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Preserving the Balance of Nature

To: Gabriel Wardenburg

NSW Department of Planning

17 February 2026

Dear Gabriel

RE: CLARENCE COLLIERY MODIFICATION 11 TIMELINE EXTENSION (DA504-00-Mod-11)

Lithgow Environment Group (LEG) is a not-for-profit organisation established in 2005 with the principal aims of conservation, protection and enhancement of local natural environments. LEG has taken an evidence-based approach by conducting regular Water Quality, Upland Swamp, Threatened Species, and Mine Subsidence Monitoring. LEG is also a member of the Gardens of Stone Alliance which works for the full and better protection of the Gardens of Stone region.

Our members **object** to Modification 11, believe that a Modification to extend DA504-00 by 5 years is totally inappropriate given the mines history, and that a full EIS is required to properly address the many recurring issues.

SUMMARY

Clarence Colliery MOD 11 will lock-in for a further 5 years a range of recurring problems that have never been adequately addressed by the current approvals. It is simply described as an extension of mining duration only, and implies that everything else is fine, business-as-usual for 5 more years.

However if everything was fine, why then since the 2005 approval of DA504-00 has Clarence Colliery –

- Recorded 166 Licence non-compliances on EPL726 since 2005, 87% of those since 2018;
- Been issued with 3 Clean-up Notices, 6 Pollution Studies & Reduction Programs, 1 Prevention Notice, and 1 Penalty Notice since 2005;
- Entered into an Enforceable Undertaking of $1,217,336.50 on 9 August 2024;
- Been prosecuted $1,050,000 plus $106,010 in investigation and legal costs in 2017 - the single largest fine following prosecution by the EPA;
- Is currently facing proceedings in the Land and Environment Court (2024/471797-801);
- Exceeded the maximum approved vertical subsidence limit of 100mm many times, including a Condition Amber on the 600 Area TARP, Condition Red on the 900 Area TARP, and from the most recent End of Year Subsidence Management Report 2024 "*Maximum subsidence from the 900D line is now recorded to be 193mm (at peg D20)*", almost double the approval limit;
- Continued to operate without a current EPBC Referral determination because the 2024 Referral (2024/09856) has not been determined yet, and the 2012 (2012/6446) and 2009 (2009/4882) referrals preceded the 'water trigger' and did not consider the full range of Threatened Species occurring within ML 1583 that have been listed since 2009 and 2012.

- Continues to claim "*no known evidence of mining-related impacts*" above Clarence Colliery despite a 2024 LEG survey identifying 27.8 Ha of damaged swamps/hanging swamps, 10.5 km of desiccated creeklines, 3 cliff falls, 2 subsidence cracks, and 3 examples of water pollution.

Furthermore the MOD11 documentation fails to identify some seriously major changes and mining impacts that have occurred since DA504-00 was approved in 2005, not the least of those being -

1. The EPBC Act listed *Temperate Highland Peat Swamps on Sandstone* (THPSS) Endangered Ecological Community was Gazetted in 2005, the same year DA 504-00 was approved. It is highly unlikely that the significance of THPSS in Clarence Colliery ML 1583 and groundwater-dependent Threatened Species they was even known at that time, let alone identified or considered in approving DA504-00 in 2005.

2. Fifteen (15) THPSS and numerous Hanging Swamps have been lost to Centennial mining operations on Newnes Plateau since 2005 when DA504-00 was approved. In 2011 Centennial entered a $1,450,000 Enforceable Undertaking under s486DA of the EPBC Act after significant impacts to Temperate Highland Peat Swamps on Sandstone (THPSS) in Narrow Swamp, East Wolgan Swamp, and Junction Swamp. Those swamps have not recovered. The remaining THPSS in Clarence Colliery Mining Lease (ML) 1583 are now therefore of far greater significance than in 2005, and must be afforded a much higher level of protection;

3. The EPBC Act was amended in June 2013, after the 2005 approval of DA504-00, to include water resources as a matter of National Environmental Significance (MNES) in relation to coal seam gas and large coal mining developments (known as the 'water trigger'). Any action that 'has, will have or is likely to have a significant impact on a matter of national environmental significance' is deemed a 'controlled action' under the EPBC Act and may not be undertaken without prior approval from the Commonwealth Environment Minister. The 'water trigger' has never been considered in any of the currently determined Clarence Colliery EPBC referrals:
   - The 2012 Referral (2012/6446) preceded the 'water trigger'
   - The 2009 Referral (2009/4882) preceded the 'water trigger'
   - The 2024 Referral (2024/09856) is still active under the EPBC Act, and is yet to be approved.

4. Since the 2005 approval of DA 504-00, a 2012 report by Benson & Baird identified that peat depths in the eastern Newnes Plateau swamps including all Clarence swamps were deeper (0.6 - 1.3m) than the now largely destroyed western swamps (0.3 - 0.6m), are less rainwater-dependent and more groundwater dependent, have permanently high water tables maintained by groundwater, and are associated with a greater occurrence of threatened groundwater-dependent biota restricted to those sites. This association makes them highly susceptible to groundwater drawdown and loss. (*Cunninghamia (2012) 12(4): 267–307 Vegetation, fauna and groundwater interrelations in low nutrient temperate montane peat swamps in the upper Blue Mountains, New South Wales. Doug Benson and Ian R. C. Baird*);

5. Since the 2005 approval of DA 504-00, fires have twice burnt all THPSS in Clarence Colliery ML 1583, in 2013 and again in 2019. A 2022 report by Krogh et al found that, to date, 15 THPSS on Newnes Plateau have been irreversibly impacted by longwall mining (DPIE BCS 2020), and that protecting the remaining Newnes Plateau

Shrub and Hanging Swamps from further hydrological impacts is crucial to prevent further irreversible impacts and localised extinctions of threatened species populations within mining impacted swamps (if not immediately, then following the next major fire event in the area). (*Krogh, Martin & Gorissen, Sarsha & Baird, Ian & Keith, David. (2022). Impacts of the Gospers Mountain Wildfire on the flora and fauna of mining-impacted Newnes Plateau Shrub Swamps in Australia's Eastern Highlands. Australian Zoologist. 42. 199 216)*

6. In 2022 the Gardens of Stone SCA was declared over the Clarence Colliery mine leases, a major change since DA504-00 was approved in 2005. Once The managed by NSW Forests with a primary production/resource focus, it is now managed by the NPWS with Conservation focus. Business-as-usual no longer applies.

7. The MOD11 documents state that the current pumping capacity of 18.5 ML/day may be exceeded, and the only solution offered is for the '*WMP TARP response plan to lodge an application to increase the water entitlement*.' This is totally unacceptable to LEG. Centennial mines already extract over 20 billion litres of groundwater each and every year from Newnes Plateau, increasing with every new panel mined. It is very unclear where all this water really comes from (i.e. which aquifers, their water storage and recharge capacity) and how far drawdown extends into the GBMWHA. Centennial, Council, and Government agencies appear to assume that these pumping volumes will continue indefinitely after mine closure, with plans afoot to transfer this water to a new treatment plant at Lake Wallace. Major questions need to be asked about whether such a huge water take from Newnes Plateau is sustainable, given the identified issues of connective fracturing and baseflow loss to streams and swamps. The Consent Authority must reject any further increase to groundwater extraction volumes, and mandate greater efforts to minimise aquifer interference and reduce the volume of groundwater extraction through mechanisms such as reduced extraction ratios, modified mining methods, and the installation of underground barriers to seal-off older mined areas;

8. Inadequacy of the Groundwater monitoring network - The 2024 EPBC Referral for the 918 & 920 Panels (*Att 17 Clarence 2023 Groundwater Monitoring Results, qualifiers in Att 22 Mining Method Comparative Analysis*) identified that of the 30 Swamp Piezometers 13% (4 of 30) have been damaged or did not provide useable data; 17% (5 of 30) were recently installed and didn't provide useful long-term trends; and of the remaining 21 piezos 47% recorded 'declining trend' or 'exceeds trigger level' or 'decreasing trend'. Only 20% (6 of 30) piezometers recorded a 'Stable trend'. Of the 14 Open Borehole Standpipe Piezometers, 1 (7%) was decommissioned (CC113 since January 2014); 3 (21%) reported 'declining trends'; 1 (7%) reported 'Below trigger value from early August 2019 until late April 2022 (CLRP10); and 8 (57%) reported 'decreasing trend consistent with climatic observations'. Only 1 of the 14 sites (7%) was reported as 'Stable'. Of the 19 Vibrating Wire Piezometers (VWPs) none (100%) have trigger levels defined in the WMP (How can "Adaptive Management" to avoid swamp damage be assured without specified Trigger levels?); 68% (13 of 19) reported 'Sensor not functional', 'Data assurance concerns', 'Communication lost' or 'Malfunctioned'; 26% (5 of 19) reported 'Depressurisation response' or 'Unsaturated'; 26% (5 of 19) reported 'Decreasing trend'; and only 10% (2 of 19) actually reported 'Stable trend'. The Groundwater Monitoring Network is clearly inadequate, and should not be locked in for a further 5 years;

9. Inaccurate predictions of subsidence impacts on swamps, cliffs, waterways, and GBMWHA. Clearly the Condition Red on the 900 Area TARP in 2022, and 193mm reported at Peg D20 in 2024 indicate inaccurate subsidence predictions at Clarence Colliery. Clearly 27.8 Ha of damaged swamps/hanging swamps, 10.5 km of desiccated creeklines, 3 cliff falls, 2 subsidence cracks, and 3 unreported cliff falls recorded by LEG in 2024 indicate that subsidence impacts are not being accurately predicted/recorded/reported by Clarence Colliery. Angus Place and Springvale Collieries inaccurately predicted subsidence impacts in the past, resulting in the loss of 15 THPSS & numerous Hanging Swamps. In 2022 Centennial Airly Mine entered into a $150,000 Enforceable Undertaking for breaching its Development Consent causing irreversible fractures in Mugii Murum-ban State Conservation Area. Consent Authorities knowingly endorsing inaccurate predictions of subsidence and issuing Enforceable Undertakings and/or fines after damage has occurred is a perversion of proper Planning processes;

10. Exploration Activities continue to damage/destroy Threatened Species and ecological communities, despite claims in MOD 11 that everything related to MOD 504-00 is hunky-dory. In August 2025 volunteers reported a number of *Veronica blakelyi* (Endangered NSW BCA) destroyed by trackworks to an exploratory drilling rig in the Clarence Colliery 700 Area. Previous exploration drilling by Clarence Colliery is known to have destroyed locally rare plants including *Grevillea sericea*, *Pultenaea furcata*, *Styphelia laeta,* and others. More stringent controls and monitoring of Exploration activities must be required in the Consent Conditions;

11. A Consent must require Real-time Monitoring at Clarence Colliery LDP2 directly linked to the EPA, and require immediate shut-down of minewater discharges to prevent any further repeat of the 2015 and 2023 coal-fines spills into the Wollangambe River and GBMWHA;

12. Failure to record/report threatened flora species in contravention of the EPBC Act and NSW BCA. MOD 11 is a Controlled Action and an EPBC Feferral must be lodge. For example:

    - *Boronia deanei* was listed as Vulnerable under the EPBC Act and NSW BCA in 20025 when DA505-00 was approved. On 5 March 2025 *Boronia deanei* subsp. *deanei* was reassessed as Endangered under the EPBC Act. There are many more records in the Clarence Colliery mine lease than shown on the Bionet Atlas, suggesting Clarence Colliery has not adequately recorded/reported all occurrences in ML 1583;
    - *Hibbertia cistiflora subsp quadristaminae* was listed as Endangered under the EPBC Act on 7 September 2023. It has been recorded in ML 1583, but not on the Bionet Atlas by Centennial;
    - *Pultenaea glabra* (Vulnerable EPBC Act & NSW BCA) and the closely related newly described *Pultenaea furcata* have been recorded in the Clarence Colliery mine leases, but not on Bionet by Centennial;
    - *Commersonia prostrata* (Endangered EPBC Act & NSW BCA) has been recorded in the Clarence Colliery mine lease, but not on the Bionet Atlas by Centennial;
    - *Xerochrysum palustre* (Swamp Everlasting EPBC Act: Vulnerable) has been recorded in Pine Swamp on the AVH and ALA databases, but not on the Bionet Atlas by Centennial.

No currently determined EPBC Referral for Clarence Colliery has considered the above. The 2009 Referral (2009/4882) and 2012 Referral (2012/6446) are out of date. The 2024 Referral (2024/09856) is yet to be determined. The Consent Authority cannot approve MOD11 without Federal Government approval.

13. Failure to heed previous IESC advice that adaptive management and trigger action response plans (TARPs) are unlikely to be successful for mitigating and managing impacts to THPSS;
14. Failure to heed previous IESC advice that the only way to prevent impacts to THPSS is to avoid directly undermining swamps and their water supply aquifers;
15. Failure to heed previous IESC advice that current Groundwater monitoring networks do not monitor the full extent of minewater drawdown; Vibrating Wire Piezometers (VWPs) don't allow actual measurements of water levels, have a limited lifespan and aren't replaced; and predicted drawdown will extend into the Greater Blue Mountains World Heritage Area;
16. Failure to consider Cumulative Impacts and Likely Foreseeable Future Developments (eg. Clarence Colliery Consolidation Project due Q1 2027; Angus Place West project due Q1 2027; Springvale West Project due Q1 2027) on THPSS, Groundwater Drawdown, downstream water pollution, siltation, sedimentation etc in the Gardens of Stone SCA and GBMWHA by assessing each proposal as stand-alone in isolation;
17. Absence of remediation, rehabilitation, or revegetation requirements once THPSS are damaged (eg. THPSS damage in 2010 by old Clarence Transfer in Panel 707);
18. Locking-in road transport of 300,000 tonnes of coal/year for a further 5 years instead of using rail is totally unacceptable. The Clarence Colliery coal loader and rail loop must be upgraded to allow rail transport to an upgraded rail unloader at Lidsdale Siding;
19. The Consent must mandate that the huge stockpiles of coal-fines in Clarence Colliery REAs be reused rather than buried and creating yet another legacy pollution issue, by transporting those coal-fines to Mount Piper Power Station or other potential users.

CONCLUSION

Lithgow Environment Group Inc has previously made submissions on the EPBC Referral Clarence Colliery 918 – 920 Panels (2024/09856) on 4 July 2024, and to the Federal and NSW Environment Minister's in September & October 2024 to report 25 examples of mine subsidence damage above Clarence Colliery.

Rather than repeat that information we have included them as Attachments below. They contain references, photos, and detailed explanations of the issues dot-pointed above. We request that NSW Planning consider the information in these Attachments, because they have been provided to relevant government agencies and are in the public domain.

We believe that this project should not be determined as a Modification due to its complexity, and a full EIS is required. NSW Planning should consolidate all 3 Clarence Colliery Mine Leases into one, with a new EIS that addresses cumulative swamp losses, associated losses of groundwater-dependent threatened species, groundwater drawdown across the entire Gardens of Stone SCA and GBMWHA, recurring pollution incidents, and Centennials poor compliance record.

Thankyou for this opportunity to provide comment.

Yours faithfully

Chris Jonkers, Project Officer, Lithgow Environment Group Inc.

ATTACHMENT 1:

Lithgow Environment Group Inc.

PO Box 3081 Bowenfels, NSW 2790

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Preserving the Balance of Nature

To: Referrals Gateway epbc.referrals@awe.gov.au

EPBC Number: **2024/09856** 4 July 2024

Dear Minister,

RE: Clarence Colliery - Secondary Extraction of the 918 and 920 Panels using Partial Extraction Mining Methods

I am writing on behalf of Lithgow Environment Group Inc (LEG). Thank you for the opportunity to comment on whether the proposal for the Secondary Extraction of the 918 and 920 Panels using Partial Extraction Mining Methods (**Proposed Action**) should be assessed under the EPBC Act, and what the controlling provisions should be. This proposal is made by Clarence Colliery Pty Ltd (**Clarence Colliery**), a subsidiary of Centennial Coal Company Pty Ltd (**Centennial**).

Summary

Clarence Colliery intends to carry out underground mining, specifically, Secondary Extraction of two panels referred to as the 918 and 920 Panels using an alternate mining technique at the Clarence Colliery Mine. The alternate mining technique to recover the coal resource in these Panels (i.e. Secondary Extraction) is known as Panel and Pillar Partial Extraction using Shortwall (PPPE).

LEG asserts that this PPPE mining method is more akin to longwall than a partial extraction technique, and should be assessed as such because the panels are 1.5km long with an 85m void width and 62% extraction rate. This Proposal will have a significant impact on a large number of Matters of National Environmental Significance.

It involves an intensification of mining at Clarence Colliery, and consequently an intensification of the environmental harm to endangered swamps, threatened ground-water dependent biota, and water resources.

The proposed action should be assessed as a Controlled Action under the EPBC Act because it is likely to have a significant impact/s on the following matters of national environmental significance (MNES):

i. **Nationally listed threatened species and ecological communities**

- Temperate Highland Peat Swamps on Sandstone (THPSS) – EPBC Act: Endangered
- *Xerochrysum palustre* (Swamp Everlasting) – EPBC Act: Vulnerable
- *Pultenaea glabra* - EPBC Act: Vulnerable
- *Boronia deanei* - EPBC Act: Vulnerable
- *Hibbertia cistiflora subsp. quadristaminea* – EPBC Act: Endangered
- Blue Mountains Water Skink (*Eulamprus leuraensis*) - EPBC Act: Endangered

- Giant Burrowing Frog (*Heleioporus australiacus*) – EPBC Act: Vulnerable
- Gang-gang Cockatoo (*Callocephalon fimbriatum*) - EPBC Act: Endangered
- Greater Glider (*Petauroides volans*) - EPBC Act: Vulnerable
- Large-eared Pied Bat (*Chalinolobus dwyeri*) - EPBC Act: Endangered

ii. Listed migratory species

- Curlew Sandpiper *(Calidris ferruginea*)
- White-throated Needletail *(Hirundapus caudacutus*)
- Latham's Snipe (*Gallinago hardwickii*)

iii. Significant impact on a water resource

- Temperate Highland Peat Swamps on Sandstone
- Groundwater and aquifers including the Mount York Claystone
- Wollangambe River
- Bungleboori Creek
- Paddys Creek
- Colo River

iv. Significant impact on the world heritage and national heritage

- Greater Blue Mountains World Heritage Area

We have also identified a number of matters which should have been addressed in the Referral and been the subject of assessment by the Proponent as follows:

- Failure to assess the impact on the Latham's snipe (*Gallinago hardwickii*) - a migratory species
- Failure to address the cumulative impacts of the coal mining development on water resources

A. The relevant legislative framework

1. The EPBC Act provides the legal framework to protect and manage national and internationally important species, ecosystems, places and water resources – known as 'Matters of National Environmental Significance' (**MNES**) under the EPBC Act. Part 3 of the EPBC Act contains provisions that prohibit the taking of a proposed action, without relevant approval, if it "has", "will have" or "is likely to have" a significant (adverse) impact on any of the MNES protected by Part 3.[1] That is, a person must not take an action, that has, will have or is likely to have a significant impact on any of the MNES without the approval of the Australian Government Minister for the Environment. 'Action' includes a project or a development.[2]

2. The matters protected by Part 3, and the relevant controlling provision for each MNES, are listed in tabular form in s 34 of the EPBC Act. They are known as 'controlling provisions'. Section 34 makes it clear that each of the subsections of s 18 is a distinct controlling provision protecting a separate MNES.

3. An "impact" of an action can include an event or circumstance that is an indirect consequence of the action, provided the action is a substantial cause of that event or circumstance and, where relevant, the

[1] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) Pt 3 ***(EPBC Act***).
[2] *EPBC Act,* Part 23 s 524.

requirements in s 527E(2) are met.[3] As the Policy Statement acknowledges, an impact that evidence strongly suggests might manifest itself many years later, or occurs at a substantial geographic distance from the location of the original action, may still be an indirect consequence that is substantial enough to be considered an impact.[4]

4. A "significant" impact is an impact that is important, notable or of consequence having regard to its context or intensity.[5]

5. A significant impact is "likely" if it is a real or not remote chance or possibility.[6]

6. It is our submission that Proposed Action:

- will have or is likely to have a significant impact on MNES, being
  i. water resources (and the Proposed action involves a large coal mining development),
  ii. Nationally listed threatened species and ecological communities including ten different nationally listened threatened species and ecological communities
  iii. Listed migratory species including four different species of migratory birds, and
  iv. A world heritage and national heritage area being the Greater Blue Mountains World Heritage Area.

- Is a 'controlled action' and the following controlling provisions:
  i. a ss 24D and 24E of the EPBC Act, commonly referred to as the 'water trigger',
  ii. ss 18 and 18A of the EPBC Act,
  iii. ss 20 and 20A of the EPBC Act,
  iv. ss 12, 15A, 15B and 15C of the EPBC Act,

  thereby requiring referral to, and approval by, the Federal Environment Minister.

We address this further at Section C of this submission below.

B. The relevant EPBC tests

B1. The 'water trigger' test

The provision and definitions

7. Sections 24D and 24E of the EPBC Act are commonly referred to as the 'water trigger' controlling provisions. Section 24D(1)[7] provides that:

> (1) A constitutional corporation, the Commonwealth or a Commonwealth agency must not take an action if:
>
> (a) the action involves:
>
> (i) coal seam gas development; or
>
> (ii) large coal mining development; and
>
> (b) the action:
>
> (i) has or will have a significant impact on a water resource; or
>
> (ii) is likely to have a significant impact on a water resource.

[3] *EPBC Act,* s 527E(1)(b).
[4] Department of Sustainability, Environment, Water, Population and Communities, *'Indirect Consequences' of an Action: Section 527E of the EPBC Act* (Policy Statement, 2013) 2 (Annexure 8).
[5] *VicForests v Friends of Leadbeater's Possum Inc* [2021] FCAFC 66; 389 ALR 552 [62]; Department of the Environment (Cth), *Matters of Environmental Significance: Significant Impact Guidelines 1.1* (2013), 3 ('*Significant Impact Guidelines 1.1*').
[6] *Polaris Coomera Pty Ltd v Minister for the Environment* [2021] FCA 254, [212]-[226]; *Significant Impact Guidelines* 1.1, 3.
[7] See also equivalent provisions in subsections (2)-(4).

8. A "constitutional corporation" is defined in s 528 as a corporation to which paragraph 51(xx) of the Constitution applies, which includes trading or financial corporations formed within the limits of the Commonwealth.

9. Section 528 defines "large coal mining development" to mean:

> … any coal mining activity that has, or is likely to have, a significant impact on water resources (including any impacts of associated salt production and/or salinity):
>
> (a) in its own right; or
>
> (b) when considered with other developments, whether past, present or reasonably foreseeable developments.

10. "Coal mining activity" is not defined in the EPBC Act. The phrase "water resource" is defined in s 528 as having the same meaning as in the *Water Act 2007* (Cth) (the **Water Act**).

11. Section 4(1) of the Water Act defines "water resource" to mean:
    - surface water or ground water; or
    - a watercourse, lake, wetland or aquifer (whether or not it currently has water in it); and includes all aspects of the water resource (including water, organisms and other components and ecosystems that contribute to the physical state and environmental value of the water resource).

12. The criteria to be met under section 24D and 24E can thus be separated into three parts:
    - Is the proponent a constitutional corporation;[8]
    - Is the Proposed Project is so closely associated with the mining of coal as to be integral to it[9]; and
    - Is the development likely to have a significant impact on water resources as required by s 528 and is the proposed action likely to have significant impact on water resources as required by 24D(1)(b).

B2. The 'listed threatened species and ecological communities' test

Provisions and definitions

13. There are a number of different categories of threatened species and communities which are offered protection under section 18. Section 18(3)-(4) provides that:

> *Endangered species*
>
> (3) A person must not take an action that:
>
> (a) has or will have a significant impact on a listed threatened species included in the endangered category; or
>
> (b) is likely to have a significant impact on a listed threatened species included in the endangered category.
>
> *Vulnerable species*
>
> (4) A person must not take an action that:
>
> (a) has or will have a significant impact on a listed threatened species included in the vulnerable category; or
>
> (b) is likely to have a significant impact on a listed threatened species included in the vulnerable category.

14. Section 18(6) provides that:

> *Endangered communities*

[8] We note that there are alternative threshold criteria in subsections (2)-(3).

[9] Australian Conservation Foundation Incorporated v Minister for the Environment (2021), Guidelines, 1.1.1.

(6) A person must not take an action that:

(a) has or will have a significant impact on a listed threatened ecological community included in the endangered category; or

(b) is likely to have a significant impact on a listed threatened ecological community included in the endangered category.

15. Under section 178, the Environment Minister must establish a list of threatened species.

16. The criteria to be met under section 18 and 18A can thus be understood as:
    - Is the proponent a person;
    - Is the species or ecological community a listed species or community, and
    - Has the action or is the action likely to have a significant impact on a listed species as required by s 18 and s 18A.

B3. The 'migratory birds' test

Provisions and definitions

17. Section 20(1) provides that:

(1) A person must not take an action that:
(a) has or will have a significant impact on a listed migratory species; or
(b) is likely to have a significant impact on a listed migratory species.

18. Under section 209, the Environment Minister must establish a list of migratory species.

19. The criteria to be met under section 20 and 20A can thus be understood as:
    - Is the proponent a person;
    - Is the species a listed migratory species, and
    - Has the action or is the action likely to have a significant impact on a migratory species as required by ss 20 and 20A.

B4. The 'world and national heritage' tests

Provisions and definitions

World heritage

20. Section 12(1) provides:

A person must not take an action that:

(a) has or will have a significant impact on the world heritage values of a declared World Heritage property; or

(b) is likely to have a significant impact on the world heritage values of a declared World Heritage property.

21. Section 13(1) of the EPBC Act defines 'Properties on World Heritage List' as:

A property included in the World Heritage List is a declared World Heritage property as long as the property is included in the List.

22. Section 14(1) provides:

(1) The Minister may declare a specified property to be a declared World Heritage property by notice in the Gazette if:

(a) the property is a property submitted by the Commonwealth to the World Heritage Committee under Article 11 of the World Heritage Convention as suitable for inclusion in the World Heritage List;

(b) the Minister is satisfied that:

(i) the property has, or is likely to have, world heritage values; and

(ii) some or all of the world heritage values of the property are under threat.

23. The criteria to be met under section 12, 13 and 14 can thus be understood as:
    - Is the proponent a person;
    - Is the property a declared world heritage property, and
    - Has the action or is the action likely to have a significant impact on a world heritage property as required by ss 12 and 13.

National heritage

24. Section 15B of the EPBC Act covers the requirements of national heritage places:

    A constitutional corporation, the Commonwealth or a Commonwealth agency must not take an action that has, will have or is likely to have a significant impact on the National Heritage values of a National Heritage place.

25. A "constitutional corporation" is defined in s 528 as a corporation to which paragraph 51(xx) of the Constitution applies, which includes trading or financial corporations formed within the limits of the Commonwealth.

26. The criteria to be met under section 15B and s 528 can thus be understood as:
    - Is the proponent a constitutional corporation;
    - Is the property a declared national heritage property, and
    - Has the action or is the action likely to have a significant impact on a the national heritage property as required by s 15B.

C. Application of the EPBC Act to the Proposed Action

27. It is LEG's submission that the Proponent has incorrectly ruled out a controlled action EPBC Act referral on the basis that it argues the Proposed Action is not likely to have a significant impact on:
    - Water resources
    - Listed threatened species and ecological communities,
    - Listed migratory species, and
    - World and national heritage properties.
28. We have set out below why we disagree with that assessment or consider that the Proponent has not adequately assessed the likely impacts of the Proposed Action in order to make any such assessment.

C1. Impacts on water resources by the mining of coal

The proponent are constitutional corporations

29. Clarence Colliery Pty Ltd is an Australian private company (ABN 19 001 680 584).

The Proposed Action is so closely associated with the mining of coal as to be integral to it

30. The referral by the Proponents is clearly closely associated with coal mining as the Referral refers to an "alternate mining technique to recover the coal resource" in Panels 918 920 at Clarence Coal Mine.[10]

31. It is not in dispute that the Proposed Action has any direct and/or indirect impacts on a water resource in relation to a large coal mining development.[11]

The likelihood of a significant impact on a water source

32. Clarence Colliery have stated that the Proposed Action will not have a significant impact on a water resource. Much of the analysis provided by Clarence Colliery is comparative analysis of the existing mining regime and the methodology detailed in the Proposed Action. This is the incorrect approach as the impacts on the water source must be assessed on the basis of what is contained in the Proposed Action. Further, Clarence Colliery had conceded that mining in the area is not feasible in part to the "potential impacts to sensitive ecology and water resources as a result of the higher levels of coal extraction."[12]

33. The definition of "water resource" is extracted above at [11]. In considering the definition in the ACF case, Justice Perry stated:[13]

> The importance of this is that a significant impact upon any of these aspects of the water resource, including organisms, other water systems, and ecosystems, will engage the prohibition. It is not simply a question of the volume of water being extracted and its potential impact on water supplies.

34. LEG asserts that the following water resources must be considered in the Referral:

- Temperate Highland Peat Swamps on Sandstone
- Groundwater and aquifers including the Mount York Claystone
- Groundwater dependent ecosystems
- Wollangambe River
- Bungleboori Creek
- Paddys Creek
- Colo River

35. Under the water trigger guidelines, the following factors are listed as likely to have a significant impact[14]:
    - flow regimes (volume, timing, duration and frequency of surface water flows)
    - aquifer pressure or pressure relationships between aquifers,
    - groundwater-surface water interactions,
    - there is a risk that the ability to achieve relevant local or regional water quality objectives would be materially compromised, and as a result the action:
        i. causes persistent organic chemicals, heavy metals, salt or other potentially harmful substances to accumulate in the environment,
        ii. seriously affects the habitat or lifecycle of a native species dependent on a water resource,
    - there is a significant worsening of local water quality (where current local water quality is superior to local or regional water quality objectives)

The impacts of the Proposed Action on water resources

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[10] Referral, page 2.
[11] Referral, page 59.
[12] Referral, page 68.
[13] *ACF v Minister* [51]
[14] Significant impact guidelines 1.3: Coal seam gas and large coal mining developments—impacts on water resources, *Department of Climate Change Environment and Energy*, https://www.dcceew.gov.au/sites/default/files/documents/significant-impact-guidelines-1-3.pdf> pages 11-13.

36. The Referral states that the Proposed Action is entirely within the catchment of Bungleboori Creek and Wollangambe River.[15] LEG asserts that the Proposed Action failed to adequately consider the impacts on all of the listed water resources which ought to be categorised as likely to be significant impacts.

37. This PPPE mining method is more akin to a longwall than a partial extraction technique, because the panels are 1.5km long with an 85m void width and 62% extraction rate (previous mining involved <50% extraction rate eg. 700 Panels). This new mining method will have a significant impact on water resources.

38. The Proposed Action will potentially drain and affect the flow regime of several Temperate Highland Peat Swamps on Sandstone (THPSS) listed as Endangered under the EPBC Act including Lower Nine Mile Swamp, Pine Swamp, Paddys Creek Swamp, Pagoda Swamp, and swamps along Bungleboori Creek downstream of the 918 and 920 Panels.

39. Water floods into Clarence Colliery mine workings because of aquifer interference and aquifer drawdown, resulting in the loss of water from Endangered swamps and water necessary to sustain moisture-dependent Threatened Species such as the Blue Mountains Water Skink (*Eulamprus leuraensis)* and Giant Dragonfly (*Petalura gigantea),* thus having an impact on the groundwater and surface water interactions.

40. Clarence Colliery claim that:

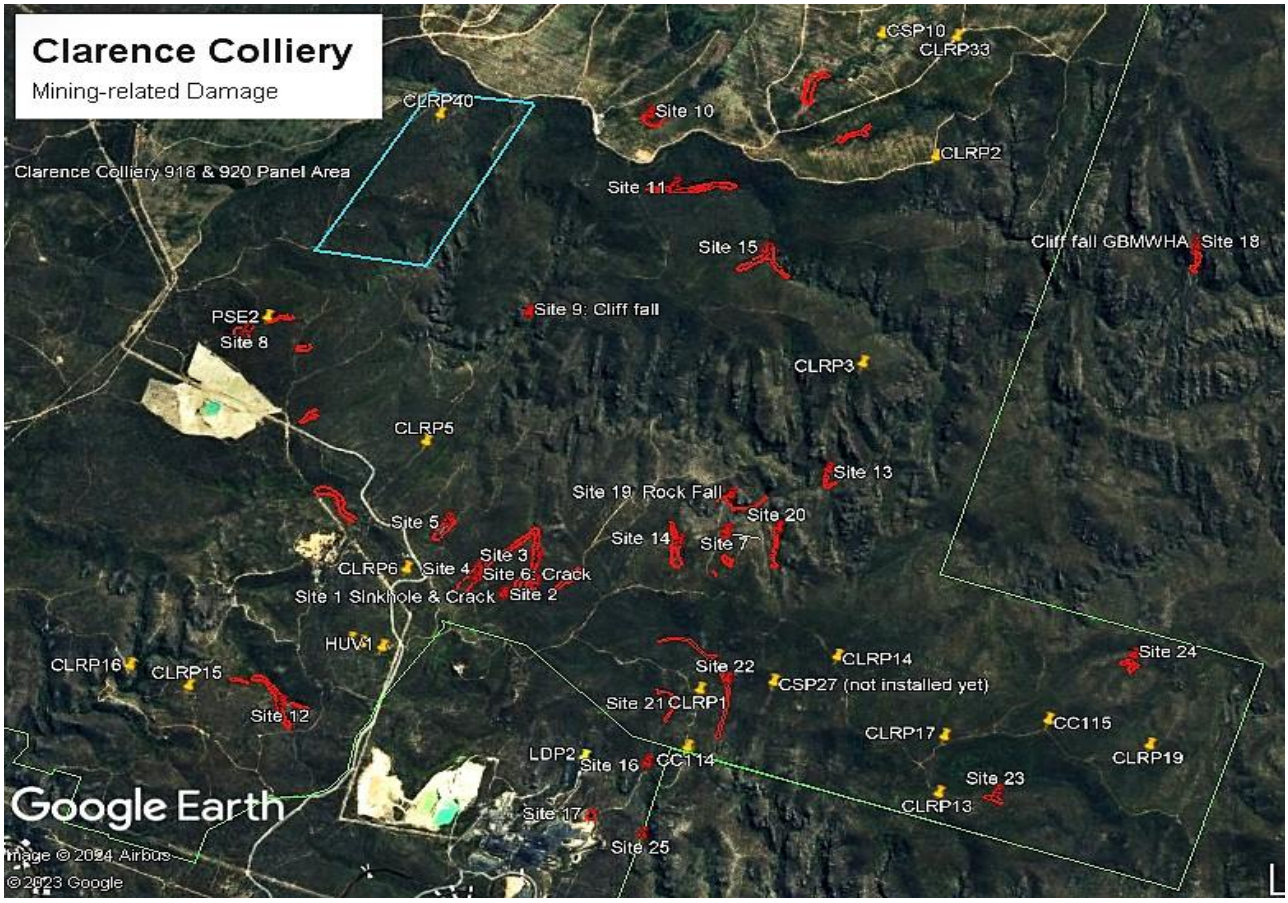
> Since 1998, a number of hanging and shrub swamps have been undermined by the partial extraction method at Clarence Colliery with no known evidence of mining-related impacts. With the maximum allowable subsidence of 100mm, which is more than the predicted subsidence of 87 mm, the non conventional subsidence is expected to be negligible, with no predicted impacts on the endangered swamps to occur (Hill, 2023).

41. LEG disagree, and Clarence Colliery contradict this by admitting in A*tt 17 Clarence 2023 Groundwater Monitoring Results*:

    - CLRP19 - Depressurisation response since August 2021 due to mining Panel 818A.
    - CLRP13 - Depressurisation in early May 2022, likely due to the mining of panel 822 40m south of CLRP13. Continue decreasing trend during 2023, probably mining related.
    - CLRP2 - Communication was lost with this piezo in August 2007 due to mining.

42. LEG has recorded several areas of dead and/or damaged EPBC listed THPSS and Hanging Swamps within Clarence Colliery mine lease damaged by underground mining. This includes but is not limited to the areas marked in Red below –

[15] Referral, page 27-28.



43. It is difficult to determine from maps provided in the Referral documents where the above swamp damage is situated in relation to the relevant Clarence Colliery mine panels, as roads and creeks are poorly marked and landscape features are absent. LEG has therefore described those sites using GPS coordinates.

44. **Site 1: -33.442041, 150.240876 - Mine Subsidence Crack, Sinkhole, Dry creekbed, Dead THPSS downstream**
First recorded July 2010, last sighted April 2024. A large sinkhole about 200m long x 10m wide x 2m deep with a mine subsidence crack 150-250mm wide at its eastern end. The crack runs east-west across a northerly flowing tributary of Bungleboori Creek. All surface water that once flowed down this creek now flows down that crack, and the creek downstream is totally dry. Swamps downstream are dead, and groundcover vegetation has not recovered in 14 years of observation, with many bare and denuded areas.

Photo 1: Site 1 Subsidence crack in sinkhole - July 2010

Photo 2: Site 1 Subsidence crack in sinkhole - June 2024

Photo 3: Site 1 Mine subsidence sinkhole – July 2010

Photo 4: Site 1 Mine subsidence sinkhole – June 2024

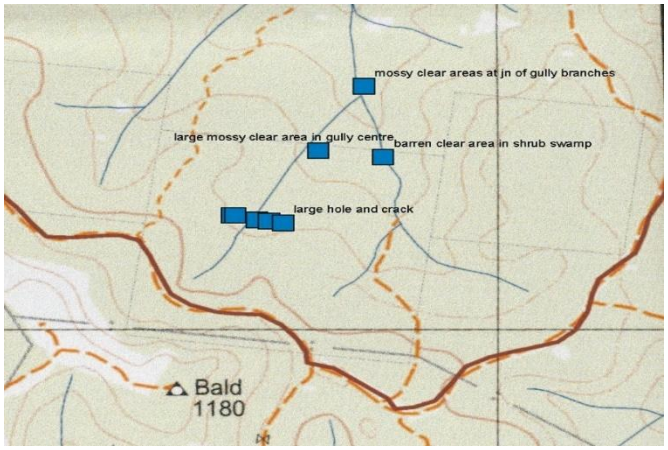


Photo 5: Swamp & creek damage north of Bald Trig

Photo 6: Site 1 Dry barren creekbed – June 2024

45. **Site 2: -33.440710, 150.243709 – Dead THPSS & Hanging Swamp**

First recorded July 2010, last visited April 2024. Dead swamp extending 300m downstream with dead hanging swamps along the verges. Clearly visible on Google Earth. White sand/peat mix with dead stumps of *Leptospermum grandifolium* and *Lepidosperma limicola.* Very little natural regeneration has occurred over 14 years, as the creek is totally dry. Nature doesn't appear to know how to heal desiccated peat swamps.

Photo 7: Site 2 Damaged THPSS – June 2024

Photo 8: Site 2 Damaged THPSS – June 2024

46. **Site 3: -33.438415, 150.243364 - Dead THPSS Swamp, Silt Plug, lack of groundcover vegetation**

First recorded July 2010, last visit April 2024. Clearly visible on Google Earth. Silt-plug about 20m x 10m in dead THPSS with dry creekbed. In 2010 only moss had regrown, and 14 years later is still bare because this creek is totally dry. All this silt will eventually end up in Bungleboori Creek and GBMWHA unless stabilised.

Photo 9: Site 3 Silt plug - June 2024

Photo 10: Site 3 Moss was the only vegetation in July 2010

Photo 11: Site 3 All this unstable silt will end up in GBMWHA

Photo 12: Remnant Leptospermum stump in dead THPSS

47. **Site 4: -33.439850, 150.238116 – Damaged THPSS Swamp, Dry Creek**

First recorded July 2010, last visit June 2024. At least 400m of this THPSS is dead (entire length not walked) and dead Hanging Swamps occur along the verges. Severe erosion downstream has liberated 1000s of tonnes of silt which will end up in Bungleboori Creek and ultimately the GBMWHA.

Photo 13: Site 4 Damaged THPSS - July 2010

Photo 14: Damaged THPSS – June 2024

48. **Site 5: -33.436064°, 150.234311° - Damaged THPSS Hanging Swamp**

First recorded July 2010, last sighted April 2024. Damaged THPSS hanging swamp extending 240m or more along a slope below a ridge. Occasional bare patches further downhill towards swamp in creek.

Photo 15: Site 5 Damaged Hanging Swamp - June 2024

Photo 16: Site 5 Damaged Hanging Swamp – June 2024

49. **Site 6: -33.440885, 150.238142 – Mine Subsidence Crack**

Recorded June 2024. A subsidence crack 600mm long x 300mm wide running east-west along an old motorbike track. Water flowing downhill along the motorbike track is funnelled underground.

Photo 17 & 18: Site 6 Subsidence Crack 600mm x 300mm – June 2024

50. **Site 7: -33.433493, 150.260677 – Dead/Damaged THPSS Hanging Swamp**

First recorded October 2008, last visit June 2024. More THPSS Hanging Swamp damage upstream. Little has regrown in 16 years as the creek & swamp are totally dry. Steep site, therefore severe erosion and siltation.

Photo 19-22: Site 7 Dead THPSS Hanging Swamp – after 16 years very little has regrown – June 2024

51. **Site 8: Upper Paddys Creek Swamp (-33.421619, 150.212010)**

First recorded August 2020, last visit April 2024. In 2020 LEG surveyed THPSS on Newnes Plateau to assess recovery after the 2019 bushfires. Undermined THPSS were severely/irreparably damaged (eg. Carne West, Kangaroo Creek Upper, Gang Gang East & West), whereas THPSS not undermined recovered very quickly (eg. Broad, Marrangaroo Creek, Happy Valley).

Disturbingly Upper Paddys Creek Swamp exhibited all the hallmarks of an undermined swamp, despite no reports by Centennial. A*tt 17 Clarence 2023 Groundwater Monitoring Results* states that PSE2 exceeded the trigger level in 2023 and "*In August 2022, active mining of Panel 909 occurred approximately 200m to the east of PSE1, while PSE2 was undermined, but no mining impacts were observed. During the reporting period, active mining of Panel 919 was approximately 50m east of PSE1 and 800 to 850 m north-east of PSE2. No impacts were observed*".

This damage is only a short distance from vegetation monitoring points SV184 & 185, so Centennial must have been aware of it. Why wasn't this THPSS damage reported in the Referral documentation?

Photo 23: Site 8 – Dead stumps in THPSS

Photo 24: Site 8 SV185 Monitoring Site

Photo 25: Site 8 slow recovery after fire

Photos 26, 27, 28: Site 8 - Moss but little else regenerating 5 years after fire, as water levels have not recovered.

52. **Site 9: Cliff collapse – Panel 910 (-33.416420, 150.238266)**

Photo 29: Cliff collapse - Panel 910

53. **Site 10: Dead Vegetation on THPSS verge – Panel 910 (-33.396996, 150.246106)**

Google Earth Imagery in July 2021 recorded green vegetation east of Aboriginal grinding groove site off Waratah Ridge Road, yet in August 2023 vegetation die-back was clearly visible. A dramatic drying event had occurred.

Photo 30: Google Earth Imagery July 2021

Photo 31: Google Earth Imagery August 2023

The main species affected was *Acacia longifolia*. The only disturbances in this area between 2021 & 2023 were Mustard Gas removal (didn't occur near this swamp) and mining of Clarence Mine Panel 906 (or possibly headworks for Panels 908 & 910). Groundwater levels may have been lowered by Clarence Colliery to facilitate mining.

54. **Site 11: Swamp Damage, Discoloured Water (-33.402892, 150.248769; -33.402273, 150.252433)**

Vegetation along this creekline has been severely damaged by past Clarence Colliery mining. What was once a swamp is reverting to Eucalypts and Acacia, however very little groundcover vegetation has regenerated to stabilize the sand and peat, and erosion and siltation is continuing to occur.

In addition water in this creek has a distinct rusty-red discoloration not sighted in other nearby creeks. This is not unlike Lambs Creek in the Angus Place 300 Area where subsidence cracks allow vertical groundwater flow from upper aquifers into incised valleys such as Lambs Creek, picking up oxidizing sulphuric minerals along the way.

Because all coal seams slope downhill in a north-east direction and Panel 414/Longwall 4 are the lowest of Clarence mine workings, it is feasible that minewater seepage contaminated with Iron, Manganese etc is resulting in siltation and metal pollution of Bungleboori Creek which flows into the GBMWHA – a MNES.

Photo: 32 Rusty-red discoloured water Panel 414/LW4 – June 2024

55. **Site 12: Clarence Water Transfer into THPSS - Farmers Creek Swamp. Clarence Colliery 706-707 Panel Area**

The Clarence Water Transfer Scheme (CWTS) was constructed in 1985 by NSW Public Works to transfer minewater from Clarence Colliery to Farmers Creek No. 2 Dam and supplement Lithgow's drinking water. The header tank was on Clarence Colliery premises, acquired by Centennial in 1998. The Discharge Point was in Panel 707 Farmers Creek Swamp (-33.456013, 150.222956), a THPSS listed as Endangered under the EPBC Act.

Sketchy data exists, however around 2009-2010 the discharge volume from Clarence Colliery quadrupled from 3-5ML/day to 20ML/day, resulting in severe erosion, channelization, slumping, and collapse of Farmers Creek South Swamp downstream of the discharge point.

Neither Centennial nor Lithgow City Council took responsibility nor reported the resultant THPSS damage, and LEG was forced to report it to the EPA and SCA. Ultimately the EPA determined that whilst the header tank was located on Clarence Colliery premises, from there it was Lithgow City Council's responsibility (see Appendix 2).

Photos 33,34,35: Site 12 - CWTS Discharge Point into Farmers Creek Swamp on 31 January 2010, and after the 2013 fire.

Photos 36, 37, 38: Site 12 – Erosion, channelization, slumping downstream of Clarence Transfer discharge – 31 January 2010

Photos 39, 40, 41: Site 12 – Erosion, scouring, slumping of THPSS in Farmers Creek swamp after 2013 Fire – 24 November 2013

Whilst a new pipeline to Farmers Creek No2 Dam has since been built avoiding the swamp, this issue highlights systemic failures that continue to occur in the Lithgow region – failure to take responsibility. The minewater comes from and was polluted by Clarence Colliery; pumping infrastructure & header tanks are on Clarence Colliery premises; the discharge point is in Clarence Colliery Panel 707 which undermined this swamp in 2012. Why weren't regular inspections done? Why wasn't the damage reported? Why has it not been rehabilitated?

56. Time limitations prevent LEG illustrating further incidences of mine subsidence impacts associated with Clarence Colliery. However we believe that the 12 examples above provide a reasonable cross-section of the types of impacts that have occurred in the past, are occurring now, and are likely to occur in future.

57. None of the above examples of mine subsidence damage within the Clarence Colliery Mine Lease appear to have been officially recorded/reported by Centennial.

58. Recurring themes in the above 12 examples include –

- Inaccurate predictions of mine subsidence impacts;
- Failure to report THPSS damage to relevant departments such as the DCCEEW, and DEWHA;
- Failure to take responsibility, lack of accountability, poor regulatory frameworks;
- Extremely limited natural regeneration of damaged THPSS and Hanging Swamps over time;
- Ongoing erosion and siltation downstream for a decade or more;
- Absence of remediation, rehabilitation, and revegetation requirements when THPSS are damaged;
- Failure to acknowledge that all damage to THPSS does result in Direct Impacts as well as Indirect Impacts on all downstream catchments, including the Greater Blue Mountains World Heritage Area.

59. When a developer clears a natural area to construct houses, roads, etc they are required to install culverts, kerb & guttering, stormwater drains, detention basins, siltation traps, gross litter traps, groundcover, and more to manage rainfall runoff and prevent adverse pollution and sedimentation impacts downstream.

60. Yet when Centennial undermine and cause the collapse and death of an entire endangered ecological community such as THPPS and Hanging Swamps, there are no requirements under current legislation requiring them to control erosion, sedimentation, siltation, remediate, revegetate, or rehabilitate?

61. THPSS act like huge sponges which store, filter, and slowly release rainfall runoff into downstream waterways. When THPSS are desiccated by underground mining, stormwater runoff flows much more rapidly and intensely, adversely affecting water quality, streamflow, and flooding characteristics downstream in the GBMWHA. Tonnes of silt are liberated from dead/damaged peat swamps to be deposited downstream in the GBMWHA, particularly following fires. Huge silt plugs suffocate downstream swamps and creekline vegetation; clog waterholes relied upon by platypus, fish and other aquatic life; and increase turbidity.

62. LEG has virtually no resources, limited time, and limited volunteers with the skills and knowledge required to undertake flora, swamp, & mine subsidence monitoring. Nonetheless all of the above examples were viewed by LEG in two short days of fieldwork. If LEG can find threatened species and swamp damage not previously recorded/reported within the Clarence Colliery mine lease, then so can Centennial, the DCCEEW, and DEWHA.

SIGNIFICANCE OF ENDANGERED SWAMPS IN THE CLARENCE COLLIERY MINE LEASE

63. In 2022 Krogh et al conducted a study of the 'Wildfire impacts on flora and fauna of undermined Newnes Plateau Shrub Swamps.[16]

64. The study undertook monitoring of Broad, Sunnyside, Carne West, Gang Gang East & West, and Budgary Swamps. Keith et al. (2020, 2021) also undertook vegetation surveys in East Wolgan, Carne Central and Marrangaroo Swamps. They found that:

> There was strong evidence of ecosystem collapse in swamps located above the footprint of prior longwall coal mining operations (Baird and Benson 2020, Keith et al. 2020, 2021, Baird 2021, Gorissen 2021b). Endangered species populations (E. leuraensis, P. gigantea) which had already been catastrophically impacted or were in significant decline due to longwall mining hydrological impacts are now likely to become locally extinct in these mining impacted swamps. To date, 15 swamps or ~13% of the area of the NPSS community on the Newnes Plateau have potentially been irreversibly impacted by longwall mining (DPIE BCS 2020).

[16] *Krogh, Martin & Gorissen, Sarsha & Baird, Ian & Keith, David. (2022). Impacts of the Gospers Mountain Wildfire on the flora and fauna of mining-impacted Newnes Plateau Shrub Swamps in Australia's Eastern Highlands. Australian Zoologist. 42. 199-216. 10.7882/AZ.2022.023*

65. Regrettably that study only looked at longwall mining areas, otherwise damage by Partial Extraction mining in the Clarence Colliery mine lease to Paddys Creek Upper Swamp, Farmers Creek Swamp, and others illustrated above might have been officially identified.

66. Krogh et al concluded that:

> Protecting the remaining Newnes Plateau Shrub and Hanging Swamps from further hydrological impacts of longwall mining is a prerequisite for the conservation of these swamps and the populations of the endangered species they contain, even when high severity fires occur. Failure to protect these swamps from the damaging hydrological impacts of longwall mining will likely result in further irreversible impacts and localised extinctions of threatened species populations within mining impacted swamps (if not immediately, then following the next major fire event in the area).

67. The above should be expanded to include Bord & Pillar, Panel & Pillar Partial Extraction (PPPE), Shortwall, Wongawilli, Mini-longwall, and all other mining techniques which Clarence Colliery claim will have 'negligible impacts' on THPSS.

68. Clarence Colliery and its parent company Centennial have an appalling history of inaccurately predicting mine subsidence impacts on swamps, cliffs, pagodas, and other landscape features, evidenced by –
    - the loss of Junction Swamp, East Wolgan Swamp, Narrow Swamp, Kangaroo Creek Swamp, Carne West Swamp, Sunnyside East & West Swamps, Gang Gang East & West Swamps, and Carne Central Swamp to Springvale and Angus Place longwalls.
    - Pine Swamp, Nine Mile Swamp, and Marrangaroo Creek Swamp are likely to be lost in the near future as a consequence of the 2015 Springvale Mine Extension approval.
    - Centennial Airly Mine entered into a $150,000 Enforceable Undertaking in 2022 for incorrectly estimating subsidence, causing major subsidence damage to Muggi Murrum-ban SCA.

69. The proposed Clarence Colliery Northern Area currently being prepared will severely damage and affect the flow regimes of many THPSS in the upper Dingo Creek catchment, Red Hill Road, Murray's Swamp, and Broad/Barrier Swamp.

70. The Minister must consider the Cumulative Impacts of Clarence Colliery and Centennial's entire mining operations on THPSS in the Gardens of Stone SCA, rather than assessing each mine and each proposal as a stand-alone project in isolation.

71. The Minister should also consider that peat swamps on the eastern side of Newnes Plateau (ie. Proposal area and entire Clarence Colliery mine lease) are wetter swamps, have deeper peat layers, and support a wider range of threatened groundwater-dependent biota than the western swamps.

72. *Cunninghamia*[17] identified that peat depths in the Carne/Clarence/eastern swamps ranged from 0.6 – 1.3m, but, for the western swamps were substantially less at 0.3–0.6 m:

> While there is evidence that a group of the highest elevation swamps on the western side of the Plateau are more dependent on rainwater, the majority of swamps and those in the Carne Creek catchment, and to its east and south to Clarence in particular, have permanently high water tables maintained by groundwater, and are associated with the concurrence of a number of threatened groundwater dependent biota restricted to these sites.
>
> This association makes them highly susceptible to threats of loss of groundwater, the major one being the impact of subsidence caused by longwall mining; though other impacts may come from changes to hydrology as a result of damming, mine waste water discharge, increased moisture competition from pine plantations, and climate change.
>
> Our view is that if groundwater hydrology is impacted by activities such as longwall mining and associated subsidence, potential significant ecological damage is unlikely to be avoided or mitigated.
>
> Where provisions of the EPBC and TSC Acts apply to groundwater dependent swamps and biota, mining under swamps needs to be avoided.

73. This Proposal represents an intensification of mining at Clarence Colliery, and consequently an intensification of the environmental harm to endangered swamps, threatened ground-water dependent biota, and water resources. This Proposed Action raises concerns about activities which seriously affects the habitat or lifecycle of a native species dependent on a water resource, a likely significant impact indicator[18].

74. Regardless of how Clarence Colliery describe this mining method, PPPE is more a longwall than partial extraction technique, as the panels are 1.5km long, 85m wide, with 62% coal extraction rate (previous approvals were for <50% extraction). By comparison Airly Mine mini-longwalls were 61m wide, and resulted in subsidence damage far in excess of Consent Conditions, resulting in a $150,000 Enforceable Undertaking.

75. Approval will result in far greater vertical subsidence than the predicted 100mm. However, by the time damage is identified it will be too late to save the swamps. Failure to detect that damage is almost guaranteed by the limited observation data and litany of equipment failures listed in A*tt 17 Clarence 2023 Groundwater Monitoring Results*; numerous qualifiers in *Att 22 Mining Method Comparative Analysis*; and changing from star pickets to Feno markers (Strain and tilt can't be accurately measured with Feno markers*).* It is well known that discharge volumes from Clarence increase with rain, demonstrating a direct hydraulic link between the mine and land surface (R. Byrnes, 1999). Just some of those are listed below –

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[17] *(2012) 12(4): 267–307 Vegetation, fauna and groundwater interrelations in low nutrient temperate montane peat swamps in the upper Blue Mountains, New South Wales. Doug Benson and Ian R. C. Baird*

[18] Significant impact guidelines 1.3: Coal seam gas and large coal mining developments—impacts on water resources, *Department of Climate Change Environment and Energy*, https://www.dcceew.gov.au/sites/default/files/documents/significant-impact-guidelines-1-3.pdf> pages 11-13

- CLRP19 - Depressurisation response since August 2021 due to mining Panel 818A. Continued decreasing trend during reporting period. [The Boot, 800 Area. Undermined by Panel 812 in March 2016]
- CLRP17 - Communication lost with piezo October 2015. [The Boot, undermined Panel 816 Sept 2017]
- CLRP15 - No data available, communication lost in October 2022. [700 Area E of Farmers Ck Dam]
- CLRP13 - Depressurisation early May 2022, likely due to mining of panel 822 40m south of CLRP13. Continue decreasing trend during 2023, probably mining related. [The Boot, overlies Panel 820]
- CLRP11 - Limited data due to logger issues, decreasing trend. [700 Area North of Farmers Ck Dam]
- CLRP6 - Communication lost with piezo in October 2011. [overlies Panel 702 undermined September 2009]
- CLRP2 - Communication lost with piezo in August 2007 due to mining. [Overlies Panel 611E]
- CC113 - Decommissioned since January 2014. [700 Area]
- CLRP31 - No trigger level defined in the WMP – decreasing trend. [Dingo Creek north of 900 area]
- CLRP28 - No trigger level defined in the WMP – decreasing trend. [Upper Dingo Swamp north of 918-920]
- CLRP8 - No trigger level defined in the WMP – decreasing trend.
- HV1 & HV2 - Happy Valley Swamp was previously monitored by piezometers HV1 and HV2 until they were destroyed by bushfire in 2013 and have not been replaced.
- IS5 (CSP16) - No data available due to logger issues. Data logger has malfunctioned. [Farmers Ck]
- MD2 (CSP20) - Dry since installation. [700 Area]
- MD1 (CSP19) - Dry until late-October [2023] following rainfall. [700 Area]
- WS2 (CSP18) - No data available – not visited in 2023. [700 Area]
- BN1 (CSP10) - No trigger level defined in the WMP – slightly declining trend. [Dingo Creek]
- UD1 (CSP8) - No trigger level defined in the WMP – slight decreasing trend. [Dingo Creek]
- MU2 (CSP7) - No trigger level defined in the WMP – declining trend. [Murrays Swamp]
- MU1 (CSP6) - No trigger level defined in the WMP – slightly declining. [Murrays Swamp]
- BSE1 (CSP1) - No trigger level defined – slightly decreasing. [Nine Mile Creek, Panels 918 & 920]
- OS1 No trigger – decreasing trend. [The Boot, 800 Area, Olearia Swamp]
- PSE1 - exceeds trigger level. [Paddys Ck East Swamp. Overlies Panel 919]
- PSE2 - exceeds trigger level. [Paddys Ck East Swamp. Overlies Panel 915]
- HVU1 - No trigger level defined in the WMP – declining and fluctuating with rainfall. [700 Area]
- MW05 - No trigger – declining trend. [N of Browns swamp]
- CS1 Decommissioned – piezometer damaged by bushfire. [Near REA3]
- CLRP41 - recent installation, observation data not included in calibration dataset presented in JBS&G (2023).
- CLRP22 - lower sensor ceased functioning in December 2020 [undermined by Panel 910 in March 2019]

76. Of the 30 Swamp Piezometers, 13% (4 of 30) have been damaged or do not provide useable data; 17% (5 of 30) are recently installed and don't provide useful long-term trends; of the remaining 21 piezos 47% recorded a 'declining trend' or 'exceeds trigger level' or 'decreasing trend'. Only 20% (6 of 21) recorded a 'Stable trend'.

77. Of the 14 Open Borehole Standpipe Piezometers, 7% (1) are decommissioned (CC113 since January 2014); 21% (3) report 'declining trends'; 7% (1) report 'Below trigger value from early August 2019 until late April 2022 (CLRP10); and 57% (8) report 'decreasing trend consistent with climatic observations'. Only 1 of the 14 sites (7%) was reported as 'Stable'.

78. Of the 19 Vibrating Wire Piezometers (VWPs) none (100%) have trigger levels defined in the WMP (How can "Adaptive Management" to avoid swamp damage be assured without specified Trigger levels?); 68% (13 of 19) report 'Sensor not functional', 'Data assurance concerns', 'Communication lost' or 'Malfunctioned'; 26% (5 of 19) report "Depressurisation response' or 'Unsaturated'; 26% (5 of 19) report 'Decreasing trend'; and only 10% (2 of 19) actually reported a 'Stable trend'.

79. LEG regards the above as a very poor reflection on Groundwater Monitoring at Clarence Colliery, which commenced operation in September **1979** and has been owned by Centennial since **1998**. After almost 50 years extremely limited information appears to exist on historic and current groundwater levels within or adjacent the proposed 918 & 920 Panels. How can Government regulators and the DEWHA possibly assess the true groundwater situation in the Proposal area???

80. Major improvements to the WMP and SMP monitoring programmes are urgently required to monitor the true impacts of underground mining at Clarence Colliery on the groundwater regimes.

81. Centennial has continually failed to demonstrate that it can operate responsibly in the Gardens of Stone and Greater Blue Mountains World Heritage Area (GBMWHA) region without causing serious damage to the environment. Countless instances of environmental incidents and harm, consent and licence non-compliances, and inaccurate predictions of environmental impacts indicates that the Clarence 918 & 920 Panels will be no different.

82. The Minister must deem this proposal as a Controlled Action.

The impacts on water resources when considering "past, present or reasonably foreseeable developments"

83. We note that to satisfy the definition of 'large coal mining development' a project must satisfy *either* of the criteria contained in s 528 of the EPBC Act being that in its own right, or when considered with other developments, it will have or is likely to have an impact on water resources. We have outlined above sufficient information regarding the impacts of the Clarence Colliery such that the first criteria of s 528 is clearly

satisfied. With regards to the second criteria, Clarence Colliery should be required to provide more information to assist decision makers.

84. The Referral has not provided adequate information regarding the impacts on water resources of other developments, whether past, present or reasonable foreseeable developments in circumstances where those developments are operated by related companies.

85. Clarence Colliery pumps in excess of 15ML/day from its mine workings partially-treated into the Wollangambe River and Greater Blue Mountains World Heritage Area (GBMWHA). The chemical make-up of this minewater is significantly altered compared to natural background levels, with higher Salinity, Zinc, Nickel, Manganese, and more. A 2017 paper[19] found the toxic discharge from Clarence Colliery was affecting the Greater Blue Mountains World Heritage area. It identified elevated levels of zinc and nickel in the Wollangambe River below the discharge area and identified pollution from the mine extending for 22km downstream. These impacts worsen the local water quality of the GBMWHA and causes harmful substances to accumulate in the environment which are listed as significant impact indicators according to the guidelines.[20]

86. The Referral does not refer to any cumulative impacts despite Clarence Colliery being permitted to discharge mine waste into the river under its environmental licence since the 1980s.[21] Cumulative impacts is another significant impact indicators according to the guidelines.[22]

C2. Listed threatened species and ecological communities

The proponent is a person

87. Under the *Acts Interpretation Act 1901* (Cth), a person is includes a body corporate.[23]

88. Clarence Colliery Pty Ltd is an Australian private company (ABN 19 001 680 584).

Listed species and communities impacted by the Proposed Action

89. The following species and communities were identified via Gazette or legislation to appear on the EPBC Act threatened species and communities list and are impacted by the controlled action[24]:

    - Temperate Highland Peat Swamps on Sandstone (THPSS) - Endangered on 12 May 2005

[19] Wright, I. A., Belmer, N., & Davies, P. J. (2017). Coal mine water pollution and ecological impairment of one of Australia's most 'protected' high conservation-value rivers. *Water, Air And Soil Pollution*, *228*(3)
[20] Significant impact guidelines 1.3: Coal seam gas and large coal mining developments—impacts on water resources, *Department of Climate Change Environment and Energy*, https://www.dcceew.gov.au/sites/default/files/documents/significant-impact-guidelines-1-3.pdf> pages 14.
[21] Jackson Vernon 'Mine pollution levels in Blue Mountains could be some of the world's worst, insect species dying out' 26 February 2017 *ABC Digital* available here: < https://www.abc.net.au/news/2017-02-26/blue-mountains-pollution-mine-wollangambe-river/8303644>.
[22] Significant impact guidelines 1.3: Coal seam gas and large coal mining developments—impacts on water resources, *Department of Climate Change Environment and Energy*, https://www.dcceew.gov.au/sites/default/files/documents/significant-impact-guidelines-1-3.pdf> pages 11-13.
[23] Section 2C
[24] Fauna list: https://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl Flora list: https://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=flora Threatened ecological communities: https://www.environment.gov.au/cgi-bin/sprat/public/publiclookupcommunities.pl

- *Xerochrysum palustre* (Swamp Everlasting) – Vulnerable on 16 July 2000
- *Pultenaea glabra (*Swamp bush pea*)* – Vulnerable on 16 July 2000
- *Boronia deanei (*Dean's Boronia*)* – Vulnerable on 16 July 2000
- *Hibbertia cistiflora subsp. quadristaminea* – Endangered on 7 September 2023
- Blue Mountains Water Skink (*Eulamprus leuraensis*) -- Endangered on 16 July 2000
- Giant Burrowing Frog (*Heleioporus australiacus*) – Vulnerable on 16 July 2000
- Gang-gang Cockatoo (*Callocephalon fimbriatum*) - Endangered on 2 March 2022
- Greater Glider (*Petauroides volans*) - Vulnerable on 5 July 2022
- Large-eared Pied Bat (*Chalinolobus dwyeri*) - Endangered on 15 November 2023

90. Clarence Colliery have identified some of the above species and communities as being indirectly impacted by the Proposed Action.[25]

Likelihood of impacts on the listed species and ecological communities by the Proposed Action

Temperate Highland Peat Swamps on Sandstone (THPSS)

91. Clarence Colliery has stated that the Proposed Action will not have a significant impact on any ecological communities.[26]

92. LEG asserts that the Proposed Action will have or is likely to have a significant impact on THPSS ecosystems and relies on the information provided at [39]-[63] above. We note that the Significant Impact Guidelines identify the following as meeting the threshold of significant impact:

- reduce the extent of an ecological community
- adversely affect habitat critical to the survival of an ecological community, or
- modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns [27]

93. As stated above, the changes in the groundwater levels will cause further degradation to the Highland Peat Swamps and reduce the extent of the ecological community.

EPBC listed threatened species

94. Clarence Colliery has stated that the Proposed Action will not have a significant impact on any listed threatened species.[28] LEG asserts that the new mining method covered in the Proposed Action will or is likely to have a significant and direct impact on listed protected species. We note that the Significant Impact Guidelines identify the following as meeting the threshold of significant impact for endangered species:

- lead to a long-term decrease in the size of a population

[25] Referral, page 36-39.
[26] Referral, page 42.
[27] Significant Guidelines, available here: https://www.dcceew.gov.au/sites/default/files/documents/nes-guidelines_1.pdf> Page 11.
[28] Referral, page 42.

- reduce the area of occupancy of the species
- adversely affect habitat critical to the survival of a species
- disrupt the breeding cycle of a population, or
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

95. We note that the Significant Impact Guidelines identify the following as meeting the threshold of significant impact for vulnerable species:
    - lead to a long-term decrease in the size of an important population of a species
    - reduce the area of occupancy of an important population
    - adversely affect habitat critical to the survival of a species
    - disrupt the breeding cycle of an important population, or
    - modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline ,

96. All of the listed Threatened Flora species and the Blue Mountains Water Skink and Giant Burrowing Frog are moisture dependant, meaning that if mining drains the groundwater then the swamps die and the Threatened species die too, thus leading to a long term decrease in population, reduces the occupancy of the population in an area and destruction of the availability of the habitat

97. While we acknowledge that indirect impacts are still relevant for the purposes of the controlling provisions, we disagree with Clarence Colliery's assessment that any potential threats are 'Indirect Impacts', because draining a swamp is a Direct Impact as all moisture-dependent species die. Indirect Impacts may include more intense fires burning the dried-out peat layers depleting the habitat further, and fires liberating tonnes of silt from damaged swamps which accumulates and chokes swamps downstream.

98. Previous EPBC Referrals for Clarence Colliery were determined not to be a Controlled Action (2009/4882; 2012/6446). A number of EPBC Listed Threatened species not previously considered have since been recorded. This Referral should assess the impact of this proposal on those Threatened Species (see below).

    - *Xerochrysum palustre* (Swamp Everlasting) – EPBC Act: Vulnerable – first recorded in 2019 in Pine Swamp, and may occur elsewhere in Proposal area. At NSW Northern limit in Proposal area. Not considered in previous EPBC Referrals. Highly moisture-dependent, in low numbers in water-logged Endangered Swamp Communities. At high risk of being lost to direct and indirect impacts from this Proposal.
    - *Pultenaea glabra* - EPBC Act: Vulnerable – first recorded in 2015 in the Clarence Colliery Northern Area and may occur in the Proposal Area. The main threats listed on the EPBC website are its restricted distribution, habitat loss, weed invasion, too frequent fire, and drying of the species' habitat – a likely result of lowering groundwater in the 918 & 920 Panels

for a protracted period. Several recent taxon name changes apply to this Threatened Species in Centennial Mine leases, all with a more restricted distribution than P. glabra. *Pultenaea tenebrosa* occurs within the Angus Place Mine Lease, *Pultenaea praecipua* in the Airly Mine lease, and *Pultenaea furcata* within the Clarence Colliery mine lease. A Threatened Species which has a name change should retain its Threatened status until a full assessment of the newly named species has been completed. The impact of Centennial operations on *Pultenaea glabra*, *Pultenaea tenebrosa*, and *Pultenaea furcata* has never been assessed under Federal or State Legislation.

- *Boronia deanei* - EPBC Act: Vulnerable – occurs in all THPSS in the proposal area, despite the limited records on the Bionet Atlas, which has been running a protection-racket for the mining industry for decades covering up the existence of Threated Species in the Gardens of Stone SCA.
- *Hibbertia cistiflora subsp. quadristaminea* – EPBC Act: Endangered. Recorded by LEG and Rob Miller in Clarence Colliery Mine Lease in October 2019. Listed on 7 September 2023. Not assessed in previous EPBC Referrals.
- Blue Mountains Water Skink (*Eulamprus leuraensis*) - EPBC Act: Endangered. Recorded within the Proposal Area, and acknowledged by expert Dr Ian Baird as occurring in the mine area.
- Giant Burrowing Frog (*Heleioporus australiacus*) – EPBC Act: Vulnerable
- Gang-gang Cockatoo (*Callocephalon fimbriatum*) - EPBC Act: Endangered
- Macquarie Perch *(Macquaria australasica*) – EPBC Act: Endangered. May occur downstream
- Greater Glider (*Petauroides volans*) - EPBC Act: Vulnerable
- Large-eared Pied Bat (*Chalinolobus dwyeri*) - EPBC Act: Vulnerable

99. In addition a range of NSW BCA listed Threatened Species occur within the Proposal area, some which have never been assessed under State or Federal Legislation for Centennial projects. Whilst the Minister may not be required to assess NSW Listed Threatened Species, the Minister should arguably consider these significant biodiversity values in the overall assessment and also to the extent that these species are part of the ecosystems that contribute to the physical state and environmental value of the water resources impacted by the Proposed Action :

    - *Persoonia hindii (Endangered NSW BCA)* – numerous records in vicinity of Proposal area.
    - *Persoonia acerosa (Vulnerable NSW BCA)* - recorded by LEG in the 700 Area and elsewhere
    - *Caesia parviflora var. minor* (Endangered NSW BCA) – recorded by LEG within Proposal area.
    - *Genoplesium superbum* (Endangered NSW BCA) – Recorded by LEG within Proposal area.
    - *Veronica blakelyi* (Endangered NSW BCA) - Recorded by LEG within Proposal area.
    - *Praspohyllum pallens* (Vulnerable NSW BCA) - Recorded by LEG within Proposal area.
    - *Pultenaea glabra* (Vulnerable NSW BCA) - Recorded by LEG north of Proposal area.
    - *Boronia deanei* (Vulnerable NSW BCA) - Recorded by LEG within Proposal area.

- *Petalura gigantea* (Giant Dragonfly) - Endangered NSW BCA - Recorded by LEG within Proposal area.
- *Cercartetus nanus* (Eastern Pygmy Possum) - Vulnerable NSW BCA. Recorded in Proposal area.
- *Carex klaphakei* (Endangered NSW BCA) – recorded within Centennial Springvale and Angus Place Mine Leases, and highly likely to occur in Clarence Colliery Mine Lease.

C3.EPBC Listed Migratory Species

The proponent is a person

100. Under the *Acts Interpretation Act 1901* (Cth), a person is includes a body corporate.[29]

101. Clarence Colliery Pty Ltd is an Australian private company (ABN 19 001 680 584).

Listed migratory species impacted by the Proposed Action

102. The following species were identified via Gazette to appear on the migratory species list and are impacted by the Proposed Action[30]:
    - Curlew Sandpiper *(Calidris ferruginea*)
    - White-throated Needletail *(Hirundapus caudacutus*)
    - Latham's Snipe (*Gallinago hardwickii*)

Hirundapus caudacutus has been recorded within the Proposal area in Nine Mile Swamp, the 700 and 800 Areas. *Calidris ferruginea* is a wetland/swamp dweller. Groundwater draw-down across the site will result in drying of swamps, resulting in more intense fires which will significantly impact on the habitat of White-throated Needletail.

103. Clarence Colliery has not listed *Gallinago hardwickii* (Latham's Snipe) as a species that is impacted by the Proposed Action.[31]

104. *Gallinago hardwickii* (Latham's Snipe) been recorded within the Centennial Angus Place West proposal area. There is no reason why it should not occur in the Clarence Colliery proposal area.

105. The absence of the inclusion of Latham's Snipe is a basis for the Minister to seek further information from Clarence Colliery and ought to consider the sufficiency of Clarence Colliery's existing surveys of the area in light of this omission.

Likelihood of a significant impact on migratory species

106. Clarence Colliery has stated that the Proposed Action will not have a significant impact on any listed migratory species.[32] LEG asserts that the new mining method covered in the Proposed Action will or is likely to have a

[29] Section 2C
[30] https://www.environment.gov.au/cgi-bin/sprat/public/publicshowmigratory.pl
[31] Referral, page 49.
[32] Referral, page 51.

significant and direct impact on listed protected species. We note that the Significant Impact Guidelines identify the following as meeting the threshold of significant impact

- substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species
- seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

107. Swamp habitats only cover about 1% of Newnes Plateau yet the water they hold are crucial for all life. The impacts caused by groundwater drawdown caused by the Proposed Action may include:

a. loss of habitat,

b. loss of breeding/nesting sites,

c. loss of permanent drinking water sources,

d. foraging sites,

e. protective shelter in dense vegetation (the majority of Newnes Plateau are relatively open woodland with less-dense understorey), and

f. the drying of swamps, resulting in more intense fires and thus habitat loss,

108. All these factors will have or are likely to have significant impacts on the listed migratory species.

C4. World and national heritage area property listing

World Heritage

The proponent is a person

109. Under the *Acts Interpretation Act 1901* (Cth), a person is includes a body corporate.[33]

110. Clarence Colliery Pty Ltd is an Australian private company (ABN 19 001 680 584).

GBMWHA as a declared world heritage area

111. The World Heritage Committee inscribed the Greater Blue Mountains World Heritage Area (GBMWHA) under:

a. natural *criteria (ii) and (iv) in 2000 at the 24th Convention*[34]

[33] Section 2C
[34] 24 COM X.A.1 https://whc.unesco.org/en/decisions/2425

b. *retrospective outstanding universal natural values in 2013 at the 37th Convention*[35]

112. The natural criteria (ii) and (iv) relate to:

(ii) To be outstanding examples representing major stages of earth's history, including record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features.

(iv) To contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

The Proposed Action and proximity to a World Heritage Property

113. The GBMWHA lies approximately 5 km to the east of the proposed action area at its closest point.[36] This Proposal will have or is likely to have direct and indirect impacts on surface and groundwater flows into Bungleboori Creek and Wollangambe River which flows into and form part of the GBMWHA.

Likelihood of a significant impact on GBMWHA by the Proposed Action

114. Clarence Colliery has stated that the Proposed Action will not have a significant impact on the GBMWHA.[37] LEG asserts that the new mining method covered in the Proposed Action will or is likely to have a significant and direct impact on GBMWHA. We note that the Significant Impact Guidelines identify the following as meeting the threshold of significant impact for a World Heritage Area[38]:

- one or more of the World Heritage values to be lost
- one or more of the World Heritage values to be degraded or damaged, or
- one or more of the World Heritage values to be notably altered, modified, obscured or diminished.

115. Clarence Colliery Pty Ltd have stated that they:

> "…considered improbable that subsidence impacts will extend more than 1km away from the proposed action. Consequently, the proposed action is not expected to result in any measurable direct or indirect impacts to geodiversity values (ie clifflines), biodiversity values, species habitats nor ecological and biological processes within the GBMWHA."[39]

[35] 37 COM 8E https://whc.unesco.org/en/decisions/4964
[36] Referral application, Page 18
[37] Referral, page
[38] Page 16.
[39] Page 31

116. However, all minewater pumped out of the Colliery ends up in the GBMWHA. This Proposed Action will negatively impact moisture dependent vegetation communities and aquatic habitats downstream in the GBMWHA:

- Peat swamps act like a huge sponge storing and slowly releasing water into creeks after rainfall. Dead and damaged swamps result in more and faster runoff entering creeks, adversely affecting water quality, streamflow, and flooding characteristics downstream in the GBMWHA.
- Tonnes of silt that are eroded from dead/damaged swamps and are deposited downstream in the Wollangambe River, especially after fires. Huge silt plugs suffocate downstream swamps and creekline vegetation; increase turbidity; clog up waterholes relied upon by fish, platypus etc for habitat;

117. The above impacts cause the degradation and damage to the natural habitats of the GBMWHA which is a World Heritage value and additionally, causes this value to be diminished.

118. World Heritage Convention has historically had interest in the mining in the areas surrounding the GBMWHA and specifically the mining operations at Clarence Colliery:

a. In 2001, concerns about the extension to the Clarence Colliery mine were resolved by an assurance by the Delegate of Australia that the mining lease would be referred to the Australian Government under the World Heritage protection regime of the Environment Protection and Biodiversity Protection Act. It would assess any potential significant impacts on World Heritage values before any project approval could be given.[40]

b. In 2004, the World Heritage Convention encouraged Australia to prevent any developments that could have adverse effects on GBMWHA after it received information on a proposed sand and clay mine.[41]

c. In 2019, the World Heritage Convention noted with concern that several mining projects exist in the vicinity of or adjacent to GBMWHA, and that some mining activities have resulted in impacts on the property, as evidenced by the incident at the Clarence Colliery, and also requested Australia to undertake an assessment of potential cumulative impacts of all existing and planned mining projects in the vicinity of the property.[42]

d. In 2021, the World Heritage Convention noted the initiation of an assessment of the cumulative impacts of existing and planned mining projects in the vicinity of the property, including a specific assessment of all stressors that present a risk to the property's Outstanding Universal Values.[43]

[40] 25 BUR V.113-115 https://whc.unesco.org/en/decisions/5870
[41] 28 COM 15B.15 https://whc.unesco.org/en/decisions/187
[42] 43 COM 7B.2 https://whc.unesco.org/en/decisions/7430
[43] 44 COM 7B.180 https://whc.unesco.org/en/decisions/7896

e. In 2023, the World Heritage Convention requested that Australia avoids cumulative impacts from mining at GBMWHA and requests that Australia takes a strategic approach for the approval of future and management of current mining projects.[44]

119. The 2022 Commonwealth report on 'Potential cumulative impacts of mining on the Outstanding Universal Value of the Greater Blue Mountains Area' made the following findings:

> Eight high-level components of the GBMA's Outstanding Universal Value (OUV) were chosen to represent its natural heritage values and integrity. Fifteen existing and planned open-cut and underground coal mines and three sand mines within 20 km of the GBMA were identified as potential threats to these high-level components of its OUV.
>
> The regional analysis of risk to the OUV of the GBMA estimated that in the absence of any protection and management measures to minimise the likelihood of environmental impacts, up to 20% of the GBMA (1984 km2) could be impacted by the cumulative effects of existing and planned mining in the vicinity of the GBMA (Holland et al. 2021). This potential cumulative impact area (PCIA) is largely defined by the extent of: (i) potentially significant groundwater drawdown, which is assumed to extend up to 20 km from the mine footprints; and (ii) effects on streamflow, which are assumed to be potentially significant up to 40 km from the mine sites in some areas. It must be emphasised that this PCIA is a 'worst-case scenario' that encompasses the maximum area where impacts of nearby mining may occur in the absence of any protection and management measures.[45]
>
> […]
>
> Most of these potential impacts are managed and mitigated through Australian and NSW government legislation intended to protect the GBMA and its biodiversity values, and to regulate the environmental assessment requirements and performance standards for mining approvals. Such protection and management measures are expected to markedly reduce the PCIA.[46]
>
> […]
>
> The severe bushfires in 2019-20 on the GBMA are likely to exacerbate the potential cumulative Impacts of mining near the property. Although it was not part of the scope of the current desktop assessment to quantify this influence, evidence is emerging that some habitats, such as swamps, impacted by mining are recovering more slowly than their unmined counterparts (Section 4.10).[47]

[44] 45 COM 7B.80 https://whc.unesco.org/en/decisions/8278
[45] Page 76
[46] Page 76
[47] Page 77.

120. The absence of any cumulative impact assessment by Clarence Colliery is particularly concerning in light of the findings of the above report which outline the risk of damage to 20% GBMWHA and also names Clarence Colliery as a case study.

121. The cumulative impacts of this new mining method on top of the historical environmental degradation ought to be taken into account on the impacts of the GBMWHA status:

- There is a long history of seepage from old mine workings results in rusty-red discoloured water flowing into creeks and hence the GBMWHA. These iron-stained seepages can be seen on GoogleEarth, and several are visible in the Clarence Colliery mine lease [Paragraph 54, Site 11].

- The subsidence cracks caused by Clarence Colliery enable vertical groundwater flow into mine voids, picking up oxidising sulphuric minerals (eg. Iron, Manganese, Zinc, Nickel). These metals severely deplete macroinvertebrates, a food source for platypus downstream in the GBWHA**.**

- There is a legacy of the iron and manganese deposits from Clarence Colliery's main discharge dam creating slippery slimy black biofilm on rocks downstream in the GBMWHA. Numerous bushwalker & canyoners visit the Wollangambe each year and use lilo's to float down the river. There have been numerous complaints dating back to the 1980s about the slippery black slime or biofilm caused by Clarence Colliery. It is also an obvious safety issue for walkers.

- In 1981 during construction of the main storage dam and polishing dam, Clarence Colliery was successfully prosecuted by the State Pollution Control Commission (SPCC) for failing to prevent water pollution of the Wollangambe River. Those same problems continue to the present day with the recent 2023 Prevention Notice and Cleanup Notices issued by the EPA (Appendix 1).

It is our concern that the World Heritage Convention is not aware of the extent of Clarence Colliery's actions in the area and that GMBWHA is not adequately protected at present. There is a risk that this Proposed Action may ultimately threaten the status of the World Heritage listing of the GBMWHA. As such, the highest level of scrutiny is required.

National heritage

The proponent is a person

1. Under the *Acts Interpretation Act 1901* (Cth), a person is includes a body corporate.[48]
2. Clarence Colliery Pty Ltd is an Australian private company (ABN 19 001 680 584).

GBMWHA as a declared national heritage area

[48] Section 2C

3. On 21 May 2007, GBMWHA was included in the National Heritage List.[49]

The Proposed Action and proximity to a National Heritage property

4. As stated above, the GBMWHA lies approximately 5 km to the east of the proposed action area at its closest point.[50] This Proposal will have direct and indirect impacts on surface and groundwater flows into Bungleboori Creek and Wollangambe River which flows into and form part of the GBMWHA.

Likelihood of a significant impact on GBMWHA by the Proposed Action

5. Clarence Colliery has stated that the Proposed Action will not have an impact on GBMWHA.[51]

6. LEG asserts that the Proposed Action will have an impact on the GBMWHA as a National Heritage site.

7. The Significant Impact guidelines include, although not legally binding:

    - one or more of the National Heritage values to be degraded or damaged, or
    - one or more of the National Heritage values to be notably altered, modified, obscured or diminished.[52]

8. The National Heritage List is Australia's list of natural, historic and Indigenous places of outstanding significance to the nation.[53]

9. An extract of the description of the GBMWHA as a National Heritage Place is as follows:

> The World Heritage property includes very extensive areas of a wide range of eucalypt communities and large tracts of wilderness. The high wilderness quality of much of the Greater Blue Mountains Area constitutes a vital and highly significant contribution to its World Heritage value and has ensured the integrity of its ecosystems and the retention and protection of its heritage values.
>
> The Greater Blue Mountains is an area of breathtaking views, rugged tablelands, sheer cliffs, deep inaccessible valleys and swamps teeming with life. The unique plants and animals that live in this outstanding natural place relate an extraordinary story of Australia's antiquity, its diversity of life and its superlative beauty. This is the story of the evolution of Australia's unique eucalypt vegetation and its associated communities, plants and animals.[54]

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[49] 'World Heritage Places – Greater Blue Mountains Area' *Department of Climate Change Energy Environment Water,* available here: <https://www.dcceew.gov.au/parks-heritage/heritage/places/world/blue-mountains>.
[50] Referral application, Page 18
[51] Referral, page 33
[52] Significant Impact Guidelines, page 19.
[53] 'Australia's National Heritage List' *Department of Climate Change Energy Environment Water,* available here: <https://www.dcceew.gov.au/parks-heritage/heritage/places/national-heritage-list>.
[54] 'World Heritage Places – Greater Blue Mountains Area' *Department of Climate Change Energy Environment Water,* available here: <https://www.dcceew.gov.au/parks-heritage/heritage/places/world/blue-mountains>.

10. LEG relies on paragraphs [96] – [97] and [102] above and restates that the high wilderness and outstanding natural values of the GBMWHA may be degraded, damaged and notably diminished through the Proposed Action.

The Minister must take account of the precautionary principle

11. In considering whether the Proposed Action is a 'controlled action' the Minister must take account of the precautionary principle.[55]
12. There have been numerous instances of non-compliance which has caused environmental degradation which has not been predicted by Clarence Colliery's scientific modelling.
13. Records of environmental incidents and harm, Conditions of Consent breaches, Environmental Protection Licence non-compliances, and inaccurate predictions of environmental impacts from its operations suggest that current impact predictions in the environmental assessment for these Modifications cannot be relied upon. A list of non-compliances issued to Clarence Colliery can be found at **Appendix 1**.
14. Countless instances of environmental incidents and harm, consent and licence non-compliances, inaccurate predictions of environmental impacts indicates that the Clarence 918 & 920 Panels will be no different.
15. An audit of Clarence Colliery over the past 23 years found 156 licence non-compliances, an Enforceable Undertaking, Penalty Notices, Prevention Notices, and Clean-up Notices. Across all Centennial sites in the Gardens of Stone and GBMWHA region this number would be in the 1000s. They include –

    - Clarence Colliery EPL 726 has recorded **156** non-compliances from 2000 to 2023 (see Appendix 1);
    - Prevention Notice, 22 December 2023: EPA issued Clarence Colliery with a Prevention Notice after EPA officers sighted turbid water discharging from the Premises via the Main Dam and into Wollangambe River. The EPA also suspected there was a build-up of coal fines/coal material in the Polishing Lagoon, and Main Dam.
    - Enforceable Undertaking: In 2022 Centennial breached its Development Consent for Airly Mine, causing major irreversible fractures to million-year-old sandstone pagoda formations in the Mugii Murum-ban State Conservation Area. The Department of Planning and Environment imposed a $150,000 Enforceable Undertaking on Centennial. The company has since mined outside its approved area, which is a Class 1 reportable offence under the NSW EP&A Act.
    - Enforceable Undertaking: 2 November 2021 - two workers at Clarence Colliery suffered serious injuries including multiple spinal fractures when they were struck by falling roof material.
    - Prosecution 2017 - EPA prosecuted Centennial after coal Reject Emplacement Area 3 at Clarence Colliery spilled 2,330 tonnes of coal-fines into the Wollangambe River and caused damage within the Greater Blue Mountains World Heritage Area. Centennial were fined over $1 million.
    - In 2015 Centennial was fined $15,000 when toxic coal sludge was illegally discharged from Springvale Colliery sediment storage ponds into downstream wetlands.

[55] EPBC Act, s 371(1)

- Penalty Notice, 26 March 2012. Clarence Colliery breached its manganese limit because the treatment plant was unable to cope with increased minewater inflow. The mine was fined $1500.
- Enforceable Undertaking: In 2011 Centennial acknowledged that the Federal Environment Minister considered its mining operations had significantly impacted upon Temperate Highland Peat Swamps on Sandstone (Narrow Swamp, East Wolgan Swamp, Junction Swamp) and entered into a $1.45 million Enforceable Undertaking under s486DA of the EPBC Act. These swamps have not recovered.
- 30 November 2007 - Clarence Coal P/L and Centennial Coal Company Ltd each were fined $80,000 under the OH&S Act after a worker received serious injuries resulting in paraplegia on 12 July 2004.
- November 2004 - EPA issued Clarence Colliery with a Penalty Notice and $1500 for breaching the filterable manganese limit of EPL726 on 18 October 2004.

16. Clarence Colliery has also failed to list the *Gallinago hardwickii* (Latham's Snipe) as a protected species and has not provided notice of swamp and cliff damage as detailed at paragraphs [43]-[55].

17. The 'Potential cumulative impacts of mining on the Outstanding Universal Value of the Greater Blue Mountains Area' report found that:

> Recent mining development proposals at the Clarence, Airly and Angus Place coal mines have been approved on condition that they are undertaken using partial extraction methods to minimise the risk to overlying or nearby THPSS. Once damaged, remediation of these swamps is seldom if ever feasible (Commonwealth of Australia 2014b) which is why preventing or minimising the impacts is so important.[56]

18. In light of the known irreversible impacts of environment damage to THPSS environments and the species that inhabit these environments, the highest level of scrutiny must be applied to the Proposed Action.

19. Clarence Colliery has a poor environmental record. Neither the EPA nor NSW Department of Environment appear to be able to adequately regulate the company. The Commonwealth Department for the Environment is the last hope to save the few remaining endangered upland peat swamps from being decimated alongside numerous protected species and migratory birds. LEG urges the Minster to do so.

CONCLUSION AND RECOMMENDATIONS

This PPPE mining method is more akin to longwall than a partial extraction technique, and should be assessed as such because the panels are 1.5km long with an 85m void width and 62% extraction rate. This Proposed Action will have or is likely to have a significant impact on a large number of Matters of National Environmental Significance.

It involves an intensification of mining at Clarence Colliery, and consequently an intensification of the environmental harm to endangered swamps, threatened ground-water dependent biota, and water resources.

[56] Potential cumulative impacts of mining on the Outstanding Universal Value of the Greater Blue Mountains Area' Department of Agriculture, Water and Environment' available here: < https://www.dcceew.gov.au/sites/default/files/documents/potential-cumulative-impacts-mining-ouv-greater-blue-mountains-area.pdf > Page 137

That damage will impact the wetter eastern swamps with deeper peat layers than those that have previously been damaged by Centennial on the western side of Newnes Plateau. These eastern swamps support a wider range of threatened groundwater-dependent biota than the western swamps.

Where provisions of the EPBC and TSC Acts apply to groundwater dependent swamps and biota, mining under swamps needs to be avoided.

This Proposed Action must be determined to be a Controlled Action and should not proceed unless it has approval from the Minister for the Environment.

Yours sincerely

Chris Jonkers
Vice President
Lithgow Environment Group Inc.

APPENDIX 1: CLARENCE COLLIERY PTY LTD – POEO Licence Number 726

Non-compliances: 2000 – 2024

2024

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
M8.1 Requirement to	Did not estimate discharge volume/flow for point 3 (on 6/4/2024 and 8/4/2024) and point 4 (on 6/4/2024), as required in condition M8.1	EPA action determined as part of scheduled inspection program	2
L2.4 Water and/or La	Non-compliance with Condition L2.4 due to a dirty water discharge on 5 to 6 April 2024	EPA action determined as part of scheduled inspection program	1
L2.4 Water and/or La	Exceedances of concentration limits specified in condition L2.4 at EPL Point 2 (LDP2)	EPA action determined as part of scheduled inspection program	12
M2.3 Water and/or La	Unable to comply with continuous monitoring of pH and Conductivity at Point 9	EPA action determined as part of scheduled inspection program	1

2023

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
L2.4 Water and/or La	Exceedances of concentration limits specified in condition L2.4 at EPL Point 2 (LDP2)	EPA action determined as part of scheduled inspection program	22
M2.2 Air Monitoring	Failure to monitor in accordance with M2.2 monthly particulates - Deposited Matter. Samples collected from EPL Point 5 (DG1) and EPL Point 7 (DG3)	EPA action determined as part of scheduled inspection program	2

	on 2 February 2023 were lost due to an error during lab analysis.		
L1.1 Pollution of Wa	Non-compliance with condition L1.1 due to an unlicensed discharge on 20 December 2023	EPA action determined as part of scheduled inspection program	1
M2.3 Water and/ or L	Failure to monitor continuously in accordance with Condition M2.3 at EPL Point 9 (Wollangambe River Downstream)	EPA action determined as part of scheduled inspection program	1

2022

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
L2.4	Exceedance of concentration limits at Point 2 as observed in monthly grab sample.	EPA action determined as part of scheduled inspection program	11
M2.2	Failure to obtain monthly dust sample from Point 6 (DG2).	EPA action determined as part of scheduled inspection program	1
U1.3	Failure to achieve the outcome of ceasing discharge into the Wollangambe River via LDP002 by the deadline of 30 June 2021	EPA action determined as part of scheduled inspection program	1

2021

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
L2.1	Exceedance of concentration limits at Licenced Discharge Point 2 as observed in monthly grab sample.	PRP to address non-compliance(s) being negotiated	12
M2.2	Failure to obtain monthly dust sample from Point 5.	EPA to monitor future compliance with this condition	1
U1.3	Failure to achieve the outcome of ceasing discharge into the Wollangambe River via LDP002 by the deadline of 30 June 2021.	PRP to address non-compliance(s) being negotiated	1

2020

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
L2.4	Exceedance of concentration limits at Point 2 as observed in monthly grab sample.	EPA action determined as part of scheduled inspection program	11
M2.2	Failure to obtain monthly dust sample from Point 6 (DG2).	EPA action determined as part of scheduled inspection program	1
U1.3	Failure to achieve the outcome of ceasing discharge into the	EPA action determined as part of scheduled inspection program	1

Wollangambe River via LDP002 by the deadline of 30 June 2021

2019

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
L2.4	Exceedance of concentration limits at Point 2 as observed in monthly grab sample.	Non-compliance(s) under investigation	14
M2.2	Monthly dust sample could not be taken	Appropriate Action taken by licensee	2

2018

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
L 5.1	An exceedence of the noise limits was recorded during validation Noise monitoring undertaken in September.	S.58 notice being negotiated to change licence conditions(s)	1
L2.4	pH recorded above pH range limits at 8.9	PRP to address non-compliance(s) issued	1
L2.4	Chloride concentration recorded at LDP02 of 33mg/L	PRP to address non-compliance(s) issued	1
L 2.4	Metal/Metaloid monitoring results exceed limits for discharge at LDP02	PRP to address non-compliance(s) issued	10
L 2.4	Copper monitoring result exceed limits for discharge at LDP02	PRP to address non-compliance(s) issued	1
M 2.2	Dust monitoring results not analysed or reported for Dust Gauge 2 for November 2018	EPA to monitor future compliance with this condition	1

2017

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
L5.1	Exceedence of night time noise limit.	EPA to monitor future compliance with this condition	1
L2.4	Cobalt, Nickel and Zinc Exceedances recorded June, August, September, October, November and December 2017.	EPA has written to licensee regarding non-compliance and relevant action	1
L2.4	Exceedence of lead concentration recorded at LDP002 in February 2017 prior to upgrade of the water treatment plant.	EPA to monitor future compliance with this condition	1
M2.2	Dust monitoring was not completed in March 2017 due to vandalism of the gauge. The gauge has now been fenced.	Appropriate Action taken by licensee	1

2016

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
M2.2	Dust monitoring not undertaken at point 1 and 2 due to bottle being stolen and another shattered from heavy snow fall. A fence has been installed to prevent access.	Appropriate Action taken by licensee	1
L1.1	Water quality mapping identified similarities in metal concentrations between water in dam 2 and an unnamed tributary located below dam 2. Leachate dam identified as leaking. PRP issued and dam has been lined.	PRP to address non-compliance(s) issued	1
L2.4	Lead limit exceeded. Unplanned shut down of the water treatment plant resulted in a failure to capture partially untreated water prior to discharge. Water treatment plant has been upgraded.	EPA to monitor future compliance with this condition	1

2015

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
L2.1/L2.4	Exceed limit for F. Iron (x1-min/mod) due to WTP malfunction, F. Manganese (x1-min) due to power outage, and TSS (x1-min-mod) due to high intensity rainfall event. EPA notified and responded. EPA has written to licensee.	EPA has written to licensee regarding non-compliance and relevant action	1
L1.1/O1.1/O2.1	Failure of REA 3 (breach of eastern wall) on 02 July 2015 leading to the discharge and movement of coal fines into the Wollangambe River for approx. 10.3km (investigations continuing). EPA responded and investigated. Prosecution to be commenced.	Non-compliance(s) under investigation	1

2014

None

2013

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
L2.1	Minor exceedance of concentration limit at LDP2 (1x pH & Manganese) and moderate Exceedance of concentration limit for pH & various metals at LDP3 due to substantial rain event resulting in discharge.	PRP to address non-compliance(s) issued	1
M2.1	Non-compliance with condition M2.1 - 1 x Dust Deposition Gauge 2 sample unable to be collected as gauge was lost during State Mine Bushfire on 17/10/13. Stand replaced 6/11/13.	Appropriate Action taken by licensee	1

2012

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
L2	Exceedance of the L2 concentration limits on 8/03/12 at LDP2 for TSS (x1 min) and LDP3 for pH (x1 min), TSS (min), cadmium (min), zinc (min) and filterable manganese (mod). Site wide water management improvements undertaken. EPA to monitor.	EPA to monitor future compliance with this condition	1
L2	Exceedance of the L2 concentration limits on 26/03/2012, 2&12/04/2012 and 3/07/2013 at LDP2 for filterable manganese (min/mod). EPA issued PIN for multiple breaches. EPA to monitor future compliance.	Penalty Notice issued	1

2011

Licence Condition number	Type of non-compliance	EPA actions	No. of times occurred
L3.1	Exceedance of L3.1 on: 31/1 for pH (min); 31/5 for TSS (mod) - rainfall; 15/11 for pH (min) - equipment failure; 23/11 for TSS (mod) - rainfall; 28/11 for multiple (mod) - rainfall related. EPA has required water management improvements.	EPA has written to licensee regarding non-compliance and relevant action	5
O1.1	Non-compliance with Condition O1.1: poor pit-top water management at eastern portion of washed coal stockpile resulting in movement of coal fines into manmade drain and adjacent	EPA has written to licensee regarding non-compliance and relevant action	1

	swamp. Remedial actions required/completed. Official Caution issued.		

2010

Licence Condition number	Type of non-compliance	No. of incidents
L3.1	Exceedance of pH Concentration Limit (CL) x 1 (extremely minor), exceedance of TSS CL x 1 (minor) and exceedance of Filterable Manganese (CL) x2 (minor - concentration limit raised following detailed review of this CL).	4
O2.1	Release of untreated leachate water due to pipeline failure with leachate released to main dam. Multiple causal factors identified by OEH and therefore breach of Condition O2.1. Formal warning issued.	1

2009

Licence number: 726

Annual Return Start: 01 Jan 09

Annual Return End: 31 Dec 09

Date Received: 02 Mar 10

Licence Condition number	Type of non-compliance	No. of incidents
L3.1	Exceedance of Filterable Manganese limit on 4 occasions. due to inconsistent pumping flow rate through WTP. exceedances below ANZECC 2000 Trigger Value. The exceedance of Suspended Solids limit was minor (4 mg/L over limit on 1 occasion.	5
M6.1	Flow volume of discharge not monitored at Licence Discharge Point 002 on two occasions due to technical problems with flow monitoring equipment.	2

2008

Licence number: 726

Annual Return Start: 01 Jan 08

Annual Return End: 31 Dec 08

Date Received: 02 Mar 09

Licence Condition number	Type of non-compliance	No. of incidents

L3.1	Minor exceedance of pH (x3) and filterable manganese (x2) discharge limit.	5
O2.1	1.3 ML of untreated mine water accidently discharged via 70 ML site clean water dam following a pipe failure.	1

2007

Licence number: 726

Annual Return Start: 01 Jan 07

Annual Return End: 31 Dec 07

Date Received: 29 Feb 08

Licence Condition number	Type of non-compliance	No. of incidents
L3.1	Exceedence of filterable manganese on 8 occasions.	9
L3.1	Minor exceedance of pH limit on 2 occasions and TSS limit on 1 occasion.	3
O3.3	Laden coal truck left premise uncovered on 15/6/07	1

2006

Licence number: 726

Annual Return Start: 01 Jan 06

Annual Return End: 31 Dec 06

Date Received: 19 Jan 07

Licence Condition number	Type of non-compliance	No. of incidents
L3.1	Exceedance of filterable Manganese Limits on three occasions	3

2005 - Nil

2004

Licence number: 726

Annual Return Start: 01 Jan 04

Annual Return End: 31 Dec 04

Date Received: 23 Feb 05

Licence Condition number	Type of non-compliance	No. of incidents
L3.1	Exceedance of licence limit for filterable manganese.	3
L4.1	Licensee exceeded volumetric discharge limit at point LD002.	8
M2.1	Licensee failed to undertake all monitoring as required by licence	2

2003

Licence number: 726

Annual Return Start: 01 Jan 03

Annual Return End: 31 Dec 03

Date Received: 24 Feb 04

Licence Condition number	Type of non-compliance	No. of incidents
L1.1	Schedule 2 exceedences for Filterable Manganese and Filterable Iron	1
L3.1	pH limit exceeded on one occasion (11/5/03)	1
L4.1	Volumetric discharge limit exceeded on 18 days over the year.	1

2002

Licence number: 726

Annual Return Start: 01 Jan 02

Annual Return End: 31 Dec 02

Date Received: 19 Feb 03

Licence Condition number	Type of non-compliance	No. of incidents
L4.1	volumetric discharge exceeded licence limit on 19 occasions.	1

2001

Licence number: 726

Annual Return Start: 01 Jan 01

Annual Return End: 31 Dec 01

Date Received: 05 Mar 02

Licence Condition number	Type of non-compliance	No. of incidents
L1.1	The concentration of filterable Manganese was in excess of the Schedule 2 concentration for Class P waters for the discharge from point 2.	1
L4.1	Exceed volume limit for discharge from point 2.	1
R1.5	Annual return submitted late (outside of 60 day period).	1

2000

Licence number: 726

Annual Return Start: 01 Jan 00

Annual Return End: 31 Dec 00

Date Received: 12 Feb 01

Licence Condition number	Type of non-compliance	No. of incidents
L3.3	During a heavy rainfall period, a complaint was made to Clarence Colliery by the Sydney Catchment Authority with respect to high TSS levels in the discharge. TSS levels were 37mg/L, exceeding the limit value of 30mg/L.	1
L4.1	The discharge from disharge point 2 exceeded the volumetric limit of 18,000 kL per day (highest value reported 24,500 kL/day).	1

- Prevention Notice Number Reference Number 3507989 SR-2006. On the 22 December 2023, the EPA issued the licensee with a Prevention Notice in response to observations made by EPA officers that turbid water was discharging from the Premises via the Main Dam and was discharging into the Wollangambe River. The EPA officers also suspected that there was a build-up of coal fines/coal material in the Polishing Lagoon, and the Main Dam. F. The Clean-up Notice required the Licensee to engage a suitably qualified ecologist to undertake an ecological assessment of any environmental impacts that may have resulted from the discharge of turbid water and coal particles entering the Wollangambe river, and to recommend options to recover any coal fines and remediate the environmental impact. G. The Clean-up Notice also required the Licensee to engage a suitably qualified engineer to recommend options to improve the water management system at the Premises to prevent turbid water and coal fines from polluting waters. H. On the 15 January 2024, the EPA undertook a follow-up site inspection and meeting with Centennial staff at Clarence Colliery. During the site inspection EPA officers inspected the water management system at the Premises as it relates to flow towards the Polishing Lagoon and the Main Dam. At the conclusion of the meeting, EPA staff advised Centennial staff members that the EPA intended to issue additional notices in relation to the incident

- Clean-up Notice: Friday 22 December 2023. EPA was notified by a member of the public [a bushwalker reported the Incident to LEG who advised EPA) that black water had been observed in the River, just downstream from the Premises. F. Later that day officers from the EPA attended the Premises where they conducted a site inspection and collected several samples. These samples were taken from the licenced discharge point and the main dam. Samples were also taken from locations upstream and downstream of the premises on the River. G. EPA officers observed that the water in the main dam and the polishing lagoon on the Premises appeared to be turbid and may contain suspended coal fines / coal material. H. As a result of the site inspection and the observations made by officers, the EPA suspects that there is a build-up of coal fines / coal material in the polishing lagoon and main dam. Observations made of the water upstream of the Premises did not indicate a presence of coal fines / coal material. I. EPA officers also observed that turbid water is continuing to discharge from the Premises via the main dam into the River. J. The decolourisation of the River at the Premises and downstream from the Premises was consistent for approximately 500 metres as EPA officers travelled downstream from the discharge point. The turbid water was observed to extend downstream from the discharge point. The full extent of the impact is not yet known.

- 2 July 2015: Clean-up Notice: On 2 July 2015, part of the eastern wall of Reject Emplacement Area ("REA") 3 failed resulting in the release of both coarse reject and liquid coal fines

- Penalty Notice: 26 March 2012 Clarence breached its manganese limit because the treatment plant was unable to cope with an increased inflow of raw mine water. The EPA fined Clarence Colliery $1500 for this Breach.

- Penalty Notice: November 2004 the EPA issued Clarence with a penalty notice and $1500 fine for breaching the filterable manganese limit of its EPL on 18 October 2004

- On 22-Nov-2010 the EPA received an application for a variation to licence 726. The application sought a variation to the sampling method at EPA monitoring point 2 from inline ultrasonic flow metre to inline bubble

metre to reduce inaccuracies during periods of high winds (creating the problem of wind drift). By this Notice the EPA varies condition M6.1 of licence 726 as requested.

- On 5 July 2010 following receipt of the 2009 Annual Return, the EPA has undertaken a review of the concentration limits applicable to Filterable Manganese at all licensed discharged points identified on the licence. The historical environmental site specific impacts of manganese, the ANZECC Guidelines 99 percentile protection trigger values for aquatic ecosystems, the general performance of the Water Treatment Plant, and the Australian Drinking Water Guidelines were all taken into consideration during this review. Having due regard for the considerations required under s.45 of the Act, by this Notice the EPA varies the concentration limit for Filterable Manganese at condition L3.1. **(raised from 0.05 milligrams per litre to 0.5 milligrams per litre)**

- On 24 September 2007 at the request of the licensee, the EPA met with Brad Radloff and Nigel Campbell of Clarence Colliery Pty Ltd to discuss an easing of the licence discharge limits for filterable manganese. A variation is sought by the licensee following the repeal of the *Clean Waters Regulation 1972* and in view of occasional non-compliances, despite optimal performance of the water treatment process. After considering the case presented by the licensee against the impacts remaining as a result past higher concentrations of manganese discharged in the past , by this notice the EPA agrees to ease the limits for filterable manganese as detailed by this notice. ***The EPA Increased the limit from 0.05 mg/L to 0.1 mg/L.***

A CSIRO study which investigated water and sediment quality in the Wollangambe River upstream and downstream of Clarence Colliery suggests elevated levels of manganese, cobalt, nickel and zinc are entering the river in the colliery's vicinity (Corkery, 1993).

Corkery, R.W. (1993). Statement of Environmental Effect in support of A review of the CCL 705 Emplacement Areas within the Clarence Colliery Pit Top Report No. 331/1, Orange: R.W.Corkery and Co Pty Ltd.

ATTACHMENT 2

Lithgow Environment Group Inc.

PO Box 3081 Bowenfels, NSW 2790

ABN 23395145080

Preserving the Balance of Nature

The Minister for Environment and Water
Minister.Plibersek@dcceew.gov.au
tanya.plibersek.mp@aph.gov.au

11 September 2024

Dear Minister

RE: CENTENNIAL CLARENCE COLLIERY – MINE SUBSIDENCE DAMAGE

Lithgow Environment Group (LEG) is a not-for-profit environmental organisation established in 2005 with the principal aims of conservation, protection and enhancement of local natural environments. LEG has taken an evidence-based approach by conducting regular Water Quality, Upland Swamp, Threatened Species, and Mine Subsidence Monitoring to establish baseline data. LEG is also a member of the Gardens of Stone Alliance, which works for the full protection of the Gardens of Stone region.

LEG has been monitoring mine subsidence impacts at Clarence Colliery for some time, however have not formally reported any damage assuming that Centennial would have reported it to the DCCEEW and DEWHA. However, in the recent EPBC Referral for Clarence Colliery 918-920 Panels, Centennial claimed that there was "*no known evidence of mining-related impacts*" above Clarence Colliery, and that vertical subsidence had been less than 100 mm, tilts & strains less than 2 mm/m and 1 mm/m.

LEG is very concerned that the DCCEEW may accept Centennial's claims as being true and correct?

On 26 July 2022 the NSW Resources Regulator notified a Condition Red TARP when 131mm vertical subsidence was recorded along the 900D line, and 8 other marks exceeded the 100mm threshold. Previously a Condition Amber was triggered for the 600 Panels when 115mm was recorded.

Therefore LEG hereby formally notifies the Federal Minister for Environment and Water of twenty (20) sites below where LEG has recorded mining-related impacts in the Clarence Colliery mine lease. Please note that we have not surveyed the entire mine area, and more damage is likely to exist.

It is difficult to determine from maps available from Centennial where this damage is situated in relation to the relevant Clarence Colliery mine panels, as roads and creeks are poorly marked and landscape features are absent. LEG has therefore described those sites using GPS coordinates.

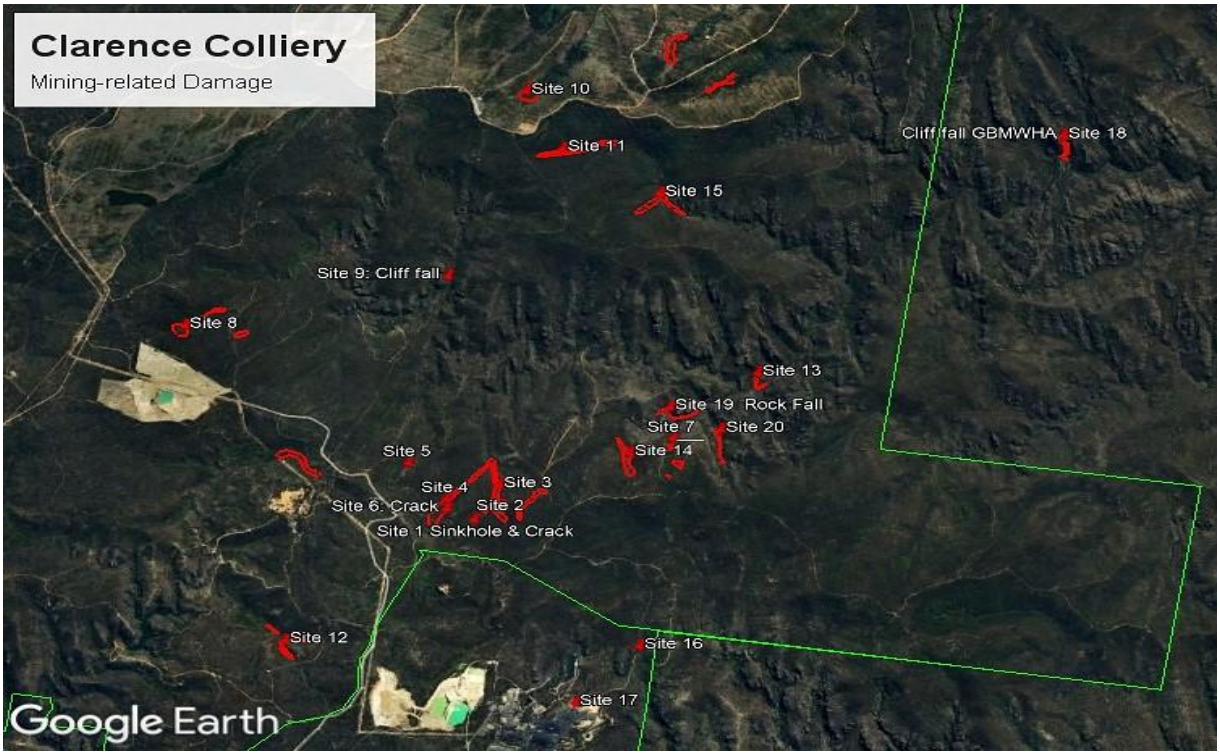

Figure 1: Mining-related damage – Clarence Colliery. Location of sites referred to below.

Site 1: (-33.442041, 150.240876) Subsidence Crack, Sinkhole, Dead THPSS, & Dry creek downstream

First recorded July 2010, last sighted April 2024. Large sinkhole 200m long x 10m wide x 2m deep with a 150-250mm wide subsidence crack at its eastern end. The crack runs east-west across a northerly flowing tributary of Bungleboori Creek. All surface water that once flowed down this creek now flows down that crack, and the creek and THPSS downstream are totally dry. Groundcover vegetation has not recovered in 14 years of observation, with many bare and denuded areas.

LEG notes the IESC Advice on the Clarence Colliery Extension (EPBC 2012/6446) on 31 July 2012 - "*The IESC committee notes that the design adopted by Clarence Colliery is expected to limit the subsidence to less than 100 mm, with tilts and strains less than 2 mm/m and 1 mm/m respectively, and that to date, no surface cracking has been observed above Clarence Colliery.*" No surface cracking??? (see also Site 6).

Photo1: Site 1 Crack in sinkhole - July 2010

Photo2: Site 1 Crack in sinkhole June 2024

Photo 3: Dry creek downstream 2024

Photo 4: Site 1 Sinkhole – July 2010

Photo 5: Site 1 Sinkhole – June 2024

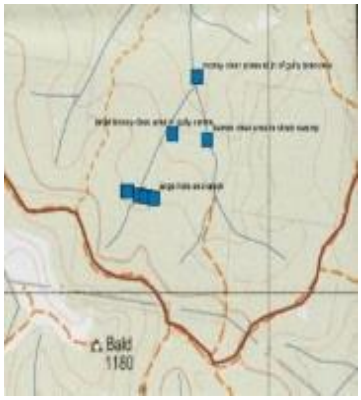

Photo 6: Damage around Site 1

Site 2: (-33.440710, 150.243709) Dead THPSS & Hanging Swamp

First recorded July 2010, last sighted April 2024. Dead THPSS extending 300m downstream with dead Hanging Swamps along verges. Visible on Google Earth. White sand/peat with dead *Leptospermum grandifolium* and *Lepidosperma limicola* stumps. Very little natural regeneration has occurred over 14 years, as the creek is totally dry. Nature doesn't appear to know how to heal desiccated peat swamps.

Photo 7: Site 2 Damaged THPSS – June 2024

Photo 8: Site 2 Damaged THPSS – June 2024

Site 3: (-33.438415, 150.243364) Dead THPSS Swamp, Silt Plug, lack of groundcover vegetation

First recorded July 2010, last visit April 2024. Clearly visible on Google Earth. A silt-plug about 20m x 10m in a dead THPSS with a dry creekbed. After 14 years this creek remains completely dry, and the swamp remains bare. All this silt will eventually end up in Bungleboori Creek and the GBMWHA.

Photo 9: Site 3 Silt plug - June 2024

Photo 10: Site 3 Moss was the only vegetation in July 2010

Photo 11: Site 3 All this unstable silt will end up in GBMWHA

Photo 12: Remnant Leptospermum stump in dead THPSS

Site 4: (-33.439850, 150.238116) Dead/Damaged THPSS Swamp, Dry Creek

First recorded July 2010, last visit June 2024. At least 400m of this THPSS is dead (entire length not walked), and dead Hanging Swamps occur along the verges. Severe erosion downstream has liberated 1000s of tonnes of silt which will end up in Bungleboori Creek and ultimately the GBMWHA.

Photo 13: Site 4 Dead/Damaged THPSS - July 2010

Photo 14: Dead/Damaged THPSS – June 2024

Site 5: (-33.436064, 150.234311) Damaged THPSS Hanging Swamp

First recorded July 2010, last visit April 2024. Damaged THPSS Hanging Swamp extending 240m or more along a slope below a ridge. Occasional bare patches further downhill towards swamp in creek.

Photo 15: Site 5 Damaged Hanging Swamp - June 2024

Photo 16: Site 5 Damaged Hanging Swamp – June 2024

Site 6: (-33.440885, 150.238142) – Mine Subsidence Crack

Recorded June 2024. A subsidence crack 600mm long x 300mm wide running east-west along an old motorbike track. Water flowing down the track is funnelled underground. LEG notes the IESC Advice on the Clarence Colliery Extension

(EPBC 2012/6446) on 31 July 2012 - *"The IESC committee notes that the design adopted by Clarence Colliery is expected to limit the subsidence to less than 100 mm, with tilts and strains less than 2 mm/m and 1 mm/m respectively, and that to date, no surface cracking has been observed above Clarence Colliery."* No surface cracking??? (see also Site 1 above).

Photo 17 & 18: Site 6 Mine Subsidence Crack 600mm x 300mm – June 2024

Site 7: (-33.433493, 150.260677) Dead/Damaged THPSS Hanging Swamp

First recorded October 2008, last visit June 2024. Dead Hanging Swamp, more damage upstream. Little has regrown in 16 years as the creek and swamp are totally dry. Severe erosion & siltation.

Photo 19-22: Site 7 Dead THPSS Hanging Swamp with more damage upstream – after 16 years little has regrown – June 2024

Site 8: Upper Paddys Creek Swamp (-33.421619, 150.212010)

First recorded August 2020, last visit April 2024. In 2020 LEG assessed the recovery of THPSS on Newnes Plateau after the 2019 fires. Undermined THPSS were severely damaged (eg. Carne West Swamp), whereas THPSS that were not undermined recovered very quickly (eg. Broad Swamp).

Upper Paddys Ck Swamp exhibited all the hallmarks of a THPSS which had been undermined. A*tt 17 Clarence 2023 Groundwater Monitoring Results* states '*PSE2 exceeded the trigger level in 2023*. *In August 2022 active mining of Panel 909 occurred approx 200m east of PSE1, and while PSE2 was undermined no mining impacts were observed. During the reporting period, active mining of Panel 919 was approx 50m east of PSE1 and 800 to 850 m north-east of PSE2. No impacts were observed*".

Clearly Upper Paddys Creek Swamp was drained by Panel 909, and subsequently damaged by the December 2019 fire. This damage is only a short distance from vegetation monitoring points SV184 & 185 and Centennial must have been fully aware of it. Why wasn't this THPSS damage reported?

Photo 23, 24, 25: Site 8 – Upper Paddys Creek Swamp, Panel 909. Damaged THPSS, SV185, & limited recovery after fire

Photos 26, 27, 28: Site 8 - Upper Paddys Creek Swamp, Panel 909. Moss but little else regenerating 4.6 years after fire.

Site 9: Cliff collapse – Panel 912 (-33.416420, 150.238266)

Recorded by LEG on 9 March 2018. The Clarence Colliery 2016 End of Year Report states that Panel 912 was approved on 7 June 2016 as part of the 900 Area Variation 3. The EPBC Referral for Clarence Colliery Panels 918-920 stated *"the proposed action is not expected to result in any measurable direct or indirect impacts to geodiversity values (ie clifflines)".* Really??? (see also Site 18 & 19)

Photo 29: Cliff collapse - Panel 912

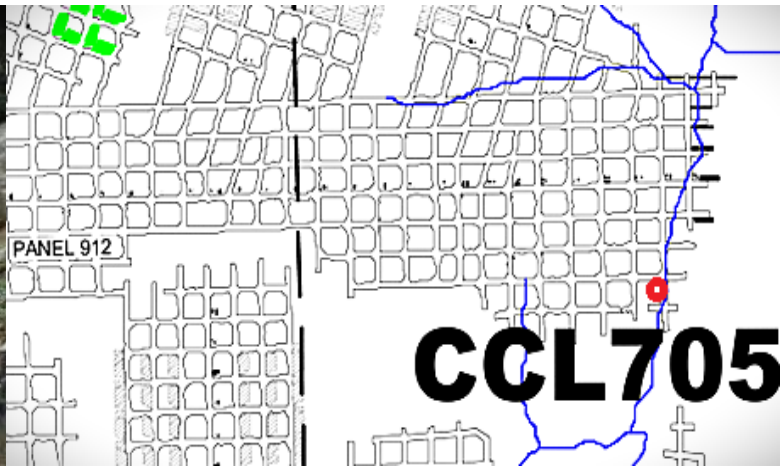

Figure 2: Location of Cliff fall (Red Dot) in Panel 912

Dewatering of Bord & Pillar mines is also known to exacerbate subsidence risks.
https://www.researchgate.net/publication/325562642_Effects_of_dewatering_flooded_abandoned_room-and-pillar_mines_on_surface_subsidence

Site 10: Dead Vegetation on THPSS verge (-33.396996, 150.246106)

Google Earth Imagery showed intact vegetation east of the Aboriginal grinding groove site off Waratah Ridge Road in July 2021, yet in August 2023 vegetation die-back was clearly visible. A dramatic drying event had occurred. The only disturbances in this area between 2021 and 2023 were Mustard Gas removal (didn't occur near this swamp) and mining

of Clarence Colliery Panel 906 or possibly headworks for Panels 908 & 910. Groundwater levels may have been lowered to facilitate mining.

Photo 30: Site 10 Google Earth Imagery July 2021

Photo 31: Site 10 Google Earth Imagery August 2023

Site 11: Swamp Damage, Rusty Water (-33.402892, 150.248769; -33.402273, 150.252433)

Vegetation along this creekline was damaged by early Clarence Colliery mining (Longwall 1). What was once a swamp is slowly reverting to Eucalypts and Acacia, however little groundcover vegetation has regenerated to stabilize the sand and peat to control erosion and siltation.

In addition the water has a distinct rusty-red discoloration not sighted in nearby creeks. This is not unlike Lambs Creek in the Angus Place 300 Area where subsidence cracks allow vertical groundwater flow from upper aquifers into incised valleys, picking up oxidizing sulphuric minerals along the way.

All coal seams slope downhill in a north-east direction, Panel 414/Longwall 4 are the lowest Clarence mine workings, and it is plausible that minewater seepage contaminated with Iron, Manganese, Nickel etc is resulting in metal pollution of Bungleboori Creek which flows into the GBMWHA – a MNES.

Photo 32 & 33: Site 1 1- Rusty-red discoloured water & swamp damage Longwall 1 – June 2024

Site 12: Panel 707 Damage to THPSS Farmers Creek South Swamp (-33.454730, 150.221975)

Farmers Creek South Swamp was drained by Clarence Colliery Panel 707 in 2012 and subsequently severely damaged by the State Mine Fire in October 2013. Previous damage had occurred due to the Clarence Water Transfer Scheme (CWTS) discharge point (33.456013, 150.222956).

Neither Centennial nor Lithgow City Council reported this THPSS damage. LEG was forced to report it to the Sydney Catchment Authority (SCA).

Photos 34,35,36: Site 12 - CWTS Discharge Point into Farmers Creek Swamp on 31 January 2010, and after the 2013 fire.

Photos 37, 38, 39: Site 12 – Erosion, channelization, slumping downstream of Clarence Transfer discharge – 31 January 2010

Photos 40, 41, 42: Site 12 – Erosion, scouring, slumping after undermining by Panel 707 and State Mine Fire – 24 November 2013

The Sydney Catchment Audit 2010 included Recommendation 9: *Lithgow City Council & Centennial Coal should ensure that water transfers from the Clarence Water Transfer Scheme are piped around, rather than flow through, Farmers Creek Swamp.* The Federal Government provided $4 million in funding.

That work was completed in August 2013, however just 8 weeks later was partly destroyed by the October 2013 State Mine Fire which melted poly pipes that had been laid above-ground. Meanwhile damage due to undermining of this swamp by Panel 707 slipped under the radar.

This issue highlights systemic failures that continue to occur with coal mines in the Lithgow region – failure to take responsibility. The minewater emanates from and was polluted by Clarence Colliery; pumping infrastructure and header tanks are located on Clarence Colliery premises; the discharge point is in Clarence Colliery Panel 707; Panel 707

undermined this swamp in 2012; and the October 2013 State Mine Fire irreparably damaged this swamp because it had been dried out by mining.

Why were regular inspections not done? Why wasn't this damage officially reported by Centennial Clarence Colliery, the DCCEEW, or DEWHA? Why has this THPSS damage not been rehabilitated?

Site 13: Panel 606 – Altered flow path of Bungleboori Creek (-33.426634, 150.269177)

GoogleEarth imagery in November 2014 (after the October 2013 State Mine Fire) shows the stream path of Bungleboori Creek at the southern end of Clarence Colliery Panel 606 as being intact. In September 2024 (after December 2019 Gospers Mountain Fire) it was significantly disturbed.

On inspection it appears that Bungleboori Creek has changed course in a more easterly & southerly direction. LEG believes this is not fire-related. Undermining of Bungleboori Creek by Panel 606 has likely resulted in subsidence altering the slope of the land surface and tilting of the creekbed.

Photo43: Google Earth Imagery 11/2014

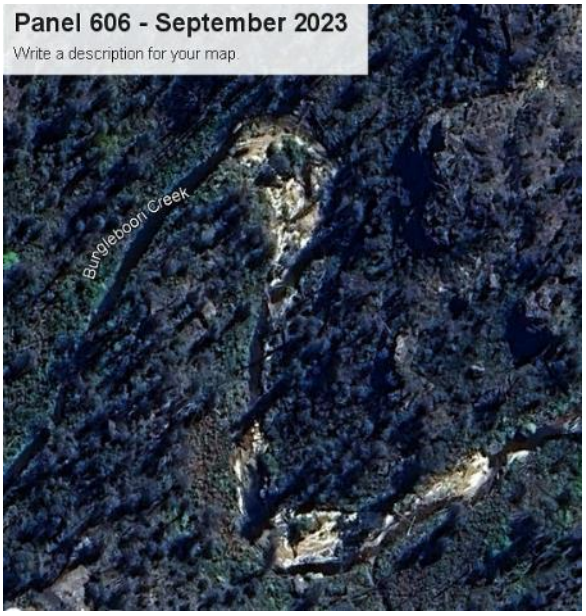

Photo 44: Google Earth Imagery 09/2024

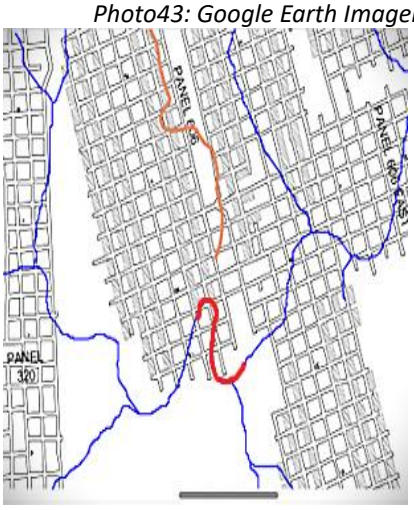

Fig 3: Panel 606 creek damage(Red)

Photo 45 & 46: Bungleboori Ck under-cutting bank & forming new channel

Photo 47, 48,49: Bungleboori Creek tilted by Panel 606, abandoning old channel, and forming new channel

Photo 50 & 51: Bungleboori Creek tilted by Panel 606 & forming a new channel

Site 14: Dead THPSS Hanging Swamps, dry and damaged creek (-33.435046, 150.256391)

THPSS Hanging Swamps above Panel 308 have died, the entire length of the creek for about 1km to its junction with Bungleboori Creek has dried up, there are possible sinkholes, and severe erosion.

Photo 52-55: Site 14 - Dead hanging Swamps, dried up creek, possible sinkholes, severe erosion

Site 15: Dead Hanging Swamp, dried up creekbed (-33.407745, 150.259405)

Several dead hanging swamps occur in this area, the creekline is dry and desiccated, and an arm of Bungleboori Creek downstream is totally dry. Whilst inspecting this site LEG recorded the threatened species *Pultenaea glabra* (EPBC Act -

Vulnerable; NSW BCA - Vulnerable), not previously reported by Centennial as occurring in the Clarence Colliery Mine Lease. This raises serious questions about the adequacy of Centennials recording/reporting of Threatened Species at risk to its mining operations.

Photo 56-58: Site 15 Dead Hanging swamps, dry and desiccated creekline, dry creekbed downstream

Site 16: Clarence Colliery Coal Fines Spill – 22 December 2023 (-33.455350, 150.257381)

The Clarence Colliery coal-fines spill into the Wollangambe River on 22 December 2023 was reported by LEG, not by Centennial. This highlights an ongoing issue with Centennial mines in the Lithgow area - failure to report incidents of environmental harm.

On the 22 December 2023 the EPA issued the licensee (EPL726) with a Prevention Notice (Reference Number 3507989 SR-2006) in response to observations made by EPA officers that turbid water was discharging from the Premises via the Main Dam and was discharging into the Wollangambe River. The EPA officers also suspected that there was a build-up of coal fines/coal material in the Polishing Lagoon, and the Main Dam. The Clean-up Notice required the Licensee to engage a suitably qualified ecologist to undertake an ecological assessment of any environmental impacts that may have resulted from the discharge of turbid water and coal particles entering the Wollangambe River, and to recommend options to recover any coal fines and remediate the environmental impact. The Clean-up Notice also required the Licensee to engage a suitably qualified engineer to recommend options to improve the water management system at the Premises to prevent turbid water and coal fines from polluting waters. On the 15 January 2024, the EPA undertook a follow-up site inspection and meeting with Centennial staff at Clarence Colliery. During the site inspection EPA officers inspected the water management system at the Premises as it relates to flow towards the Polishing Lagoon and the Main Dam. At the conclusion of the meeting, EPA staff advised Centennial staff members that the EPA intended to issue additional notices in relation to the incident.

Photos 59-61: Clarence Colliery coal-fines spill into Wollangambe River – 22 December 2023

Site 17: Collapse of Reject Emplacement Area ("REA") 3 on 2 July 2015

On 2 July 2015 part of the eastern wall of Reject Emplacement Area (REA) 3 failed resulting in the release of coarse reject and 2,330 tonnes of coal fines into the Wollangambe River & GBMWHA. The Land & Environment Court convicted Clarence Colliery P/L of two offences and imposed financial penalties totalling $1,050,000 plus $106,010 in investigation and legal costs - the single largest fine following prosecution by the EPA.

REA3 was approved by Lithgow City Council in 1993. The collapse of a dam built out of coarse reject material was clearly foreseeable. The likelihood of anything approved by Lithgow Council failing was clearly foreseeable. The fact REA3 had been full since 2011 and overtopping could occur was clearly foreseeable. Lithgow Council's development approvals 174/93 and IRM.GE.76 are in Perpetuity.

Further instances of environmental harm such as this are clearly foreseeable – in Perpetuity.

Photo 62-69: Clarence Colliery Reject Emplacement Area ("REA") 3 – collapsed on 2 July 2015

Site 18: Cliff collapse in GBMWHA east of Panels 611A & 611B (-33.401661, 150.299628)

Centennial claimed in the EPBC Referral for Clarence Colliery - Secondary Extraction of the 918 & 920 Panels using Partial Extraction Mining Methods *"…considered improbable that subsidence impacts will extend more than 1km away from the proposed action. Consequently, the proposed action is not expected to result in any measurable direct or indirect impacts to geodiversity values (ie clifflines), biodiversity values, species habitats nor ecological and biological processes within the GBMWHA."*

Centennial also claim that Secondary Extraction of the 918 & 920 Panels will limit vertical subsidence to less than 100 mm, with tilts and strains less than 2 mm/m and 1 mm/m respectively.

Yet a Condition Red TARP along the 900D line was notified to the NSW Resources Regulator on 26 July 2022 when 131mm vertical subsidence was recorded. Eight (8) other marks also exceeded the 100mm threshold. LEG recorded a

cliff collapse at the end of Panel 912 in March 2018 (see Site 9 above). Previously a Condition Amber was triggered for the 600 Panels when subsidence of 115mm exceeded the maximum allowable 100mm threshold.

Mine dewatering is known to increase the subsidence risk well beyond the mining footprint – 'Effects of dewatering flooded abandoned room-and-pillar mines on surface subsidence' https://www.researchgate.net/publication/325562642_Effects_of_dewatering_flooded_abandoned_room-and-pillar_mines_on_surface_subsidence

Mining near Lineaments and Faults is also known to have far-field subsidence effects (eg. Loss of Carne West Swamp to Springvale Colliery longwalls undermining the Deanes Creek Lineament Zone). Several Lineaments and Faults have been recorded at the northern-eastern end of the 600 Panels.

The cliff fall below occurred in the GBMWHA about 1km east of Clarence Colliery Panels 611A & B between 2019 and 2023. The cliff was about 60m high, and fallen rubble extends some 200m into Bungleboori Creek which appears to have been dammed-up. Far-field effects are entirely possible.

Photo 70: GoogleEarth imagery - August 2019

Photo 71: GoogleEarth imagery - September 2023

Photo 72: Cliff fqll in GBMWHA – Courtesy of the Bush Explorers, Yuri Bolotin and Brian Fox – 19 August 2024

Photo 73-74: Cliff fall in GBMWHA east of Clarence Colliery Panels 611A & 611B – 19 August 2024

Site 19: Rock Fall – Panel 307 (-33.430213, 150.260434)

Recorded 4 September 2024. Appears to be a relatively recent rock fall. The creek (a tributary of Bungleboori Creek) in this vicinity has also dried up, both upstream and downstream.

Figure 4: Rock fall (red dot), dry creek

Photo 74 & 75: Site 19 Panel 307 – Rock fall and dry creek

Site 20: Panel 314 - Severe channelisation, THPSS damage, rusty water (-33.432554, 150.265502)

Recorded on 4 September 2024. Panel 314 was approved on 19 February 2010 and expired on 1 February 2015 as part of the Clarence Colliery Panel 314 & 316 Area Subsidence Management Plan.

This is the most severe channelisation and erosion LEG has seen on Newnes Plateau. The most recent damage is clearly visible on Google Earth, extending for 200m and up to 20m wide x 4m deep. It corresponds almost exactly to where Panel 314 passed underneath this creek. Remnant *Olearia quercifolia* and other swamp species suggest THPSS or Hanging Swamps once occurred pre-mining.

Older channelisation and erosion extends a further 150m upstream, near to a patch of rusty-red water visible on GoogleEarth, possibly minewater seepage, which disappears underground. Old pegs along a subsidence monitoring line occur on the ridge to the west. LEG believes the initial damage was caused by early 300 Panels (Wongawilli Full Extraction), and reactivated by Panel 314 post 2010.

Photo: 76 & 77 Clarence Colliery Panel 314 – Severe channelisation, erosion & dried-up creek in former THPSS


Photo 78, 79: Clarence Colliery Panel 314 – relatively recent severe channelisation, erosion, slumping, dry creek


Photo 80-82: Panel 314 – Severe channelisation, erosion, rusty-red discoloured water, old mine subsidence peg

DISCUSSION

The above damage at 20 sites within the Clarence Colliery mine lease represents a cross-section of the types of impacts that have occurred in the past, are occurring right now, and are likely to occur in the future. LEG does not believe that these are 'negligible impacts'.

It is too late to save these 20 sites, the mining damage has been done and is likely irreversible. However it is not too late to prevent similar mining damage from occurring in future. The first step in doing so requires the DCCEEW and DEWHA to acknowledge this damage, and not turn a blind-eye.

Importantly previous partial extraction at Clarence Colliery (eg. 700 Panels approved 2005) removed <50% of the coal seam. However recent and reasonably foreseeable future proposals in the 700, 900, and Northern Area's plan to intensify the extraction rate to 62% or more. Further damage is inevitable.

Recurring themes in the above 20 examples of mine subsidence damage at Clarence Colliery include –

- Inaccurate predictions of subsidence impacts on swamps, cliffs, waterways, and the GBMWHA;
- Failure to report THPSS damage to relevant agencies such as the EPA, SCA, DCCEEW, DEWHA;
- Failure to record/report threatened flora species, contravening the EPBC Act and NSW BCA;
- Failure to record/report all vegetation communities likely to be impacted by mining;
- Failure to heed previous IESC advice that adaptive management and trigger action response plans (TARPs) are unlikely to be successful for mitigating and managing impacts to THPSS;
- Failure to heed previous IESC advice that the only way to prevent impacts to THPSS is to avoid directly undermining swamps and their water supply aquifers;
- Failure to heed previous IESC advice that current Groundwater monitoring networks do not monitor the full extent of minewater drawdown; Vibrating Wire Piezometers (VWPs) don't allow actual measurements of water levels, have a limited lifespan and aren't replaced; and predicted drawdown will extend into the Greater Blue Mountains World Heritage Area;
- Changing from star pickets to Feno markers, which can't accurately measure Strain & tilt;
- Failure to consider Cumulative Impacts and Likely Foreseeable Future Developments on THPSS, Groundwater Drawdown, downstream water pollution, siltation, sedimentation etc in the Gardens of Stone SCA and GBMWHA by assessing each proposal as stand-alone in isolation;
- Knowingly endorsing inaccurate predictions of subsidence and issuing Enforceable Undertakings and/or fines after damage has occurred is a perversion of due Planning processes;
- Relying on volunteer groups rather than Centennial to report swamp and other subsidence damage is too little too late. The DCCEEW and DEWHA must be more proactive, force Centennial to report, or get out into the Gardens of Stone SCA and find this damage for themselves;
- Absence of remediation, rehabilitation, or revegetation requirements once THPSS are damaged.

ARE THE ABOVE "NEGLIGIBLE IMPACTS"?

Centennial claim that there is "no evidence" of mining related impacts above Clarence Colliery, and in the unlikely event any impacts were to occur then those would be "negligible impacts".

The Cambridge Dictionary defines the word Negligible as something *"too slight or small in amount to be of importance"*.

The 20 examples above illustrate numerous dead or damaged nationally endangered swamps; surface fractures and sinkholes; creeks disappearing into mine voids; cliff collapses; severe erosion, channelization, and siltation; and major pollution of waterways which flow into the GBMWHA.

A "significant" impact is defined as *an impact that is important, notable or of consequence having regard to its context or intensity*. LEG considers the above to be significant impacts.

LEG cannot comprehend how the DCCEEW and DEWHA could possibly have accepted Centennial's claims of 'negligible impacts' over many decades, despite 'significant impacts' having occurred?

ARE THE ABOVE "ACCEPTABLE IMPACTS"?

Centennial's arrogant right-to-mine attitude regards any and all impacts as acceptable, and the Clarence Colliery mine lease as their own private property to do with as they please. But it is not Centennial land, it is publicly owned land belonging to all the people of NSW. And it is not just an ordinary patch of bush, but a biodiversity hotspot within the Gardens of Stone SCA bordering on the Greater Blue Mountains World Heritage Area – of State, National, and International significance.

The DCCEEW and DEWHA are the custodians of this publicly-owned land. There is no doubt that the 'economic-benefits' of coal mining have been prioritized over every other consideration for decades. However the role of the DCCEEW and DEWHA is supposed to be to ensure a balanced perspective. LEG has seen no evidence of a balance ever having been achieved at Centennial Clarence Colliery.

WERE THE ABOVE 'AVOIDABLE IMPACTS'?

Yes. The DCCEEW and *NSW Biodiversity Conservation Act 2016* adopted the Mitigation Hierarchy requiring developers to firstly Avoid Impacts, and then sequentially Minimise, Restore, and Offset unavoidable impacts. LEG has seen no evidence of the Mitigation Hierarchy being properly applied to Centennial coal mines in the Lithgow region. The DCCEEW & DEWHA routinely approve inaccurate predictions of mine subsidence, and when damage inevitably occurs say "oops, but too late now" and issue Centennial with petty-cash enforceable undertakings or fines, and it's business as usual until the next time. However there are so few swamps left, that the 'next time' may mean extinction.

SIGNIFICANCE OF ENDANGERED SWAMPS IN THE CLARENCE COLLIERY MINE LEASE

Peat swamps on the eastern side of Newnes Plateau (ie. entire Clarence Colliery mine lease) are wetter swamps, have deeper peat layers, and support a wider range of threatened groundwater-dependent biota than the western swamps previously damaged by Centennial. (*Cunninghamia (2012) 12(4): 267–307 Vegetation, fauna and groundwater*

interrelations in low nutrient temperate montane peat swamps in the upper Blue Mountains, New South Wales. Doug Benson and Ian R. C. Baird).

Benson & Baird identified that peat depths in the Carne/Clarence/eastern swamps ranged from 0.6 – 1.3m, but, for the western swamps were substantially less at 0.3–0.6 m:

> *"While there is evidence that a group of the highest elevation swamps on the western side of the Plateau are more dependent on rainwater, the majority of swamps and those in the Carne Creek catchment, and to its east and south to Clarence in particular, have permanently high water tables maintained by groundwater, and are associated with the concurrence of a number of threatened groundwater dependent biota restricted to these sites. This association makes them highly susceptible to threats of loss of groundwater, the major one being the impact of subsidence caused by longwall mining; though other impacts may come from changes to hydrology as a result of damming, mine waste water discharge, increased moisture competition from pine plantations, and climate change. Our view is that if groundwater hydrology is impacted by activities such as longwall mining and associated subsidence, potential significant ecological damage is unlikely to be avoided or mitigated. Where provisions of the EPBC and TSC Acts apply to groundwater dependent swamps and biota, mining under swamps needs to be avoided."*

In 2022 Krogh et al conducted a study of the 'Wildfire impacts on flora and fauna of undermined Newnes Plateau Shrub Swamps (*Krogh, Martin & Gorissen, Sarsha & Baird, Ian & Keith, David. (2022). Impacts of the Gospers Mountain Wildfire on the flora and fauna of mining-impacted Newnes Plateau Shrub Swamps in Australia's Eastern Highlands. Australian Zoologist. 42. 199 216*).

The study undertook monitoring of Broad, Sunnyside, Carne West, Gang Gang East & West, and Budgary Swamps. Keith et al. (2020, 2021) also undertook vegetation surveys in East Wolgan, Carne Central and Marrangaroo Swamps. They found that:

> *There was strong evidence of ecosystem collapse in swamps located above the footprint of prior longwall coal mining operations (Baird and Benson 2020, Keith et al. 2020, 2021, Baird 2021, Gorissen 2021b). Endangered species populations (E. leuraensis, P. gigantea) which had already been catastrophically impacted or were in significant decline due to longwall mining hydrological impacts are now likely to become locally extinct in these mining impacted swamps. To date, 15 swamps or ~13% of the area of the NPSS community on the Newnes Plateau have potentially been irreversibly impacted by longwall mining (DPIE BCS 2020).*

Regrettably that study only looked at longwall mining areas, otherwise damage by Partial Extraction mining in the Clarence Colliery mine lease to Paddys Creek Swamp, Farmers Creek South Swamp, and others illustrated above might have been officially identified.

Krogh et al concluded that:

> *Protecting the remaining Newnes Plateau Shrub and Hanging Swamps from further hydrological impacts of longwall mining is a prerequisite for the conservation of these swamps and the populations of the endangered species they contain, even when high severity fires occur. Failure to protect these swamps from the damaging hydrological impacts of longwall mining will likely result in further irreversible impacts and localised extinctions of threatened*

species populations within mining impacted swamps (if not immediately, then following the next major fire event in the area).

The above should be expanded to include Bord & Pillar, Panel & Pillar Partial Extraction (PPPE), Shortwall, Split & Lift, Pillar Quartering, Wongawilli, Mini-longwall, and all other mining techniques which Clarence Colliery claim will have 'negligible impacts' on THPSS.

Clarence Colliery and its parent company Centennial have an appalling history of inaccurately predicting mine subsidence impacts on swamps, cliffs, creeks, and pagodas, as evidenced by –

- the loss of Junction Swamp, East Wolgan Swamp, Narrow Swamp, Kangaroo Creek Swamp, Carne West Swamp, Sunnyside East & West Swamps, Gang Gang East & West Swamps, and Carne Central Swamp and numerous Hanging Swamps to Springvale/Angus Place longwalls.
- Pine Swamp, Nine Mile Swamp, and Marrangaroo Creek Swamp are likely to be lost in the near future as a consequence of the 2015 Springvale Mine Extension approval.
- Centennial Airly Mine signed a $150,000 Enforceable Undertaking in 2022 for incorrectly estimating subsidence, causing major subsidence damage to Muggi Murrum-ban SCA.

The proposed Clarence Colliery Northern Area currently being prepared will severely damage and affect the flow regimes of many THPSS in the upper Dingo Creek catchment, Red Hill Road, Murray's Swamp, and Broad/Barrier Swamp. Reasonably Foreseeable Future mining proposals in the 900 Area and 700 Area are likely to damage THPSS in Farmers Creek and Bungleboori Creek catchments.

The DEWHA and DCCEEW must consider peat swamps in the Clarence Colliery mine lease as wetter swamps with deeper peat layers that support a wider range of threatened groundwater-dependent biota than the western swamps. Any future intensification of mining must be strongly resisted.

UNSUSTAINABLE MINEWATER TAKE

Clarence Colliery mine workings flood due to aquifer interference. Centennial regard this minewater inflow as a waste product to be disposed of, however for the Gardens of Stone SCA this groundwater is vital to maintain base flow into waterways, and sustain groundwater-dependent ecosystems.

Across all Centennial mines in the Gardens of Stone SCA the water groundwater take is substantial. Centennial extract 20.1 billion litres of groundwater each and every year, increasing with every new Panel mined. (Source: Centennial documents confirm the Springvale Transfer sends 42ML/day to Mount Piper Power Station, and Clarence Colliery discharges 15ML/day into the Wollangambe River).

In the words of Justice Perry "*They want to know that I am considering: if there is an irreversible depletion and contamination of our surface and groundwater resources*". (Australian Conservation Foundation Incorporated v Minister for the Environment [2021])

LEG would like to know how the DCCEEW & DEWHA consider this huge water take to be sustainable?

MINE DEWATERING INCREASES SUBSIDENCE RISKS

The dewatering of Bord & Pillar mines has been identified as the main cause for a number of serious mine subsidence events in the past.
https://www.researchgate.net/publication/325562642_Effects_of_dewatering_flooded_abandoned_room-and-pillar_mines_on_surface_subsidence

Locally this issue was raised at the Lithgow City Council meeting and in the Lithgow Mercury in 2010.
http://www.lithgowmercury.com.au/news/local/news/general/a-watery-grave/1949152.aspx

In 2010 Lithgow Council proposed to pump out old Oakey Park Mine Bord & Pillar works to drought-proof Lithgow. However Delta Electricity (then NSW Government owned) provided a report stating that mine dewatering increases subsidence risks. The risk for individual residential areas, industrial areas, and critical railway areas ranged from tolerable to extreme. The project was abandoned.

Mine dewatering subsidence impacts extend well beyond Clarence Colliery's mine footprint into the Greater Blue Mountains World Heritage Area, and may explain the cliff collapse at Site 18 above.

PREVIOUS BORD & PILLAR MINING DAMAGE IN THE LITHGOW REGION

Centennial, the DEWHA and DCCEEW continue to claim that Bord & Pillar mining methods have minimal subsidence impacts compared to longwall mining methods (eg. Angus Place West Proposal, Clarence Colliery 918-920 Panels). The earliest recorded cliff falls due to Bord & Pillar mining in the Lithgow region occurred c1910 at Newnes Shale Oil Mine in the Wolgan Valley, and continue to this day. LEG has therefore included some history on Bord & Pillar Mining in Appendix 1 to refute this myth.

CONCLUSION

The Lithgow Environment Group thanks the Minister for taking the time to consider this document. We hope that the twenty (20) above-mentioned Sites will be thoroughly investigated.

LEG is most concerned that the damage to nationally endangered swamps which has occurred in the past has not been formally acknowledged nor accounted for.

The DCCEEW and DEWHA appear to have acknowledged that some 15 swamps and about 100 Hectares of THPSS have previously been damaged by Centennial Springvale and Angus Place Collieries.

However LEG has recorded at least an additional 20 Hectares of THPSS damage in the Clarence Colliery mine lease, or 20% more than what has been officially recorded, acknowledged, or accounted for.

To reiterate what the IESC and many researchers have previously identified - the only way to prevent impacts to THPSS is to avoid directly undermining of swamps and their supply aquifers.

LEG hopes that the Minister and the DCCEEW will do so.

Yours sincerely

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APPENDIX 1: HISTORY OF BORD & PILLAR MINING DAMAGE

Government, Council, Unions and Industry have historically denied, lied and covered-up any inconvenient truths about coal mining in the Lithgow region to fit their 'economic benefits' dialog. All routinely ignore cumulative impacts, offsite minewater pollution, threatened species, aboriginal heritage, legacy mining issues, post-mining impacts, the non-compliance culture, and take the drug dealers defence on emissions, whilst forever increasing mining intensity, extraction ratios, and the severity of impacts.

Subsidence damage due to longwall mining in the Lithgow area since first introduced at Angus Place Mine in 1979 has been well documented. Not by Government, Council, Unions or Industry, but by outraged traditional owners, residents, bushwalkers, volunteer-run community groups, and a diligent media.

Subsidence damage due to Bord & Pillar mining is also widespread, but less well documented. The mining industry, Federal & NSW Governments appear to be exploiting this information gap to rewrite history by endorsing inaccurate predictions of mine subsidence impacts to claim 'No evidence' & 'Negligible impacts' from Bord & Pillar mining methods, despite substantial evidence to the contrary at –

- Airly Mine
- Canyon (Grose Valley) Colliery
- Clarence Colliery
- Cobar Park Colliery
- Hassans Walls Reserve (Hassans Walls Colliery, Lithgow Valley Colliery)
- Katoomba Colliery (Dogface Rock)
- Invincible Colliery
- Ivanhoe Colliery
- Newcom Colliery
- Newnes Shale Oil Mine
- Oakey Park Mine
- State Mine
- Tyldsley Mine
- Vale of Clywdd Colliery, and Vale of Clywdd No. 2 Colliery
- Wallerawang Colliery
- Western Main Colliery

Below are 80 examples at 20 Bord & Pillar mines refuting claims of 'No evidence' and 'Negligible impacts'.

1. AIRLY MINE

The original 1993 Airly Mine consent approved coal extraction by 'Bord & Pillar' methods. A wording change to 'partial extraction methods' in the December 2016 consent deceptively turned Airly into a longwall mine using 'mini-longwalls'. That consent allowed for <125mm vertical subsidence, however up to 700mm occurred, causing major surface fractures in Mugii Murum-ban SCA. In May 2022 Centennial Airly Pty Ltd entered into a $150,000 Enforceable

Undertaking under Section 9.5 of the *EP&A Act 1979*. Too little, too late however, irreversible damage to sandstone pagodas had been done.

2. CANYON (GROSE VALLEY) COLLIERY

A Bord & Pillar mine in the Katoomba Seam originally opened as Hartley Vale No. 4 Colliery in 1956, Grose Valley Colliery from 1960 – 1987, and Canyon Colliery from 1990 - 1997. Subsidence cracks above the mine on Kamarah and Jungaburra Ridge allow vertical flow of surface and groundwater into mine workings, where it is contaminated with salts and heavy metals before discharge via a mine adit into Dalpura Creek and Grose River within the Blue Mountains Heritage Area (GBMWHA).

Zinc & nickel levels are up to 500 times above guideline limits, toxic to macroinvertebrates relied on by all aquatic life. Wright, I. and Burgin, S. (2009), 'Comparison of sewage and coal-mine wastes on stream macroinvertebrates within an otherwise clean upland catchment, Southeastern Australia', *Journal of Water, Air and Soil Pollution*, vol 204, no 40634, pp 227 – 241.

www.smh.com.au/environment/sustainability/disused-mine-leak-is-killing-life-in-river-20080504-2atg.html

Photo 1, 2, 3: Mine subsidence cracks on Kamarah Ridge and Jungaburra Ridge above Canyon Colliery – 10 February 2015

Photo 4, 5, 6: Contaminated mine water discharge from Canyon Colliery into Dalpura Creek and GBMWHA – 5 May 2015

3. CLARENCE COLLIERY

See above.

4. COBAR PARK COLLIERY (includes old STEELWORKS COLLIERY, parts of old HERMITAGE COLLIERY)

Cobar Park Colliery was a Bord & Pillar mine in the Lithgow Coal Seam. Numerous incidents saw Farmers Creek disappear into the mine void; 2.7km of the creek having to be concrete lined; houses lost; a drowning; subsidence cracks; a cliff fall; and culminating in the closure of the State Mine in 1964.

Photos: Cliff fall and subsidence cracks on Newnes Plateau above Cobar Park Colliery bord & pillar workings – March 2009

Photos: Subsidence cracks on Newnes Plateau above Cobar Park Colliery bord & pillar workings – March 2009

Photos: Subsidence cracks on Newnes Plateau above Cobar Park Colliery bord & pillar workings – March 2009

4.1 Flooding of Cobar Park Mine 1928

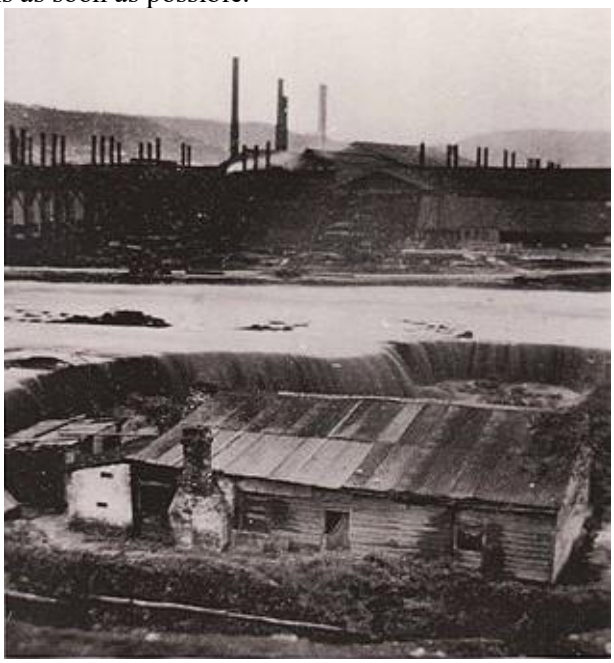
4.2

Lithgow Mercury: Tuesday 21 February 1928
http://trove.nla.gov.au/newspaper/article/93662787

CLOUDBURST AT LITHGOW
A cloudburst occurred at Oakey Park yesterday afternoon. John Brennan (67), a retired dairy farmer, was standing on the banks of the creek when it collapsed and he fell into the water. He was carried downstream. The body has not yet been recovered.

The roof of Cobar tunnel collapsed, leaving a gap 40 feet deep by 150 yards wide and about 200 yards in length, through which the water poured into the colliery. Fortnately no men were in the mine at the time. The mine has been completely flooded.

Deputies descended mines affected by the weekend floods. Today at Hermitage Colliery they found the black damp very bad and had to come to the surface. "Water is still pouring into Cobar mine, but attempts are being made to check it by means of sandbags. Hoskins and Co. have decided to start pumping operations as soon as possible.



GARDENS DROPPED AFTER TREMOR. SYDNEY, Monday. — Advocate (Burnie) Tues 28 Sept 1948 https://trove.nla.gov.au/newspaper/article/69185337

Subsidence causes gardens to subside, calls for Mine Subsidence Board to act.

4.3 House destroyed by subsidence, earth tremors - McCauley Street

4.4 Grave danger seen to Cobar Park homes, subsidence risk warnings, blasting

The Lithgow Mercury, Tuesday November 10, 1953
https://trove.nla.gov.au/newspaper/article/223417382

Hundreds of people in the Cobar-McKellars Paddock area were in grave danger of a serious mine subsidence and unless official action were taken to prevent the indiscriminate extraction of pillars from the Cobar colliery leases valuable lives might be lost, Ald. J. H. King said last night.

He said Council had "stood idly by and did nothing" several years ago when the Vale of Clwydd Colliery subsided and many homes were damaged.

Asking last night's meeting of the City Council not to ignore the plight of people living in Cobar Paddock he said: "In Thursday night's Mercury attention was drawn to the fact that the Hammant family had had to evacuate their home, because of a subsidence.

"I raised this matter at Council some time ago in an effort to get some satisfaction. Further to that our check inspector has again warned us of imminent danger to the whole of Cobar Paddock if the colliery lessees are allowed to keep taking out pillars.

"We must ask the Joint Coal Board to take action before there is a tragedy because hundreds of people are in danger."

Stressing that he was not an alarmist, Ald. King, who is secretary of the Western Miners' Federation, said Council should request both the Coal Board and the Mines Department to confer with it for the express purpose of obtaining satisfaction for the people living in the area.

"The people are unaware of the danger in which they are living at the present time. They do not know what is happening beneath the surface of the ground on which they have their homes. Some idea has been given by the damage to Mr. W. Hammant's home".

Council, by unanimous vote, then carried a motion by Ald. King and Ald. P. M. Grace that the Coal Board be asked to meet a deputation and that the co-operation of the Mines Department be sought "in taking steps to prevent a tragedy."

Ald. Grace then asked the Mayor for a report on "very heavy blasting from Cobar". He said blasting from the direction of the colliery land some weeks ago had been so severe that the concussion shook the Small Arms Factory. "The force was terrific" he said, asking: "Has an assurance been obtained that future operations will be carried out with smaller charges".

Reporting for the Mayor (Ald. H. C. Heffernan), the Town Clerk (Mr. H. Baker) said "At the time it happened we did take action and the health inspector visited the mine. Appropriate steps were taken to reduce the charges. To the best of my knowledge over the past few weeks I do not think there has been cause for complaint."

4.5 The 1964 floods saw Farmers Creek break into the old Cobar Park Mine, flooding and closing the State Mine. The creek downstream dried up, and concrete lining had to be installed along 2.7km of Farmers Creek, which was therefore no longer a natural waterway. "Negligible impacts"?

A mining creep in Lithgow
The Northern Daily Leader
Tuesday 26 April 1921, Page 2.
Earthquake at Lithgow.
HOUSE DESTROYED. Earth Tremors Common Lately. SYDNEY, Monday.

The home of Mrs. W. Hodge was wrecked by an earth tremor at Lithgow about 8 o'clock Saturday night. The first intimation of the danger was a rumbling sound under the house. This was immediately followed by a shower of mortar. Miss Hodge and a friend, the only occupants of the cottage, rushed out and gave the alarm.

Neighbours helped to carry the furniture out of the wrecked building; and other residents, fearing a further earthquake, also removed the valuable furniture from their homes. The creep extended about 200 yards along the west side of Macaulay-street. Residents stated that they have felt earth tremors along the street for the past six weeks.

Obviously this was a man-made, mining-related event and not a tectonic earthquake.

Concrete solution a thing of the past

LAST week's Mercury report of an impending start of work on removing some of the concrete from the Farmers Creek canal through Lithgow revived memories for many older residents who were involved in installing concrete back in the 1960s.

● **PICTURED** at top from the Mercury archives was the scene when further sections of Farmers Creek were concrete lined after a disastrous incident during the floods of 1964.

At that time the concrete canal began just west of this point and extended along its present course through Hermitage Flat.

Near where the unsealed section ended the flood created a whirlpool effect that quickly eroded the overburden and broke through into Cobar Colliery, flooding and closing that mine and eventually breaking through to the State Mine workings, also forcing its permanent closure.

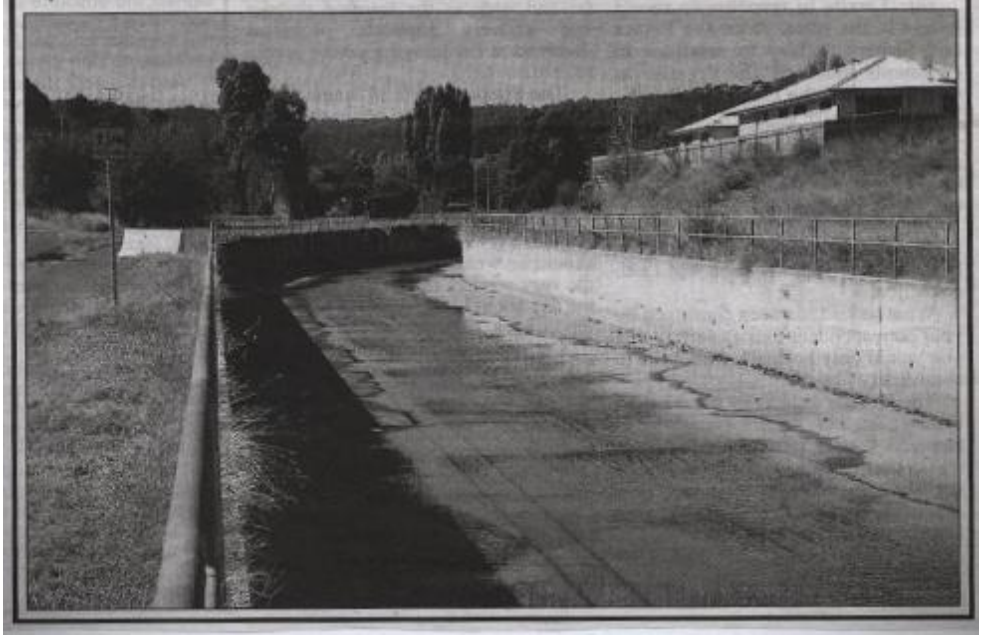
Numerous old car bodies were brought from the City Dump to be dropped into the hole to help plug the flood but it proved to be a huge operation.

It was a true milestone in the city's industrial history and was the beginning of the end for mining in the valley as it left only the related Lithgow Valley and Hermitage mines operating.

The flooding influenced a decision to extend the concrete canal in an easterly direction as far as Montague Street to prevent a recurrence.

Now, some 40 years later, Council is about to begin the removal of all the concrete canal walls along the entire length from Montague Street to near the showground as part of the flood mitigation program intended to return Farmers Creek to a more natural flow. The concrete creek bed will be retained.

● **BELOW** is the same section of canal as it is today — at least for now.



5. HASSANS WALLS RESERVE (HASSANS WALLS COLLIERY & LITHGOW VALLEY COLLIERY)

Partial extraction mining in the Lithgow Valley Colliery & Hassans Walls Colliery occurred beneath Hassans Walls Reserve between 1938 and 1974. LEG has recorded thirteen (13) cliff falls, the most recent of which occurred in June 2015, March 2015, and August 2007. Previously two cliff falls occurred before 1969, two (2) in 1970 or 1971, and at least nine (9) more since mine closure. Cliffs continue to fall 50 years after mining ceased. Surface cracking also

occurred, with large fissures up to 0.5m wide. Monitoring continued long after mining ceased, and showed that some cracks were continuing to widen.

Photo 1: Cliff Fall - Hassans Walls 1960s

Pnoto 2: Lithgow Mercury 28/7/2007

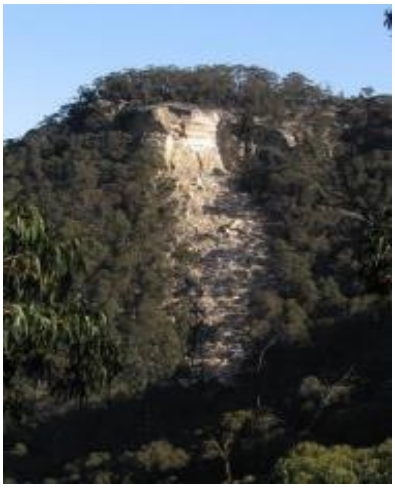


Photo 3: 15 July 2008

Photo 4: Hassans Walls – March 2015

Photo 5: Lithgow Mercury 10/3/2015

Photo 6: Hassans Walls – March 2015

Photo 7: Hassans Walls – 20 June 2015

Photo 8: Hassans Walls – 20 June 2015

Photo 9: Hassans Walls 20 June 2015

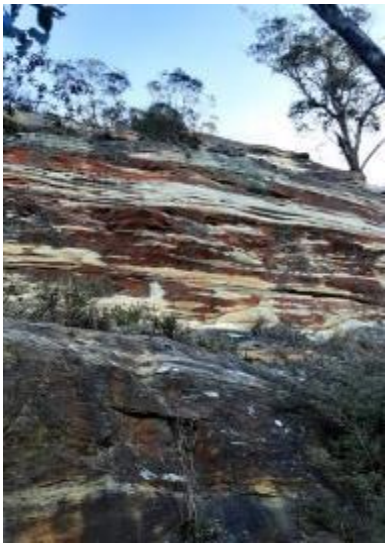
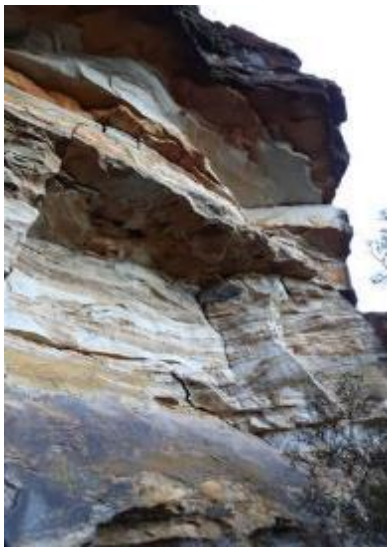
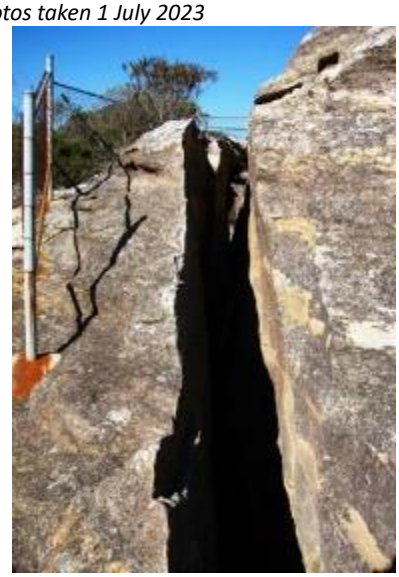
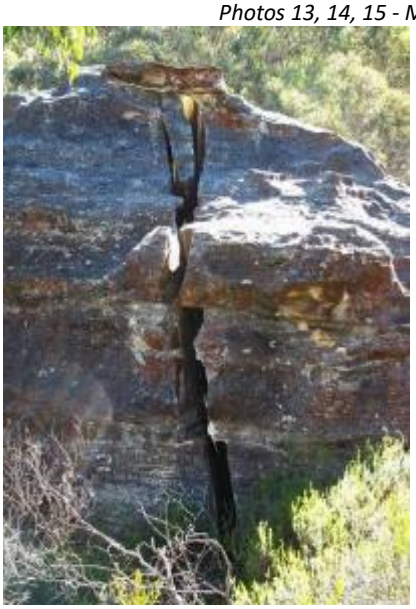
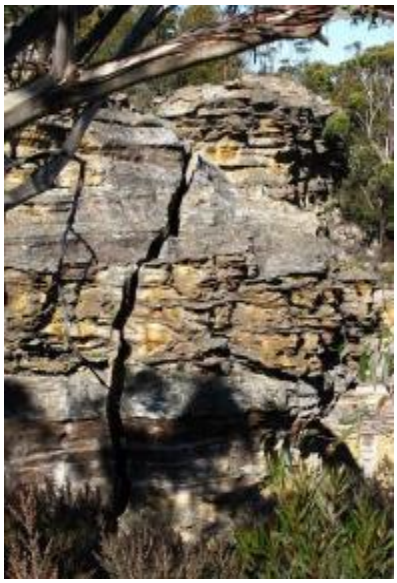
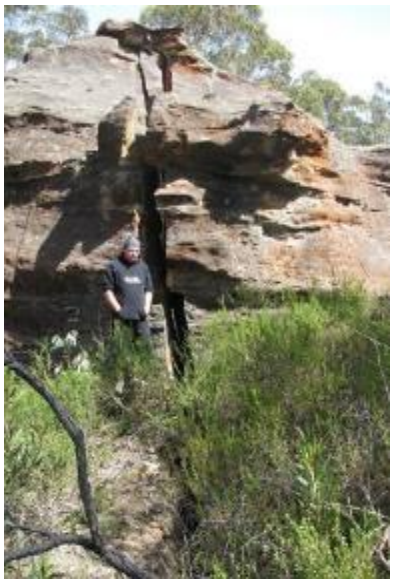




Photo 10, 11, 12: Hassans Walls cliff falls - Undercliff Track – photos taken 1 July 2023





Photos 13, 14, 15 - Mine subsidence cracks – Hassans Walls Reserve – May 2009

Photos 16, 17, 18 - Mine subsidence cracks – Hassans Walls Reserve – May 2009

Source: **MINE SUBSIDENCE TECHNOLOGICAL SOCIETY** Proceedings of the Second Triennial Conference on Buildings and Structures subject to Mine Subsidence

Mine Subsidence Technological Society Maitland, 25th to 27th August 1991 ISBN 0 646 05155 5

A Note on Escarpment Instability Associated with Mining

Subsidence P.J.N. PELLS MSc(Eng), DIC, F.I.E.Aust., Director, Coffey Partners Int.

Coal mining beneath the Hassans Walls Reserve at Lithgow occurred in the Lithgow Valley Colliery and the Hassans Walls Colliery between about 1938 and 1974. Figure 5 shows a detail of one section of the Reserve beneath which pillar extraction occurred in 1968.

Major cracking has occurred within the Reserve with open fissures up to 0.5m wide. Four rock falls occurred, the first two before 1969 and two smaller ones either in 1970 or 1971. Crack monitoring has continued in the area up to the present time and this shows that some of the cracks are continuing to open and there is some evidence of further rock falls in the vicinity of the four large collapses.

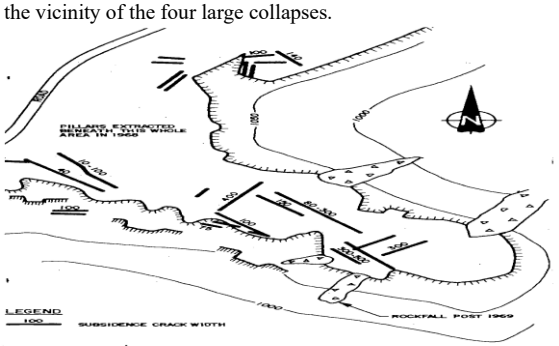


Figure 5 Cracking and rock falls at Hassans Walls

Figure 1: Hassans Walls Reserve Mine Subsidence (Pells 1991)

6. KATOOMBA COLLIERY – DOGFACE ROCK CLIFF COLLAPSE

Partial extraction at the Katoomba Colliery extended directly beneath Dogface Rock in June 1930. The collapse occurred on 28 January 1931, with additional falls on 2 May 1931 and 20 June 1931.

7. INVINCIBLE COLLIERY (includes old RENOWN COLLIERY)

Invincible Colliery operated as a Bord & Pillar mine from 1905. Widespread surface cracking, cliff falls, creeks disappearing into mine voids, sinkholes, and water pollution impacts occurred. Longwall, high-wall, and open-cut was also used, however subsidence damage in those areas is not included below.

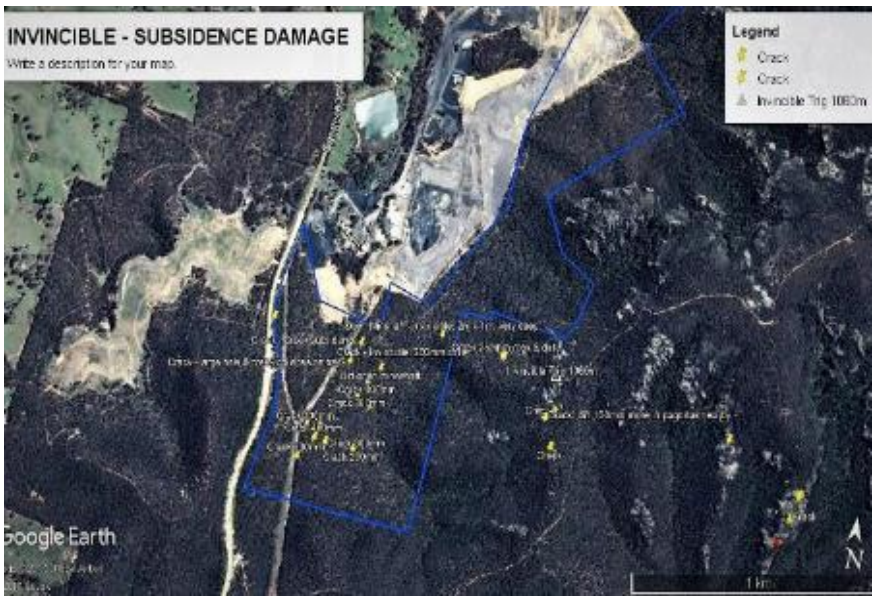



Photo: Cliff fall Invincible 14 March 2013


Photo: Cliff fall Invincible 9 August 2009


Photo: Cliff fall Invincible 9 August 2009


Photos: Invincible Colliery – Creeks disappearing down subsidence cracks into mine void – 19 August 2017


Photos: Invincibe Colliery LDP01 discharge into Coxs River – EC 1710uS/cm, pH 6.5, DO 0%, Anoxic odour - 2 September 2007

Invincible Colliery held two licenced discharge points into the Coxs River - LDP01 & LDP02. In June 2007, while conducting regular water quality monitoring under the SCA Streamwatch program, LEG observed LDP01 flowing strongly with an anoxic odour, extremely low Dissolved Oxygen levels, and the Coxs River downstream had turned a

rusty-red colour. LEG advised the Sydney Catchment Authority (SCA), who conducted the sampling below on 28 June & 18 July 2007 –

Sampling Results: Yeo-Kal 611 Meter

28 June 2007

A) Invincible Borehole Discharge:
Time: 2.15pm
Temp: 19.8 C
D.O.: 4.5 mg/l
D.O.: 42.3 % sat
pH: 6.58
Sal.: 0.04ppt
Cond.: 1649 us/cm
Cond.: 1.64ms/cm
Turb.: 7.2 ntu
The water leaving the dispersal pipe had a bad smell (anoxic smell)

B) Downstream 800m below Borehole discharge (u/s Bridge)
Time: 2.30pm
Temp.: 8.12 C
D.O.: 8.8 mg/l
D.O.: 74.9% Sat.
pH.: 7.16
Sal. 0.25ppt
Cond.: 557 us/cm
nd.: 0.55 ms/cm
urb: 3.0 NTU
The river was flowing. The water was visibly clear.

18 July 2007

A) Invincible Borehole Discharge:
Time: 11.45am
Temp: 20.1 C
D.O.: 1.6 mg/l
D.O.: 16.9% sat
pH: 6.57
Sal.: 0.04ppt
Cond.: 1648 us/cm
Cond.: 1.64ms/cm
Turb.: 1.7 NTU
The water leaving the dispersal pipe had a bad smell (anoxic smell)

B) Downstream 800m below Borehole discharge (u/s Bridge)
Time: 12.15pm
~emp.: 7.9 C
O: 8.1 mg/l
D.O.: 69.5% Sat.
pH.: 7.18
Sal.:0.61 ppt
Cond.: 1196 us/cm
Cond.: 1.19 ms/cm
Turb: 0 NTU
The river was flowing. The water was visibly clear.

C) Upstream of Borehole Discharge
Time: 12.05pm
Temp.: 7.9 C
D.O: 9.3 mg/l
D.O.: 77.4 % Sat.
pH.: 6.66
Sal: 0.03 ppt
Cond.: 35 us/cm
Cond.: 0.03 ms/cm
Turb: 0 NTU
The river was flowing. The water was visibly clear.

Despite this appalling SCA data, on 20 July 2007 the EPA approved Licence Variation No. 1073146 on Invincible POEO Licence 1095 doubling the discharge volume at LDP01 from 2 ML/day to 4 ML/day.

Research of the Coxs River many months after LDP01 ceased flowing identified the water downstream was more saline, had higher pH, and had a strongly modified ionic composition. "The change in water chemistry may constitute a 'Key Threatening Process' as defined in the NSW Threatened Species Conservation Act (1995), as this can cause considerable stress to downstream aquatic ecosystems of high conservation value". (Wright, I. A. (2012). Coal mine 'dewatering' of saline wastewater into NSW streams and rivers: a growing headache for water pollution regulators. *Proceedings Of The 6Th Australian Stream Management Conference, Managing For Extremes, 6-8 February, 2012 Canberra, Australia*, 206-213.)

PRIMEFACT 21, MINE SUBSIDENCE (www.dpi.nsw.gov.au/primefacts). *"Altered flows and stream chemistry may have an impact on the lifecycle of aquatic species and riparian vegetation. Surface water may permeate into the shallow groundwater system through the resulting open fractures. This water will usually return to the surface further downstream, but may be chemically altered by minerals in the rock strata. During extended periods of dry weather, the loss of surface water from rivers or creeks may become evident with a noticeable but localised reduction in surface flows."*

Photos: Subsidence cracks – Invincible Colliery Bord & Pillar/partial extraction areas

Photos: Invincible Colliery mine subsidence damage to pagodas, sinkholes, and open mineshafts

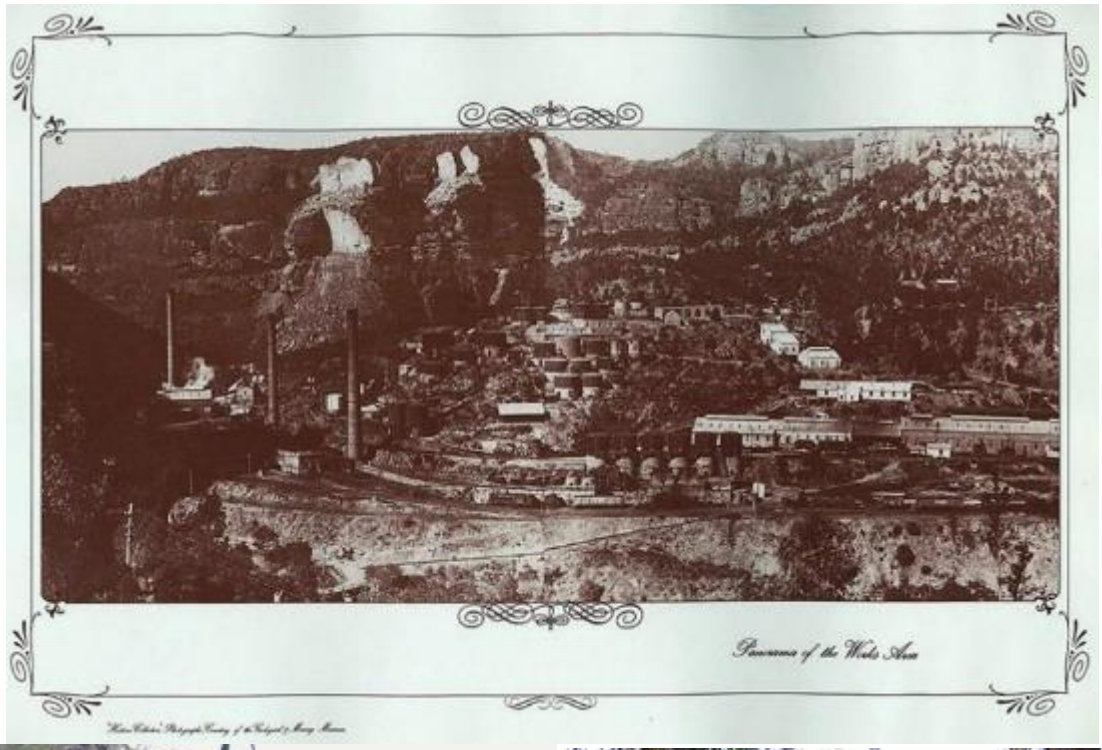
8. IVANHOE COLLIERY (includes old MAIN RANGE COLLIERY and IRONDALE COLLIERY)

Ivanhoe Colliery was a Bord & Pillar mine. Subsidence cracks occur throughout. An EPA compliance audit of POEO Licence 631 on 25 June 2002 recorded "water containing visible oil and grease being discharged into underground workings of the mine." Two mine drifts (one about 400 metres long to the Mudgee Railway Line) conduct rusty water towards the old Irondale Mine, Pipers Flat Creek, and hence Coxs River.

Photos: Ivanhoe Colliery – old mine drifts allow water to flow SW under Boulder Rd to Pipers Flat Creek & Coxs River – March 2010

9. NEWNES SHALE OIL MINE

The earliest recorded cliff falls due to Bord & Pillar mining in the Lithgow region occurred c1910 at Newnes Shale Oil Mine in the Wolgan Valley. Four cliff falls can be seen above the old industrial ruins.



Photos: Old photo (top) on display at the Newnes Hotel c1910. Cliff fall photos taken 27 February 2015.

10. OAKEY PARK MINE (includes old ZIG ZAG COLLIERY)

The Oakey Park Mine operated as a Bord & Pillar mine from 1888 to 1941. A coal fired power station and coke ovens also operated at the site. Coal reject material, coal-ash, and other waste was dumped along the banks of Farmers Creek upstream and have not been stabilised or rehabilitated.

In 2010 Lithgow City Council proposed pumping out the old Oakey Park Mine workings to drought-proof Lithgow. However Delta Electricity (then NSW Government owned) provided a report stating that mine dewatering increases subsidence risks. The risk for individual residential areas, industrial areas, and critical railway areas ranged from tolerable to extreme. The project was abandoned.

11. STATE MINE

The State Mine was a Bord & Pillar mine operated by the NSW Government from 1922 to 1964. The workings were - Heading & main winning bords: 5 yards wide x 7 feet 6 inches high; Bords: 8 yards wide x 5 feet 6 inches high; Cut-throughs: 5 yards wide; Pillars: 44 yard by 44 yard or 44 yard by 33 yard centres. Cliff falls & cracks occurred, and combustion of dumped coal reject continues to the present.

A watery grave?

http://www.lithgowmercury.com.au/news/local/news/general/a-watery-grave/1949152.aspx

LEN ASHWORTH
22 September 2010 04:08 PM

IS our city supported by water? And if that water disappears do we sink to a waterless grave?

These were the questions being posed in Lithgow Council this week when councillors were confronted with perhaps the most unusual challenge in the recent history of Local Government in this area.

At the root of the issue is a suggestion that if too much water is pumped from aquifers and old mine workings around the district then geological instability could occur and the surface could sink. It would be something like 'mine subsidence' from 'mined water' although union executive Cr Wayne McAndrew was quick to point out that water is 'extracted', not 'mined'.

The concern arises from a study by consultants engaged by Delta Electricity who have a major player interest in council's bid to identify new water sources to drought proof the district's domestic and industrial needs.

That study concluded there is plenty of water but its large scale extraction is not without potential risk.

The council itself had recently taken bore samples from the flooded workings at the long abandoned Oakey Park Colliery and testing indicated the raw water would require minimal treatment through the nearby Farmers Creek processing plant.

However Regional Service manager Andrew Muir said there is a new issue. Delta Electricity had commissioned an assessment of the potential subsidence risk from the dewatering of old mines.

This report had claimed the risk for individual residential and commercial areas ranged from 'tolerable to extreme'.

"Failure within one area is expected to result in failure propagating into the adjacent areas," the report said. The combined risk for such 'co-dependant' areas was seen as extreme for Oakey Park.

Mr Muir said the report had placed the entire Oakey Park investigation in jeopardy.

He said that because of the assessed risk levels it was unlikely that approval could be obtained for the extraction without control measures including cut-off barriers to prevent dewatering beneath residential, industrial and critical railway areas.

Consequently the risks associated with extraction depressurisation and instability meant the Oakey Park proposal was no longer considered feasible.

Mayor Neville Castle said because of the report Delta was not prepared to be involved in 'mining' the Oakey Park water. "They don't believe it is worth the risk, irrespective of who is ultimately using the water," Cr Castle said.

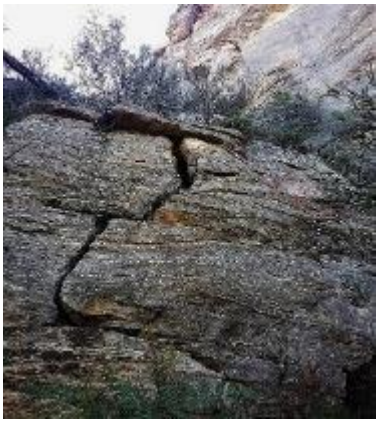
Cr Howard Fisher said the water in question was actually in the workings from one of the oldest mines, Zig Zag Colliery. He said the water from these workings is linked to the old State Mine which was also flooded with the breakthrough from the former Genders Mine.

"You can't tell me that pumping of that water would have any effect on the dewatering of endangered areas of Lithgow," he said. "It would have minimal effect."

Cr Fisher said if a new consortium ever took over the State Mine coal leases, which was a possibility, the first thing they would do would

Photos: State Mine – cliff falls and surface fractures in the State Mine Airshaft No. 3/Lost City area – 17 July 2019





12. TYLDSLEY MINE

Tyldesley Colliery operated as a Bord & Pillar mine until the 1960's. Coal combustion has been an ongoing issue, with local residents complaining for almost 60 years about unpleasant odours. Most recently four (4) odour complaints were reported in the Castlereagh Coal CCC Minutes of April 2024. https://ccoal.com.au/wp-content/uploads/2024/06/ccc-minutes-april-2024.pdf

Acid Mine Drainage/Saline Drainage was identified near Tyldsley Mine in a 1998 NSW Soil Services report titled *"Erosion & Sediment Control and Remediation Plan. Wallerawang to Kandos Rail Line at Baal Bone Junction, 191.795 Km to 195.705 Km".* Another site occurs in Farley Street, Cullen Bullen.

At both sites LEG recorded a salinity of 1600uS/cm (natural background levels are 30uS/cm), pH level of 4 (very acidic), and low Dissolved Oxygen level of 3.0 mg/L (healthy local streams are around 8 mg/L.)



Photos: Seepage from Tyldsley Mine/Cullen Valley Mine - Acid Mine Drainage/Saline Drainage – 12 September 2014



Photos: Seepage from Tyldsley Mine/Cullen Valley Mine - Acid Mine Drainage/Saline Drainage – 12 September 2014

13. VALE OF CLYWDD COLLIERY

A Bord & Pillar mine in the Lithgow Coal Seam from around 1865 until 1957. Major subsidence damage occurred in 1947 to homes, public utilities, and roads. Walls bulged away from roofs, huge gaps appeared in homes, ceilings partially collapsed, large cracks appeared in roadways, and water and gas mains burst. Some residents dreaded sleeping in their homes that night fearing that further subsidences might cause rocks to fall down from the mountains above.

VALE OF CLYWDD MINE 1947

16 May 1947 at 05:55, **Lithgow mine collapse** – not an earthquake
WIDE DAMAGE BY MINE "CAVE-IN" SYDNEY. https://trove.nla.gov.au/newspaper/article/127305989

Thousands of pounds worth of damage has been caused to homes, public utilities, and roads by the "creep," which began in the old workings of the Vale of Clwydd mine at East Lithgow late yesterday.

Many residents whose houses had been rocked and damaged by the subsidences spent last night with friends living in safe areas, while others less fortunate, spent a night of fear in their threatened homes. No further "cave-ins" had occurred up to this morning, but everybody in the affected area was on the alert.

It was just before 4 p.m. yesterday when 30 homes in East Lithgow were rocked by what residents thought was an earthquake. Walls bulged away from roofs, and huge gaps appeared in the homes. In other's ceilings partially collapsed. Four-inch wide cracks appeared in roadways, and residents, now certain about an earthquake, ran into the open for shelter.

Water and gas mains burst when roadways "opened up," and Lithgow Council officers immediately cut off all water and power supplies. Fearing further subsidences, a number of residents will not return to their own homes until the area has been declared safe. The danger is not yet past, according to local experts.

Sergeant Bardman, of the Lithgow Police, said today council employees had made attempts to make the damaged houses safe. Most homes in the area were weatherboard, otherwise greater damage, perhaps injury, would have resulted.

14. VALE OF CLYWDD NO. 2 COLLIERY

An early Bord & Pillar mine near Angus Place Colliery in Lidsdale, not in Lithgow as the name might suggest. In 2022 local residents complained to Centennial about mine 'sinkholes' in the proposed Angus Place West area. Centennial advised residents by letter on 24/11/2022 that the three (3) sinkholes were above Bord & Pillar first workings at the Vale of Clwydd No. 2 Colliery.

15.0 WALLERAWANG COLLIERY

A Bord & Pillar mine in Blackmans Flat from around 1923 until 1982. LEG has recorded many surface cracks above the mine (see Google Earth map below), one of which is the largest LEG has ever recorded in the Lithgow area at over 2m wide. In response to residents concerned about subsidence risks from the Angus Place West proposal, Centennial confirmed that cracks observed at Site 4 were located above the Wallerawang Colliery. *"The crack widths typically vary up to 0.5 m; however, some cracks have also undergone weathering and fretting and have overall widths and steps greater than 1 m."* (MSEC letter to Centennial, Angus Place Colliery – potential surface impacts, 24 November 2022*).*

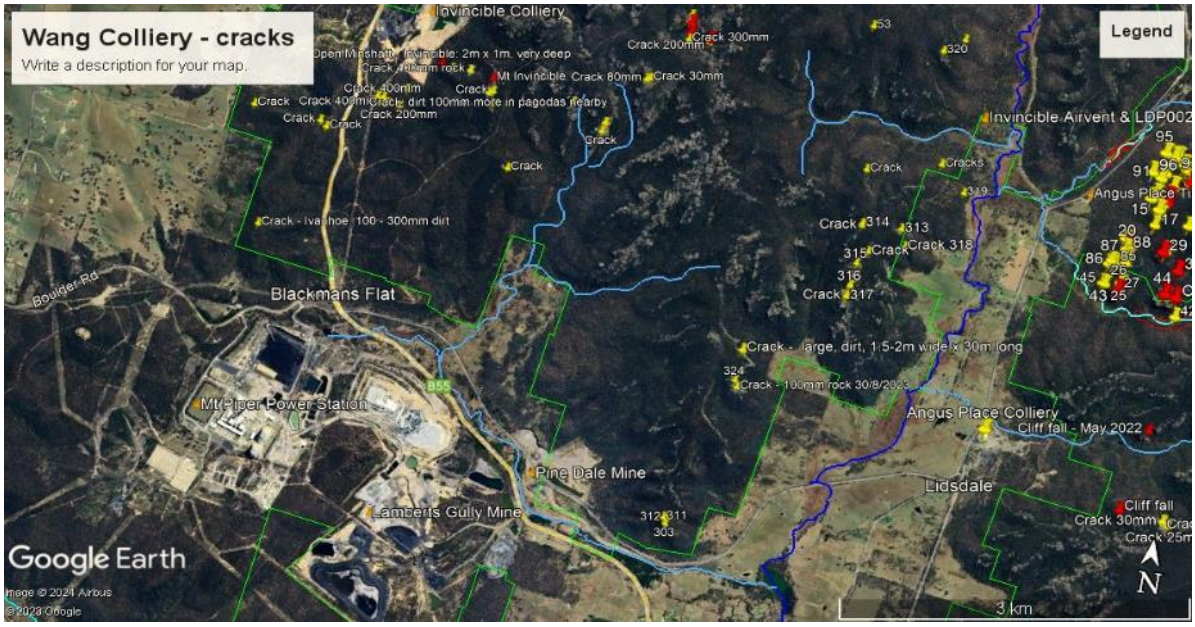


Figure: Mine subsidence cracks (Yellow Placemarks) recorded by LEG above bord & pillar workings of Wallerawang Colliery

Acid mine drainage issues were identified at the Wallerawang Colliery in February 2004 (see below).

> Wallerawang colliery rehabilitation: the coal tailings briquetting process
>
> Radloff, B.; Kirsten, M.; Anderson, R. Minerals Engineering 17(2):153-157. February 2004
> ***The Coal Tailings briquetting process*** ... as a solidification and stabilization ***process*** for the control of ***acid mine drainage***
> ..burial of sulfidic (***acid*** producing) coarse washery reject by turning a waste material into power station fuel.
> ..avoid approximately 200 000 m3 for the burial of sulfidic (***acid*** producing) coarse ...***drained coal tailings***
> (fine ***coal*** washery reject) stored within the site ***tailings*** dam.

16.0 NEWCOM COLLIERY – Toxic leachate from Kerosene Vale Ash Repository has filled this mine.

17.0 WESTERN MAIN COLLIERY (includes old BOULDER, EASTERN MAIN, HUON, LAMBERTS GULLY)

A Bord & Pillar mine before being open-cut. Currently Springvale Western Coal Services. LDP001 has consistently recorded the poorest water quality parameters and highest salinity of any mine in the Coxs River catchment, increasing six-fold from 1200uS/cm in 2012 to 7,780 uS/cm in 2018, 22 times above the ANZECC Guideline upper limit of 350uS/cm. Most recently 3,516 uS/cm on 6/6/2024.

Australia's leading scientist on water pollution from coal mines, Dr Ian Wright from Western Sydney University, described LDP001 on ABC News on 7 November 2023 *"In the whole of the Warragamba drinking catchment that is the worst point source of waste I have ever measured."* And the EPA's POEO Licence for LDP001 *"That is one of the most ineffective pollution licences I have ever seen," he said.*

Dr Wright reported that the salt, nickel, and zinc pollutants in LDP001 minewater were poisonous to aquatic life. By his calculations a recent proposal to increase the LDP001 discharge by five Olympic-sized swimming pools per day would increase the amount of salt from roughly six to eight tonnes a day. https://www.abc.net.au/news/2023-11-07/water-contamination-lithgow-coal/103067856

In 2010 a former mine electrician provided LEG with a list of names and details of coal miners who developed cancers and/or died prematurely, allegedly due to PCB exposure from leaking Transformers used underground. He named Western Main and Wallerawang Collieries, and alleged the Transformers and 44 gallon drums of PCBs were not removed after mine closure, but were left underground. The NSW Environment Minister responded that transformer

disposal was managed under the national PCB Management Plan 1999, however these mines closed in the 1980s. Yet another legacy pollution issue.

'Deadly chemicals buried in drums'

June 6, 2010 https://www.smh.com.au/national/deadly-chemicals-buried-in-drums-20100605-xlra.html

Former miner John Hodgkinson. *Photo: Anthony Johnson*

THE OLD DIGGER

FORMER miner John Hodgkinson is an unlikely whistleblower. But the thought of rusting 44-gallon drums filled with deadly chemicals buried underground and possibly leaching into the water supply has forced him to speak out.

"We seeded the whole area underground. We had no idea how bad it was," Mr Hodgkinson said.

Standing at the mining monument in Lithgow, he listed at least nine mines that had used polychlorinated biphenyls or PCBs as a fireproof coolant in electrical transformers.

"The transformer seals were all cracked so this stuff was leaking out and we were constantly filling them up. Hundreds of 44-gallon drums of the stuff."

The chemicals burnt his skin so he always wore rubber gloves and boots. Others did not bother. They are all dead.

John pulls out a list pages long of the miners he worked with and their illnesses: brain tumour, bowel cancer, testicular cancer.

PCBs are now well-documented as the cause of cancers and were removed from the mines years ago.

But Mr Hodgkinson, now 79 and out of the pits for 20 years, wonders where the drums of chemicals went.

"I was told by one of the site managers that they had built a great big concrete bunker and stored it all in there but I could never find it."

He has also been unable to track down any of the paperwork for disposing of PCBs. He has his suspicions.

"If they were dropped down the old workings those drums will be corroding through now and that stuff will be in our water."

A spokeswoman for NSW Environment Minister Frank Sartor said the disposal of transformers was managed nationally through the federal government PCB Management Plan of 1999.

18. NATTAI NORTH COLLIERY - One of the largest cliff collapses recorded in a Bord & Pillar mine in NSW. By 1989 the escarpment collapse extended about 800m, with an average height of 170m.

19. DOMBARTON COLLIERY - Bord & Pillar mine from 1967 to 1970. A major cliff collapse in December 1969 extended about 150m along the cliff above Wollongong-Moss Vale railway line. Smaller cliff falls occurred in March & September 1969. Cracking in Avon Road was recorded in 1967.

20. NORTH CLIFF COLLIERY – An old Bord & Pillar mine with ongoing Methane emissions.
https://www.abc.net.au/news/2024-07-21/methane-seeping-out-of-the-north-cliff-mine/104108284

CONCLUSION

Centennial claim there is “no evidence” of subsidence damage above Bord & Pillar mining at Clarence.

LEG argues “There is no evidence of a local Bord & Pillar mine that didn’t cause subsidence impacts.”

Centennial claim that secondary extraction of Panels 918 - 920 will have “Negligible impacts”.

All 20 mines illustrated above were no doubt also approved based on claims of “Negligible impacts”.

Yet creeks have disappeared into mine voids; swamps are dead; cliffs continue to fall; waterfalls have dried up; surface fractures & sinkholes are everywhere; infrastructure & houses lost/damaged; ongoing coal combustion for 60 years; ongoing water pollution – much of that due to secondary pillar extraction.

Are the above “Negligible Impacts”?

The word “Negligible” describes something so small, trivial, or insignificant that it can be disregarded or considered inconsequential. It implies that its influence, effect, or contribution is so minuscule that it can be safely ignored or excluded from further consideration. A “significant” impact is an impact that is important, notable or of consequence having regard to its context or intensity. The above impacts are clearly not ‘negligible’, but significant.

Are the above “Acceptable impacts”?

Centennial’s arrogant right-to-mine attitude regards any and all impacts as acceptable, and the mine lease as their own private property to do with as they wish. But it is not Centennial land, it is publicly owned land belonging to all the people of NSW. And it is not just an ordinary patch of bush, but a biodiversity hotspot within the Gardens of Stone SCA bordering on the Greater Blue Mountains World Heritage Area – of State, National, and International significance.

Were the above ‘Avoidable Impacts’?

LEG believes that they were. The above examples demonstrate that towards the end of mine-life companies tend to become greedy and remove too many pillars, resulting in severe damage.

The problem with long-term Government cover-ups of mining damage in the Lithgow area is that public servants approving and regulating coal mining developments start to believe their own government’s ‘disinformation’ and ‘misinformation’, and the scale and severity of those impacts escalate exponentially.

Allowing damage to occur and then issuing non-compliances is too late. More enforceable undertakings, and prosecutions won’t change Centennial’s ingrained non-compliance culture. Relying on volunteer groups to report swamp and other subsidence damage is too little too late. The DCCEEW and DEWHA must be more proactive, get out into the Gardens of Stone SCA, and find this damage for themselves.

Changing the abhorrent culture and attitude of the coal mining industry towards the environment in Lithgow must come from the top down – the Prime Minister, Premier, and relevant Ministers.

Lithgow Environment Group Inc.

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ABN 23395145080
Preserving the Balance of Nature

To: Department of Climate Change, Energy, the Environment and Water
Compliance and Enforcement
environment.compliance@dcceew.gov.au

27 October 2024

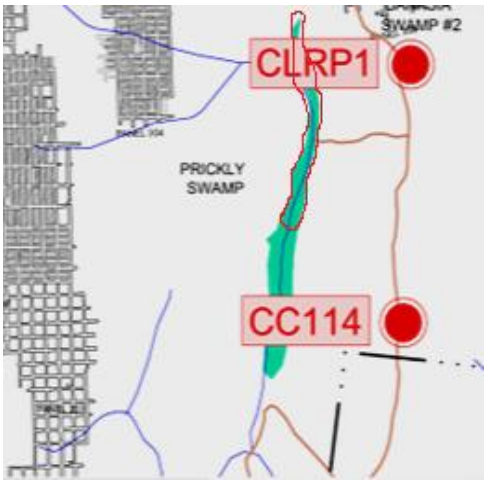
To whom it may concern

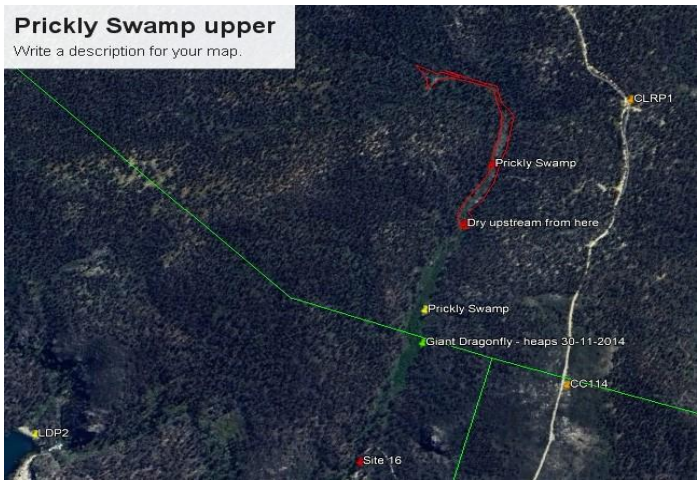
RE: CLARENCE COLLIERY – ADDITIONAL MINING-RELATED DAMAGE

The Lithgow Environment Group Inc (LEG) wishes to notify the Department of the following swamp damage within the Centennial Clarence Colliery mine lease which may be mining-related. These 5 sites are in addition to the 20 sites which LEG notified to the Department on 11 September 2024.

Site 21: Upper Prickly Swamp Damage (-33.449634, 150.258727)

Prickly Swamp is mapped by Centennial as a Newnes Plateau Shrub Swamp (*Clarence Colliery Annual Environmental Monitoring Report (AEMR) 1 January 2023 to 31 December 2023, Appendix A*). The upper half of this swamp has dried out, and erosion is visible. The first sign of any surface water is at -33.450783, 150.258430. Vibrating Wire Piezometer CLRP1 reported "*Data gaps exist due to logger issues*". CC114 (VWP) reported "*A new logger was installed in October 2021 due to reliability issues*."



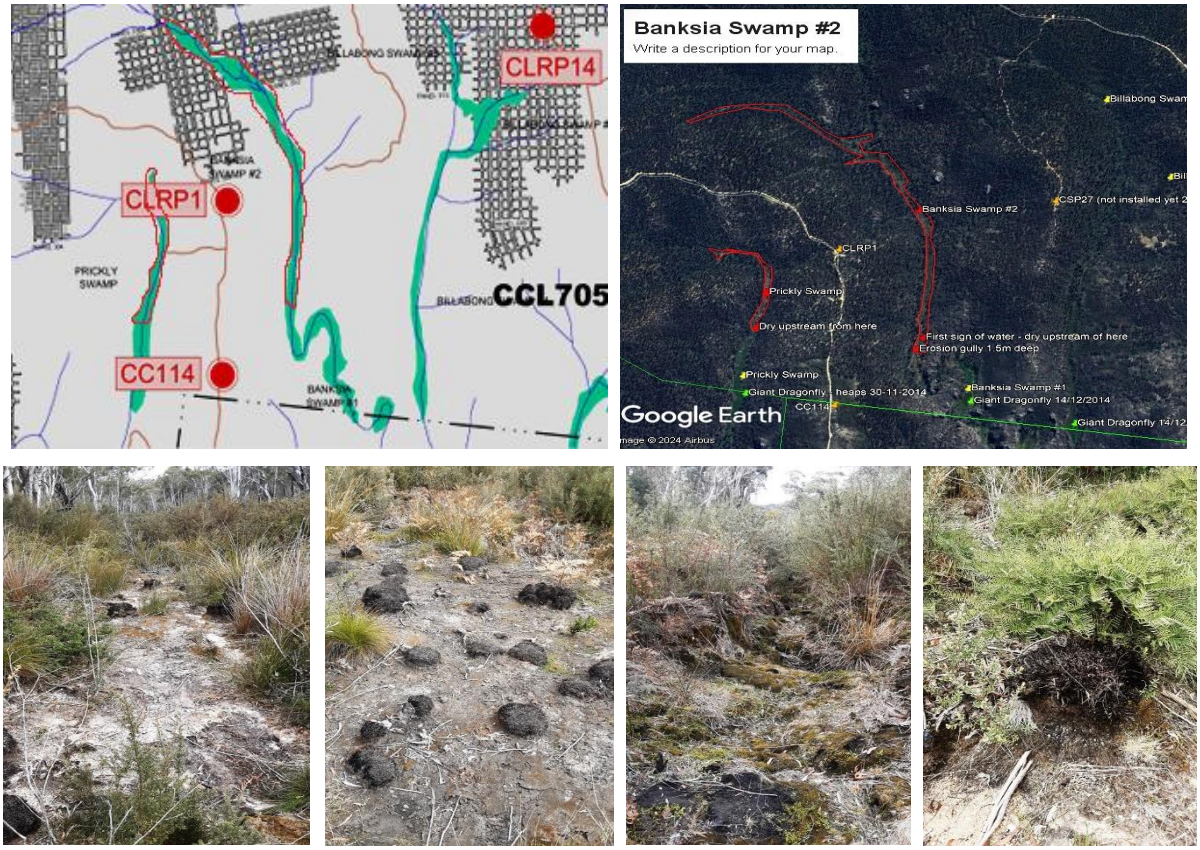


Photos 80-82: Maps of THPSS damage to upper Prickly Swamp

Site 22: Banksia Swamp #2 Damage (-33.446771, 150.263533)

Banksia Swamp #2 is mapped by Centennial as a Newnes Plateau Shrub Swamp (*Clarence Colliery Annual Environmental Monitoring Report (AEMR) 1 January 2023 to 31 December 2023, Appendix A*). At least 1km of this swamp was dry at the time of visit. The first sign of any water was at -33.451538 150.263433, and that was 1.5m below the swamp surface in a deep erosion gully. The upper sections of this swamp were undermined by Panel 330 &

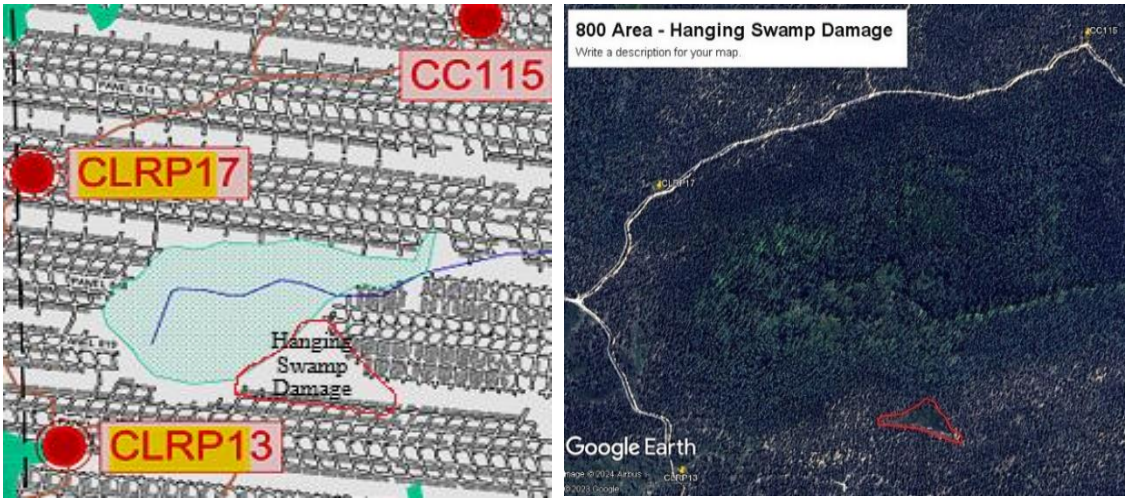
332. Mine dewatering may be a contributing factor. Erosion nick-points are forming (eg. -33.451538, 150.263433) and should be monitored/stabilised.



Photos 83-88: Site 22 – Banksia Swamp #2. Dry desiccated THPSS, erosion & nick points starting to occur.

Site 23: Hanging Swamp Damage – Panel 818A/820 (-33.453466, 150.290740)

This small MU51 Hanging Swamp is desiccated and showing signs of mining damage. It is about 500m east of CLRP13 on the eastern edge of the diatreme which Panels 818A/820 had to avoid.

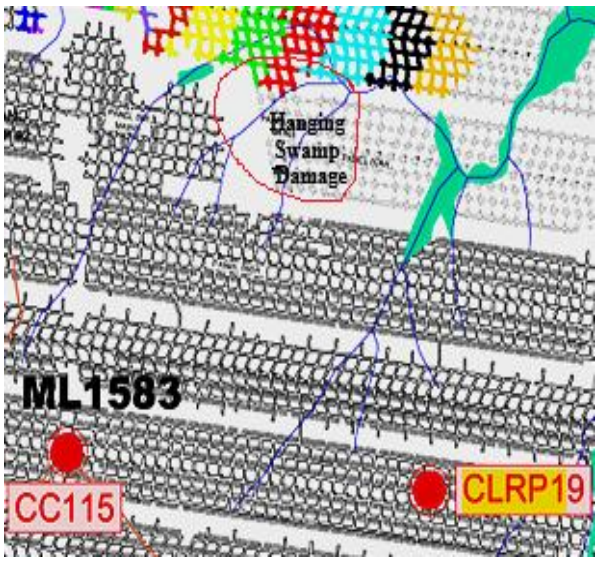


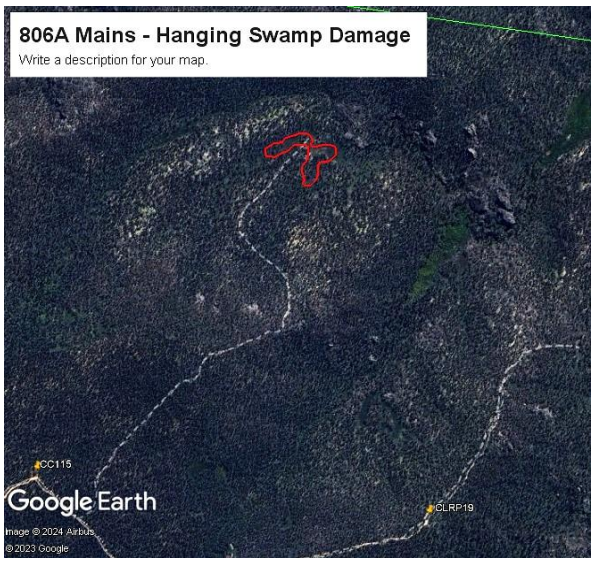
Photos 89-92: Site 23: Dead Hanging Swamp in 800 Area ("The Boot") about 500m east of CLRP13

CLRP13 reported '*depressurisation in early May 2022 likely due to mining, and continued decreasing trend during 2023, probably mining related*'. CLRP13 overlies Panel 820 which was mined in 2018. *'There are large data gaps at all piezos from October 2018 to July 2021 due to logger issues. Further data gaps exist between 10 February 2023 and 18 April 2023 for Piezo #1 (below MYC). Piezo #5 (above MYC) appears to have malfunctioned in early December 2022.'*

Site 24: Hanging Swamp Damage - 806A Mains (-33.439578, 150.301448. -33.439431, 150.300625)

Several Hanging Swamps in this area are showing early signs of deterioration and the creek upstream is dry. Panel 806A is currently being mined. CLRP19 reported "*Depressurisation response since August 2021 due to mining Panel 818A. Continued decreasing trend during reporting period*." Panel 812 undermined CC115 and all piezos depressurised due to first workings in June *2013. "Further depressurisation was observed in May 2016 following pillar extraction. A depressurisation response in Piezos #1, #2 and #3 (below the MYC) was observed in August 2021 due to mining of Panel 818A. During the reporting period, active mining of Panel 804 and Panel 806A was within 1 km of CC115. Following initial depressurisation observed in 2021, Piezos #1, #2 and #3 continue to show a decreasing trend".*





Photos 93-97: Site 24: Damaged Hanging Swamps Panel 806A Mains, 800 Area ("The Boot")

Site 25: Hanging Swamp collapse, GBMWHA boundary east of REA3 (-33.461881, 150.258171)

This small Hanging Swamp collapse above the Wollangambe River on the GBMWHA boundary is fairly recent, and based on historic Google Earth imagery occurred sometime between July 2021 and September 2023. Whilst it may not be mining related, it is only 400m east of Clarence Colliery REA3.

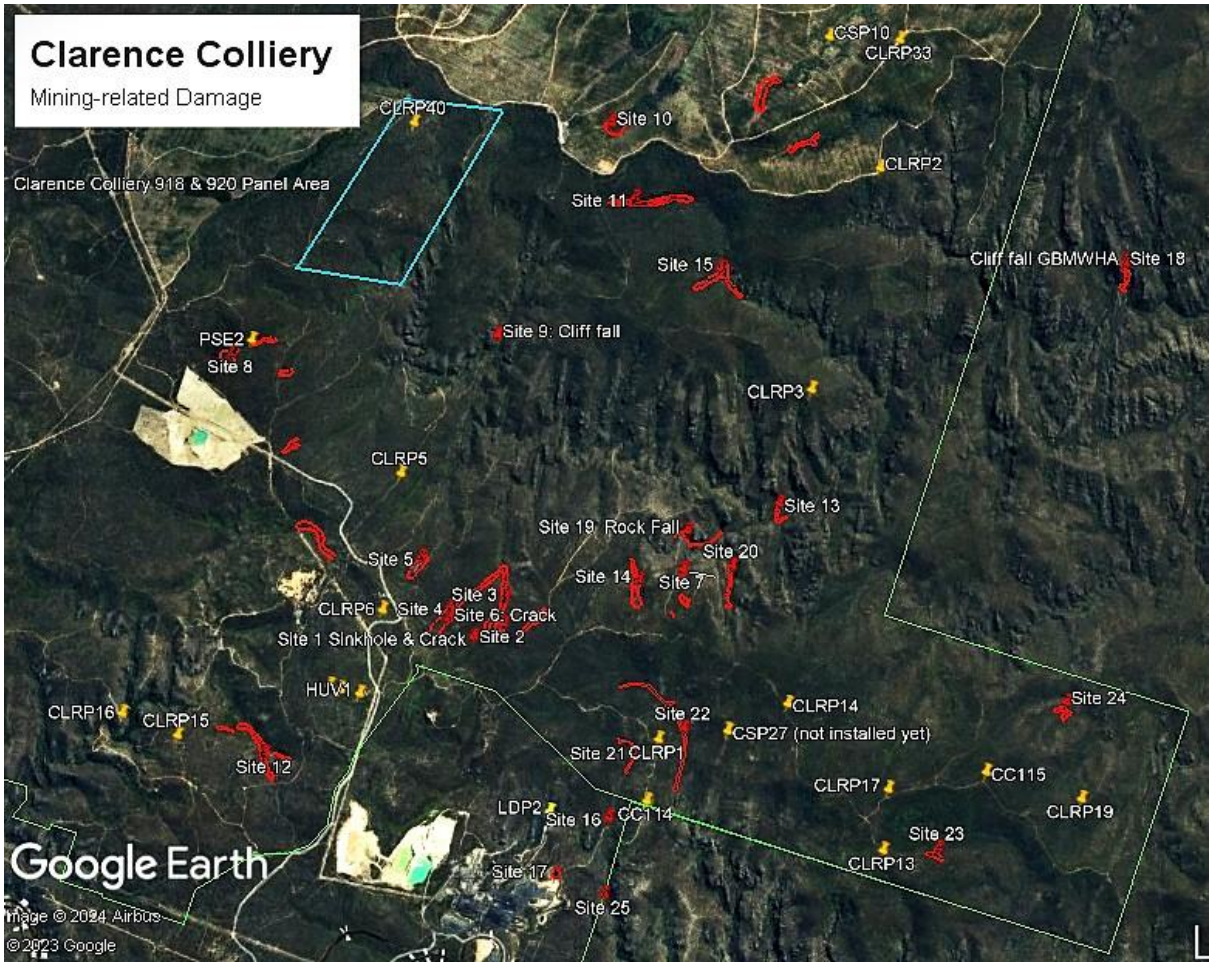
Photos 98-101: Site 25 Hanging Swamp collapse above Wollangambe River on GBMWHA boundary

LEG reiterate that we have not surveyed the entire mine lease, and more damage is likely to exist. We remain concerned that the DCCEEW may accept Centennial's claims of "*no known evidence of mining-related impacts*" above Clarence Colliery. First-workings at Clarence Colliery removed <50% of the coal seam. Current and reasonably foreseeable future mining in the 700, 800, 900 and Northern Area plan to extract 62% or more. Proposed Panel & Pillar Partial Extraction (PPPE) in the 918-920 Panels have an 85m void width. This exceeds the 61m void width of Airly Mine mini-longwalls which caused severe damage to Muggi Murrum-ban SCA resulting in a $150,000 Enforceable Undertaking in 2022.

We hope that the DCCEEW will thoroughly investigate this potential mining related damage above Clarence Colliery, and formally acknowledge it rather than withhold that information from the public.

Yours faithfully

Chris Jonkers on behalf of
Lithgow Environment Group Inc. lithgowenviro@gmail.com



Map: Clarence Colliery mining-related damage – location of above & previous Sites notified to DCCEEW