18-09-2019 Submission **Illawarra Coal's Proposed Mine Extension for Dendrobium**

I object to the Illawarra Coal's Proposed Mine Extension for Dendrobium. Project SSD-8194.

Sydney has been fortunate in having water catchments of natural vegetation clear of farmlands and industries unlike Perth and Adelaide. The concern is that mining beneath water catchments with the acknowledged water loss that results is foolish long term planning for an expanding city.

Mining beneath water catchments is a government policy highlighting desperation for profits over long term water security. It is a risk practise opposed by Water NSW.

In 2017 the Planning Department commissioned consultants PSM to prepare an extensive study which found the sensitive upland swamps – which are ecologically endangered and play an important role in moderating surface water flows – were being affected by the Dendrobium mine "at distances of around 250 to 900 metres" from the mining panels.

"Investigations at [one] site **showed new cracks extended through to the ground surface** and the permeability increases post-mining by one to three orders of magnitude" or as much as 1000 times, the report found. [1]

Significantly in the current proposal the proponents South 32 by their own admission state that water loss will peak at peak at **27.6 ML per day** in the year **2035 [x].** Consultants estimate that up to 9,500 Megalitres [xi] (ML – million litres) of surface and ground water will flow into the mines each year[xii].

This is unacceptable even today with the current dam levels and rainfall seemingly decreasing at alarming rates.

The upland swamps are a vital feature of provide pure water year round even through droughts. They require the simple protection of not having their basements disturbed. Long wall mining fractures the basement Hawkesbury River Sandstone. When this occurs the swamp drain their waters and dry out killing the vegetation. This results in the cessation of water release into the catchment and then allows rain events to cause massive erosion through the dead swamp matter. The geomorphology of the swamp is then lost.

Documented evidence confirms the adverse impacts that previous operations at Dendrobium (and other mines in this area) have had on the water catchment. This proposal will result in further damage to the catchment area and loss of irreplaceable water for Australia's largest city currently facing the imposition on increased migration and development.

[1] **Cracks above Dendrobium mine spark fears for water catchment 13-09-2017**

http://www.illawarramercury.com.au/story/4920661/cracks-above-dendrobium-mine-spark-fears-for-water-catchment/

I also include the following three submissions in which I am in complete agreement with and wish that the points made by them be taken as part of my submission as well

POWA Submission

The Dendrobium Mine Extension Project proposes 30 years of longwall mining in the water catchment for Wollongong, Macarthur and Sydney. It will result in damage and loss of water to swamps, water courses and the Avon, Cordeaux and Nepean Reservoirs[i]. Sydney is the only city in the world that allows longwall mining in a publicly owned water catchment. The proposed mining is in the protected "Special Areas" of the water catchment upon which 5 million people rely for drinking water. We are in drought, paying for desalinated water and our dam levels are below 50% and yet the Dendrobium proposal has the highest water loss of any mine operating in the Greater Sydney Water Catchment area.

This project is not in the public interest; it is in the wrong place at the wrong time. It would be reckless and immoral for the Department of Planning to support this expansion.

The proposal will result in significant quantities of greenhouse gas emissions

- The proposal is estimated to create up to 23.7 million tonnes of CO2e in the production stage and 237 million tonnes in the transport and consumption of the coal produced. This brings the total emissions to between 256 million and 260.7 million tonnes of CO2e for the life of the project[ii].
- The current climate emergency means it is no longer morally acceptable for the NSW government to support projects that will severely negatively impact its capacity to meet greenhouse gas reduction targets. The Rocky Hill case supported climate responsibility in its judgement against the Rocky Hill mine, citing the mining SEPP Clause 14 (2): "... the consent authority must consider an assessment of the greenhouse gas emissions (including downstream emissions) of the development."[iii]
- To put the volume of emissions in context, the federal government estimates Australia's greenhouse gas emissions for the year to December 2018 as 538.2 million tonnes[iv]. Thus approval of this mine would lock in emissions over the life of the project the equivalent of 48% of the 2018 annual emissions for all of Australia.
- Annually it would add an average of 8.69 million tonnes per annum (260.7 million tonnes over 30 years) of CO2e to the atmosphere[v]. This is comparable to 1.6% of Australia's current annual emissions.

South 32's brinkmanship should not compromise public interest

- South 32 has said that if this proposal is not approved, it will spell the end for the Port Kembla Steelworks and the Port Kembla Coal Terminal. This is misleading and unhelpful to understanding the public interest in relation to this coal mine.
- There are still 11 years of mining at Dendrobium under current approvals (for area 3A and 3B) and South 32 operates other coal mines in the region. South 32 is only selling one third of Dendrobium's coal to BHP for use in Port Kembla Steelworks. It is exporting the other two thirds.
- Bluescope Steel's Port Kembla steelworks declined to confirm that the steelworks would collapse if the proposed Dendrobium expansion does not go ahead [vi], so we have to question the truth and motivation for this brinkmanship.

30 year's of mining is too long

- South 32 is seeking approval for 30 years of mining at Dendrobium. This is far too long. Increasing population pressure on water resources and impacts of climate change mean that it would be reckless and irresponsible for the New South Wales Department of Planning to support a 30 year approval.

South 32 has not provided alternatives to this aggressive and destructive mining proposal

- The proposal comprises an aggressive plan for twenty one 305 meter wide longwall panels over 30 years. It provides no alternatives to this destructive proposal, a proposal which poses unacceptable risks to the Greater Sydney Water Catchment Special Areas.

Offsets do not compensate for mining-induced destruction of catchment land and ecosystems

- South 32's proposal to offset catchment land and ecological communities that have been irreparably damaged by mining is not in the public interest; truly like-for-like offsets are rare. Furthermore, there is no "equivalent" land that could compensate for damaged and compromised water catchment.

Mining induced subsidence will damage the watercourses and swamps that feed our drinking water reservoirs

- South 32 predicts that it's 305 meter wide long wall panels may result in subsidence of 2m to 2.45m[vii]. Previous mines of similar width have caused 2.5m to 3 m of subsidence, so South 32's prediction may be conservative[viii].
- The mining and associated subsidence will also cause cracking of the land on the surface – including rivers, creeks, smaller watercourses and swamps that feed our drinking water reservoirs – and subsequent water loss to the catchment.

- No level of damage is acceptable to the Special Areas. It would be immoral for the NSW Department of planning to support this level of destruction in Greater Sydney's water catchment.

Billions of litres of water will be lost from Greater Sydney's Water Catchment

- The proposed mining is just 300m from Avon Reservoir and 630m from Cordeaux Reservoir[ix]. The mining will cause loss of water from water courses and swamps that feed the reservoirs.
- Water loss from the catchment due to Dendrobium's mining will increase over the coming years, with surface water loss expected to peak at 27.6 ML per day in the year 2035[x].
- Consultants estimate that up to 9,500 Megalitres[xi] (ML – million litres) of surface and ground water will flow into the mines each year, which is the equivalent to the annual water usage of 123,940 residents of Greater Sydney[xii].

We ask that you reject this application from Illawarra Coal and commence a process to close the mine at Dendrobium permanently.

Thank you for considering this submission.

Regards

**References**

**[i] Dendrobium Mine – Plan for the Future: Coal for Steelmaking, Groundwater Assessment for South32 – Illawarra Coal, NPM Technical Pty Ltd trading as HydroSimulations, 2019, p 101 accessed at:**
**https://www.planningportal.nsw.gov.au/major-projects/project/9696**

**[ii] Environmental Assessment Part 2, Section 6, pp 150 – 151 accessed at:**

**https://www.planningportal.nsw.gov.au/major-projects/project/9696**

**[iii] Gloucester Resources Limited v Minister for Planning [2019] NSWLEC 7, Item 491, accessed at:**
**https://www.caselaw.nsw.gov.au/decision/5c59012ce4b02a5a800be47f#_Toc431203**

**[iv]**

**[v] Environmental Assessment Part 2, Section 6, pp 150 – 151, op cit**

**[vi]**

**[vii] Subsidence Report for Dendrobium Mine, MSEC, 2019, pp 35 – 37, accessed at:**
**https://www.planningportal.nsw.gov.au/major-projects/project/9696**

**[viii] Ibid**

**[ix] Dendrobium Mine – Plan for the Future: Coal for Steelmaking, Groundwater Assessment for South32 – Illawarra Coal, NPM Technical Pty Ltd trading as HydroSimulations, 2019, p 101 accessed at:**
**https://www.planningportal.nsw.gov.au/major-projects/project/9696**

**[x] Surface Water Assessment, HEC, 2019, p ix, accessed at:**
**https://www.planningportal.nsw.gov.au/major-projects/project/9696**

**[xi] ibid, p 111**

**[xii] Based on an average daily water usage for Sydney residents of 210 litres. Source:**
**https://theconversation.com/why-sydney-residents-use-30-more-water-per-day-than-melburnians-117656**

IRRM submission

**Submission on Dendrobium Mine Extension Project, SSD - 8194**

Illawarra Residents for Responsible Mining Incorporated (IRRM) is a community group that was formed in 2010 in response to the proposed expansion of Russell Vale mine. We advocate for responsible mining, mining that puts the health and wellbeing of ordinary people, and of the environment, ahead of corporate mining interests.

Given the location of Dendrobium Areas 5 and 6 in the Special Areas of Greater Sydney Water Catchment, we object to the proposal. The NSW Chief Scientist noted in 2014 that **Sydney is the only known example in the world of longwall mining being permitted in a publicly owned water catchment.** We maintain that the water catchment of the largest city in the driest inhabited continent on earth is no place for mining. This area should be set aside - to the centre of the earth - to protect the catchment, reservoirs and dams. We call for a permanent ban on mining in the Special Areas. We also call for a moratorium on mining in the broader catchment while detailed, transparent, government-directed and purely independent scientific studies are carried out, assessment is undertaken and an adequate regulatory and management framework is put in place for the long term security of Greater Sydney's drinking water.

- We refer to WaterNSW's submission to the Independent Expert Panel for Mining in the Catchment (IEPMC) *"From WaterNSW's viewpoint, the single most important consequence which has been highlighted by the HoCR is that* ***subsidence induced by the Dendrobium Mine longwalls is likely to be resulting in significant diversion of surface water which would otherwise contribute to Greater Sydney's water supply****. The associated degradation of water quality and ecological integrity of Special Area catchments are also of concern."* (WaterNSW submission to the IEP – 1. Initial Task D2018/12692, Pp 11-12)
- Impacts of mining in the water catchment, including cracking and subsidence of land, swamp and water courses, and subsequent dessication and/or diversion and or/loss of ground and surface water are unacceptable. South 32's estimate of 2m to 2.45m of subsidence may be conservative as previous longwalls of similar width have caused 2.5m to 3 m of subsidence.

- The proposal to offset catchment land and ecological communities that have been irreparably damaged by mining is ludicrous. **There is no "equivalent" catchment Special Areas land that could "offset" damaged and compromised water catchment.**
- A number of Threatened Ecological Communities in the Special Areas have been irrevocably damaged by Dendrobium's mining and the proposed expansion will exacerbate this damage.
- **We are facing a global climate emergency** and yet this proposal would emit 260 million tonnes of CO2e (in production, transport and consumption) for the life of the project, impacting the capacity of the NSW government to meet GHG emission targets. SEPP Clause 14 (2), as cited in the Rocky Hill case states: "... the consent authority must consider an assessment of the greenhouse gas emissions (including downstream emissions) of the development." The approval of the project would lock in the equivalent of 6 months of admissions for all of Australia at a time when we should be dramatically reducing emissions *(The Federal government estimates Australia's greenhouse gas emissions for the year to December 2018 as 538.2 million tonnes (http://www.environment.gov.au/climate-change/climate-science-data/greenhouse-gas-measurement/publications/quarterly-update-australias-nggi-dec-2018 )* Bluescope and other Australian steelmakers need to transition to fossil free steel production, as steel manufacturers in other countries are doing, such as SSAB, which plans to eliminate all CO2 emissions by 2045 *(https://www.ssab.com/company/newsroom/media-archive/2019/09/13/10/21/ssab-lkab-and-vattenfall ).*
- South 32 has said that if this proposal is not approved, it will spell the end for the Port Kembla Steelworks and the Port Kembla Coal Terminal. This is misleading and, when questioned by the Illawarra Mercury, Bluescope's Port Kembla steelworks declined to confirm that the steelworks would collapse if the proposed Dendrobium expansion does not go ahead. **There are still 11 years of mining at Dendrobium under current approvals (for area 3A and 3B) and South 32 holds other metallurgical coal leases that are *not in the water catchment* of Australia's largest city.** Furthermore, South 32 is only selling one third of Dendrobium's coal to Bluescope for use in Port Kembla Steelworks. It is exporting the other two thirds of its product. Bluescope is also exporting coke that is excess to its own needs. It is simply untrue to claim that the production of steel at Port Kembla is dependent on this mining expansion and the economic case is flawed. If South 32 and Bluescope were serious about the ongoing viability of PK Steelworks, they would reserve coal for steelmaking, rather than exhaust supply through export.
- Increasing population pressure on water resources and impacts of climate change mean that **it would be reckless and irresponsible for the New South Wales Department of Planning to support a 30-year proposal** which has long-term or permanent negative impacts on Greater Sydney's drinking water supply. South 32 has provided no alternatives to this aggressive and damaging longwall mining expansion.
- The Surface Water Assessment (HEC, 2019) estimates that **up to 9,500 Megalitres (ML – million litres) of surface and ground water will flow into the mines each year**, which is the equivalent to the annual water usage of 123,940 residents of Greater Sydney.
- The commitment to *not undermine named watercourses* is of concern. A river is only as good as its tributaries. The named watercourses will dry if not fed by their (unnamed) tributaries. Longwalls 10 to 14 in Area 3b have damaged WC21, a tributary of Wongawilli Creek, and it no longer holds water. The cumulative impacts on the catchment of the kind of damage caused at WC21 are not understood.
- **It is not in the public interest to allow a mining expansion that will have such significant and lasting impacts on water quantity and quality.** We are currently in a severe drought and the Greater Sydney water storage levels are below 50%. The NSW State Minister for Water has said that "Sydney was experiencing some of the lowest inflows into its dams since

the 1940s", (Guardian, 28:5:2019). The proposed mining, just 300m from Avon Reservoir and 630m from Cordeaux Reservoir, will cause loss of water from water courses and swamps that feed the reservoirs. All reservoirs are of vital importance but Avon is crucial as the water supply for the Illawarra.

In summary, **the risks of this proposal are too great and the consequences too damaging**. The NSW government should be protecting the Special Areas, not sanctioning accumulating degradation for short-term economic gain.

**SUBMISSION FOR THE DENDROBIUM MINE EXTENSION SSD-8194**

**FROM: SUTHERLAND SHIRE ENVIRONMENT CENTRE**

**DATE: 15 September 2019**

**Contact Email:** office@ssec.org.au

**Objection to Illawarra Coal's Proposed Mine Extension for Dendrobium. Project SSD-8194.**

South32 proposes to extend the Dendrobium Mine Project for 30 years using aggressive longwall mining in the Special Area of the Sydney Water catchment. Documented evidence confirms the adverse impacts that previous operations at Dendrobium (and other mines in this area) have had on the water catchment. This proposal will result in further damage to the catchment area and loss of irreplaceable water for Australia's largest city.

***Sutherland Shire Environment Centre (SSEC) calls for the NSW Government to reject South32's Proposed Mine Extension for Dendrobium Mine.***

**Water must have Priority**

Water is an essential resource for the operation of our society. In this case the Special Areas section of the Catchment Area is vital for the provision of safe drinking water for the largest city in Australia. Responsibility for the provision of water, and hence the management of the Sydney Catchment Area rests with WaterNSW.

In order to fulfil its responsibility, WaterNSW claims that:

"In Declared Catchment Areas mining and coal seam gas activities must not result in a reduction in the quantity of surface and groundwater inflows to storages or loss of water from storages or their catchments." *(*WaterNSW, *Principles for Managing Mining and Coal Seam Gas Impacts in Declared Catchment Areas*, p2).

The condition that there must not be any loss of surface, ground or storage water has been breached by existing operations. In its submission to the Independent Expert Panel for Mining in the Catchment (IEPMC), WaterNSW state that:

"It is now clear that subsidence effects over both of the operating mines [Dendrobium & Metropolitan] in the Special Areas are causing impacts on groundwater levels and surface water flows, which is a risk to the quantity of water available in the Special Areas. (WaterNSW, *Submission to The Independent Expert Panel for Mining in the Catchment*, March 2019, p5).

Attachment A, Table A1 of the WaterNSW submission provides an extensive list of observed impacts of mining by Dendrobium and Metropolitan mines in the Metropolitan and Woronora Special Areas that support the conclusion by WaterNSW, that the operation of this mine, 'is a risk to the quantity of water available'. Of special interest is the number of reported cases where the impacts are 'Greater than Predicted'.

The 2018 initial report of the IEPMC states that:

"Supported by its own analysis, the Panel concludes that in the case of Dendrobium Mine:

- • water inflow into all four mining areas (Areas 1, 2, 3A & 3B) exhibits some correlation with rainfall, ranging from weak in Area 3B to strong and rapid for Area 2
- • it is very likely that the high rate of influx is associated with a connected fracture regime that extends upwards to the surface
- • it is plausible that an average of around 3 ML/day of surface water and seepage from reservoirs is currently being diverted into the mine workings" (Independent Expert Panel for Mining in the Catchment, *Initial report on specific mining activities at the Metropolitan and Dendrobium coal mines*, 12 November 2018, p127)

The IEPMC 2018 report focused on water quantity impacts. The issue of water quality will be addressed in the panel's forthcoming 2019 report. However, the panel in reference to the importance of upland swamps, did comment that: 'The interaction of water with swamp soils and vegetation tends to produce baseflow that is high quality, clear and acidic, and with very low salinity.' (p95)

With respect to water quantity impacts, the *2016 Audit of the Sydney Drinking Water Catchment* reported that: '… there was reduced water availability across the Catchment in 2013-16 compared to the previous audit period and the overall total surface water extraction has increased since the previous audit periods.' (p 13). With respect to Dendrobium, the evidence confirms that Dendrobium mine, has in the past and continues in the present, to impact on surface, ground and storage water resources. With respect to water quality across all Sydney catchments, the 2016 Audit found that the majority of sites monitored had '… good levels of compliance with water quality guidelines …' (p 13). However the four listed storage and catchment areas having the poorest water quality, included the 'Upper Nepean River flowing to Lake Nepean' (p 13). This is part of the Special Area where the Dendrobium proposal is located. A link to bushfire impacts in this area are discussed in more detail below.

Dendrobium estimates the loss of water at '… less than 1% of the Avon and Cordeaux catchment yields' and states that they will compensate WaterNSW for the loss of '… surface water diverted from the Sydney drinking water catchment' (South32, *Dendrobium Mine – Plan for the Future: Coal for Steelmaking – Environmental Impact Statement*, July 2019, p ES ii).

However:

- • evidence referred to above confirms that actual impacts have proved to be consistently greater that predicted by Dendrobium;

- • compensation for water used does not replace lost water;
- • in times of severe water shortage, water restrictions are imposed on users and currently some extreme water restrictions are in place for extreme drought impacted areas in NSW;
- • unlike water, coal can easily be sourced from different locations. Australia has ample coal supplies and exports most of its coal production – as does Dendrobium;
- • the water catchment is an integral part of our water supply infrastructure;
- • it operates as an essential input into the production of the most valuable of all resources for society – water.
- • if preserved in its pristine state, the catchment is a renewable and sustainable factor of production that will continue to capture water from rainfall;
- • the only impediment to its operation would come from the lack of rainfall - as is being witnessed during the current severe drought. But the catchment would respond when the drought is broken by the return of rain.
- • coal extracted from the catchment area is but a temporary resource – it is not a renewable product and hence not a sustainable resource.
- • but any damage caused by mining, as documented from the Dendrobium operation, will incur permanent damage to the valuable resource that we have in the form of the Water catchment;
- • no amount of monetary compensation for lost water or offsets for destruction of upland swamps or damage to catchment streams can reverse the damage and thus value to society of their water catchment - "The available data indicates that there has been a decline in the extent and condition of wetlands in some areas of the Catchment and efforts to rehabilitate wetlands that were impacted by longwall mining have been unsuccessful to date."(*2016 Audit of the Sydney Drinking Water Catchment*, (p 14).
- • Catchment damage is permanent and without the catchment the dams cannot be filled!

**Water must be given priority over coal mining**

**Dendrobium's Mining Methods**

"The cumulative, and possibly accelerated, impact of mining on flow regimes in the Catchment is likely linked to the increased prevalence of the current longwall methods of underground mining". (Alluvium Consulting Australia, *2016 Audit of the Sydney Drinking Water Catchment*, 2017, p. 21)

Dendrobium claims that 'We will not mine under water supply reservoirs, named watercourses and key stream features.' (South32, *Dendrobium Mine – Plan for the Future: Coal for Steelmaking – Environmental Impact Statement*, July 2019, p ES ii) and yet their operations continue to damage the Water Catchment.

It should be accepted that:

- • The water catchment is an integrated entity. Surface water is not restricted to narrow stream beds and reservoir surfaces, it is captured from the entire catchment area. That is why such huge areas were set aside for the catchment in the first place.

- • The mining methods employed by Dendrobium are extremely aggressive. Longwall mining was introduced by the Colliery in 2005 and in the past has extended under major tributaries and to the edge of reservoirs.

- • The proposed dimensions of each new longwall are again very large and extend under smaller surface water streams and are in close proximity of major water sources and reservoirs.

- • The IEPMC reported 'vertical surface subsidence typically of 2.5 to 3m' in existing operations using similar dimension longwalls in the proposed expansion areas.

• With respect to current operations in the catchment that have in-principle approval, WaterNSW requested: • 'for Longwalls 17 and 18 at Dendrobium, the mining dimensions should be restricted to prevent increasing the environmental consequences on Wongawilli Creek and Avon Reservoir (e.g. substantial narrowing of longwalls and greater setbacks from Avon Reservoir), particularly given the presence of local geological structures, and

• for Longwalls 303 to 306 at Metropolitan, a substantial setback from Eastern Tributary should be maintained to prevent any further environmental impacts or consequences, particularly given the performance criteria has already been exceeded and shear planes and lineaments are likely to exist' (WaterNSW, *Submission to the Independent Expert Panel for Mining in the Catchment*, March 2019, p6)

- • No concessions have been offered by Dendrobium to modify the aggressive longwall model they propose to continue to operate. And yet there seems to be a possible correlation between the introduction of this operational model and the increase in adverse impacts on the catchment.

- • Recommendations from the *2016 Audit of the Sydney Drinking Water Catchment* to reduce mining risks and impacts in the Special Areas, (including Dendrobium) are listed in Table 6 P 26)

- • Regardless of how many studies, risk evaluations and alleviation measures that might be offered, the inevitable conclusion is that mining and water are incompatible within the catchment area.

**Coal Mining in the Catchment and Water Supply are Incompatible**

**Economic Issues**

Dendrobium claim significant economic benefits for the Illawarra region and State and Federal governments from their current and proposed future operations. (South32, *Dendrobium Mine – Plan for the Future: Coal for Steelmaking – Environmental Impact Statement*, July 2019) However, these claims need to be put into perspective.

**Claim:** "Underground coal mining is currently the only major revenue generating industry that is both compatible with the catchment status of the Project area, and permissible with consent." (p ES-5)

**Comment**: It is FALSE to claim that coal mining is the 'only revenue generating industry' in the catchment. As argued above the catchment is an integral input to the production of water for two of the largest State-owned enterprises in NSW – WaterNSW and Sydney Water. Water supply production is not only one of the largest government operations in the State, it is also an essential service without which the city of Sydney could not operate. The productive capacity / value of the Sydney economy massively exceeds the productive value of all coal mining in the Illawarra, yet alone that of Dendrobium Colliery.

**Claim:** '… compatible with catchment …' (p ES-5)

**Comment:** This claim is FALSE – mining is clearly not compatible with the catchment as it imposes permanent damage on this essential piece of economic and social infrastructure and transfers costs to WaterNSW and Sydney Water.

**Claim:** '… permissible with consent …' (p ES-5)

**Comment:** This claim is TRUE. But why is this industry given consent to operate when no other activity, not even walking, is banned and the damage it imposes on the catchment renders it incompatible?

**Claim:** '… essential supply of metallurgical coal to BlueScope Port Kembla Steelworks …' (p ES-ii)

**Comment:** It is true that Dendrobium is a key supplier of BlueScope. But it is not an 'essential' supplier. There are alternative supplies of coal for BlueScope as Australia has extensive coal mines. There are also other techniques to produce of steel as the new owner of Whyalla Steelworks propose to transition to. However, it is accepted that both supply and production changes could involve costs for BlueScope. Contrast this operation with the size and scope of Sydney Water and its supply of an essential product for economic and social sustainability.

**Claim:** Dendrobium is '… primarily producing metallurgical coal for steelmaking …' (p ES-i)

**Comment:** It is unclear what proportion of Dendrobium coal is high quality and metallurgical. Most Illawarra mines extract a mix of metallurgical and thermal coal and Dendrobium point out that they currently mix their coal from Dendrobium Colliery with coal from other mines and that they export a large proportion of their output.

**Claim:** Employment of 500 operational staff (including 100 contractors) and up to an additional 200 for the construction of the proposed extensions into areas 5 & 6. (p ES-ii)

**Comment:** It is true that Dendrobium is a large employer for a single company. But how significant is Dendrobium in the context of the broader Illawarra economy? The last Census statistics for 2016 for the Illawarra reveal a total of 1,442 employed in mining (assumed to all be coal). But this represents only 1.4% of the total workforce for the region which has a large and highly diversified industry base. Contrast this with employment data from the Newcastle / Hunter region coal fields where a total of 10,508 persons identified mining as their industry of occupation (assumed to be coal) and in the smaller population Hunter regions, mining employment represented 20% of total employment. A further contrast can be made with employment numbers of Sydney Water (2,550) for whom the catchment is a critical infrastructure asset.

**Claim:** $714 million (in real, undiscounted terms) in royalties, taxes and rates for local councils and the NSW and Commonwealth Governments. (p ES-ii)

**Comment:** This sum is not disputed but needs to be viewed in context.

- • It is an estimate that is subject to future economic and other adverse events;
- • It represents only $24 million per year based on the proposed 30-year life of the project;
- • It is spread over 3 levels of government and thus the royalties share for NSW government would be much less;
- • It is less than the return paid to NSW government by WaterNSW ($29m tax plus dividends of $38m in 2017-18) and Sydney Water ($242m in tax plus dividends of $546m in 2017-18); (WaterNSW, Annual Report 2017-18 & Sydney Water Annual Report 2017-18)
- • As a proportion of the total royalties received by NSW government (projected $2 billion for 2019-20 State Budget) this is a rather small amount; (*Budget Statement 2019-20 Budget Paper No. 1)*
- • The 30-year period extends to the time when Australia has agreed to be carbon neutral. The proposed extension is incompatible with Australia's emissions commitment.
- • The cost of mine rehabilitation following closure is a potential liability risk that the NSW government must consider. Bonds provided by mining companies to cover rehabilitation costs are typically inadequate and in the event of company bankruptcy, or premature closure, remediation and compensation costs could flow to the NSW government.
- • In the event of a major adverse event, private companies may be unable to afford remediation and / or compensation costs.
- • What is the potential for alternative sources of water supply for Sydney? – Warragamba dam wall raising? Doubling the size of the Desalination Plant? At what cost and how quickly
- can these investments deliver? What if the current severe drought continues and there is a major breach of a major reservoir in the catchment?

When placed into context this seemingly large economic contribution from Dendrobium mine is relatively small. It is a large company and employer but within the much larger and highly diversified economy of the Illawarra. The two State enterprises, (WaterNSW and Sydney Water) for whom the Sydney Water Catchment Area is a vital infrastructure asset, are considerably larger in terms of employment and financial return to the NSW Treasury. The short-term economic benefits of this project to the State do not justify the risk of longer-term damage to this vital water asset (the catchment).

**Dendrobium's Economic Benefits are Exaggerated**

**Climate Change**

Climate change will increase the risks to water quantity and quality in the catchment and with this project. Hotter and drier weather impacts on vegetation and increases the risk of surface damage via erosion. This impacts both water flows and quality. Climate change brings with it increases in the frequency and severity of bushfires. Damage to surface runoff and quality follow.

"Poor water quality recordings, particularly in the Nepean storage, appears to relate to the extensive bushfires across the sub-catchment in 2013 and heavy rainfall the following year." (*2016 Audit of the Sydney Drinking Water Catchment, (*p 22). Changes to normal water supply sources were undertaken to bypass the impacted water at the time.

The Illawarra region along with much of SE Australia is predicted to experience reduced rainfall along with increased temperatures and prolonged periods of drought. Currently, the region is experiencing these predicted effects. At the same time the population of Sydney is predicted to continue to grow.

Taken together climate change with population growth will impose increased pressure on water supply.

**Climate Change will Adversely Impact on Sydney's Water Supply**

**Planning Approval Experience**

In the past Coal appears to have been given priority over Water in planning decisions for mining approvals.

The risk of adverse impacts to the catchment from mining have been identified in past approval processes and considered acceptable, subject to various conditions imposed on miners. But experience confirms that adverse impacts do occur and that, the observed severity of these impacts, tend to be greater than predicted. In addition, impacts caused by subsidence may not be immediate – they may take years occur and / or appear.

Scientific analysis of mining impacts continues to improve but prediction of adverse impacts remains a difficult task. The planning decision for mining approval in the catchment therefore continues to be a subjective evaluation of extensive reports, on the risk of adverse impacts on the catchment, weighed against, possible economic gains to miners, community and government.

The critical methodology of risk evaluation has evolved. No longer is the probability of an adverse event simply based on either crude subjective classification or statistical measurement of past adverse impacts. Risk needs to include the potential for unknown adverse events and the severity of the impact of the adverse event plus involve sophisticated computer modelling. An example of an

unknown adverse event would have been the prediction that a tornado would sweep across a narrow part of the Kurnell peninsula and render Sydney's Desalination Plant unusable for several years. An example of a low probability but catastrophic impact, would be the recognition of a potential draining of an entire water reservoir through the entrance of an underground mine, such as Russell Vale, that would inundate several suburbs of the Illawarra.

The risk profile for mining has changed due to a combination of climate change + rapid population growth + more aggressive mining techniques + extension of mining closer to critical tributaries and reservoirs + ongoing permanent damage to catchment (swamps, tributaries, surface subsidence).

***This submission argues that:***

- ***• past mining approvals have reflected a bias towards short term economic gains, claimed by mining companies, against long term permanent adverse impacts, on essential social and economic infrastructure assets, claimed by State water enterprises;***

- ***• the parameters and methodologies involved in catchment mining approvals have changed and hence the risks associated with mining under the catchment have increased;***

- ***• current mining operations, including Dendrobium's aggressive longwall operations and Metropolitan's approval to mine directly under Woronora Dam reservoir, continue to inflict unacceptable damage on the catchment;***

***and therefore, calls for:***

- • ***a rejection of the proposed Dendrobium Mine Extension***

**Further, although beyond the terms of reference for this submission, it is considered that there are grounds for:**

- • **curtailment of the current approved longwall operations in the catchment; and**
- • **development of a transition plan for the end of all coal mining from the catchment.**

**Preservation of the Water Catchment is Vital for Sydney's Future**

Thank you for considering this submission.

Dr Gregory Walker

For and on behalf of Sutherland Shire Environment Centre

15 September 2019

Contact: office@ssec.org.au

**References**

Advisian, *WaterNSW – Literature Review of Underground Mining Beneath Catchments and Water Bodies*, December 2016.

Alluvium Consulting Australia, *2016 Audit of the Sydney Drinking Water Catchment*, 2017.

Independent Expert Panel for Mining in the Catchment, *Initial report on specific mining activities at the Metropolitan and Dendrobium coal mines*, 12 November 2018 Page **8** of **8**

NSW Government, *Budget Statement 2019-20 Budget Paper No. 1*, 18 June 2019.

South32, *Dendrobium Mine – Plan for the Future: Coal for Steelmaking – Environmental Impact Statement*, July 2019.

South32, *Dendrobium Mine – Plan for the Future: Coal for Steelmaking – Preliminary Environmental Impact Statement*, December 2016.

Sydney Water, *Annual Report 2017-18*,

WaterNSW, *Submission to the Independent Expert Panel for Mining in the Catchment*, March 2019.

WaterNSW, *Annual Report 2017-18*, 31 October 2018.

WaterNSW, *WaterNSW Principles for Managing Mining and Coal Seam Gas Impacts in Declared Catchment Areas*.

I endorse all the above.

It is difficult make appropriate comment given the publicly funded report from the Independent Expert Panel is unavailable at the critical time at which the Department of Planning requires submissions on the Dendrobium extension.

Yours Faithfully

Ian Hill

18-09-2019