

15 December 2020



NSW Department of Planning, Industry and Environment
Via on-line submission portal:
<https://www.ipcn.nsw.gov.au/have-your-say?project=ac3ac88d-569e-491a-a7c1-cbff0baa0c4f>

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Dear Sir / Madam,

DENDROBIUM MINE EXTENSION PROJECT SSD - 8194

The Illawarra Branch of the National Parks Association of NSW Inc (NPA) has over 1500 members and supporters in our region. Like other branches of the NPA it is engaged in the conservation and protection of our natural places as well as connecting people with nature by conducting outdoor activities. We take a particular interest in mining proposals that threaten the natural and cultural values of the Illawarra escarpment and plateau. In addition we advocate greater recognition of mining's wider climate change impacts.

We are opposed to this extension, for many reasons, but primarily because it will have serious and permanent impacts upon the water catchment area of greater Sydney and Wollongong.

Our focus in this submission will be in the areas of:

- Water quantity and quality
- Coastal upland swamps and biodiversity
- Alternatives

Longwall mining causes subsidence and impacts the quantity and quality of both surface water and groundwater. This is not disputed, but the accuracy of modelling remains under discussion. To quote a 2020 paper by Bruce Hebblewhite, "Fracturing, caving propagation and influence of mining on groundwater above longwall panels—a review of predictive models" in the International Journal of Mining Science and Technology,:

"Knowledge of the detailed nature of rock deformation and failure above any form of large-scale underground mining is always going to be limited to interpretation from a very incomplete set of data. It is extremely difficult, if not impossible, to directly measure the detailed nature of the rock failure, fracture networks and deformational behaviour above an extracted mining area."

The government has set up a number of advisory agencies including the Independent Expert Panel on mining in the catchment (IEPMC), and the recent Independent Advisory Panel for underground mining (IAP). Both these agencies have expressed concern about the cumulative negative impacts of mining in the catchment.

For example the IEPMC report vol 2 p.2:

The regional depressurisation and its likely consequences for watercourse flows and surface water losses particularly in Wongawilli Creek have been the subject of concern in submissions to the Panel. The Panel's view is that these concerns are well-founded, and that the performance measures in the Dendrobium Mine SMP approval and in the modified Consent Condition (Table



2) do not sufficiently put measurable limits on the loss of surface water (both diversions and permanent losses) due to depressurisation.

And the IAP is concerned about panel width and connective fracturing, report p.1:

No justification on technical or environmental grounds has been provided for panel widths of 305 m, with the Panel being advised by the Proponent that it is based on experience with this width at Dendrobium Mine and economic returns.

The Commonwealth body, the Independent expert scientific committee (IESC) also provides advice on the potential impacts of mining proposals on water resources. They detail many adverse impacts for this Project and suggest that variations to the mine plan should be considered:

... information and a quantitative analysis needs to be provided on options for variations to the proposed mine plan, such as setbacks from swamps, or variations to longwall width (or other aspects of mine design and geometry) as these appear to be the only viable options, which could be used to reduce the predicted impacts. There is a lack of evidence for there being any other mitigation options that would protect upland swamps and high order streams from irreversible decline.

The IESC also states there will be, among other impacts:

adverse impacts on water quality of inflows to water supply storages associated with the expected changes in the upland environment. Such water quality impacts are likely to include changes in turbidity, nutrient loads and pathogens;

groundwater drawdown within the Hawkesbury Sandstone aquifers; and

potential long-term unquantified impacts to groundwater levels and quality post-mining.

All these bodies have considered the impacts of Dendrobium and expressed many concerns: the DPIE mentions them but then ignores the concerns and approves the Project. Why pay for experts to provide advice then go ahead with the proponent's proposal virtually unchanged? Monitoring and conditions and TARPs tend to be a case of locking the door after the horse has bolted.

There is concern from WaterNSW regarding our future water supply: to quote the Sydney drinking water catchment audit, 2019:

Water availability - Surface and groundwater resources are not being sustainably managed, particularly in the context of climate change. Just over half (52%) of the surface water monitoring stations had substantially reduced streamflow levels compared to the long term. Insufficient groundwater monitoring is contributing to the uncertainty about sustainable use of groundwater resources.

WaterNSW remains strongly opposed to this project in its current form as none of its key concerns have been adequately addressed through the response to submissions.

WaterNSW also considered that the EIS did not contain an adequate assessment against the 'Neutral or Beneficial Effect' (NorBE) test in respect of loads or concentration of metals in streams or reservoirs, as required under the *SEPP (Sydney Drinking Water Catchment) 2011*. WaterNSW stated that it had 'serious concerns' that the Project would not meet the NorBE test.

The coastal upland swamps were listed as endangered ecological communities by NSW in 2012 and the Commonwealth in 2014 and are significant in terms of their biodiversity. Nonetheless, South32 is proposing to undermine and permanently damage 25 of these swamps.

Since the 2010 PAC decision against BHP/Illawarra Coal there seems to have been less and less protection for coastal upland swamps. The 2010 decision led to the company, BHP Billiton/Illawarra Coal deciding to withdraw the Eastern domain of its application, and ultimately to the creation of Dharawal National Park.

It is interesting to read the statement from BHP Billiton at that time, and to quote:

“the area excluded held about 100 million tonnes of coal but the company wanted to “get the balance right”. We decided there was concern in the community about our ability to mine sustainably in this area”

The significance, value and fragility of the swamps is well documented in the 2017 book by Dr Ann Young “Upland swamps in the Sydney region”. The upland swamps of the Woronora Plateau play an important role in the water catchment by capturing and holding water, filtering it and in times of drought releasing it slowly into the creeks and rivers that feed into the reservoirs.

Each swamp is a unique community containing rare plants and animals. This unique quality means that offsetting of like for like is not possible. Although now permitted by the NSW government, offsetting is widely criticised for not being an adequate alternative to saving something irreplaceable. Each of the swamps contains a unique assemblage of species which contribute to biodiversity. How can offsets be a plausible possibility? These assemblages of fungi, insects, plants, have taken hundreds of years to evolve together and rehabilitation can only provide a pale imitation of this process. The threatened larger fauna are not the only life at risk, ecologists who have been able to enter the Sydney Catchment special areas have told us they estimate that the areas are so diverse that less than half of the insect population has been identified.

There are 46 swamps in the mining area and 25 of these are expected to be undermined. The IESC states that a further 20 swamps are located partially or wholly within 600 m of a proposed longwall panel and hence may also be impacted by subsidence-related changes in water regime. South32 does not hide the facts of 2.5 metre subsidence in the ground level above the void. 2.5 metre along lengths up to 2 km.

The IPC site visit did not include viewing the damaged ground above a subsided panel.

When mining commences water drains away from upland swamps into the mining void, the swamps desiccate, the flora and fauna die off, and dryland species take over. The swamps lose their capacity to retain water, as rainfall drains rapidly through the cracks and fractures caused by mining.

The commissioners saw this themselves on the site visit in the piezometer readings for Swamp 1b, where the water level in the swamp rose rapidly with rainfall but fell equally rapidly. Regarding Swamp 1b there has been an observed reduction in species composition and a reduction in the area of the swamp. Previously undermined swamps have not recovered from such impacts.

Undermined swamps become more prone to erosion and more prone to bushfire because of their dryness.

In their natural state the coastal upland swamps provide carbon capture and storage in their peaty sediments.

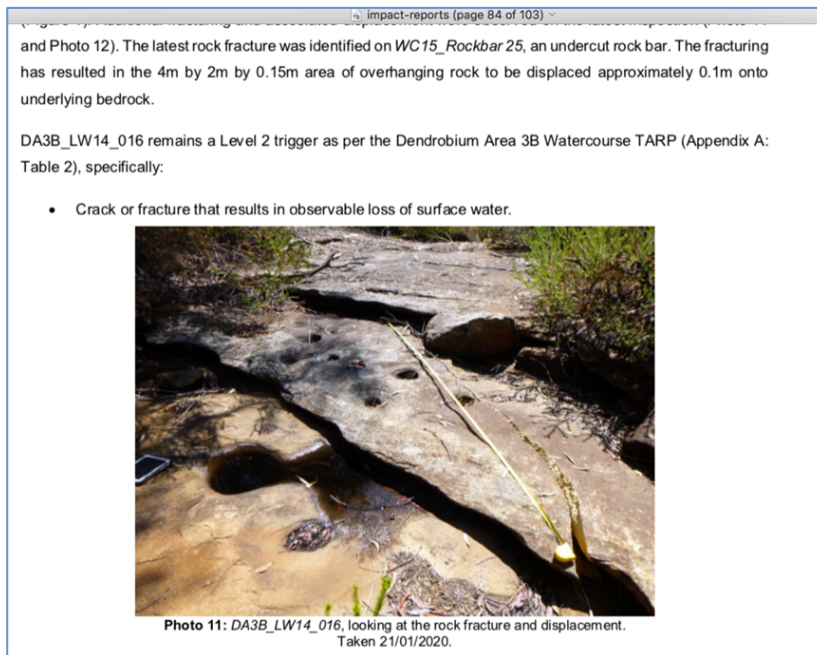
The company is required to provide an Annual Review which details environmental performance. This means that it lists and classifies the large number of impacts observed during the year.

The most recent End of Panel report lists 79 TARP triggers during the extraction of Longwall 15. 23 of these were TARP 3 triggers.

Swamp 14 in Area 3b is (or was) a large swamp which has recently been partially undermined by Longwall 15. Now a soil moisture level lower than baseline is reported, a TARP 3 trigger. It will soon be further undermined by Longwall 16 and no action will be taken to stop further decline.

The analysis of the most recent LiDAR data used to assess the extent of upland swamps and their composite vegetation communities, has identified that the extent of all upland swamps (impact and control swamps) within the study area have decreased substantially from the 2014 baseline". And DPIE notes that Biosis (the Ecological consultants) says that all upland swamps (impact and control) continue to show a trending decline in Total Species Richness, while BCD states subsidence is "*predicted to have a significant impact on multiple threatened Coastal Upland Swamps and other water dependent ecosystems and threatened species.*"

The swamps are not the only water bodies impacted by being undermined, all of the watercourses are affected and some have vanished entirely. The company proposes to protect Key Features, but is there a point, if the water up stream is lost to fractures as in the example below?



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We are providing these details to illustrate the lack of wisdom shown by DPIE in continuing to permit mining in the special area of the water catchment. The primary purpose of the area is to store water.

Surely the DPIE should take note of these actual and potential impacts detailed by various agencies and not permit aggressive mining under the upland swamps and streams. The damage will be permanent and the negative impacts on water quantity and quality will continue for many years, maybe in perpetuity.

DPIE recommend increased monitoring of upland swamps, but monitoring does not stop the damage or the mining. TARPs lead to increased monitoring and notifications but the mining operation does not cease.

Among other matters, BCD considered that the EIS did not adequately demonstrate that a key biodiversity assessment principle has been met, that of first seeking to 'avoid' the potential impact.

Are there any Alternatives?

Can we envisage an outcome which will benefit the catchment as well as South32?

We suggest that you, the commissioners, request that South32 provide an alternative layout and a shorter timeframe, maybe using 150m wide panels and mining till 2035, with one project area being approved at a time. 2048 is an exceedingly long timeframe with all the predicted impacts of climate change.

Jobs, taxes and royalties would still eventuate but with much less damage to the catchment and our precious water. Of course the proponent wants to mine as aggressively as possible but it is the role of government to intervene and to find a compromise or reject the proposal entirely.

The IAP was set up to give advice to the DPIE: but the DPIE appears to have ignored the advice. The IAP clearly states that the intensity of the impacts (fracturing width, frequency and depth) will be considerably reduced by a narrower panel width. The narrower width panels will still produce damage but far less: according to the MSEC estimate graphs provided in the AR, estimated vertical subsidence would be 600mm and there would be much less tensile strain. This compares to vertical subsidence of more than 2m with wider panels.

The Minecraft report into mine layout predicts that at its highest modelled coal price of US\$121, the mine layout is profitable at the smaller panel widths of 150m.

Although a report was commissioned into the economic effects of reducing panel width, no report was produced on the permanent monetary value of the swamps and watercourses.

We understand from the latest South32 Appin CCC meeting that the mine is now profitable, is planning exploration, has a new ventilation and mine access project and has contracted for a new reverse osmosis water treatment plant. This does not sound like the economically failing mine described by Brian Fisher in the BAEconomics report.

Maybe an alternative is to use coal from Appin, mined outside the special area of the water catchment and not proceed with the Dendrobium extension. The Dendrobium mine currently provides only 0.5 Mt to Bluescope. Dendrobium does currently supply coal from the Wongawilli seam, but the proposed Area 5 will mine the Bulli seam, like the Appin mine.

Bluescope profitability is increasing, forecast to be \$475 million EBIT for July to December 2020. This may enable more investment in research into green steel. Thyssenkrupp in Germany plans to produce 400,000 tonnes of green steel by 2025. Hybrit in Sweden has a pilot plant already working. Bluescope may lose its customers if it cannot provide green steel in the foreseeable future. Please note that we do not seek the demise of Bluescope Steel.

Maybe the Commissioners would consider approving only Area 6 and the mining of the Wongawilli seam with narrower panels?

Before concluding, we must say that we consider the greenhouse gas emissions extremely important, but time does not permit us to comment here. There will be other submissions addressing greenhouse gas emissions and climate change.

We strongly oppose the Project as it stands and we urge the Department to consider alternatives.

Thank you for the opportunity to comment.

Yours sincerely,

Mrs Ann B Brown, BSC (Hons)

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