

**Independent Expert Scientific Committee on Coal Seam Gas and
Large Coal Mining Development (IESC)
Meeting 81, 10-11 November 2021**

**MINUTES
Videoconference**

ATTENDANCE AND APOLOGIES

IN ATTENDANCE

Dr Chris Pigram (Chair)
Dr Andrew Boulton
Professor Craig Simmons
Professor Jenny Davis
Dr Jenny Stauber
Associate Professor Phil Hayes
Professor Rory Nathan
Professor Wendy Timms

OFFICE OF WATER SCIENCE (OWS)

Alison McMorrow, Assistant Secretary Biodiversity Policy & Water Science (Items 1.1-1.4, 2 [10 Nov 9-9.30am] & 3.1 [3-4pm])
Peter Baker
Annabel O'Neill
Aranza Bulnes-Beniscelli (Items 1, 2, 3.1, 3.4 & 4)
Benjamin Klug (Items 1, 3 & 4)
Christina Fawns (Items 1.1-1.4, 2 [10 Nov 9am-2.30pm & 4.30-5pm, 11 Nov 9am-12pm], 3.1, 3.2 & 3.4 [3-4pm])
Clara Tenniswood (Items 1.1-1.4, 2 [10 Nov 9am-2pm, 11 Nov 9am-12pm], 3.1 [3-3.30pm], 3.2 & 3.4 [3-4pm])
Dominica O'Dea (Items 1, 2 [10 Nov], 3.1, 3.4 & 4)
Frances Knight (Item 3.1)
Isabelle Francis (Items 1, 2 [10 Nov 9am-2.30pm, 11 Nov], 3 & 4)
James Rae
Jason Smith
Kelly-Anne Lawler (Items 1.1-1.4, 2 [10 Nov 9-9.30am, 2-2.30pm, 4.30-5.30pm, 11 Nov 9-9.30am & 2-3pm], 3.1 & 3.4)
Kelly Strike (Items 1.5-1.8, 3 & 4)
Mehdi Shabaninejad (Items 1, 2 [10 Nov 9am-2.30pm, 11 Nov], 3 & 4)
Mio Kuhnen
Tim Hunt

INVITED GUESTS

Item 3.1

ENVIRONMENT PROTECTION REFORM DIVISION

Greg Manning [3-3.30pm], Assistant Secretary Bilateral Agreements
Declan O'Connor-Cox, Assistant Secretary Environment Protection Reform
Tess Burdon, Director Strategic Policy Design
Amanda Richley, Strategic Policy Design

Item 3.4

DEPARTMENT OF PLANNING, INDUSTRY AND ENVIRONMENT NSW

Gabrielle Allan, Team Leader, Energy, Resources and Industry
James McDonough, Team Leader, Energy, Resources and Industry

OFFICE OF THE INDEPENDENT PLANNING COMMISSION NSW

Steve Barry, Planning Director
Casey Joshua, Principal Case Manager

The meeting commenced at 9.00 am on Wednesday 10 November 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 81.

1.4 Confirmation of Out-of-Session Decisions

The Committee noted that:

- advice on Tomingley Gold Extension Project was provided to the regulator; and
- minutes of the Committee's eightieth meeting on 6-7 October 2021 were agreed out-of-session.

1.5 Correspondence

The Committee noted the status of correspondence to 25 October 2021.

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 as a videoconference for 15 December 2021.

1.8 Environmental Scan

The OWS reported on recent events.

2. Advice on Projects referred by governments

2.1 Newstan Mine Extension Project

The Newstan Mine Extension Project (the project) is an extension to the existing underground Newstan coal mine (under care and maintenance since 2014). The project is located in the south-western part of the Newcastle Coalfield, which occupies the north-eastern portion of the Sydney Basin, and targets the West Borehole Seam of the Newcastle Coal Measures. The extension of the mining area would directly undermine the Earing Power Station and the Earing Ash Dam and previous mine workings in the Awaba and Great Northern Coal seams, resulting in a mined multi-seam environment. The project area has already been affected by historical mining and experienced subsidence-related impacts. The project will result in further subsidence with impacts focused under the existing mine workings (multi-seam environment) and the Earing Ash Dam. The project will potentially result in seepage from the Earing Ash Dam to the proposed Newstan extension via the existing Awaba underground workings and groundwater. Seepage from the Earing Ash Dam ultimately exits the groundwater system into surface watercourses.

There are several streams and an Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) Offset area which are predicted to experience subsidence-related impacts, such as surface fracturing, ponding, plug failures and sinkholes. The proposed project operations will also lead to mine-affected water being discharged from the site and entering LT Creek, Stony Creek and Muddy Lake. These impacts will alter surface water quality and lead to potential impacts downstream, including on Lake Macquarie. Lake Macquarie, Muddy Lake and Whiteheads Lagoon are mapped as potential aquatic groundwater-

dependent ecosystems (GDEs) within the project area and are located within the predicted zone of groundwater drawdown.

Collectively, these potential impacts will contribute to the cumulative effects of mining, urban development and other human activities on water resources within and near the project area, including catchments of the Awaba Biodiversity Conservation Area, Lake Macquarie and other valued natural assets. However, considerable uncertainty surrounds the current modelling and predictions of project-specific impacts on GDEs and freshwater and estuarine ecosystems, many of which support EPBC Act-listed species and other wildlife in an already impacted region where the conservation of the few near-natural ecosystems are increasingly important.

Key potential impacts from this project are:

- changes to groundwater flow between the Earing Ash Dam, surrounding aquifers, the Awaba Underground Void and surface expressions of groundwater, including via continuous and discontinuous fracturing above the mined seam;
- contribution to groundwater and surface water contamination as a result of increased contaminant seepage from the Earing Ash Dam into the underground workings and, ultimately, surface waters;
- mining-induced failure of the Earing Ash Dam that, although very unlikely, would have severe consequences on impacted water-dependent ecosystems;
- subsidence leading to stream-bed fracturing, ponding and long-term water quality issues post closure (including ongoing erosion where subsidence-induced ground deformation occurs);
- subsidence causing surface fracturing, ponding, plug failures and sinkholes in the catchment of the Awaba Biodiversity Conservation Area that may compromise its role as an environmental offset;
- declines in surface water quality associated with an increase in the frequency and magnitude of discharge of mine-affected water discharges into LT Creek and Stony Creek, and from discharges from the Awaba Pollution Control Dam into Stony Creek;
- long-term changes, post-mining, to water resources due to contaminated water discharges from underground voids, seepages and surface water storages;
- loss and decline in aquatic and terrestrial GDEs, some of which provide critical habitat for EPBC Act-listed species and migratory birds, as a result of cumulative alluvial drawdown, subsidence-related impacts and discharges of mine-affected water into streams in the project area;
- increased Awaba seepage into potential aquatic GDEs (e.g., Muddy Lake), estuarine ecosystems and Lake Macquarie; and
- contribution to cumulative impacts on surface water resources (including estuaries entering Lake Macquarie), GDEs (e.g., Muddy Lake, Whiteheads Lagoon, groundwater-dependent vegetation) and associated terrestrial ecosystems, which may provide habitat for EPBC Act-listed species and migratory birds.

3. Other business

3.1 EPBC Act Reforms

The Australian Government is committed to a staged program of reforms aligned with the recent EPBC Act Review conducted by Professor Graeme Samuel AC, starting with implementing single touch approval agreements underpinned by National Environmental Standards and supported by strong assurance. The Department of Agriculture, Water and the Environment is leading the reforms. Greg Manning and Declan O'Connor-Cox from the Environment Protection Reform Division provided the Committee with an update on the reforms with a focus on bilateral agreements, regional planning and a review of statutory committee arrangements.

3.2 Options to Undertake Further Metagenomics Research

The Committee considered a draft proposal for a second phase to the metagenomics project. The Committee agreed to the project, which would broaden the application of the research conducted as part of Phase 1, by collecting additional empirical data for comparison from a sandstone aquifer. In addition, Phase 2 would also include a field-based workshop with consultants and other likely practitioners, to evaluate the feasibility of sampling protocols as part of routine sampling procedures. The microbial aspects of the proposal were agreed to be investigated through a separate project.

In addition, the Committee agreed to (a) develop an Explanatory Note to provide further guidance on how to develop ecohydrological conceptual models and (b) review the Explanatory Note - Uncertainty analysis – Guidance for groundwater modelling within a risk management framework.

3.3 Presentation: Dark secrets and black boxes

A presentation on GDEs by IESC member Dr Andrew Boulton was rescheduled to a future meeting.

3.4 NSW Regulator Roundtable

An informal virtual roundtable discussion was organised with a limited number of invitees from the New South Wales Government. The discussion covered various topics of mutual interest.

4. Close of Meeting

The Chair thanked everyone for their contribution to the meeting.

The meeting closed at 5 pm on Thursday 11 November 2021.

Next Meeting

The next meeting is scheduled for Wednesday 15 December.

Minutes confirmed as true and correct:

Dr Chris Pigram AM, FTSE

IESC Chair

23 November 2021