Submission to the Inquiry into current and potential impacts of gold, silver, lead and zinc mining on human health, land and water quality in NSW

Michael White – Resources Consultant and Mining Engineer

About the author:
Michael is a mining engineer who engages in part time consulting to the mining and business community utilising more than 25 years' experience in the resources sector. He has senior operational and technical experience across a range of commodities which include manganese, diamonds, metallurgical coal and thermal coal. He has remote site and international experience in senior roles as well as experience with the operational commencement of major new projects in diamonds and coal.
His career has seen him involved in successful interactions with traditional owners, government representatives and NGOs in Arnhem Land, Arctic Canada and NSW.
Recent clients include Coolmore Australia, Godolphin and the Hunter Thoroughbred Breeders Association. He has also appeared as an expert witness for the Muswellbrook Shire Council in the NSW Land and Environment Court.
He has been a community member of the EPA Upper Hunter Air Quality Advisory Committee for the last two years (2021-2022).
He has made submissions to the IPC on the Bowdens Project.

Dear Committee Members

Thank you for conducting this inquiry. My submission is specific to the Bowdens Project at Lue however the concerns as they relate to the competency and rigour of technical assessment and the approvals process are applicable to any base metals project in NSW.

I would be happy to participate in a hearing should the Committee so wish.

Yours faithfully

Michael White
Boomery
20 Yarraman Rd
Muswellbrook NSW 2333
Email: boomery57@icloud.com
0408 487 117

I would like to summarise my key concerns relating to the Bowdens Project Assessment by DPE and the subsequent approval by the IPC.

1. The Acid Mine Drainage (AMD) Risks have not been adequately assessed or controlled.

The Department of Planning's assessment of the Bowdens Project included an AMD independent expert review by Earth Systems[1] . This review raised numerous significant concerns. I refer the Committee to the four review documents provided to DPE by Earth Systems dated between May and December 2022. Concerns raised were :

- **Lack of Accurate Classification of Potentially Acid Forming (PAF) and Non Acid Forming (NAF) Material.**
  - This is fundamental to the basic mine design and is critical to ensure that no PAF material is placed outside containment areas.
  - It is critical to ensure that PAF waste dumps have sufficient capacity to store all PAF material.
  - It is critical to ensure there is sufficient NAF material for construction and rehabilitation requirements.
- **An Unproven and Substantially Problematic Design of the Waste Rock Emplacement Area (WRE).**
  - In order for the community and government to be satisfied that such designs as contained in this Project proposal are effective, safe and successful in both the short and long term there would need to be evidence of this at similar scale elsewhere.
  - The Proponent has not identified any other mine sites where the use of this design and technology at this scale has been successfully employed in either the short term or the long term.
- The WRE and Tailings Storage Facility (TSF) AMD management strategy/closure design presents the post closure risk of **requiring water treatment in perpetuity**
- The Store and Release Cover System proposed for both the WRE and the TSF are **not suitable for AMD control**

2. The Final Void Water "Through Flow" Risk has not been resolved

The Department's own independent groundwater expert review by Hydrogeologic [2] raised concerns that there was a greater than 50% probability of the through flow of contaminated water from the final void to the surrounding environment post closure.

Bowdens Proposed Final Void Mitigation option (which has not been assessed in the EIS) is to increase the surface area of the final void and the final void lake to increase evaporative losses. While the DPE's independent water expert acknowledges that this would resolve the through flow risk this proposed solution would require an increase in the final void footprint of between 16.6 ha and 28 ha. The EIS final void design footprint is 53ha. An additional 28ha is an increase of 52% in final void footprint.

This 28ha increase would require moving an additional 16.3 million bank cubic metres of rock.

[1] https://www.planningportal.nsw.gov.au/major-projects/projects/bowdens-silver-temp

[2] [2] DPE, Bowdens Silver Assessment Report, December 2022, page 35, paragraph 174

The total EIS volume of material (that is all the ore and all the waste rock for the entire project) to be removed from the currently proposed open cut pit is approximately 32.5 M cubic metres.

This "solution" would require Bowdens to move 50% more total material over the project life **for no additional revenue**. At $3-$4 /bank cubic metre (my conservative estimate) this is would be an **additional** closure cost of between $49M and $65M. The Current EIS mine rehabilitation and Closure costs are $39.4M. This would increase mine rehabilitation and closure costs to between $88.4M and $104.4M (an increase of 224% - 265%). It is physically possible to move this very large amount of material but it is very unlikely to be economically practical.

Other impacts of this major change to the final landform have not been assessed in the EIS.

This is another example of a hastily cobbled together, improperly assessed, concept level idea put forward as if it is a mature, properly assessed and feasible technical solution. It is not.

3. Significant technical deficiencies should not be "kicked down the road" for resolution in Conditions of Consent and management plans.

Major unresolved technical issues dealing with fundamental controls of agreed risks (AMD and water quality) do not belong for resolution post-approval in a Project's Conditions of Consent and future Management Plans.

These critical issues must be addressed, broadly scrutinised and resolved in the EIS stage of a project. This has not occurred for the Bowdens Project.

This project's location makes it manifestly unsuitable as an experimental test site.

Conditions of Consent and "Adaptive Management Practices" are not an acceptable solution to lack of technical rigour and lack of demonstrated field scale performance when we are dealing with legacy issues that will last for generations to come.

Michael White
boomery57@icloud.com
2 September 2023