifer (Mataranka-South).
42. Before the NT Land Corp licence decision was made the Controller, and the authors of Technical Report 45/2020,¹⁶ were aware of the contents of a

¹⁵ Technical Report 45/2020 [2.4].

¹⁶ Review Panel consultation with Dess Yin Foo, 20 April 2021.

memorandum dated 20 November 2020 from the Director Water Planning and Engagement to the Director Water Licensing and Regulation. The Review Panel agrees with the following conclusions of the Director of Water Planning and Engagement:

There is a high degree of uncertainty regarding the performance of the Mataranka Tindall Limestone Aquifer. Given this uncertainty estimates of water availability need to be conservative and take a precautionary approach. Water management and use needs to be adaptive, reflected in the licence conditions.¹⁷

43. The Director of Water Planning and Engagement went on to note that:

Through flow across the northern boundary of the TLA (Mataranka-South) in table 4 of TR45/2020 decreases by 41.5% in one ten year period. This result could be significant. The model could be run for a longer [period] to see if there are impacts on the springs in the Roper River or shallow groundwater areas where GDEs [Groundwater Dependant Ecosystems] occur.¹⁸

44. Finally, for reasons which are expanded upon below, the Review Panel agrees and adopts the conclusions of the Director Water Planning and Engagement noted at page 9 of the memorandum.

Understanding the implications for managing the Larrimah area for storage decline (that is like in the marginal part of the Top End) is not possible with the information provided in [Technical Report 45/2020]. Further modelling is required for the whole aquifer and base flows in the Roper River to test the acceptable limits to change to river and spring flow, and regional groundwater levels.¹⁹

Use of a modelling period of 59 years rather than 100 years

45. As has been noted above, the Arid Zone criteria in the NT Water Allocation Planning Framework provides that:

There will be no deleterious change in groundwater discharges to dependent ecosystems, and a total extraction of a period of *at least* 100 years will not exceed 80 per cent of the total aquifer storage at the start of extraction.²⁰

¹⁷ Memorandum from Director Water Planning and Engagement to the Director Water Licensing and Regulation (20 November 2020) page 8.

¹⁸ Ibid.

¹⁹ Ibid, page 9.

²⁰ Emphasis ours.

46. While the authors of the Technical Report 45/2020 had rainfall data for a period of 118 years, as evidenced by Figure 2-2 of the report, the modelling used was based on a 59-year period rather than the 100-year period stipulated in the NT Water Allocation Planning Framework. Further, as noted in Technical Report 26/2018 at [1]:

The increased recharge from 1960 onwards has resulted in the accumulation in groundwater storage across the Plan area – observed as a rise in groundwater levels, and a corresponding increase in the magnitude of dry season baseflow in the Roper River. The *median* discharge over the high rainfall period increased by 34% as compared to the entire 118-year modelling period.²¹

47. The Technical Report 26/2018 also modelled the annual recharge in the Larrimah Zone for the period 1900-2018.²² By adopting a 59-year modelling period, rather than the 100-year period stipulated in the NT Water Allocation Planning Framework, Technical Report 45/2020 relied on a best-case scenario for aquifer recharge. Why this was done is unclear, however, it resulted in the Controller basing his decision on incomplete data. Further, the Controller's decision was contrary to the criteria stipulated in the NT Water Allocation Planning Framework; a framework the Controller was purporting to apply.
48. The Review Panel's conclusion that a precautionary approach should have been adopted by the Controller also is supported by the report entitled *Cambrian Limestone Aquifer and Roper River Model Upgrade 2020 Independent Review* (the 'Middlemis review'), on which Technical Report 45/2020 relied. In the review the author noted that,

it is strongly recommended that a comprehensive sensitivity and uncertainty analysis should accompany any application of the model for the purpose of assessing the effects of major extractions, as there is currently limited data to confirm the model calibration performance in the southern parts of the study area.²³

49. Technical Report 45/2020 provides some support for the Controller's finding that "there is no discernible impact of pumping under the [NT Land Corp] licence application on baseflow in the Roper River within the 59-year modelling period".²⁴ However, the modelling used in Technical Report

²¹ Emphasis in original.

²² Technical Report 26/2018, [7.4].

²³ H Middlemis, *Cambrian Limestone Aquifer and Roper River Model Upgrade 2020 Independent Review* (NT Department of Environment, Parks and Water Security, 3 November 2020) page 16.

²⁴ Controller's decision dated 27 November 2020, [40].

45/2020 should also have been calculated on the basis of reduced discharge scenarios for the 100-year period, consistent with the NT Water Allocation Planning Framework. This would have tested the sensitivity of groundwater throughflow under reduced recharge to the Roper River and other groundwater related ecosystems such as Bitter Springs and Rainbow Springs as recommended in the Middlemis review.

Failure to take into account the impact of climate change

50. While the future impact of climate change is not a specific factor the Controller must take into account under section 90(1) of the *Water Act*, it is a factor the Controller is able to take into account under section 90(1)(k) of the Act. Further, the NT Water Allocation Planning Framework stipulates that “all available scientific research directly related to environmental and other public benefit requirements for the water resource will be applied in setting water allocations for non-consumptive use”.²⁵
51. In Technical Report 45/2020, modelling based on historical data was used and the possible impacts of climate change were not considered. Under the heading ‘Assessment limitations’ at page 30 of the report, the authors of Technical Report 45/2020 noted:

The model simulations were run over the historical time period 1960 through 2019 to align with a time period with sufficient data coverage. Historic pumping rates during this period are uncertain. Further, climate trends and variability during the model period may be different to future climate. However, this is still more desirable for modelling than attempting to apply synthetic data projections into the future.

52. In the memorandum from the Director of Water Planning and Engagement discussed above, the Director noted at page 4:

The Mataranka Water Advisory Committee (WAC) has been considering elements of the Mataranka Tindal Limestone Water Allocation Plan. The key pieces of advice from the WAC are there have been significant changes in climate since climate records began. There has been a significant change in rainfall, recharge and aquifer storage since 1900. The last 30 years have been significantly wetter than the 120 year medians. Recent dry years may be an indication that the climate is becoming drier and there may be less water available. Preliminary advice from the WAC is to base water allocation decisions on the longer and lower median values as the WAC feels there is considerable uncertainty about future climate especially with the experience of less than average years.

²⁵ NT Water Allocation Planning Framework [1].

53. The modelling in Technical Report 45/2020 was deficient in that it used a modelling period of 59 years rather than 100 years as stipulated in the NT Water Allocation Planning Framework. It also failed to take into account the possible impacts of climate change. While the Review Panel accepts that there is a paucity of modelling in the Northern Territory on the future impacts of climate change, in relation to the NT Land Corp licence the absence of such modelling cannot be used as a basis to ignore the issue of climate change.
54. NT Land Corp is a corporate arm of the Northern Territory Government. The government has both the capacity and resources to ascertain the possible impact of climate change on the Tindal Limestone Aquifer (Mataranka-South). Such research should have been done before the NT Land Corp licence was considered by the Controller. At the very least, existing scientific research into the possible impact of climate change on aquifers in arid parts of Australia should have been considered in Technical Report 45/2020. Simply dismissing such research as “synthetic data projections into the future” resulted in the Controller’s decision resting on an inadequate foundation.

Application of different criteria to a connected aquifer system

55. The application of a significantly different allocation criteria of 20% of storage available for consumptive use (Top End Zone) to 80% of storage available for consumptive use (Arid Zone) to different portions of an aquifer system with high geologic and hydraulic connectivity is not consistent with proper groundwater management. It is not logical to have significantly different allocation criteria in neighbouring management areas for a hydraulically and geologically continuous aquifer, especially if it is important to maintain throughflow and natural discharge to the Roper River.
56. Further, the Review Panel agrees with the concerns expressed by the Director of Water Planning and Engagement:

Drawing down storage by 80% as proposed by the contingent allocations in the NT WAP Framework will not provide for the environmental and cultural water requirements supported by the aquifer. The lowering of the height of the upper surface of the aquifer after 100 years of extraction has the potential to reverse the hydraulic gradient removing through flow to areas near the southern side of the Roper River and cause water to flow in the opposite direction towards Larrimah.²⁶

²⁶ Memorandum from Director Water Planning and Engagement to the Director Water Licensing and Regulation (20 November 2020) page 4.

57. The modelling relied on by the Controller to assess the NT Land Corp licence was deficient. Different allocation criteria should not have been applied to water extraction applications from the same aquifer. Given the inconsistency in the DENR's own modelling and the legitimate concerns expressed by the Director of Water Planning and Engagement, the Controller should not have deviated from earlier water extraction licence decisions where a precautionary approach based on the Top End criteria was adopted when assessing a water extraction licence application from the Tindal Limestone Aquifer (Mataranka-South).
58. Had the Top End criteria been applied, the NT Land Corp licence would have exceeded the 20% available for consumptive use. The volume of groundwater held in the Tindal Limestone Aquifer (Mataranka-South) is estimated to be 15,400GL.²⁷ The seasonal recharge for that zone, based on the median recharge from 1900-2018, is 94 GL/year.²⁸ Taking a consumptive pool of 20% pursuant to the Top End criteria, 18.8GL/year is available (94GL/year X 0.2 = 18.8GL/year). The volume of water extracted from the Tindal Limestone Aquifer (Mataranka-South) by existing licensees, and estimated stock and domestic use, is estimated to be 9.964GL/year.²⁹ If the water extraction pursuant to the NT Land Corp licence of 10GL/year is added, the volume of water extracted is 19.964GL/year, which exceeds the 18.8GL/year available for consumptive use pursuant to the Top End criteria.

Strategic Aboriginal Water Reserves

59. A Strategic Aboriginal Water Reserve ('SAWR') is a proportion of water from the available consumptive pool that is exclusively reserved for Aboriginal economic development.³⁰ The underlying policy of the SAWR is to provide the Northern Territory's Aboriginal people with increased opportunity to access water resources for economic development and to reduce barriers and disadvantage experienced in competing for access to water with other commercial interests. Both the Wubulawan Aboriginal Land Trust and The Mangarrayi Aboriginal Land Trust are located within the area of land covered by the NT Land Corp licence.
60. Water provided under the SAWR is only available if the following conditions are met:
- the water is within Aboriginal land;
 - a water allocation plan relating to the water has been declared;

²⁷ Technical Report 45/2020 [4.6].

²⁸ Technical Report 26/2018, Table 7

²⁹ Included in this amount is the water extraction licence granted to North Star Pastoral Pty Ltd. See Technical Report 44/2020, Table 9.

³⁰ L Moss, 'Boosting Aboriginal economic development and job creation opportunities on country through Strategic Aboriginal Water Reserves' (Media Release (Version 2), 8 November 2017).

- there is sufficient water remaining for the allocation from the consumptive pool when the water allocation plan is declared.
61. Before granting the NT Land Corp licence, the Controller considered the SAWR. He noted at [45]:

In line with 3.9.1 of the Strategic Aboriginal Water Reserve (AWR) Policy Framework, it is relevant that I consider future allocations for AWR. As previously discussed the Technical Report indicates extractions including the application volume would account for approximately 14.6% of the available consumptive pool. Applying the Framework for Arid zone aquifers, this indicates there would be sufficient water available to service likely eligible AWR likely to be allocated from this Aquifer.

62. The Controller's conclusion is contrary to the assessment made by the Director of Water Planning and Engagement. In the memorandum the Director stated:

In the South Mataranka management zone approximately 83% of land is eligible Aboriginal land. Under the Strategic Aboriginal Water Reserve Policy Framework eligible Aboriginal groups are entitled to a 30% allocation from the consumptive pool. The existing level of agricultural activity in the South Mataranka management zone makes it highly likely that the planning process will determine that current levels of groundwater extraction are at (and possibly exceedance of) the estimated sustainable yield for this zone. As a fully allocated (and possibly overallocated) management zone, water will not be available to provision the AWR at the time of Plan declaration in 2021.³¹

63. Providing water for Aboriginal economic development is a beneficial use of water under the *Water Act*, section 4(3)(j), and the SAWR policy. A water allocation plan, which will cover the Tindal Limestone Aquifer (Mataranka-South), is in development. The Review Panel agrees with the assessment of the Director of Water Planning and Engagement that the grant of the NT Land Corp licence may result in no water being available for the SAWR.
64. Further, given the problems with the modelling relied on by the Controller identified above, the Controller could not be confident that "there would be sufficient water available to service likely eligible AWR likely to be allocated from this Aquifer".³² The Controller, having considered the SAWR, wrongly

³¹ Memorandum from Director Water Planning and Engagement to the Director Water Licensing and Regulation (20 November 2020) page 7.

³² Controller's decision dated 27 November 2020, [45].

- concluded that the grant of the NT Land Corp licence would not affect the allocation from the consumptive pool available to eligible Aboriginal groups.
65. Given the absence of a water allocation plan the Controller was not required to consider the SAWR. The fact remains, however, that the Controller did take the SAWR into account and having done so, the Review Panel has concluded that the Controller's assessment was incorrect.

Conclusion

66. The Review Panel recommends that the Minister set aside the NT Land Corp licence TLAM 10002 and substitute a decision refusing the NT Land Corp application for a water extraction licence. Taken collectively the failure to accord procedural fairness as required by section 71B(3)(b)(iii) of the *Water Act*, the failure to apply the NT Water Allocation Planning Framework properly, the failure to adopt a precautionary approach to water allocation from the Tindal Limestone Aquifer (Mataranka-South), the failure to take into account the impact of climate change, the application of significantly different allocation criteria to an aquifer system with a high level of geologic and hydraulic connectivity, and the incorrect assessment of the grant of the NT Land Corp licence on the SAWR, means that the grant of the NT Land Corp licence should be set aside.
67. The Review Panel has concluded that the decision which should have been made by the Controller in the first instance is that the application of NT Land Corp for a water extraction licence be refused. The Review Panel advises the Minister accordingly.



Emeritus Professor Les McCrimmon (Acting-Chairperson)

Mr Philip Howie

Mr Neil Power

Mr George Roussos

17 May 2021