Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development

REQUEST FOR ADVICE

Summary			
Requesting agency/agencies	NSW Mining and Petroleum Gateway Panel (**Gateway Panel**)		
Project title	Cadia Valley Operations	**Proponent**	Newcrest Mining Limited
Reference no.		**State**	NSW
Project stage	An Application for a Gateway Certificate has been made to the Gateway Panel. Under clause 2.30 of the *State Environmental Planning Policy (Resources and Energy) 2021* (**Resources SEPP**), the Gateway Panel must refer the Application to the IES Committee for advice regarding the impact of the proposed development on water resources. A Development Application has not yet been lodged by the Applicant.		
Timing	The Gateway Panel must determine the Application by 16 August 2023. The Gateway Panel requests that the IESC provide its written advice by 4 August 2023.		
Documentation	The following documents are provided to the IES Committee for review: 1. Gateway Application Form 2. Gateway Application Technical Overview (prepared by Newcrest Mining Limited, dated 15 May 2023) 3. Appendix 1 – Agricultural Resources Assessment (prepared by Minesoils Pty Ltd, dated March 2023) 4. Appendix 2 – Agricultural Impact Assessment (prepared by Minesoils Pty Ltd, dated March 2023) 5. Appendix 3 – Groundwater Assessment (prepared by Australasian Groundwater and Environmental Consultants, dated 24 March 2023)		
Description of the proposed project			
Development type	☐ Coal Seam Gas	☐ Open cut coal mine	☐ Underground coal mine
	☒ Other: Gold/Copper Mine	**Site**	☐ New ☒ Expansion
Operational life	Until 2031 (no change from approved)	**Scale**	35 Mtpa (no change from approved)
Geological basin	Murray-Darling Basin	**Coal resource**	NA
Assessment of impacts to water resources			
Surface water catchment	Belubula (Lachlan)	**Groundwater basin**	Murray-Darling Basin (Lachlan Fold Belt)
Key water related assets	• Proposed reinforcement of the existing Southern Tailings Storage Facility (**TSF**) embankment would result in disturbance outside of the approved mining tenements, partly on land identified as Biophysical Strategic		

	Agricultural Land (**BSAL**) (maximum disturbance of 0.8 ha of verified BSAL), but not on critical industry cluster land. • No increase proposed to the groundwater take, but there is potential for increased seepage from the TSF to underlying fractured rock formations and nearby creek, which may affect nearby high priority groundwater dependent ecosystems that are listed in the Water Sharing Plan. • Potential groundwater impacts are characterised as less than Level 1 Minimal Impact on highly productive groundwater in the context of the *NSW Aquifer Interference Policy* (**AIP**), although questions remain on whether the assessment is robust (refer to question 5 in the Request for Advice section below).
Relevant water management policies, regulations or information	• The Project resides in the Lachlan Fold Belt MDB Groundwater Source of the Water Sharing Plan for the NSW MDB Fractured Rock Groundwater Sources 2020. The Lachlan Fold Belt MDB Groundwater Source is subdivided into management zones and the Project resides in the 'Lachlan Fold Belt MDB (Other) Management Zone'. • The Cadia Southern TSF is sited on (what was) Rodds Creek, which drains to Cadiangullong Creek (after about 2km) and thence to the Belubula River (after about 3km), which is part of the Lachlan River and thus the Murray-Darling Basin system. • No increase to groundwater take is proposed.
Key issues (identified by the requesting agency)	• No increase is proposed to groundwater take, but there is potential for increased seepage from the larger footprint TSF to the underlying fractured rock system, and thence possibly to Rodds Creek and/or Cadiangullong Creek. Such seepage may affect high priority groundwater dependent ecosystems along Cadiangullong Creek that are listed in the Water Sharing Plan. • The 2022 Annual Groundwater Monitoring Review notes groundwater level increases of 2-15 metres in 7 bores within about 150m down-gradient of the Southern TSF embankment that are attributable to the TSF, but trends have been stable since approximately 2012. Groundwater quality trigger exceedances were also identified, although the chemical similarity between the TSF decant water and natural groundwater invokes uncertainties in attribution of causes. • Potential groundwater impacts have been characterised as less than AIP Level 1 Minimal Impact on highly productive groundwater. However, questions apply regarding the extent/distribution of Orange Basalt (the only nominally highly productive groundwater resource in the area). Hence uncertainties apply on the degree to which the Orange Basalt highly productive resource may be affected and whether this may affect existing users (mostly >1.5km distant and mostly <5L/s yield). • Significant uncertainty also applies to estimating impacts on interactions between surface water and groundwater resources and related Groundwater Dependent Ecosystems.

Request for Advice
Request for IESC advice regarding the impact of the proposed development on water resources, in accordance with clause 2.30(1)(a) of the Resources SEPP: 1. Does the IESC consider that the surface water resources, groundwater resources and dependent ecosystems, and their interactions (including the nature of hydraulic connections within the underlying fractured rock aquifer system) have been adequately described and the impacts assessed? 2. Regarding groundwater: a. are the uncertainties relating to the extent and/or distribution and properties of the Orange Basalt highly productive groundwater resource adequately understood? b. has the quantity and quality of seepage from the Southern TSF been adequately investigated, including in terms of the likely incremental and cumulative impacts on groundwater and/or surface water systems and dependent ecosystems, and existing users? c. noting that the project is characterised as not exceeding the AIP Level 1 Minimal Impact criteria, have impacts been accurately assessed, including the uncertainties influencing the range impacts, such as climate change and hydrogeological uncertainties? d. is the level of assessment of impacts on groundwater levels, flow and quality and dependent values adequate to assess the potential impacts on water resources? 3. Regarding mitigation, monitoring, management or offsetting measures: a. does the assessment propose reasonable strategies and measures to avoid, mitigate or reduce, to a practicable extent, the likelihood and significance of impacts to significant water-related resources? b. are there additional strategies, mitigation or offsetting measures that should be considered to address any residual impacts of the project on water resources and related GDEs?

Contact information	
Agency contact officer/s	Casey Joshua A/Planning Director Office of the Independent Planning Commission NSW [redacted]

Approval			
Agency Delegate	Casey Joshua A/Planning Director Office of the Independent Planning Commission NSW		
Signature	[redacted]	**Date**	14 June 2023
Agency Delegate	Professor Neal Menzies Mining and Petroleum Gateway Panel Chair		
Signature	[redacted]	**Date**	14 June 2023