



Australia's National
Science Agency

GISERA | Gas Industry Social and Environmental Research Alliance

Progress report

Groundwater connectivity between the CLA and the surface in
the Eastern Beetaloo Sub-basin extension



Australian Government
Department of Industry,
Science and Resources



Supported by
Government of
South Australia



NORTHERN
TERRITORY
GOVERNMENT



QGC

Santos

tamboran
RESOURCES



Progress against project milestones

Progress against milestones/tasks are approved by the GISERA Director, acting with authority in accordance with the [GISERA Alliance Agreement](#).

Progress against project milestones/tasks is indicated by two methods: [Traffic light reports](#) and descriptive [Project schedule reports](#).

1. Traffic light reports in the Project Schedule Table below show progress using a simple colour code:

- **Green:**

- Milestone fully met according to schedule.
- Project is expected to continue to deliver according to plan.
- Milestone payment is approved.

- **Amber:**

- Milestone largely met according to schedule.
- Project has experienced delays or difficulties that will be overcome by next milestone, enabling project to return to delivery according to plan by next milestone.
- Milestone payment is withheld.
- Milestone payment withheld for second of two successive amber lights; project review initiated and undertaken by GISERA Director.

- **Red:**

- Milestone not met according to schedule.
- Problems in meeting milestone are likely to impact subsequent project delivery, such that revisions to project timing, scope or budget must be considered.
- Milestone payment is withheld.
- Project review initiated by GISERA Director.

2. Progress Schedule Reports outline task objectives and outputs and describe, in the 'progress report' section, the means and extent to which progress towards tasks has been made.

Project schedule table

TASK NUMBER	TASK DESCRIPTION	SCHEDULED START	SCHEDULED FINISH	COMMENT
1	Development of conceptual hydrogeological model of CLA over the Eastern Beetaloo Sub-basin extension	1 May 2025	30 June 2026	
2	Fieldwork	1 July 2025	31 Dec 2025	
3	Potential impacts from gas industry on water resources	1 March 2026	30 April 2026	
4	Project reporting	1 Jan 2026	30 June 2026	
5	Communicate project objectives, progress and findings to stakeholders	1 May 2025	30 June 2026	

Project schedule report

TASK 1: Development of conceptual hydrogeological model of CLA over the Eastern Beetaloo Sub-basin extension

BACKGROUND

The current conceptual model of groundwater flow in the CLA in this region is that all groundwater flows toward the Roper River, despite the eastern Beetaloo Sub-basin being predominantly in the Limmen Bight and McArthur River catchments. Zaar (2009) speculated that some springs in the Upper McArthur catchment could be sourced from the CLA as they have a carbonate signature.

TASK OBJECTIVES

- Determine the flow direction of the groundwater within the region of the eastern Beetaloo Sub-basin extension
- Determine if the potential exists for any flow from the CLA to discharge to springs and waterholes in the Limmen Bight and McArthur catchments
- Investigate the potential for vertical mixing of groundwaters from the Carpentaria Basin, CLA and Bukalara Sandstones

TASK OUTPUTS AND SPECIFIC DELIVERABLES

- Collation of existing datasets
- Initial hydrogeological conceptual model of the groundwater flow in the region surrounding the eastern Beetaloo Sub-basin extension

- Refined conceptual model (to be updated iteratively throughout the project through incorporation of the findings from the fieldwork (Task 2))

PROGRESS REPORT

This task will be completed June 2026.

TASK 2: Fieldwork

BACKGROUND

The source waters of the springs and waterholes in the Upper Limmen Bight and McArthur catchments are currently unknown. Task 1 will use existing information to determine if there is the possibility of those springs being sourced from the CLA and this task will provide new information from fieldwork to prove or disprove the conceptual model developed in Task 1. A key step at the commencement of Task 2 will be negotiating access to field sites with relevant landholders. This will include owners of bores and traditional owners of springs and waterholes (many of which are on Aboriginal land).

TASK OBJECTIVES

- Obtain permission to access field sites
- Sample a range of bores to get end-member hydrochemical signatures from Carpentaria, CLA, Bukalara and Roper Group groundwaters
- Sample multiple springs and waterholes with potential to source their water from key groundwater systems (budget will allow for up to about 10 sites to be sampled)
- Analyse water samples to determine the source waters of the springs and waterholes

TASK OUTPUTS AND SPECIFIC DELIVERABLES

- Permission to access field sites
- Samples collected from a range of groundwater bores, springs and waterholes to be analysed by commercial laboratories
- Interpretation of hydrochemical and environmental tracer data sets to identify source aquifers for discharge to springs and waterholes

PROGRESS REPORT

This task will be completed December 2025.

TASK 3: Potential impacts from gas industry on water resources

BACKGROUND

The analysis of potential impacts from the unconventional gas industry on water resources undertaken during the GBA project did not incorporate the eastern Beetaloo Sub-basin extension and some of the assumptions made may not be applicable in the study region. These analyses will be revisited with the updated conceptual model from Task 1.

TASK OBJECTIVES

- Investigate the potential for drawdown to propagate to the springs and waterholes from extraction in the CLA or Bukalara Sandstone as a water supply for the unconventional gas industry
- Investigate the potential for surface spills to contaminate the CLA
- Investigate the potential for aquitard or well integrity failures to contaminate the CLA

TASK OUTPUTS AND SPECIFIC DELIVERABLES

- An update of the analyses conducted during GBA for the eastern Beetaloo Sub-basin extension

PROGRESS REPORT

This task will be completed April 2026.

TASK 4: Project Reporting

BACKGROUND

Information from this project is to be made publicly available after completion of standard CSIRO publication and review processes.

TASK OBJECTIVES

To ensure that the information generated by this project is documented and published after thorough CSIRO internal review.

TASK OUTPUTS AND SPECIFIC DELIVERABLES

- 1) Preparation of a final report outlining the scope, methodology, scenarios, assumptions, findings and any suggestions/options for future research;
- 2) Following CSIRO ePublish review, the report will be submitted to the GISERA Director for final approval; and
- 3) Provide 6 monthly progress updates to GISERA office.

PROGRESS REPORT

This task will be completed June 2026.

Task 5: Communicate project objectives, progress and findings to stakeholders

BACKGROUND

Communication of GISERA's research is an important component of all research projects. The dissemination of project objectives, key findings and deliverables to relevant and diverse audiences allows discourse and decision making within and across multiple stakeholder groups.

TASK OBJECTIVES

Communicate project objectives, progress and findings to stakeholders through meetings, presentations, Knowledge Transfer Session, fact sheets, project reports and journal article/s, in collaboration with the GISERA Communication Team.

TASK OUTPUTS AND SPECIFIC DELIVERABLES

Communication of project objectives, progress and results to GISERA stakeholders according to standard GISERA project procedures, which may include but is not limited to:

- 1) Knowledge Transfer Session with relevant government/gas industry representatives.
- 2) Presentation of findings to community stakeholders such as business and/or community groups (virtual or face-to-face) to learn of research results.
- 3) Preparation of an article for the GISERA newsletter and other media outlets as advised by GISERA’s communication team.
- 4) Two project fact sheets: one developed at the commencement of the project, and another that will include peer-reviewed results and implications at completion of the project. Both will be hosted on the GISERA website.
- 5) Peer-reviewed scientific manuscript ready for submission to relevant journal

PROGRESS REPORT

This task will be completed June 2026.

Variations to Project Order

Changes to research Project Orders are approved by the GISERA Director, acting with authority, in accordance with the [GISERA Alliance Agreement](#). Any variations above the GISERA Director’s delegation require the approval of the relevant GISERA Research Advisory Committee.

The table below details variations to research Project Order.

Register of changes to Research Project Order

DATE	ISSUE	ACTION	AUTHORISATION

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GISERA is a collaboration between CSIRO, Commonwealth and state governments and industry established to undertake publicly-reported independent research. The purpose of GISERA is to provide quality assured scientific research and information to communities living in gas development regions focusing on social and environmental topics including: groundwater and surface water, greenhouse gas emissions, biodiversity, land management, the marine environment, and socio-economic impacts. The governance structure for GISERA is designed to provide for and protect research independence and transparency of research.