

**Independent Expert Scientific Committee on Coal Seam Gas and
Large Coal Mining Development (IESC)
Meeting 95, 17 – 18 May 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 (Items 1.5-1.8, 2, 3 & 4)

INVITED GUESTS

Item 1.1

Environmental Water and Aquatics Ecosystems Division

Simon Banks, Division Head

Item 3.2

National Water Strategy Section

Jaime Grubb, Director
Lachlan Williams, Policy Officer

OFFICE OF WATER SCIENCE (OWS)

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| Des Owen, Director | Isabelle Francis |
| Aimee McAllister | Jason Smith |
| Amelia Lewis | Laura Richardson |
| Andriana Stoddart | Loren Pollitt |
| Aranza Bulnes-Beniscelli | Sarah Taylor |
| Ben Klug | Tess Nelson |
| Christina Fawns | |
| Frances Knight | |

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. The Chair also welcomed Simon Banks and Des Owen to their first meeting since OWS moved into Simon's Environmental Water and Aquatic Ecosystems Division and since Des became OWS Director, and they and the IESC members introduced themselves.

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. 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 95.

1.4 Confirmation of Out-of-Session Decisions

The Committee noted that:

- minutes of the Committee's ninety-fourth meeting on 8 – 9 March 2023 were agreed out-of-session and published on 29 March 2023.
- advice on the Ulan Coal Mine Expansion Modification 6 Project was provided to the regulator on 15 March 2023 and published on 29 March 2023.

1.5 Correspondence

The Committee noted the status of correspondence to 30 April 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 to be a videoconference on Wednesday 21 June 2023.

1.8 Environmental Scan

The OWS reported on recent events.

2. Advice on Projects referred by governments

2.1 Lake Vermont Meadowbrook Coal Mine Project

The Lake Vermont Meadowbrook Coal Mine Project ('the project') is a proposed expansion of open-cut and longwall operations north of the existing approved operations located 25 km north of Dysart, Queensland. The project will mine 108.6 million tonnes (Mt) of metallurgical coal from underground operations targeting the Vermont Lower Seam and Leichhardt Lower Seam and 13.3 Mt from open-cut operations until 2055.

The project will consist of underground single- and dual-seam longwall mining, open-cut mining and construction of supporting infrastructure which includes an electrical substation, underground portal, drifts and shafts, boreholes and gas drainage bores.

The project area falls within the Isaac-Connors sub-catchment of the Fitzroy Basin. Boomerang Creek, One Mile Creek and Phillips Creek are within the project site where underground operations will occur. Subsidence-induced ground movements of up to 5 m are predicted in the catchments of Boomerang and One Mile creeks.

The project is located within the Bowen Basin where considerable mining activity occurs. The impacts from the project will contribute to the cumulative impacts to groundwater, surface water and ecosystems and biota across the basin.

Key potential impacts from this project are:

- ground movements including predicted vertical subsidence of up to 5.0 m, including up to 4.0 m beneath Boomerang Creek. This subsidence is likely to affect groundwater dynamics, surface runoff, stream flows and water-dependent biota and ecosystems;
- possible connected fracturing (surface to seam), which could result in the loss of surface water flows to the subsurface and potentially the goaf areas. This process could influence groundwater level recovery, alter groundwater flow paths and change surface water flow regimes permanently;
- drawdown within the alluvial system that will likely impact stygofauna and other groundwater-dependent ecosystems (GDEs) including riparian vegetation along One Mile, Phillips and Boomerang creeks which may use groundwater during low-rainfall periods;
- direct clearing of 247.7 ha of habitat used by species listed by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- impairment of aquatic ecosystems and landforms during operations and post mine closure due to erosion and sediment transport;
- collective effects and interactions among two or more of the above individual impacts (e.g., between drawdown and subsidence) that combine to affect, for example, alluvial recharge, stream flow and GDE condition along Boomerang and One Mile creeks; and
- contribution to cumulative impacts to groundwater levels, surface water regimes and ecosystems and biota.

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

- Further analysis is needed to understand the areas where possible connected fracturing may occur and its potential impacts on surface water-groundwater connectivity (e.g., alluvial fluxes), ecologically important components of the surface water flow regime, and biota dependent on surface water and groundwater.
- Additional information is required to better understand the potential impacts of surface cracking on surface water systems and alluvial groundwater, including changes to quantity of runoff, and to the frequency of low- and zero-flow days and other ecologically important components of the flow regime.
- Additional information is required to demonstrate how the final landform and stream channels will stabilise, including how dispersive soils and erosion will be monitored and managed.
- Additional hydrogeological and ecological studies are required to characterise potential GDEs, including several wetlands (e.g., Wetland 8). This should include:
 - field surveys and ground-truthing to establish groundwater dependence of the Brigalow Threatened Ecological Community (TEC) along One Mile Creek, Poplar Box TEC on alluvial plains and remnant River Red Gum woodlands fringing drainage lines and lacustrine wetlands.
 - further sampling for stygofauna within alluvial sediments, especially along One Mile Creek.
- Improvements are required to the groundwater modelling at the local scale to increase confidence in the predicted impacts and their nature and magnitude. These include the influence of the Isaac Fault, gas drainage, recharge rates, representation of surface and groundwater

interactions, local-scale calibration, mine inflows, groundwater mounding post-mining, alluvial fluxes and climate change.

- Monitoring of contaminants in the proposed sediment dams is needed to determine if there is a risk of increasing contaminants in the surface water system from overflow during large flood events (e.g., those with a 1% Annual Exceedance Probability (AEP)).
- One or more impact pathway diagrams (IPDs) derived from an evidence-based ecohydrological conceptualisation should be developed to illustrate the collective and interacting impacts that may arise from this project. These IPDs should link predicted drawdown, subsidence, erosion and other impacts to potential ecological outcomes such as adverse effects on GDEs, riparian vegetation and aquatic biota and ecosystems.
- Further information is needed about timeframes and the potential cumulative impacts of allowing the natural sediment load of creeks to infill subsidence troughs.

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 Ecohydrological Conceptual Models Explanatory Note

The Committee discussed the draft Ecohydrological Conceptual Models Explanatory Note and agreed to submitting the draft for targeted review; the results of which will be discussed at an IESC Meeting. Pending comments, the draft will then be prepared for public consultation.

3.2 Presentation: National Water Initiative

Jaime Grubb and Lachlan Williams from the National Water Strategy team at the Department of Climate Change, Energy, the Environment and Water presented to the Committee on the National Water Initiative (NWI), the 2004 agreement between all Australian governments that provides for the sustainable management of Australia's water resources. A discussion followed on renewing the NWI to account for contemporary water resource management challenges, such as with groundwater and surface water resources.

3.3 Review of the IESC Information Guidelines

The Committee discussed updates to the IESC's *Information guidelines for proponents preparing coal seam gas and large coal mining development proposals* (Information Guidelines) prior to a final review in preparation for public consultation.

4. Close of Meeting

The meeting closed at 12.25 pm on Thursday 18 May 2023.

Next Meeting

The next meeting is scheduled as a videoconference on Wednesday 21 June 2023.

Minutes confirmed as true and correct:

Dr Chris Pigram AM, FTSE

IESC Chair

29 May 2023