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Nature Conservation Saves for Tomorrow

February 24, 2017

The Hon. Anthony Roberts,
Minister for Planning.

Protection of swamps from longwall mining impacts

1. Introduction

The Blue Mountains Conservation Society (The Society herein) has approximately 800 members and interacts with various environmental organisations including the Colong Foundation and the Lithgow Environment Group. The latter two and the Society collectively comprise the Gardens of Stone Alliance (GoSA), this having especial commitment to the reservation of the Gardens of Stone Stage 2 (GoS2) proposal.

The GoS2 proposal is concerned with the Western Escarpment and the impact of coal mining (both open cut and underground) on the environmental and social values of the region. It is especially concerned about the impacts of the longwall mining being undertaken by Springvale Colliery on Newnes Plateau Shrub Swamps, Hanging Swamps and surface-water flows, as currently being implemented under SSD_5594 Consent Conditions.

Your attention is drawn to a letter (dated 4 January, 2017) to the previous Minister (Minister Stokes) by Mr Keith Muir on behalf of the Colong Foundation. The Society strongly supports the thrust of Mr Muir's letter and is opting to emphasise its position in view of your recent appointment as Minister for Planning.

The Society advises that the gist of what follows was conveyed to Commonwealth Minister Frydenberg[1]. It is the Society's view that the content should trigger his Ministerial powers to vary, revoke or add conditions to an approval under *Environment Protection and Biodiversity Conservation Act, 1999*, s.143 (1)(ba) in relation to the damage to Temperate Highland Peat Swamps on Sandstone, of which the swamps on Newnes Plateau comprise outstanding examples.

Springvale Colliery continues the eastward progression of its longwall panels in the face of additional findings (detailed below) which demand urgent consideration by your office. The urgency is further exacerbated because the Company has lodged a modification to increase the mine's annual rate of production[2]. It would seem that the Company wishes to accelerate production in advance of much-needed changes to its Consent Conditions that would potentially save the State- and nationally-listed swamps from aggressive destruction.

2. The Independent Monitoring Panel's creation and objectives

The Planning Assessment Commission (PAC), in its Second Review Report[3], proposed forming an independent monitoring panel (IMP) in view of substantial disagreement between the Company and its consultants, the

[1] BMCS letter to Minister Frydenberg, February 8 2017, *Damage and likely future damage to nationally listed swamps and EPBC Act Springvale Mine Extension Project, NSW – EPBC 2013/6881*, signed by Madi Mclean.
[2] Springvale MEP SSD_5594, Modification 1.
[3] PAC, *Springvale MEP Second Review Report*, September 2015.

NSW Office of Environment and Heritage, and independent experts, in relation to the extent and causes of damage inflicted on undermined groundwater-dependent Newnes Plateau swamps. The IMP was to advise on ways of establishing a better understanding the issues and potentially avoiding or minimising the impacts of longwall mining on Newnes Plateau swamps. The overall objective was to develop a level of confidence whereby swamps could be protected within the context of adaptive management measures.

3. The IMP's significant finding and advice[4]

The IMP focused on Carne West Swamp which experienced a significant drop in water levels, with consequent drying out and cessation of flows to the downstream waterfall**. Based on Carne West swamp, the IMP believes that the damage relates to reactivation by LW mining of faults and fracture zones denoted by NNE-trending lineaments, and that the far-field impacts of reactivation damage could extend for at least 700 m beyond the mining, this being well beyond the predictions in Springvale's Environmental Impact Statement.** Furthermore, the IMP considered that the fracture-modelling employed by Springvale was too simplistic because it failed to consider far-field effects, the instability could induce damage after the one year stipulated in the Springvale Consent Conditions, and **Springvale's 'unique' coalescence of factors needed to induce a mining-related impact on a swamp was not credible.**

The obvious implications of the IMP's findings, as emphasised in the report (p5), are that SSD-5594 Schedule 3 Conditions 5 and 6 should be modified. In accordance with this, the Society has argued[5] that the buffer zone around swamps should NOT be less than 700 metres, and the period post-mining before bonds and offsets are waived, if there is deemed to be 'negligible impact' or any substantial impact is recovering, should be reconsidered.

Fundamental to any interpretation of the IMP's findings is recognition that the IMP is advisory and that it is limited by its terms of reference. The latter do not allow it to say that mining should be stopped in this region of major lineament-controlled, groundwater-dependent Newnes Plateau swamps. **But realistically, the consequence of the IMP's findings, together with the investigation completed by Centennial and referred to below in the Section dealing with the LW419 Extraction Plan, leaves the Society with no option other than to call for cessation of mining proximal to these magnificent examples of endangered Newnes Plateau swamps.**

4. The LW 419 Extraction Plan (LW419EP)[6]

The Preamble to the LW419EP is a classical investigation of the damage previously induced by LW mining on Newnes Plateau Swamps. It has the benefit of 20/20 hindsight, yet still wishes to progress the destruction; it seems that one must enact a knowingly destructive experiment to prove that it caused a specific piece of damage by. The LW419EP states (p26):

"The hypothesis that far field horizontal ground movements caused by mine subsidence at distances of up to 600m from the mined longwall panel have caused changes to standing water levels in swamps has not yet been tested. Subsidence data gathered to date has not been targeted at measuring far-field horizontal movements with high accuracy. The subsidence monitoring program for the Longwall 419 Extraction Plan will include the measurement of far-field horizontal movements in order to test the hypothesis. In addition, the Management Plans to which groundwater is relevant will include a study area which extends 600m to the east, north and south of Longwall 419."

[4] IMP Report, June 9 2016, *Springvale Mine Extension Project – Extraction Plan for Longwall 419*, signed by Emeritus Professor Jim Galvin.

[5] BMCS letter to Minister Frydenberg, February 8 2017, *Damage and likely future damage to nationally listed swamps and EPBC Act Springvale Mine Extension Project, NSW – EPBC 2013/6881*, signed by Madi Mclean.

[6] LW419 Extraction Plan – Preamble, Part 2, *Evolution of understanding of the interactions of groundwater behaviour and mine subsidence at Springvale Mine, Centennial Coal*, 26 pp.

The preceding farcical quotation exists despite:

- in relation to Carne West Swamp, long-term changes to standing water resulted from (L419EP, p25) *"…mine subsidence interactions with the lineament…at a distance of 1.6 km along the strike of the lineament"*;
- for Sunnyside East swamp, temporary (<3 months duration) changes to the standing water level resulted from mine-subsidence interacting with the lineament-defined fault (L419EP pp11-12) *"… at a distance of 2.25km along the strike of the lineament…"*, whilst longer term changes occurred *"…1.5km along the strike of the lineament…"*;
- for East Wolgan Swamp, Kangaroo Creek Swamp and Narrow Swamp, back analysis indicating that (L419EP, p25) *"…directly undermining Type 1 & 2 lineaments may have been the cause of impacts to standing water levels…"*;
- the existence of NNW- and NNE-trending lineament-defined fault/fracture zones being known for over 30 years (L419EP, p25) and reactivation of fault-systems being a long-established concept in structural geology and geotechnics; and,
- environmental organizations claiming that LW mining was impacting the Newnes Plateau swamps for at least 15 years, and particularly so once the Subsidence Management Plan was introduced in 2004.

Yet the Company has consistently rejected such claims until confronted by the blatantly obvious in relation to East Wolgan Swamp (initially ascribed to a unique set of circumstances!). Then, following later investigations of Kangaroo Creek Swamp and East Wolgan Swamp, whilst still invoking 'co-incident causal factors', the Company decided that (L419EP, p2) *"…mine design was a primary causative factor…"* because the *"…ratio of longwall mining void width to depth of cover over mine workings was identified to be in the critical subsidence behaviour range."*

The above discovery resulted in changes to the LW geometry of the existing mining plan (commencing with LW416) and was instrumental in the mine design being (L419EP, p2) *"…approved in September 2015 under SSD 5594 and in October 2015 under EPBC 2013/6881."*

As in now apparent, the new mine design failed to solve the problem. LWs416 and 417 adversely affected Sunnyside East and Carne West Swamps, and LW418 will(has) exacerbate(d) the damage. Although the cause of the impacts is debated (L419EP, pp2-3), it is clear that the standing water levels were impacted (see dot-points 1 and 2 above) and the locus of impacts was along the lineament-defined fault/fracture zones.

5. Biodiversity offsets – a solution or a travesty?

The Biodiversity Offsets Policy (BOP)[7] has been joined by a tailor-made 'upland swamps' addendum (SOP)[8].

The hierarchy of avoid-minimise-offset applies. SOP p3 states that the FBA [Framework for Biodiversity Assessment] refers to impacts which may be sufficiently severe to prevent a project going ahead. It terms these *'impacts that require further consideration'.* Should such an impact be identified, *"…the prima facie position is that a project should not proceed…".* However, it is recognized that the consent authority may allow the project to proceed if other factors, such as social and/or economic benefits, are more heavily weighted.

Destruction of Commonwealth- and State-listed endangered Newnes Plateau swamps, with their ecosystem including rare and threatened species, should most certainly require much 'further consideration'. **The Society contends that the level of impact over the past 15 years (or more) has been severe and has entered the stage where it is destroying some of the principal examples of the ecosystem; it must be stopped or, failing that, intensely constrained.** Furthermore, although such things as economic priorities and government's

[7] http://www.environment.nsw.gov.au/resources/biodiversity/140672biopolicy.pdf
[8] http://www.environment.nsw.gov.au/publications/biodiverse/swamp-addendum-biodiversity-offsets-policy-160504.htm

predilection may have strongly influenced the final assessment of SSD_5594, **the IMP has now demonstrated the inadequacy of the Company's past assurances and why the potential for impacts is increasing[9].**

The Consent Conditions for SSD_5594 (and the Commonwealth's approval, which was largely guided by the State's assessment, despite strong contrary advice by the IESC) were developed without the benefit of the information regarding 'far-field' impacts. Indeed, Springvale contended that the LW geometry introduced with LW416 would resolve previous problems (see Section 4, last 3 paragraphs).

The Society considers that the consent authorities should re-examine the role of the Company in: denying damage in the face of contrary evidence; minimising the damage by focusing on the peat slumping rather than the total loss of water to a depth of 60-80 m (East Wolgan Swamp); emphasising the 'uniqueness' of the event rather than appreciating the broader extent of the problem; conveying the notion that the problem is resolved by changing the LW geometry (but only to the extent that it remains economically viable); and now advocating ongoing mining as a basis for providing additional information about the existing disasters.

Unfortunately, the consent authorities (State and Commonwealth) seemingly lack the stomach to confront the Company's obduracy, which is typically based on advice from well-paid consultants. Only when confronted by the IMP's findings, has the Company grudgingly recognized its past damage to swamps; and even now, as indicated in Section 4, the Company is resisting the concept and existence of 'far-field' processes and damage, despite its own Preamble in the LW419EP. Unsurprisingly, the Company has been successful in deferring the obvious. The LW419 Extraction Plan has been approved, so in the interests of 'research' (rather than reality), Carne West Swamp will be totally trashed, and the juggernaut moves on with LWs 420-422 and the Gang Gang Swamps in its sights. **The current logic would seem to require total destruction of the principal swamps in order to substantiate the blatantly obvious!**

It would seem that the whole process of using an IMP and carefully assessing the threat of LW mining to these magnificent ecosystems is nothing more than bureaucratic window dressing. After all, as indicated above, there is no will in government to stop coal mining. In fact, the dominant consideration would seem to involve extracting as much coal as possible before it becomes a stranded asset, and creating an offsets system which facilitates destructive exploitation. Even now, the DPE and the IMP are focusing on the extraction plans for LW420-422, and how best to finesse the unconscionable destruction of the remaining large swamps.

The DPE recently stated that, in relation to LW420-422, "…the Department will seek further expert advice from the Independent Monitoring Panel and relevant agencies on potential swamp impacts, before a decision on the Extraction Plan is made."[10] This might seem encouraging, but the same process preceded approval of LW419 which carries a $2 million bond[11] to cover adverse impacts to the Gang Gang Swamps. **Unless the IMP is prepared to differentiate between the established empirical relationship between LW mining, lineament-defined fault/fracture zones and groundwater losses, and the academic need to prove a far-field horizontal displacement relationship, the death of all the principal swamps is assured.**

The Society contends that: the risk is clearly being carried by irreplaceable environmental assets; the Company is posting a $2 million bond in order to proceed with maximising its profit whilst destroying swamp-based ecosystems; this is being facilitated by a purposely-devised travesty of an addendum[12] for which the responsible parties should be ashamed.

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[9] Due to recognition of 'far-field' events, the LWs moving into the zone of the Deanes Ck Lineament and some of the principal examples of Newnes Plateau swamps (see L419EP Figs 3 and 5), and the angle of divergence between the LWs and lineament-trends increasing by about 10^{o} (see L419EP Fig 2).

[10] Letter from Marcus Rey, Deputy Director, Planning Services, DPE, to Keith Muir of the Colong Foundation, Reference 17/01345, dated February 13, 2017.

[11]The Society notes that: SOP pp 6-7 suggests that if a like-for-like offset can't be secured, then 'supplementary measures' may be considered, and that before approving an extraction plan, securing 'supplementary measures' can be demonstrated by *inter alia* provision of an adequate security bond; BOP p28 (Implementing supplementary measures) places all this in the hands of the DPE with advice from OEH.

[12] http://www.environment.nsw.gov.au/publications/biodiverse/swamp-addendum-biodiversity-offsets-policy-160504.htm

Concluding remarks

- **The Society insists that sufficient evidence exists for there to be no doubt that interaction between the lineament-defined fault/fracture zones and LW mining is progressively destroying the nationally endangered Newnes Plateau swamps.**
- **The Company continues its obfuscation by effectively conceding the role of subsidence-related impacts whilst suggesting that 'far-field' impacts are a hypothesis which needs more testing (L419EP, p26); the IMP is constrained by its terms of reference to advocate more testing and monitoring to irrevocably convert a hypothesis to a theory, rather than accept empirical evidence.**
- **Such an approach is specious and arguably fatuous. Damage has been established along lineament-defined fault/fracture zones by subsidence and upsidence processes (dominantly vertical movements) above or close to LWs, and by strike-slip processes (dominantly 'far-field' horizontal movements) a significant distance along the fault zone from the causative LW. Because fault zones tend to be braided and discrete faults have orientational irregularities, the movement vectors and amounts of dilation will vary locally. Research to resolve the movement vectors at different sites along a reactivated fault zone may be academically satisfying and may suit the company's preference for ongoing mining; it will not save the swamps.**
- **'Far-field' damage caused by a specific LW is likely to be exacerbated by subsequent LWs; potentially, it is a cumulatively destructive progression!**
- **Enough is enough! The Society believes that the only way to stop damage to more of the Newnes Plateau Swamps is to create a buffer zone around swamps of at least 700 m and, irrespective of this, stop LW mining panels well before they cross substantial lineament-defined fault/fracture zones.**
- **More specifically, Gang Gang swamp and waterfall must be saved; Springvale must not go discontinue LW419, and any extraction plans for LWs420-422 must be foregone; all remaining LWs must be subject to the preceding dot point.**
- **The Society hopes that you and your department will re-evaluate what is being prosecuted under the BOP and SOP in relation to a State- and Commonwealth-listed ecosystem, and urgently act to save the remaining undamaged examples.**

Yours sincerely,

Dr Brian Marshall,
For the Management Committee