Northern Territory
Environment Protection Authority

NOTICE OF DECISION AND STATEMENT OF REASONS

Section 55 of the *Environment Protection Act 2019* (EP Act)
Regulations 58(1)(b), 63 and 64 of the Environment Protection Regulations 2020 (EP Regulations)

Proposed action name	Adelaide River Off-stream Water Storage (AROWS)
Proponent name	Department of Logistics and Infrastructure (DLI)
NT EPA reference	EP2024/039
Nature of proposed action	Infrastructure, utilities and services
Description of proposed action	The Department of Logistics and Infrastructure (DLI) is proposing to construct and operate the Adelaide River Off-stream Water Storage (AROWS), a water reservoir (maximum 250 gigalitre capacity) adjacent to the Adelaide River in the Coomalie and Litchfield shires, approximately 55 km southeast of Darwin and 5 km north of Lake Bennett. The proposal comprises construction and operation of five major infrastructure components including: • basin infrastructure (e.g. dam/embankment/spillway) • intake infrastructure (includes all associated infrastructure for river water extraction along the Adelaide River, transfer and release into the reservoir (pumps, pipelines) • outlet and delivery infrastructure to facilitate water transfer from AROWS to connecting infrastructure (e.g. pump station) • connecting infrastructure (pumps, pipeline, balance tank etc.) to facilitate the transfer of water from the delivery infrastructure pipeline to the Strauss Water Treatment Plant, and • supporting infrastructure to support construction and operation of AROWS (e.g. coffer dams, access tracks, laydown areas, site facilities). The reservoir is proposed to be filled by water extracted during the wet season at times of high flow. In operation, AROWS is expected to deliver up to 60 gigalitres annually to augment the Darwin regional water supply system that includes the Darwin River Dam, Manton Dam, and McMinns and Howard East Borefield. AROWS is anticipated to operate for 100 years. A water allocation plan for the Adelaide River catchment in the Darwin Rural Adelaide River Water Control District is being developed by the Northern Territory Government to manage and allocate water resources within the plan area and support water security for the greater Darwin region. The plan is due for completion in 2026 and will cover the length of the Adelaide River and its tributaries.
Person authorised to make decision	Dr Paul Vogel AM, Chairperson Northern Territory Environment Protection Authority (NT EPA) Delegate of the NT EPA under section 36 of the Northern Territory *Environment Protection Authority Act 2012*

Decision	**Standard environmental impact assessment is required** in accordance with section 55 of the EP Act and regulation 58(1)(b)(i) of the EP Regulations The method of environmental impact assessment to be by **Environmental Impact Statement** in accordance with regulation 58(1)(b)(ii)
Signature	
Date of decision	15 April 2025
Matters considered under EP Regulation 56	The NT EPA has considered the following: • the accepted referral (including the referral form, referral report and appendices, statement of reasons and draft terms of reference), and • submissions received during the public consultation period in relation to the published referral information. No additional information was requested by the NT EPA under EP regulation 40.
Consultation	**NT EPA consultation** Submission period: o 13 January 2025 to 25 February 2025 Submissions received: o public submissions received: 55 o government authority submissions received: 10 Submissions are available on the NT EPA website. Public and government authority submissions received by the NT EPA identified potentially significant impacts, including cumulative impacts, and risks to environmental factors identified by the proponent in the referral information. Key themes raised in submissions received during the public consultation period include: • consideration of potential impacts to the morphology of the Adelaide River and conservation areas, a requirement for additional terrestrial and aquatic ecological surveys, and protection of conservation listed species including threatened species • potential for significant impacts to hydrological processes e.g. seasonal flooding, impacts to floodplains and wetlands, the estuary and fisheries, and recommendations to include the sea factors (coastal processes, marine environmental quality and marine ecosystems) • a requirement for baseline surveys, surface and groundwater monitoring and assessment, greater understanding of floodplain hydrology, the influence of tides, and incursion of seawater further upstream • the viability and sustainability of the proposed extraction of water from the Adelaide River system to an off-stream storage • the need for stakeholder engagement and review of potential impacts to social, economic and cultural (and heritage) values.

The issues raised in submissions have been considered by the NT EPA and will be addressed in the terms of reference for the environmental impact statement (EIS). There will be future opportunities for consultation following submission of the draft EIS and the supplement to the draft EIS.

Statement of Reasons

Overview

The NT EPA considers that the proposed action has the potential to have a significant impact on environmental values associated with thirteen environmental factors[1] as outlined below.

LAND	• **Landforms** - the natural basin bounded by the Daly Range and the Eastern Range, will be significantly altered as a result of dam construction (e.g. walls and spillway), pumping infrastructure and inundation. The proposed action will modify the structure and form of the basin to result in permanent alteration of the natural landscape. Water harvesting from the Adelaide River over the long term also has the potential to impact river morphology. • **Terrestrial environmental quality** - soil integrity and quality have the potential to be significantly impacted by vegetation clearing, flooding, erosion, disturbance of potential acid sulfate soils, and contamination from hazardous materials. • **Terrestrial ecosystems** - loss of habitat has the potential to significantly impact listed threatened species and sensitive and/or significant vegetation communities that are known or expected to occur within the proposal disturbance footprint and area of influence.
WATER	• **Hydrological processes** – the hydrodynamics, environmental flows, surface and groundwater resources of the Adelaide River and its catchment, could be significantly impacted by construction and operation of the proposal. The proposal is located near the coast (~70 km in a straight line from the river mouth) with estuarine river conditions and a semi-diurnal tidal influence that extends upstream from the proposal to the Marrakai Road crossing (10 km from the proposal). The Adelaide River and its tributaries flood during the wet season. There is uncertainty about potential changes to environmental flows, hydrodynamics, and the impacts to sediment transport processes, including delivery to the downstream coastal environment. There is also uncertainty about how potential changes to flow conditions and the estuarine environment may impact coastal processes. • **Inland water environmental quality** - surface water and groundwater quality may be significantly impacted by implementation of the proposal due to sedimentation, water extraction, and hydrocarbon or chemical leaks or spills, leading to changes in salinity, turbidity and nutrients. The proposal has the potential to adversely impact the quality and productivity of water, sediment and biota of the estuarine sections of the Adelaide River and its tributaries. • **Aquatic ecosystems** – the long-term harvesting of water from the Adelaide River has the potential to significantly impact aquatic ecosystems. There is insufficient information to assess the significance of impacts to aquatic ecosystems and a lack of long-term environmental data and understanding of the aquatic ecological values of the Adelaide River and its tributaries and floodplains. The proposal has the potential to significantly impact the habitats, flora and fauna of estuarine and tidal sections of the Adelaide River, including tidal creeks. There is currently insufficient information to assess the direct,

[1] NT EPA Environmental factors and objectives

	indirect and cumulative impacts of the proposal on these estuarine habitats including in relation to biodiversity, ecological integrity and functioning, and ecosystem processes.
AIR	• **Atmospheric processes** – greenhouse gas emissions are likely to be generated by the proposal via construction and commissioning activities, land use change, and ongoing electricity usage over a long period of time (>100 years). The amount of greenhouse gas emissions, and the ability to mitigate emissions is uncertain.
PEOPLE	• **Community and economy** – the proposal has the potential to significantly impact communities, including Aboriginal communities, within the locality and the region, both adversely and beneficially. • **Culture and heritage** – further assessment is required to understand historic and Aboriginal cultural heritage values that may be impacted by the proposal. Due to the lack of information, the significance of the impact is uncertain. • **Human health** – further assessment is required to determine the potential significant impacts to human health during the construction and operational phases of the proposal. Appropriate measures to avoid and mitigate these impacts are required.

The NT EPA considered other factors during its consideration of the referral; however, the impact on those factors was not significant.

Justification

A standard assessment by **environmental impact statement** is required having regard to:

Regulation 59 (a) the significance of the potential impact of the proposal as described above.

Regulation 59 (b) the need to improve the NT EPA's level of confidence in predicting potential significant impacts of the proposal taking into account the extent and currency of existing knowledge, particularly in relation to the:

- significance of potential impacts on hydrodynamics, environmental flows, surface and groundwater resources, and the hydrology of the Adelaide River resulting from water harvesting
- significance of potential impacts on sediment, nutrient and energy processes, as well as environmental flows to the downstream estuarine environment, resulting from the water harvesting from the Adelaide River
- significance of potential impacts to threatened species and habitats in the terrestrial, aquatic and estuarine environment
- potential social and cultural impacts and benefits to communities, including Aboriginal communities, that may be affected by the proposal
- significance of potential impacts from greenhouse gas emissions.

Regulation 59 (c)	the need to develop measures to avoid, mitigate or manage potential significant impacts, and increase the NT EPA's confidence in the effectiveness of the proposed measures, with respect to: • habitat disturbance and potential impacts to threatened species, environmentally significant or sensitive vegetation and GDEs as a result of construction activities and inundation of the proposed off-stream storage/reservoir • potential direct and indirect impacts to surface water and groundwater resources as a result of inundation of the proposed off-stream storage • potential impacts to environmental flows, water quality and ecological values of the Adelaide River, tributaries, floodplains and the estuary as a result of water harvesting • potential impacts to threatened, environmentally significant or sensitive aquatic and estuarine species as a result of water harvesting.
Regulation 59 (d) & (e)	the extent of community engagement that has occurred in relation to the proposal, and therefore, the capacity for communities to access and understand information about the proposal. Early consultation has been undertaken; however, further ongoing consultation is required as the concept design is refined.

Conclusion

The NT EPA considers that the proposed action has the potential for significant impacts on 10 environmental factors, and that environmental impact assessment is required. The method of assessment will be environmental impact statement.

In making its decision under EP Regulation 58, the NT EPA has considered:

- the objects of the Act in section 3 of the EP Act
- the purpose of the environmental impact assessment process in section 42 of the EP Act
- the matters under regulation 56 of the EP Regulations
- the matters relevant to a consideration of the method of environmental impact assessment in regulation 59 of the EP Regulations.