

**Independent Expert Scientific Committee on Coal Seam Gas and
Large Coal Mining Development (IESC)
Meeting 79, 31 August - 3 September 2021**

**MINUTES
Videoconference**

ATTENDANCE AND APOLOGIES

IN ATTENDANCE

Dr Chris Pigram (Chair)
Dr Andrew Boulton
Professor Craig Simmons
Professor Jenny Davis
Associate Professor Phil Hayes (Item 2.3 [2 Sep 9am-2pm])
Professor Rory Nathan (Items 1.5-1.8, 2 & 4)
Professor Wendy Timms

APOLOGIES

Dr Jenny Stauber

OFFICE OF WATER SCIENCE (OWS)

Peter Baker
Alannah Wood
Alex Hannan-Joyner (Items 1.5-1.8 & 2.3)
Annabel O'Neill
Aranza Bulnes-Beniscelli
Benjamin Klug (Items 1 & 4)
Christina Fawns
Clara Tenniswood (Items 1, 2.1, 2.2, 2.3 [2 Sep 9am-1pm] & 3)
Dominica O'Dea (Items 1, 2.1, 2.2 [1 Sep], 2.3 & 3)
Frances Knight (Items 1, 2.1 [31 Aug], 2.2 [1 Sep] & 3)
Isabelle Francis (Items 1.5-1.8, 2.2, 2.3, 3 & 4)

James Rae
Jason Smith
Kelly-Anne Lawler (Items 1, 2.1 [31 Aug], 2.2 [1 Sep] & 3)
Kelly Strike
Mehdi Shabaninejad (Items 1.1-1.4, 2.1 [31 Aug] & 3)
Mio Kuhnen (Items 1.1-1.4, 2.2 [1 Sep], 2.3 [2 Sep 9am-2pm] & 3)
Misty Dawn Thorose (Items 1, 2 [31 Aug-2 Sep] & 3)
Praveen Sebastian (Items 1.1-1.4, 2.1 [31 Aug], 2.3 [2 Sep] & 3)
Tim Hunt

The meeting commenced at 9.00 am on Tuesday 31 August 2021.

1. Welcome and Introductions

The Chair welcomed members of the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) to the meeting.

1.1 Acknowledgement of Country

The Chair acknowledged the traditional owners, past and present, on whose lands this meeting was held.

1.2 Disclosure of Interests

Before the meeting commenced, Committee members completed a Meeting Declaration of Interests.

No actual, potential or perceived conflicts of interest were recorded for this meeting.

1.3 Confirmation of Agenda

The Committee endorsed the agenda for Meeting 79.

1.4 Confirmation of Out-of-Session Decisions

The Committee noted that:

- minutes of the Committee's seventy-eighth meeting on 28 July 2021 were agreed out-of-session and published; and
- the 2020-2021 IESC Annual Review of Activities were agreed out-of-session, published and circulated to stakeholders.

1.5 Correspondence

The Committee noted the status of correspondence to 16 August 2021.

1.6 Action Items

Ongoing items were noted and an update was 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 for 6-7 October 2021.

1.8 Environmental Scan

Committee members and secretariat reported back on developments in recent months, including:

- the introduction of the *Environment Protection and Biodiversity Conservation Amendment (Standards and Assurance) Bill 2021* into the Senate;
- EAGE Workshop on Faults in Groundwater, CO₂ and Hydrocarbons in Asia Pacific; and
- upcoming conferences and workshops.

2. Advice on Projects referred by governments

2.1 Winchester South Project

The Winchester South Project (the project) is a proposed greenfield mine located approximately 30 km south-east of Moranbah in the Bowen Basin of Queensland. Five open-cut pits will be developed to target coal in the Leichhardt and Vermont seams within the Rangal and Fort Cooper Coal Measures. The average extraction rate will be 15 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal, with a forecast peak extraction of 17 Mtpa. The mine life will be approximately 30 years, with 28 years of mining operations. Construction is expected to begin in 2022–23.

The project will contribute to groundwater drawdown within the alluvium, regolith, Leichhardt and Vermont coal seams. Potential terrestrial groundwater-dependent ecosystems (GDEs) in the area include the Brigalow (*Acacia harpophylla* dominant and codominant) Threatened Ecological Community (TEC) and provide habitat for listed threatened species such as the Koala (*Phascolarctos cinereus*) and Ornamental Snake (*Denisonia maculata*). The groundwater-dependency of GDEs needs to be confirmed with field measurements for the potential impacts from drawdown to be better understood. Four residual voids will remain and sit just outside the mapped floodplain of the Isaac River. The water in these residual voids will become hypersaline, leading to potential impacts on the surrounding groundwater system (e.g., the alluvium), the Isaac River and biota within and near the residual voids. Surface water will be diverted to minimise runoff to the mine, and approximately 16 stream-km of ephemeral creeks will be lost or alienated from their catchments by the project during pit construction. The potential impacts of this diversion and loss are not well explained.

Key potential impacts from this project are:

- diversion and loss of approximately 16 km of channels of several ephemeral creeks, which:
 - potentially alters downstream groundwater recharge, surface water flow regimes and extent of floodplain inundation along their lower reaches down to their confluence with the Isaac River;
 - disrupts riparian zone continuity and ecological connectivity; and
 - results in the loss of associated water-dependent ecosystems.
- groundwater drawdown within the alluvium and regolith which may impact on terrestrial and aquatic GDEs;
- hydrogeological and ecological legacy effects of four residual void lakes which will become increasingly saline after mine closure (up to 3-4 times sea-water); and
- contribution to cumulative impacts on biodiversity and ecosystem processes of water-dependent ecosystems (e.g., riparian zones, ephemeral streams, GDEs) across the region that already supports extensive mining activities.

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.

2.2 Boggabri Coal Mine Modification 8

The Boggabri Coal Mine Modification 8 Project (the project) is an extension to the Boggabri Coal Mine (BCM), located within the Gunnedah Basin, NSW. The BCM is the central mine in the Boggabri, Tarrawonga and Maules Creek Mining Complex. The extension would deepen the existing mine, allowing mining to increase from the current extraction rate of 8.6 Mtpa of ROM coal to a maximum production rate of 9.1 Mtpa of ROM coal.

Although the project is not seeking changes to the Mine Disturbance Boundary, it will contribute to cumulative drawdown within the alluvium, particularly that associated with Nagero, Bollol and Goonbri creeks. This will alter surface water flows and could also impact an unverified population of Poplar Box

Grassy Woodland on Alluvial Plains ecological community, listed as a TEC under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Key potential impacts from this project are:

- alteration of ecologically important flow components (e.g., numbers of low- and zero-flow days) of ephemeral creeks within the zone of predicted alluvial drawdown;
- reduced water and sediment quality in Nagero Creek due to increased discharges and overflows of sediment-laden water and mine-affected-water because rainfall patterns changing over the next 20 years may result in more frequent and larger overflows due to insufficient storage volumes; and
- altered groundwater availability and surface water-groundwater interactions that may impact the condition and persistence of GDEs associated with Nagero and Bollol creeks and their tributaries. These GDEs include groundwater-dependent vegetation in the riparian zone as well as stygofauna, particularly in the alluvial sediments of Nagero Creek.

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.

2.3 Leigh Creek Energy Project Stage 1 Commercial Development - PPL 269

The South Australian Government requested the IESC's advice on the Leigh Creek Energy Project Stage 1 Commercial Development - PPL 269. The IESC provided advice to South Australia on 15 September 2021. However, as the advice did not fall within the IESC's functions under the EPBC Act, it has not been published and has no status under the EPBC Act.

3. Other business

3.1 International Groundwater Research Challenges and Opportunities Presentation

Committee member Professor Craig Simmons gave a presentation on international groundwater research challenges and opportunities (and the research-practice gap). The presentation noted that understanding, conceptualising, predicting, modelling, and measuring groundwater behaviour remain formidable scientific challenges.

4. Close of Meeting

The Chair thanked everyone for their contribution to the meeting.

The meeting closed at 3.40 pm on Friday 3 September 2021.

Next Meeting

The next meeting is scheduled for 6 to 7 October 2021.

Minutes confirmed as true and correct:

Dr Chris Pigram AM, FTSE

IESC Chair

2 December 2022