

**Independent Expert Scientific Committee on Coal Seam Gas and  
Large Coal Mining Development (IESC)  
Meeting 86, 17-19 May 2022**

**MINUTES  
Brisbane**

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**ATTENDANCE AND APOLOGIES**

IN ATTENDANCE

Dr Chris Pigram, Chair  
Dr Andrew Boulton (by videoconference)  
Professor Craig Simmons (by videoconference)  
Professor Jenny Davis  
Dr Jenny Stauber (Items 1, 2.1, 3 & 4)  
Associate Professor Phil Hayes  
Professor Rory Nathan (Items 1 & 2 by videoconference)  
Professor Wendy Timms

INVITED GUESTS

*Item 3.1*

Dr Luk Peeters, Principal Research Scientist, CSIRO  
Hugh Middlemis, Director and Principal Groundwater Engineer, HydroGeoLogic Pty Ltd

*Item 3.2*

Emma Gagen, Lead Technical Advisor, Office of the Queensland Mine Rehabilitation Commissioner (OQMRC)  
Jason Dunlop, Principal Technical Advisor, OQMRC  
Megan Clay, Research Assistant, OQMRC

*Item 3.3*

Christopher Loveday, Director, Queensland Department of Environment and Science (DES)  
Kerynne Birch, Director, DES  
Jerilly Armstrong, Manager, DES  
Alyssa Cameron, Executive Director, Queensland Office of the Coordinator-General (OCG)  
Kate Weir, Director, OCG  
Maxine Hunter, Acting Project Manager, OCG

*Item 3.4*

Sanjeev Pandey, Executive Director, Office of Groundwater Impact Assessment (OGIA)  
Steven Flook, Director, Management Strategies and Implementation, OGIA

Randall Cox, Contractor, GasFields Commission Queensland

*Item 3.5*

Dr Bruce Hebblewhite, Consultant Mining Engineer and Principal, B K Hebblewhite Consulting

OFFICE OF WATER SCIENCE (OWS)

Alison McMorrow, Assistant Secretary Biodiversity Policy & Water Science (Item 3.2 [in part] & 2.2 [in part])

Peter Baker, Director

Aimee McAllister

Andriana Stoddart

Aranza Bulnes-Beniscelli

Benjamin Klug

Christina Fawns

Dominica O’Dea

Fiona McKenzie-Smith

Frances Knight

Isabelle Francis

Jacqueline Beerworth

James Rae

Jason Smith

Kelly-Anne Lawler

Mehdi Shabaninejad

Mio Kuhnen

Praveen Sebastian

*Note: OWS attendees include those with full or partial, and in-person or virtual, attendance.*

**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

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 86.

1.4 Confirmation of Out-of-Session Decisions

The Committee noted that:

- minutes of the Committee’s eighty-fifth meeting on 13 April 2022 were agreed out-of-session and published.

1.5 Correspondence

The Committee noted the status of correspondence to 1 May 2022.

1.6 Action Items

Ongoing items were noted.

1.7 Forward Planning Agenda

The Committee noted the forward planning agenda, and agreed to a mixture of virtual and face-to-face meetings with the latter providing the opportunity to meet with regulators and other stakeholders.

It was agreed that the next meeting be scheduled as a videoconference for Thursday 23 June 2022.

### 1.8 Environmental Scan

Due to time constraints this item was not discussed at the meeting.

## **2. Advice on Projects referred by governments**

### 2.1 Middlemount Southern Extension Project

The Middlemount Coal Mine was originally approved in 2009, and is located in the Bowen Basin, Queensland. Middlemount Coal Pty Ltd (the proponent) is proposing to extend the area of mining operation into the southern extent of the mining lease (the project), targeting the Middlemount and Pisces Coal Seams within the Rangal Coal Measures. The project is expected to produce 5.7 million tonnes per annum of run-of-mine coking coal and extend the life of the mine for an additional seven years to 2044.

The project will divert a section of Roper Creek around the proposed open-cut pit, realign the southern flood levee and associated water storage, and clear 233.4 ha of vegetation, of which 68.3 ha is remnant vegetation. There will be direct impacts on two Threatened Ecological Communities listed under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act): 2.3 ha of *Acacia harpophylla* dominant and co-dominant (Brigalow) and 19.4 ha of the Poplar Box Grassy Woodland on Alluvial Plains (Poplar Box).

Four EPBC Act-listed threatened species may reside in the project area, including the Koala (*Phascolarctos cinereus*), Great Glider (*Petauroides volans*), Squatter Pigeon (*Geophaps scripta scripta*) and Ornamental Snake (*Denisonia maculata*). These species likely use the area for foraging, shelter and/or breeding, and may potentially be impacted by clearance of their habitat. Disruption of the continuity of the current riparian zone along several kilometres of Roper Creek during and soon after its realignment may particularly impact Koalas and Greater Gliders until trees of sufficient age and height have become established along the diverted channel.

Modelling presented in the proponent's preliminary documentation for the Southern Extension Project leverages off models prepared for the Western Extension Project, indicating a need for further revision and assessment.

Key potential impacts from this project are:

- reduction of riparian habitat and disruption of continuity of the riparian zone along several kilometres of Roper Creek during and soon after its realignment, impacting arboreal and other species and affecting instream ecological processes;
- legacy of two residual voids (becoming increasingly saline) in a floodplain area;
- a potential decrease in surface water quality from controlled discharge and uncontrolled overflow events, for example overtopping of sediment dams releasing contaminated water and sediments downstream; and
- cumulative impacts to groundwaters and surface waters and their dependent ecosystems, including a loss of connectivity resulting in fragmentation of vegetation across the landscape.

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 Dendrobium Mine Extension Project

The Dendrobium Mine Extension Project (the project) is a proposed expansion of the operational Dendrobium Underground Mine located 8 km west of Wollongong in the Southern Coalfield of New South Wales. The project is located in the Metropolitan Special Area, a restricted-access area designed to protect Sydney's drinking water supply catchments. The expansion would allow access to

Area 5 to mine coal from the Bulli Seam. Longwall mining would continue at an approximate rate of 5.2 million tonnes of run-of-mine coal per annum, with Area 5 to be mined until approximately 2035.

The project will increase the area affected by subsidence, including undermining sixteen Coastal Upland Swamps of the Sydney Basin Bioregion (listed under the EPBC Act) and numerous first- and second-order streams. This will considerably change surface water flows and water regimes within the impacted stream reaches and swamps. The project will also contribute to groundwater drawdown in the Hawkesbury Sandstone aquifers which could impact groundwater-dependent ecosystems (GDEs) connected with the regional water table.

Existing infrastructure such as coal handling, water management and train-loading facilities will be utilised with some minor additions required to the water management system. Discharges of mine-affected water are likely to increase; however, these will continue to be managed under the mine's existing environment protection licence EPL 3421 (EPA 2018) during operations with discharges occurring to Allans Creek below the Illawarra Escarpment.

Key potential impacts from this project are:

- surface effects from ground movements related to subsidence, including vertical subsidence, cracking and fracturing of streambeds and swamp bases, and diversion of surface water underground;
- permanent changes to the flow regimes of numerous first-, second- and third-order stream reaches that will substantially decrease streamflows and increase the number of low- and no-flow days under all rainfall scenarios;
- major changes to water regimes and increases in drying severity in swamps. Sixteen EPBC Act-listed swamps will be directly undermined and impacted by subsidence, with an additional six potentially impacted because they are located partially or wholly within 600 m of planned longwall panels;
- increased vulnerability of swamps and their surrounding vegetation to irreversible damage or loss following extreme bushfires in a drier landscape;
- irreversible loss of near-pristine swamps, instream and riparian habitats, and their water-dependent processes, flora and fauna, such as the EPBC Act-listed Giant Burrowing Frog (*Heleioporus australiacus*) and Littlejohn's tree frog (*Litoria littlejohni*), resulting from the above-mentioned changes to flows and water regimes in streams and swamps;
- reduced water quality and inflows to Sydney's drinking water storage;
- unquantified long-term alterations to groundwater levels and water quality post-mining; and,
- increased mine water outflows through portal(s) after mine closure and groundwater level recovery when controlled by bulkheads within the mine. For discharge of mine water to surface waters below the Illawarra Escarpment, water treatment will be required in perpetuity.

These key potential impacts on near-pristine water resources in the restricted catchment of Sydney's drinking water supply are highly likely and will be severe, long-lasting and irreversible. Ample evidence is provided from previous longwall mining in the area, supported by the proponent's modelling and assessments of the predicted impacts of subsidence and drawdown.

Although the proponent has substantially reduced the footprint of the proposed project compared with the previous proposal submitted to the IESC in 2019, the IESC remains extremely concerned about the severity and persistence of the predicted environmental impacts in this Metropolitan Special Area. Options for remediation are limited and largely unproven.

Offset strategies will not compensate for the loss of EPBC-Act listed species and upland swamp ecosystems in their current landscape context. The risks and impacts of longwall mining methods cannot be mitigated in this environment.

In general, the proponent has adequately described the severity of the potential impacts of the project on surface waters and groundwater-dependent ecosystems and acknowledged that remediation options are limited and unlikely to succeed. Although some additional work is desirable, the IESC believes that doing

this will not materially change the conclusions that the project's impacts will be severe, irreversible and persistent, and that longwall mining methods are not appropriate in this context.

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 Uncertainty Analysis Explanatory Note**

Dr Luk Peeters and Hugh Middlemis presented to the Committee their view on the scope of work for an update to the Uncertainty Analysis Explanatory Note. The IESC discussed the scope of work presented and provided feedback for the update.

#### **3.2 Better Rehabilitation Workshop**

The Office of the Queensland Mine Rehabilitation Commissioner (OQMRC) presented to the IESC on the OQMRC's key responsibilities and current priorities. The presentation was followed by a discussion of various topics of mutual interest.

#### **3.3 Queensland Regulator Roundtable**

An informal roundtable discussion was held with invitees from the Queensland Department of Environment and Science, and the Queensland Office of the Coordinator-General. The discussion covered various topics of mutual interest.

#### **3.4 Subsidence Discussion with OGIA**

Sanjeev Pandey from the Office of Groundwater Impact Assessment (OGIA) and Randall Cox presented on how coal seam gas extraction may induce subsidence, which led into a discussion with the IESC, also involving Steven Flook from OGIA. The presentation provided an overview of OGIA's monitoring and modelling work on subsidence that underpinned the UWIR (including predictions), the issues raised by stakeholders on subsidence and how they are evolving over the period from pre to post UWIR release, the current approach to assessment of consequences and OGIA's input into that study, and an overview of various research projects on subsidence currently underway by OGIA, GasFields Commission Queensland, University of Queensland and Geoscience Australia.

#### **3.5 Subsidence Explanatory Note – Coal Mining**

Dr Bruce Hebblewhite presented to the Committee an overview of the second draft of the Explanatory Note on subsidence from coal mining.

#### **3.6 Review of the IESC Information Guidelines**

This item was deferred.

### **4. Close of Meeting**

The Chair thanked everyone for their contribution to the meeting.

The meeting closed at 4.00 pm on Thursday 19 May 2022.

#### **Next Meeting**

The next meeting is scheduled for 23 June 2022 by videoconference.

Minutes confirmed as true and correct:

Dr Chris Pigram AM, FTSE

IESC Chair

1 June 2022

**Attachment A**

| Item(s) | IESC Member      | Disclosure   | Determination  |
|---------|------------------|--|--|
| 2.2     | Dr Jenny Stauber | <p>I have a direct or indirect pecuniary interest in a matter being considered or about to be considered by the IESC, as follows: Dendrobium project. This COI has already been addressed and I will not attend this part of the meeting nor have I had access to any of the documents.</p> <p>COI (conflict of interest): My husband and I own shares in South32.</p> | <p>That Dr Jenny Stauber not be present during agenda item 2.2 (Dendrobium Mine Extension Project), so as to not be present during any deliberation of the Committee about the matters, and so as to not take part in any decision of the Committee about the matters.</p> |