

**Independent Expert Scientific Committee on Coal Seam Gas and
Large Coal Mining Development (IESC)
Meeting 97, 25 – 26 July 2023**

**MINUTES
Videoconference**

ATTENDANCE AND APOLOGIES

IN ATTENDANCE

Dr Chris Pigram (Chair)
Dr Andrew Boulton
Professor Jenny Davis
Dr Jenny Stauber
Dr Juliette Woods
Associate Professor Phil Hayes
Professor Rory Nathan
Professor Wendy Timms

INVITED GUESTS

Item 3.1

Professor Grant Hose, Associate Dean Innovation, Macquarie University

Item 3.3

Dr Christopher Leonardi, Associate Professor, University of Queensland

OFFICE OF WATER SCIENCE (OWS)

Des Owen, Director	Tess Nelson
Isabelle Francis	Frances Knight
Loren Pollitt	Sue Powell
Amelia Lewis	Dylan Stinton
Aranza Bulnes-Beniscelli	Laura Richardson
Ben Klug	
Sarah Taylor	

Note: OWS attendees include those with full or partial attendance.

1. Welcome and Introductions

The Chair acknowledged the traditional owners, past and present, on whose lands this meeting was held, and welcomed members of the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) to the meeting.

1.1 Attendance and Apologies

IESC members in attendance and apologies are recorded above.

1.2 Disclosure of Interests

Committee members were invited to make disclosures. Committee members also completed a Meeting Declaration of Interests before the meeting commenced. Details on disclosures of interests are at Attachment A.

1.3 Confirmation of Agenda

The Committee endorsed the agenda for Meeting 97.

1.4 Confirmation of Out-of-Session Decisions

The Committee noted that:

- minutes of the Committee's ninety-sixth meeting on 21 June 2023 were agreed out-of-session and published on 14 July 2023.
- the Information Guidelines Explanatory Note: Uncertainty analysis for groundwater modelling was published on 29 June 2023.
- public consultation on the updated draft Information guidelines for proponents preparing coal seam gas and large coal mining development proposals opened on 10 July 2023 and will close on 18 August 2023.

1.5 Correspondence

The Committee noted the status of correspondence to 12 July 2023.

1.6 Action Items

Ongoing items were noted and updates were provided on the timing of completion.

1.7 Forward Planning Agenda

The Committee noted the forward planning agenda.

It was agreed that the next meeting be scheduled as a videoconference on 30 – 31 August 2023.

1.8 Environmental Scan

The OWS reported on recent events.

2. Advice on Projects referred by governments

2.1 Cadia Valley Operations Gateway Application

Cadia Valley Operations Gateway Application Expansion Project (the project) is a proposed expansion of the existing Cadia Valley Operations (CVO) located in central New South Wales. The project is currently being reviewed by the New South Wales Mining and Petroleum Gateway Panel as it requires a Gateway Certificate due to permanent impacts to Biophysical and Strategic Agricultural Land (BSAL). The Mining and Petroleum Gateway Panel has requested IESC advice as required under the *State Environmental Planning Policy 2021*. The Gateway Application encompasses work proposed to address damage that occurred to the Northern Tailings Storage Facility and Southern Tailings Storage Facility (STSF) in 2018. As presented for the Gateway Application, the project only includes enlarging the footprint of the STSF embankment, as recommended following technical and engineering reviews at CVO.

The project will temporarily impact 28.2 ha of land to enable construction of the modified embankment of the STSF and will permanently impact up to 2 ha, of which 0.8 ha is verified BSAL. Environmental impacts arising from the work on the embankment alone are likely to be limited, although the provided documentation lacks specific details because the Gateway Certificate assessment occurs prior to project referral and assessment under the New South Wales *Environmental Planning and Assessment Act 1979* (EP&A Act). It is unclear whether any clearing of native vegetation is required. The IESC notes that the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland Ecological

Community, listed as critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999*, may occur in the project area.

No changes are proposed to the mining method, processing rate, mine life, the footprints of the Cadia East and Ridgeway Mines, the maximum approved heights of the tailings storage facilities, or of waste rock management at CVO. The proponent is not proposing any additional take of groundwater, with minimal, if any change to water access licensing expected. The documentation provided for the Gateway Application suggests that the project will be part of a larger and more complex modification application (Modification 15) when referred and assessed under the EP&A Act. Little information was included in the documentation provided on the details of the changes proposed under Modification 15.

This advice applies only to the works to enlarge the STSF embankment footprint and not the full range of changes to potentially be proposed in Modification 15. The IESC understands that the potential impacts from this project and any other changes proposed under Modification 15 will require further investigation with additional impact assessment documentation to be prepared and submitted for assessment under the New South Wales EP&A Act.

Key potential impacts from this project are:

- embankment failure which could have severe and irreversible impacts for downstream surface waters, groundwaters and groundwater-dependent ecosystems (GDEs);
- changes to tailings storage facilities (TSFs) seepage which could alter the quality, rate and/or direction of leakage impacting on nearby GDEs, surface water systems and local groundwater; and
- increases in groundwater levels in the areas adjacent to the embankment works from compaction and loading that could result in waterlogging of nearby GDEs, increased discharge to surface water systems and potentially extend leakage flowpaths.

The IESC has identified areas in which additional work is required to address potential impacts, as detailed in this advice. These are summarised below.

- More information on the proposed embankment works is needed. Details of the design, construction and predicted performance of the modified embankment, including how the existing and new works will be keyed into the bedrock base and valley sides, operation of the TSFs, and tailings volumes to be stored, are essential to understanding the risks posed by the project. The project needs to be designed to minimise the risk of failure and subsequent impacts on downstream water resources.
- An improved understanding is required of the potential leakage pathways from the TSFs, the quantity and quality of leakage, and the potential receptors that could be impacted by the leakage. Although the proponent intends to design the embankment to limit leakage through it, compaction and loading arising from the modified embankment may change the volume, rate and/or flowpaths of seepage currently occurring beneath the TSFs via Rodds Creek and the Cadiangullong Fault and its associated weathered and damage zone. These leakage pathways require more detailed evaluation (e.g., internal erosion pathways or those associated with faulting) to ensure that the embankment works are designed to minimise leakage.
- The likely extent and magnitude of groundwater level increases from the project and their potential impacts on nearby GDEs and surface waters have not been quantified. Historical increases in groundwater levels have been observed but only limited explanation is provided. The source of these increases needs to be comprehensively examined with consideration of tailings deposition (e.g., timing, volumes) to understand how the TSFs are affecting groundwater levels and risks to downstream water resources during and after construction and post-closure.

Consistent with the Environment Protection and Biodiversity Conservation Regulations 2000, advice will be published on the IESC's website within 10 business days of being provided to the regulators.

3. Other business

3.1 Stage 3 Metagenomics Research Project

Lead researcher Professor Grant Hose presented the results from Stage 3 of the Metagenomics Research Project. The Committee discussed and provided comments on the Stage 3 results.

3.2 Ecohydrological Conceptual Models Explanatory Note

The Committee discussed the draft Explanatory Note: *Using impact pathway diagrams based on ecohydrological conceptualisation in environmental impact assessment* and responses received from targeted stakeholder consultation. The Committee agreed to release the draft Explanatory Note for public consultation.

3.3 Subsidence Explanatory Note – CSG

Associate Professor Christopher Leonardi presented a revised draft of the Explanatory Note: *Subsidence associated with coal seam gas production*. The Committee discussed and provided comments on the updated draft document.

4. Close of Meeting

The meeting closed at 2.40 pm on Wednesday 26 July 2023.

Next Meeting

The next meeting is scheduled as a videoconference on 30 – 31 August 2023.

Minutes confirmed as true and correct:

Dr Chris Pigram AM, FTSE

IESC Chair

10 August 2023

Attachment A

Item(s)	IESC Member	Disclosure	Determination
2.1	Dr Jenny Stauber	I have a direct or indirect pecuniary interest in a matter being considered or about to be considered by the IESC, as follows - Agenda item 2 Cadia Valley project advice (joint owner of Newcrest shares).	It was determined that Dr Jenny Stauber not be present during agenda item 2.1 (Cadia Valley Operations Gateway Application), so as to not be present during any deliberation of the Committee about the matters, and to not take part in any decision of the Committee about the matters.