

**Independent Expert Scientific Committee on Coal Seam Gas and  
Large Coal Mining Development (IESC)  
Meeting 101, 13 – 14 December 2023**

**MINUTES  
Videoconference**

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**ATTENDANCE AND APOLOGIES**

**IN ATTENDANCE**

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

**APOLOGIES**

Associate Professor Phil Hayes

**OFFICE OF WATER SCIENCE (OWS)**

Dr Marcus Finn, Branch Head Northern Basin, Science and First Nations  
Dr Des Owen, Director  
Amelia Lewis  
Andriana Stoddart  
Aranza Bulnes-Beniscelli  
Ben Klug  
Dylan Stinton

Isabelle Francis  
Jason Smith  
Loren Pollitt  
Dr Laura Richardson  
Dr 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. The Chair also welcomed Dr Marcus Finn, Head of the Northern Basin, Science and First Nations Branch, which includes the Office of Water Science and IESC support, to his first IESC 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. 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 101.

### 1.4 Confirmation of Out-of-Session Decisions

The Committee noted that:

- minutes of the Committee's hundredth meeting on 8 – 9 November 2023 were agreed out-of-session and published on 28 November 2023; and
- advice on the Aurukun Bauxite Project was provided to the regulator on 14 November 2023 and published on 28 November 2023.

### 1.5 Correspondence

The Committee noted the status of correspondence to 30 November 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 31 January 2024.

### 1.8 Environmental Scan

The OWS reported on recent events.

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

### 2.1 Vulcan Coal Mine Matilda Pit and Ancillary Infrastructure Project

The Vulcan Coal Mine Matilda Pit and Ancillary Infrastructure Project (the 'project') is a proposed expansion of the Vulcan Coal Mine Complex located in the Bowen Basin in Queensland. The project includes development of a new open-cut pit (Matilda Pit), construction of a coal handling and preparation plant (CHPP), a rail loop and a train loadout facility, on-site disposal of waste rock and tailings, alteration of the existing water management system and clearing of 93.3 ha of vegetation.

The Matilda Pit is to be approximately 900 m long, 550 m wide and up to 40 m deep and will be mined until the end of 2025). The project lies in an area of substantial coal mining activity, next to the Saraji and Peak Downs coal mines. Coal mining has been occurring in this area since the 1970s. Considerable drawdown of groundwater, clearing of vegetation and impacts to surface waters through diversions and releases of mine-affected water (MAW) are presumed to have already occurred within the region.

The extent and magnitude of the impacts arising from this project, including contributions to cumulative impacts, cannot be clearly identified from the documentation provided. Although the proponent has compiled a detailed review of existing impact assessments for other mines operating in the region, the documentation lacks current, ground-truthed, site-specific data on many components of the existing environment (as outlined in the responses to the regulator's questions in this advice). The lack of such data means that relevant modelling and conclusions derived from the impact assessment are not adequately supported to justify the proponent's assertion that impacts arising from the project will be limited and require little to no management.

Potential impacts from this project are:

- clearing of vegetation, reducing remaining biodiversity and habitat availability in an already largely cleared landscape;

- groundwater drawdown from mining operations that may affect groundwater-dependent ecosystems (GDEs) and other third-party users;
- changes to surface water quality due to discharges from sediment dams or overtopping of MAW storages;
- diversion of headwater streams that may reduce aquatic habitat, change sediment regimes and movement, disrupt riparian continuity and possibly alter local flooding regimes; and
- legacy effects from waste rock dumps and the final landform on water resources, such as localised erosion of sodic soils.

Due to the limited baseline and field-verified data provided, the IESC has identified additional work needed to provide sufficient context and inform modelling to assess key potential impacts. This work is required to convincingly demonstrate that the potential impacts identified above will either not occur or can be adequately mitigated.

- Collection of additional, up-to-date, site-specific field data that will enable clear identification of potential impact pathways and which receptors in and near the project area may be affected. This should include:
  - measuring groundwater levels and water quality to enable improved characterisation of the groundwater system, particularly in riparian zones and low-lying parts of the landscape;
  - surveying and mapping of riparian vegetation occurrence, condition and dependence on groundwater;
  - field-sampling of potential subsurface GDEs, especially in areas where mining-related changes in groundwater levels and water quality are predicted; and
  - using the data to develop an ecohydrological conceptual model to derive one or more impact pathway diagrams to illustrate how and where the project may impact water resources, help validate proposed monitoring programs and support development of management plans.
- Provision of further information on the groundwater modelling and impact assessment, including:
  - discussion of the groundwater model (e.g., its design, parameterisation and calibration), including details of representation of the project area;
  - validation of the groundwater model with recent monitoring data for groundwater levels and mine inflows in and close to the project area;
  - potential updating of the model; and
  - uncertainty analysis.
- Provision of information on the layout, form and design principles for the proposed headwater stream and drainage diversions.
- Provision of further information on the water balance modelling to verify the proponent's assumptions and conclusions on impacts.
- Clarification of how water quality objectives for both surface and ground waters have been derived and how they will be applied.
- Clarification of the final landform to understand and assess risks (e.g., erosion).
- Provision and justification of detailed monitoring and management plans, which should be developed where appropriate once the additional baseline data have been obtained and the impact assessment refined.

- Provision of evidence and modelling to better estimate the cumulative impacts of this project and adjacent mining on groundwater, surface water (including water quality) and ecological receptors in the project area and downstream.

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 draft Summary Guide for the *Information Guidelines Explanatory Note: Using impact pathway diagrams based on ecohydrological conceptualisation in environmental impact assessment* was discussed by the Committee.

#### **3.2 Environmental Legislative Reform and DCCEEW Reform Updates**

The Committee discussed IESC-related environmental legislative reform in relation to the Nature Positive Taskforce consultation session attended by IESC member, Professor Rory Nathan and reform updates from the Department of Climate Change, Energy, the Environment and Water (DCCEEW) by Dr Marcus Finn and Dr Des Owen of the OWS.

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

The meeting closed at 4.00pm on Thursday 14 December 2023.

### **Next Meeting**

The next meeting is scheduled as a videoconference on 31 January 2024.

Minutes confirmed as true and correct:

Dr Chris Pigram AM, FTSE

IESC Chair

19 December 2023