

Dendrobium Mine Extension Project State Significant Infrastructure 33143123

I am writing to strongly object to the Dendrobium Mine Extension Project going ahead and to the process of State Significant Infrastructure (SSI) being used to override the concerns of the community and the previous decision of the Independent Planning Commission. Our nation voted recently for immediate action regarding our changing climate and this mine extension is unnecessary.

I have lived in the Illawarra for about twenty five years. I came here because of the University of Wollongong and have observed how this area has changed from being an industrial city to one which is more complex, and which calls itself a City of Innovation.

The area is named by the NSW government as a Renewable Energy Zone and to quote Mike Young, the Executive Director of Planning and Communities at the Energy Corporation of NSW, as reported in the Illawarra Mercury of June 9, 2022...

“With emerging industries and manufacturing being the largest contributors to regional economic output in the Illawarra, the region is an exceptional place for a Renewable Energy Zone.

It already hosts major energy, port and transport infrastructure, has a skilled workforce, and has the potential to utilise existing dams for pumped hydro, harness significant offshore wind generation and has strong demand for future hydrogen projects, including green steel production and hydrogen exports.

The NSW Government also has a range of complementary programs that will support manufacturing in the [Illawarra](#) including a \$250 million investment to boost locally manufactured content for the renewable energy sector and a \$300 million investment to build the state's clean industry base, in particular the green hydrogen industry.”

It is interesting to contrast the NSW government comments above with the assertion from South32 that the industrial base of the city will completely collapse if the Dendrobium extension does not go ahead.

Regarding the original extension project, (SSD 8194), I submitted an objection on behalf of NPA Illawarra and attach it at the end of this document, because it is still very relevant. I have some knowledge of local coal mining because I have been a member of the CCC for the Wongawilli mine for about eight years. In my opinion the IPC determination was carefully considered and the Commissioners obtained a great deal of independent advice before rejecting the application. It should be noted that the original project was approved by DPIE, indeed Mike Young (as above) was closely involved. But times are changing and the new Minister, Anthony Roberts, should not approve this project against the wishes of the community.

The negative impacts of climate change are now being felt all over the planet and there is a need for urgency of action, not a continuation of the status quo. The International

Energy Agency is regarded as a conservative body, yet they are saying no new coal or gas projects anywhere, including extensions and expansions. The IPCC and the UN are giving the same advice.

The new Project claims to use much less water and do less damage. It is true that there will be “less” but it will not be zero and much of the change comes due to the deletion of Area 6 from the plan. The actual mining will be almost as damaging as the previous proposal. The new Project will certainly not be “preserving the water catchment” as claimed in their Leaflet.

DPIE recently published the Draft Greater Sydney Water Strategy, which indicates that Sydney is already facing a water shortage (page 7):

“Sydney’s growing population and economy mean that, without action, we are almost certain to face a future gap between our demand for drinking water and the available supply”

It seems a contradiction to acknowledge future water supply problems and at the same time to approve mining, which will definitely have a negative impact on both the quantity and quality of water available. WaterNSW strongly opposed the previous application and also observe the fact that Sydney already has water shortfall issues in their Agency advice for SEARS, p.8.

8. *“The projected loss of drinking water because of mining must consider the Greater Sydney Water Strategy identification of a shortfall/deficit of 40 to 70 GL/year. A rigorous analysis must be presented as to how this additional water lost, because of this mining, will be ‘made up’ or replaced into the future. “*

Regarding the negative impacts of longwall mining, it is instructive to look at the actual situation, the ground movements, the subsidence and the damage to water quantity and quality which has occurred recently due to mining at Dendrobium. The End of Panel report for Longwall 16 was produced by the company South32 under the terms of their consent and is available on the company’s website. The new Project will do almost equivalent damage because the width and height of the longwall panels are approximately the same. The damage is predicted to be slightly less due to differences between the Bulli seam and the Wongawilli seam. Appendix A states:

“The maximum predicted subsidence effects for the Revised Layout in Area 5 are the same or slightly less than the maximum predicted values based on the Previous Layout in Area 5. The reason is that the longwall widths, chain pillar widths, depths of cover and proposed mining heights remain the same.”

Actual damage

The End of Panel (EOP) report for Longwall 16 includes many details of damage, but they are brushed off as “Predicted”. The subsidence of the land above the longwall and on rock faces and cliffs is greater than 2.5 metres, a huge drop, but no bigger than predicted, so is accepted. **The time has now come to stop doing this damage to our land.** Imagine what happens to the wildlife trying to cross the area, as well as the disturbance to future waterways and to the Aboriginal cultural significance of the area.

Photo 23 from EOP LW16 below shows a crack in rock greater than 150mm wide. Cracking due to subsidence has reached the surface land above the mining.



Photo 6: SCK_Rockbar 5, looking upstream at the increase in iron staining. Taken on 14/10/2020.

Photo 6 from EOP LW16 above shows how iron staining impact rocks and water quality.

Table 8 from page 43 of the EOP report below shows how the water and moisture levels in upland swamps which have been mined under has been dropping to levels which trigger an action response (TARP). Swamps 14_01 and 14_02 especially have been highly impacted. Unfortunately this does not mean that the mining will stop.

Coastal upland swamps are being destroyed by this mining. Yes, the vegetation may recover superficially after a few years, but according to experts it may take hundreds of years for the swamps to recover their previous diversity.



Table 8: Summary of soil moisture level TARP status at Longwall 16 impact sites.

Swamp	Sensors and TARP triggers			HGEO Comment	IMCEFT TARP Level	HGEO TARP Level
	Not Triggered	Triggered	Not within mine influence			
13	13_S03	13_S01 13_S02		Revised in 2020 to Tarp level 2 (Previously 3): Soil moisture at all sensors dropped to lowest levels during 2017-2019. Apparent recovery in 2020 at 13_S03. Other sensors record lower moisture levels than baseline.	Level 3 (LW14)	Level 2 (Previously Level 3)
14	14_S02	14_S01		Soil moisture at 14_01 dropped below baseline (except for drought) in 2020 in contrast to recovery at reference swamps. 14_02 shows recovery from drought in 2020. Mining effect at 14_02 possible but not yet clear.	Level 3 (LW15)	Level 2 (Previously Level 3)
23	23_S01 23_S02			Revised in 2020: No TARP trigger (previously Level 2). Both sensors show recovery in 2020 after effects of 2017-2019 drought. Moisture levels in 2020 similar to baseline.	Level 1 (LW14)	No Trigger

Table 9: Summary of shallow groundwater level TARP status at Longwall 16 impact sites and update of Swamp 11 TARP status.

SWAMP	PIEZOMETERS WITH AN OBSERVED RESPONSE			HGEO COMMENT	IMCEFT TARP LEVEL	HGEO TARP LEVEL
	YES	UNCLEAR	NO			
11	11_H1 11_H2 11_H3			All three piezometers show mostly desaturated conditions following the passage of Longwall 14 with only brief periods of saturation following rainfall events.	Level 2	Level 3 (LW14)
14	14_01 14_02			Evidence for impact to swamp groundwater levels at 14_01 and 14_02 following Longwall 16 and Longwall 15 respectively.	Level 3	Level 3
23	23_01	23_02		Evidence for impact to swamp groundwater levels and duration at 23_01 following Longwall 15; Possible effects at 23_02 but unclear as of Longwall 16 end date.	Level 3	Level 2 (LW15)

Why is this allowed for these very special Endangered Ecological areas? Our planet's biodiversity is very rapidly disappearing on our watch and we are leaving great difficulties for our children.

Transcript information from IAPUM

In December 2020 the IPC Commissioners held discussions with the company and with the Independent Advisory Panel on Underground Mining (IAPUM) and the Transcripts are available on the IPC website. These discussions occurred after the Department had

written its approval document and the IAPUM had also held its own meetings and made its report.

The transcripts make interesting reading regarding the future, when the mine is closed, and contain comments from Professor Jim Galvin such as these on page 5...

“With Dendrobium we know it’s surrounded by old mines. We know that Area 1, the 35 first couple of longwalls, they undermine the old workings at the Mount Kembla Colliery, and then there is absolutely no doubt that you have connected fracturing to that mine. So when the water level – if you seal Dendrobium and the water level starts to build up, and recovers to that elevation, the question then becomes, where does the water then start to go to? Where can it come out? What’s the quality of that 40 water? Are the seals in Mount Kembla capable of withstanding that pressure head? and so on. So that’s – they’re the issues we’re raising. “

And on page 6...

“if it’s not physically possible to seal the mine, that you cannot only sustain those water pressures on the seals but also not impact on stability of the surrounding strata as the water pressure recovers, then you may have no option than to continue to allow that water out of the mine in perpetuity. “

And line 25 “Mine closure issues are deceptively complex...”

There are many more comments in this transcript around the lack of certainty regarding future issues, such as contaminated water rising to the surface when the mine is completed. As Jim Galvin says on page 9...

MR GALVIN: I think the other perspective to put on this is that we – none will be around to know if and when this ever happens, because this is not something that we’re going to see develop in the next 50 years; it’s going to be longer than that. So it makes more challenging to plan for.

Surely we should have more of a definite plan for closure and the future before allowing more mining go ahead?

The SEARS for the new Project indicates that a mine closure plan is necessary and the company has provided some new information as an attachment to the executive summary. However, it is very preliminary information and does not answer the questions raised in the transcript above, for example it contains the very general statement...

“IMC has undertaken work on the design concepts for the sealing of the portals and mine entrances post-closure for the Project, which builds on the existing mine closure design work undertaken for the Dendrobium Mine and considers the potential interaction with Dendrobium Mine portals and historical mine workings (SLR, 2022). “

Upland swamps

The impacts on coastal upland swamps are discussed in the Transcript when Ann Young, a member of the Panel and an expert on these swamps answers questions from the commissioners. She notes that back in 2006 there was no data on the water response of swamps to mining and says...

“we have now, courtesy of the mines and the monitoring that they have done, a very strong understanding that direct under-mining particularly drops the water table rapidly, and to a large extent permanently except for some small spikes after high rainfalls in these swamps.”

Regarding the Upland swamps, the expert advice given by Ann Young is contradicted in the Executive Summary for the new Project, which claims:

“Many upland swamps overlying Area 5 currently experience natural drying and wetting cycles. Based on monitoring data from previously mined beneath upland swamps at the Dendrobium Mine (and other mining operations in the Southern



Table ES-3
Key Potential Impacts and Associated Project Outcomes – Biodiversity and Aboriginal Heritage Values

Summary of Potential Impact Mechanism	Summary of Mitigation Measures	Project Outcome Summary
Potential impacts on upland swamp drying and wetting cycles.		
Project mine subsidence may result in changes to upland swamp hydrology for upland swamps within 60 m of the longwalls (i.e. longer dry periods due to an increased rate of water level recession following rainfall). Upland swamps include TECs and provide habitat for threatened fauna species.	The Swamp Offset Policy (OEH, 2016a) provides the framework for offsetting residual impacts to swamps from longwall mining. Many upland swamps overlying Area 5 currently experience natural drying and wetting cycles. Based on monitoring data from previously mined beneath upland swamps at the Dendrobium Mine (and other mining operations in the Southern Coalfield), changes in swamp hydrology as a result of subsidence are not expected to result in significant changes to the extent of upland swamp vegetation and species composition. Notwithstanding, predicted impacts to upland swamps due to the Project subsidence would be offset via the Project biodiversity offset strategy. IMC would offset potential subsidence impacts to TECs associated with upland swamps, as well as offsets for threatened fauna species for which the upland swamps provide habitat.	Potential Project subsidence impacts on upland swamps and associated potential habitat effects would be offset consistent with NSW and Commonwealth Government policies.
Potential impacts on riparian and aquatic values due to alteration of surface water flows.		
Project mine subsidence may result in changes to stream hydrology overlying the longwalls (e.g. recession of pools following rainfall) with potential impacts on aquatic ecology habitat values and associated threatened fauna species.	The proposed longwalls are located at a minimum longwall mining distance of 400 m from named streams (the Avon River and Donalds Castle Creek are located at distances of 900 m and 700 m, respectively, while the Cordeaux River and Wongawilli Creek are located more than 1.9 km from the proposed longwalls). The Project also does not directly mine beneath 3 rd order and above streams and avoids direct mining beneath mapped “key stream features” overlying the Project underground mining Area 5 through implementation of setbacks. Significant Project impacts on aquatic ecology are predicted to be unlikely. Notwithstanding, impacts on threatened biodiversity in all streams that are predicted to be adversely impacted would be offset in accordance with the BC Act. IMC would implement remediation measures to mitigate physical damage to the streams, where it is practicable to do so, where monitoring indicates that subsidence-related impacts have occurred to key stream features (i.e. named watercourses and key stream features).	Potential Project subsidence impacts on aquatic ecology values and associated potential habitat effects would be offset consistent with NSW and Commonwealth Government policies.

Coalfield), changes in swamp hydrology as a result of subsidence are not expected to result in significant changes to the extent of upland swamp vegetation and species composition. “

The Executive summary is carefully worded, but I find it hard to comprehend how permanent water loss in a stream can be offset or remediated effectively...

“Significant Project impacts on aquatic ecology are predicted to be unlikely. Notwithstanding, impacts on threatened biodiversity in all streams that are predicted to be adversely impacted would be offset in accordance with the BC Act. “IMC would implement remediation measures to mitigate physical damage to the streams, where it is practicable to do so, where monitoring indicates that subsidence-related impacts have occurred to key stream features (i.e. named watercourses and key stream features).”

The emphasis on key streams and named streams seems illogical. Unnamed streams feed in to larger streams, so if the small watercourses vanish then the larger streams will get smaller. Appendix A, the Subsidence Assessment states:

*“There are many unnamed streams within Area 5 that are tributaries to the Avon River and Donalds Castle Creek. It is not possible to develop an **economically viable** longwall layout to avoid all these tributaries. The proposed longwalls have therefore been designed to minimise the likelihood of potential for impacts on the key stream features.”*

So the swamps are to be sacrificed so that the mine can be profitable.

Further Questions and Comments

In the comments above I have demonstrated a few of the reasons why the Project should not be approved. There are many others reasons, such as the loss of our Aboriginal heritage, loss of biodiversity, koalas, greenhouse gas emissions leading to climate change, but my time does not allow me to discuss these in any detail.

I question whether this extension project is needed by our community. The issues relating to negative health impacts from the transport and loading of coal are mentioned briefly in Appendix L, the new Economic Analysis and are very grave. Note this statement (page 28):

“Indirect costs associated with air quality have been apportioned to the smaller Dapto-Port Kembla SA3 region in proportion to the Wollongong SUA region, while the indirect costs associated with GHG have been apportioned to the NSW population.”

So NSW will benefit significantly economically from the Project, while locally we bear the costs to our health.

The economic analysis totals the negative externalities as \$8.1 million. However, on page 22 we see that many of these are treated as internal costs and **are not estimated**. We can also see that only around 20% of the current workers come from the local area and that the local benefits to the economy are relatively small.

Table 13: Summary of indirect costs impacts (\$ million^)

Scope of environmental costs	Assessment type	NPV*
Indirect costs		
Greenhouse gas emissions	Quantitative	0.148
Air quality impacts	Quantitative	8.0
Loss of surplus to other industries	Quantitative	0.0
Net public infrastructure costs	Quantitative	0.0
Residual value of land	Quantitative	0.0
Transport/ traffic impacts	Quantitative	0.0
Visual amenity	Quantitative	0.0
Mitigation and management cost		
Aboriginal cultural heritage and historical heritage	Quantitative	^^
Ambient noise impacts	Quantitative	^^
Biodiversity impacts	Quantitative	^^
Greenhouse gas emissions	Quantitative	^^
Subsidence impacts	Quantitative	^^
Water impact (offsets) - including surface and ground water	Quantitative	^^
Total mitigation and management costs		20.7
Indirect costs		8.1

Source: EY estimates based on information provided from IMC and relevant environmental assessments for the Project. * NPV in 2021 Australian dollars based on a 7 per cent real discount rate. ^^ Confidential, included in the total internalised costs.

The Economic analysis only refers to Scope 1 and Scope 2 emissions. Scope 3 should also be included.

I suggest that instead of mining under our precious water catchment the lands should be conserved as an addition to our national park estate, in order to protect our air, water and biodiversity. Dharawal National Park serves as an example of how this can be possible.

The claim is sometimes made that the Dendrobium coal is essential for Bluescope, yet the new project is coal from the Bulli seam and could easily all be provided from the Appin mine, a part of IMC. Appin already has permissions and is currently expanding in to Menangle. Transporting coal from Appin may involve slightly more cost, but does not involve mining under the Special Areas of the water catchment.

I attended an Information Session for the Project at Kembla Heights and was informed by Scott Lowe, the Project Director that using Appin coal is too risky, having the Bluescope blast furnace dependent on just one Appin longwall. This was misleading information, because Appin currently has two longwalls in operation.

Bluescope recently submitted the EIS for the reline of Blast Furnace No. 6. However, the Board of Bluescope realise that it is essential for them to decarbonise their processes as

soon as possible and have entered in MoU and research projects with Shell and Rio Tinto, so it is probably not “decades” before green steel eventuates at Port Kembla. In Sweden the Hybrid joint venture recently received about \$AUS200 million of grants from the EU Innovation Fund, moneys which will mainly be spent on the world’s first large-scale demonstration project, to be built in Sweden.

800 jobs sounds like a lot but is actually very small: compare it to the 7,000 manufacturing jobs just in the City of Wollongong! A good transition plan for mine workers to the Renewable Energy Zone jobs would result in a win for the community.

It is claimed that Port Kembla Coal Terminal (PKCT) will be unviable without this mine extension. Port Kembla Inner and Outer Harbour will have a great future with renewable energy and hydrogen whether PKCT exists or not. A terminal for gas (and future hydrogen) is currently under construction. Tenders are being sought for the development of ocean wind farms,

There are many reasons why this Project should not be approved by the NSW Minister for Planning. I restate my opposition to this Project. It will pollute our planet and negatively and irreversibly impact our Aboriginal heritage, biodiversity, water and land.

Yours sincerely,

Mrs Ann B. Brown
BSc (Hons)

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