

**Independent Expert Scientific Committee on Unconventional Gas Development and  
Large Coal Mining Development (IESC)  
Meeting 106, 19 – 20 June 2024**

**MINUTES  
Videoconference**

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**ATTENDANCE AND APOLOGIES**

**IN ATTENDANCE**

Professor Rory Nathan

Dr Andrew Boulton

Professor Jenny Davis

Dr Jenny Stauber

Dr Juliette Woods

Associate Professor Phil Hayes [absent 19 June 10.30-11.30am and 20 June 10.00-11.30am]

Professor Wendy Timms

**APOLOGIES**

Dr Chris Pigram (Chair)

**INVITED GUESTS**

*Item 3.1*

Dr Lisa Golding, Senior Research Scientist, CSIRO.

*Item 3.2*

Tanya Rough, Director Nature Positive Law Reform and Standards, Nature Positive Taskforce, Department of Climate Change, Energy, the Environment and Water (DCCEEW)

*Item 3.3*

Cormac Farrell, Director EPBC Stakeholder Engagement and Capability, DCCEEW

Natasha Amerasinghe, Director Water Resources Regulatory Support, DCCEEW

Sheryl Sibley, EPBC Stakeholder Engagement and Capability, DCCEEW

**OFFICE OF WATER SCIENCE (OWS)**

Dr Marcus Finn, Branch Head Northern Basin, Science and First Nations

Dr Des Owen, Director

Ben Klug

Amelia Lewis

Aranza Bulnes-Beniscelli

Frances Knight

Isabelle Francis

Dr Laura Richardson

Dr Sarah Taylor

Loren Pollitt

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

## **1. Welcome and Introductions**

Professor Rory Nathan presided over the meeting in the Chair's absence. Professor Nathan acknowledged the traditional owners, past and present, on whose lands this meeting was held, and welcomed members of the Independent Expert Scientific Committee on Unconventional Gas Development 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. 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 106.

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

The Committee noted that:

- minutes of the Committee's 105<sup>th</sup> meeting on 15 May 2024 were agreed out-of-session and published on 19 June 2024.

### 1.5 Correspondence

The Committee noted the status of correspondence to 6 June 2024.

### 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 24 July 2024.

### 1.8 Environmental Scan

The OWS reported on recent events.

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

### 2.1 Vulcan South Coal Mine Project

The Vulcan South Coal Mine Project (the 'project') is a proposed new area of open-cut coal mining, targeting coking and some thermal coal, located in the Bowen Basin region of Queensland, approximately 35 km south of the township of Moranbah. The project will disturb up to 1,476.4 ha of land within Mine Lease Application 700073 (the MLA) and will extract 13.5 Mt over the nine-year life of the mine with an extraction rate of 1.95 million tonnes per annum (Mtpa).

The project includes the excavation of three open-cut pits targeting the Alex and Dysart Lower-Lower (DLL) seams of the Moranbah Coal Measures, development of a highwall mining trial area, and construction of a rail loop loading facility, coal handling and processing plant (CHPP) and ancillary infrastructure. The pits will be progressively mined over nine years, starting in the north of the project area with the Vulcan North and Vulcan Main pits and moving south to finish with the Vulcan South pit. The proposed highwall mining is to access the coal seam from surface outcrop by narrow panels (or 'plunges'). The implications for water resources due to ground movement and subsidence are highly uncertain given the very limited data available from similar operations.

The project area is in the headwaters of Boomerang, Hughes, Barrett, East and Harrow creeks. Two drainage lines will be diverted around the Vulcan North and Vulcan South pits. The proposed rehabilitation of the project area includes progressive backfilling of all pits, stabilisation of waste rock

emplacements through reseeded with grazing grasses and realigning the diverted streams back to their original courses over the backfilled pits.

The proponent's ecological desktop surveys identified potential terrestrial groundwater-dependent ecosystems (GDEs) along Hughes and Boomerang creeks as well as along several unnamed watercourses within the project area. Riparian vegetation along Hughes and Boomerang creeks provide habitat for at least five species listed under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. There are also 119 ha of the Brigalow (*Acacia harpophylla* dominant and co-dominant) Threatened Ecological Community (TEC) in the project area, of which 71.2 ha will be cleared.

Potential impacts from this project are:

- removal of up to 1,309.6 ha of remnant vegetation of varying condition, including known habitat for several EPBC Act-listed species and areas of a TEC and riparian and groundwater-dependent vegetation;
- increased erosion and sedimentation downstream of the project area from stream diversions and increased flood depths and velocities;
- decreased water quality downstream of Hughes and East creeks due to overflows of sediment dams into receiving creeks;
- groundwater drawdown of underlying aquifers within and surrounding the project area that may impact GDEs and riparian vegetation along Hughes Creek and its tributaries;
- changes in groundwater quality as backfilling of pits with waste rock could allow flow-through of groundwater that may be contaminated from exposure to waste rock eastwards towards Plumtree Creek (a tributary of Hughes Creek); and
- cumulative impacts with mining activities nearby (Saraji Mine Complex, Peak Downs and Caval Ridge) and on site (e.g. Matilda and Jupiter pits).

The provided impact assessment reports summarise work undertaken at several nearby mines; however, insufficient site-specific data and information have been provided, especially to inform groundwater and surface water modelling.

The IESC has identified key areas in which additional work is required as detailed in this advice. These are summarised below.

- Collection of additional, up-to-date, site-specific field data that will enable clear identification of potential impact pathways and receptors in and near the project area that may be impacted by the project. This should include:
  - o measuring groundwater levels and water quality to improve characterisation of the shallow groundwater system, particularly in riparian zones and low-lying parts of the landscape; and
  - o ground surveys and mapping of riparian vegetation and occurrence of terrestrial GDEs, as well as their condition and dependence on groundwater.
- Revised groundwater modelling informed by the additional data above and supplemented by further regional groundwater data. This should include modelling of the post-mining period.
- Further analysis of potential impacts to GDEs, riparian vegetation and other water-dependent assets as a result of changes to groundwater dynamics, surface water flows, groundwater and surface water quality, followed by identification and justification of any necessary mitigation measures.
- Once further site-specific data have been collected, the impact pathway diagram should be updated to refine the understanding of how and where the project may impact water resources. This will assist in validating further proposed monitoring programs and support development of management plans.
- Further details about the water management system for preventing impacts to receiving environments from overflows of sediment dams and ensuring that water management infrastructure is in place prior to activities that could contribute to decreased water quality in receiving creeks.

- Detailed discussion about proposed mitigation measures for erosion and sedimentation arising from stream diversion and altered flooding depths and velocities.
- For the highwall mining, information concerning the specific locations, design and potential ground movement (including subsidence) is required to determine potential environmental impacts.
- Provision of evidence and modelling to better characterise 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 Presentation: Risk assessment of chemicals associated with unconventional gas development**

Dr Lisa Golding presented to the Committee on the risk assessment of chemicals associated with unconventional gas development. The presentation demonstrated the integration of chemical risk assessment, contaminant fingerprinting, ecotoxicology and modelling risk at local and regional levels in the Beetaloo Sub-basin to assess the potential impacts of unconventional shale gas development.

#### **3.2 Nature Positive Legislation**

The Committee discussed environmental law reform with Tanya Rough from DCCEEW's Nature Positive Taskforce.

#### **3.3 Presentation: EPBC Act and the Water Trigger**

Cormac Farrell and Natasha Amerasinghe (DCCEEW) presented an overview of the *Environment Protection and Biodiversity Conservation Act 1999* and the water trigger to the Committee.

#### **3.4 Metagenomics research project**

The Committee discussed and provided feedback on the draft storyboard for a metagenomics introductory video.

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

The meeting closed at 3.05pm on Thursday 20 June 2024.

### **Next Meeting**

The next meeting is scheduled as a videoconference on 24 July 2024.

Minutes confirmed as true and correct:

Professor Rory Nathan

IESC Member

20 June 2024