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Nature Conservation Saves for Tomorrow

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Western Coal Services Project State Significant Development 5579 Modification 1

Overarching statements

- The Blue Mountains Conservation Society believes that the above Modification 1, together with the Springvale Water Transfer and Treatment Project SSD 16_7592 (SWTTP) is able to contribute to the water quality and environmental health of the upper Coxs River catchment.
- As with the SWTTP, the current Modification 1 is a work in progress which, from an environmental viewpoint, has substantial room for improvement.
- Despite statements to the contrary, the release of toxic discharges from LDP006 would exacerbate the pre-existing damage to Wangcol Ck, limit any likelihood of environmental recovery, and potentially set a precedent for Pine Dale's Yarraboldy Extension mine (should it reopen) to be less than rigorous with its operations.
- The Blue Mountains Conservation Society is unable to support Modification 1 until: (a) modelling of the water-quantity and water-quality of proposed discharges to Wangcol Ck is further refined; and (b) the proposed discharges are sent to the treatment plant (see the SWTTP) should this prove necessary.

1. Introduction

The Society has approximately 800 members and interacts with various environmental organisations including the Colong Foundation and the Lithgow Environment Group. The latter two and the Blue Mountains Conservation 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 also has extreme concerns about the integrity of the Upper Coxs River in view of the discharges into the Upper Coxs and its tributaries of mine-water, and highly polluted water from the Western Coal Services (WCS) area of operations.

In view of the above, the Blue Mountains Conservation Society (referred to as the Society or BMCS in the present document) has attached, as **Appendix A**, the '**Summary and conclusions**' from the Society's submission to Planning and Environment (DPE) in relation to the SWTTP. Conclusions C10-C12 are particularly important in that they highlight the need for discharges from the Western Coal Services area to Wangcol Creek via LDP006 to undergo additional treatment. Such treatment could and should be effected by sending the LDP006 discharges to the Mt Piper Power Station (MPPS) Reverse Osmosis (RO) plant either directly, or indirectly via Thompsons Ck Reservoir.

The Society contends that any proposed clean-up of the Upper Coxs River will remain a mockery as long as the untreated discharges from LDP006 and several other LDPs are approved by the DPE and seemingly accepted by the Environmental Protection Authority (EPA).

2. Aim of WCS Modification 1 and the principal conclusions

Mod 1 aims to address operational interactions with the proposed SWTTP. It focuses on the residuals stream, as proposed in the SWTTP, and its emplacement within the existing reject emplacement area (REA) at the Springvale Coal Services Site (SCSS), and also deals with changes to the decommissioning and rehabilitation strategy approved in SSD 5579. The WCS project is not approved to receive residuals material from off-site locations for emplacement within its existing REA.

The above largely assumes that the SWTTP will be approved, essentially unamended. The Society's submission regarding the SWTTP highlights the need for modifications to ensure better environmental outcomes. **One substantial change involving treatment of discharges from LDP006 has already been alluded to in Section 1. This omission will remain the elephant in the room until it is properly addressed.**

Despite the elephant in the room, Mod 1 concludes (Exec summary, vol 1, pviii):

“There are predicted minor adverse environmental impacts along Wangcol Creek due to the proposed residuals material transfer. There is a minor increase in salt loads at the local level due to the proposed modification, however there will be a reduction in salt loads in the Coxs River catchment due to the cessation of mine water discharges from Springvale Mine. The environmental consequences on receiving waters is considered negligible and will only be realised upstream of the confluence of the Coxs River and Sawyers Swamp Creek. The impacts of the discharges (flow, EC) have limited influence at Lake Wallace, and further downstream to Lake Burragorang.”

Furthermore, Mod 1 states (Exec summary, vol 1, px):

“The modification is a minor alteration of the approved Western Coal Services Project and the Project as modified can be considered to be substantially the same development. The adverse environmental impacts of the proposed modification elements are minor and conservative. The impacts are predicted at local level in Wangcol Creek but are not predicted to result in harm to the environment. The impacts are mitigated downstream of discharges at Lake Wallace and further downstream in the Coxs River catchment.”

Taking the above quotations at face-value, it is absolutely clear that **adverse environmental impacts will be experienced along Wangcol Ck.** [These are additional to those emphasised in relation to the SWTTP and covered in **Appendix A.**]

It is additionally apparent (Exec summary, vol 1, ppv-vi) that **the adverse environmental impacts** are:

- increased volumes of water (~4-5%)¹ in Wangcol Ck down to its confluence with the Coxs R; and,
- increased salt-loads and EC levels (~16%)² in Wangcol Ck through to its confluence with the Coxs R.

3. BMCS's Assessment

Mod 1 considers that the 'face-value' changes are minor (negligible) because the down-river impacts at Lakes Wallace and Burragorang are insignificant. However, this approach is environmentally unsound and is predicated upon the notions that:

- provided there is sufficient down-river dilution, upstream pollution is immaterial – yet the up-river tract is still trashed from an environmental viewpoint – the high salinity and contained metallic ions will still have killed macroinvertebrate populations and adversely affected other species;

¹ This reflects the difference between future conditions and proposed conditions as defined in the Exec summary, vol1, piv.

² This reflects the difference between future conditions and proposed conditions as defined in the Exec summary, vol1, piv.

- it is unreasonable to aim for water quality consistent with that in pristine headwaters up-stream from mining-induced impacts – this ‘accommodating’ approach is embedded in many environmental protection licences and remains a function of the consent conditions relating to the Springvale Extension³;
- it is unreasonable to place a high \$-value on the environment and thereby require mining companies to include comprehensive treatment of their polluted discharges, lest this detracts from the mine’s viability; and,
- if a watercourse is partially trashed, the discharge of polluted waters which slightly ameliorate the problem is deemed neutral or beneficial rather than being viewed as an unacceptable cumulative impact.

Much of the above is pertinent to the WCS Mod 1, despite the glowing statements and conclusions in Mod 1, vol 1, Sections 9.5.3, 9.5.4 and 9.6, pp100-102.

In simple terms, WCS is already sending highly polluted discharges to Wangcol Ck via LDP006 – it is the elephant in the SWTTP room. WCS Mod 1 is now trying to dress-up the need to take the residuals stream from the Mt Piper treatment plant (in accordance with the SWTTP) as an environmentally sound practice which conforms with the principles of ecologically sustainable development (Mod 1, vol 1, Section 9.5) and assists the SWTTP to achieve “...environmental benefits by improving the water quality in Coxs River catchment.”⁴ Unfortunately, the Wangcol Ck portion of the Coxs R catchment will continue to be polluted by discharges from LDP006 as clearly indicated (Mod 1, vol 1, Section 7.7, p93):

“The transfer of residuals stream from the Springvale WTP to the SCSS for emplacement within the existing REA results in increases in volume (up to 5%) and salt discharges (up to 16% increase in EC)” through LDP006 to Wangcol Creek.”

“The increased frequency of discharges has the effect of increasing the frequency of exposure of aquatic species to potential toxicants (boron, iron, manganese, nickel and zinc), albeit at decreased concentrations. This is not predicted to impact on the existing instream habitat and macroinvertebrate diversity of Wangcol Creek as the creek in the vicinity of LDP006 has the most degraded habitat and the lowest level of macroinvertebrate diversity of the current four Wangcol Creek aquatic ecology monitoring sites.”

Although not stated, this is a classic case of ‘some other dude did it’! The old Original Pine Dale open-cut encompassed Wangcol Ck such that the whole tract was intensely disturbed, inadequately rehabilitated, and a substantial source of pollution. More recently, the Yarraboldy Extension of the Pine Dale open-cut mine (currently owned by Energy Australia and under ‘care and maintenance’) interfered with the groundwater regime and remains an ongoing potential source of contamination. Now, WCS is actively polluting Wangcol Ck through discharges from LDP006; and finally, under the Mod 1 proposal (if approved) WCS will continue to pollute Wangcol Ck, justifying its action on the pre-existing degree of degradation.

This above is unacceptable. As Centennial and Energy Australia stand to benefit from the SWTTP, and both companies are involved with the ongoing degradation of Wangcol Ck, it is time to stop the blame-game and acknowledge the role of cumulative impacts. Both companies should be placed on notice to the extent that the discharges associated with Mod 1 must be sent to the RO (reverse osmosis) treatment plant; and any development of the Pine Dale mine must either be a hydrologically closed system, or any released water should have a quality at least matching the up-stream quality of Wangcol Ck.

4. Specific concerns

4.1 Clean and dirty water – requirements, implications and desirable outcomes

The interaction between groundwater and surface-water hydrologic regimes of the region reflects hydraulic connectivity between historical bord and pillar workings, old open-cut operations, numerous surface-water

³ SSD_5594, 2015, Schedule 4, items 12 and 13, as discussed in the Society’s submission to the Springvale Water Transfer and Treatment Project SSD 16_7592.

⁴ Mod 1, vol 1, Section 9.5.1, p100.

management ponds, REAs (reject emplacement areas), AEs (ash emplacement areas), and remnants of natural watercourses (e.g., Mod 1, vol 2, Appendix DA⁵, Figs. 2-1 to and 2-4, pp6-9; Appendix DB⁶, Fig 2-2, p11). The region is a porous mess, not least because many of the surface water features are unsealed. There is clear acceptance of this connectivity (Mod 1, vol 2, Appendix DB, Section 2.3, pp9-10 and Fig. 4-2 p23).

Despite the foregoing, the intention is to recognize clean and dirty water divisions (Mod 1, vol 2, Appendix D, Fig 5-2, p38). This is justified as follows (Mod 1, vol 2, Appendix D, Section 5.1.1, p36):

*“SCSS is currently undertaking design and construction works relating to the separation and optimisation of clean and dirty surface water flow paths within the Lamberts Gully catchment. **These works are expected to reduce the clean water load from LDP006 and improve the quality of water discharged from the site in both daily and rainfall discharge events.** Additionally, the volume of clean water that infiltrates into the groundwater and subsequently reports to LDP006 is expected to reduce, in part due to improved flow efficiency through the site and the planned pumping of water from SHG1 to the Main Sediment Pond. The primary objectives of these works are to promote the capture and settlement of runoff from dirty catchments and to bypass cleaner water appropriately through site. As part of these works ongoing stabilisation of some catchments will be undertaken to reduce the risk of sediment laden water contributing to the clean water system.”*

This may be necessary to meet operational commitments, but because of the vertical connectivity and down-dip connectivity throughout the region, such separation into ‘clean’ and ‘dirty’ systems has little environmental merit. Both are saline and contaminated with metallic and non-metallic ions (Mod 1, vol 2, Appendix D, Section 5.3.2, p53).

The Society accepts that ‘clean’ means less polluted than ‘dirty’. For example, Table 5-4 (Mod 1, vol 2, Appendix D, p54) shows that the pH differs little, whereas the EC for ‘clean’ water is 1143 $\mu\text{S}/\text{cm}$ by the time it reaches the Retention Pond while the ‘dirty’ water at Cooks Dam it is 3273 $\mu\text{S}/\text{cm}$. This difference in EC would be important were it not for the facts that both systems are too saline compared with values on Wangcol Ck up-stream from mining (see Mod 1, vol 2, Appendix D, Table 5-3, p50), and the two systems are collectively discharged into Wangcol Ck via LDP006 (Mod 1, vol 2, Appendix DA, Fig. 2.3, p8).

The Society strongly believes that, in the context of improving the water quality in Wangcol Ck and thereby lessening its high-salinity contribution to the Coxs R, all the ‘clean’ and ‘dirty’ water should be collected and, together with any other discharges envisaged under the SWTTP, be sent to the proposed water treatment system. Discharging through LDP006 to Wangcol Ck will not have acceptable environmental outcomes.

4.2 Modelling deficiencies

The Society recognizes that modelling necessarily involves assumptions. However, this does not justify disregarding interactions between surface water and groundwater due to enhanced hydraulic connectivity within this highly-disturbed region of historic mine workings (underground and open-cut), reject and ash emplacement areas, a municipal waste tip, and water-management infrastructure. Yes, the interaction is fully recognized, but the implications of this for enhancing salinities and increasing the content of metallic and non-metallic ions within surface-water and groundwater flows to Wangcol Ck have largely been ignored. Such disregard risks underestimating the environmental toxicity of the polluted waters.

Mod 1, vol 2, Appendix DB, Section 2.3, Fig. 4-2 p23 conveys part of the concern. However, a modified Figure available from the Colong Foundation⁷ includes ash and municipal waste emplacements and more completely conveys the likelihood of the degree of salinity and other toxic components being underestimated.

⁵ Volume 2 comprises four Appendices (A-D) – Appendix D has three Appendices (A-C) – this is confusing! **For the purposes of this submission, the appendices to Appendix D are identified as DA-DC.**

⁶ See footnote 5.

⁷ Muir, K, 2016, Submission regarding Western Coal Services SSD 5579 Mod 1, the Colong Foundation for Wilderness (preliminary draft).

4.3 Other aspects

Although the documents supporting Mod 1 have partly looked at improving the outcomes from an environmental viewpoint, the principal approach has been one of accommodating the needs of the SWTTP and meeting regulatory suggestions regarding separation of 'clean' and 'dirty' water systems within the WCS site.

Beyond that, the apparent aim has been to improve the down-stream water quality of the Coxs River, mainly achieved by the SWTTP directing discharges from LDP009 to the Mt Piper treatment plant. But little (or nothing) has been done to ameliorate the damage to Wangcol Ck, that largely reflects impacts from past and current (care and maintenance) mining operations. Cumulative impacts are therefore someone else's problem, rather than inherited factors which need to be addressed within the context of the most recent proposal. This approach is not in keeping with the claims about economically sustainable development and the following conclusion (see Mod 1, vol 1, Sections 9.5-9.6, pp99-102).



**Dr Brian Marshall,
For the Management Committee**

Appendix A



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**Springvale Water Transfer and Treatment
Project SSD 16_7592 [SWTTP]**

1. Summary and conclusions

1.1 Overarching comments

- The Blue Mountains Conservation Society (herein BMCS or the Society) recognises the benefits of transferring mine-water to the Mount Piper Power Station (MPPS); indeed, along with the Colong Foundation and others within the Gardens of Stone Alliance, BMCS has strongly advocated this action.
- The SWTTP states (Executive Summary piii) that the key objectives are to (i) “*improve environmental outcomes for the receiving waters of the Upper Coxs River catchment*”, and (ii) “*meet the water quality performance measures for mine-water discharges required under the Springvale Mine Extension Project*”. Objective (i) is admirable, but objective (ii) entrenches performance measures that were a compromise devised⁸ to accommodate discharges through LDP009 and various other discharge points; the SWTTP renders the compromise redundant.
- The SWTTP emphasises compliance with SSD_5594 Schedule 4 Condition 12 in relation to mine-water discharges (Executive Summary piii), but seemingly disregards Condition 13 (Upper Coxs River Action & Monitoring Plan)⁹ items (c) and (e).
- **The Society strongly opposes parts of SSD 16_7592 because they fail to more comprehensively use the transfer option and insufficiently avoid adverse environmental consequences; these deficiencies can and must be rectified.**

1.2 List of conclusions

- C1. *The performance measures relating to mine-water discharges in SSD_5594 Schedule 4 Condition 12 are rendered inapplicable by Option 2 in the EIS; any consent related to the SWTTP must include new performance measures and have an appropriately amended Upper Coxs River Action & Monitoring Plan; and, any SWTTP consent must contain penalties for failing to meet the planning, construction and commissioning deadlines determined for Option 2.*
- C2. *No significant argument has been presented in favour of the northern easement and that, from an environmental viewpoint, the southern easement must be followed.*
- C3. *Treatment to a salinity of 500 µS/cm EC inadequately meets the long-term target of 350 µS/cm EC for the Coxs River catchment and definitely does not restore the pre-mining water quality of ~30 µS/cm EC.*
- C4. *SWTTP (SSD 16_7592) inadequately addresses the consequences of: shutting down (temporarily or otherwise) the MPPS; transferring excess treated water to Wangcol Ck; and failing to fully comply with SSD_5594 Schedule 4 Condition 13 items (c) and (e), and MPPS's Water Access Licence #27428 Condition 4.*
- C5. *Irrespective of which option, or variant of an option, in EIS Table 4.1 p4-4 is ultimately chosen, the existing southern easement should be used.*
- C6. *As advocated in the EIS, Option 2 is the best of the five options proposed, but it is deficient in the context of conclusions C1, C3 and C4, and must be modified.*
- C7. *If the treatment plant shuts down, the raw mine-water should be diverted to Thompsons Ck Reservoir for dilution and future availability - this issue must be addressed and a solution identified in any approval of a modified SSD 16_7592.*
- C8. *Excess treated water should be transferred to the Thompsons Ck Reservoir, rather than sending it, via the proposed new discharge point, to the already polluted Wangcol Ck – this should be addressed and an outcome justified in any approval of a modified SSD 16_7592.*
- C9. *The treatment plant could continue to operate after the permanent shut down of MPPS. The treated water could discharge principally to Wangcol Ck and the treatment should achieve a salinity of less than 350*

⁸ Through discussions between Centennial, the EPA, and perhaps other unknown parties.

⁹ The Secretary may have deferred the Plan's submission date (due 30/06/2016), but major concerns exist about the aquatic system in relation to the long-term objective for salinity and the concentration-limits for a range of toxic metallic and non-metallic ions; the EIS inadequately addresses this.

μS/cm EC, but as close to 30 μS/cm EC as is practicable – these aspects should be considered in any approval of a modified SSD 16_7592.

- C10. With due reference to conclusions C6, C8 and C9, the raw mine-water supply could and should be boosted by supply from other LDPs and Clarence Colliery, and treated water in excess of MPPS's needs should be sent to Thompsons Ck Reservoir, and/or the treatment plant's salinity target should be lowered.*
- C11. The proposed closure of LDP009 and the transfer of the raw mine-water to a treatment plant at MPPS, together with returning excess treated water to the Wangcol Ck catchment, would yield positive outcomes. Nevertheless, there are simple modifications which could and should be made; they would increase the effectiveness of the treatment plant and have better environmental outcomes.*
- C12. Wangcol Ck contributed salinity and other contaminants to the Coxs R pre-LDP006. The toxic discharges from LDP006 have greatly magnified the problem, and discharging treated water (~500 μS/cm EC) to Wangcol Ck from the proposed new discharge point will further detract from water-quality of the Coxs R. To the extent that an important aim of the whole exercise is to greatly improve the water-quality, there has been a lowering of the salinity but this has in many cases been accompanied by increased water volumes and larger salt loads. There is room for improvement.*