Response to a State Significant Development

Bowdens Silver - Development of an open cut silver mine and associated infrastructure at Lue (SSD-5765)

27 July, 2020.

Introduction

My name is Hunter White.

I am a farmer and have lived in the Lue community all my life.

I live less than 10 km from the centre of the proposed Bowdens Silver Mine pit.

I have assisted the Lue Action Group with their submission.

I am opposing the mine development as it presents a significant risk to the Lue Community, Lawsons Creek catchment and wider Mudgee region.

Executive Summary

The Environmental Impact Statement for Bowdens Silver Mine (SSD no 5765) is opposed by me based upon following concerns.

Water

The impacts on the quantity and quality of the region's surface and groundwater resources pose the greatest risk of this project proceeding. The risks include damage to groundwater and surface water resources and will remain long after the mine closure, possibly forever. The risks that the Tailings Storage Facility, Waste Rock Emplacement and mine pit void present are understated and not acceptable.

The site water demand is understood but water supply is based upon significant unproven assumptions about supply and availability which would mean that this project cannot proceed, or it did, there would be periods where it could not operate due because of drought, for example. The risks to groundwater and surface water quantity and quality because of mining operations and post mining operations requirements are unknown or understated.

Risks bringing water from Ulan include the uncertainty of supply as water is needed by the Ulan mines as described in the water sharing agreement, effects supply to existing Hunter River water users, risks to landholders along the pipeline and the quality of water supplied to Bowdens Mine.

Rights of groundwater and surface water users in the Lawsons Creek catchment are not adequately considered and may not comply with state water sharing plans.

Human Health

The EIS underestimates impacts on human health. Dust containing lead poses the greatest risk. There is no safe level of lead in the human body. The effects of noise from mining construction and operations may be understated as the background noise level selected for design is significantly higher than measured levels.

Social and Economic impact on the local and regional community
The cost/benefit of the project does not consider current and future costs as a result of this project. The current and future resilience of the community of Lue has been weakened as the issue divides the community. The consultation process did not include local farmers or the aboriginal community, instead focusing on the towns of Mudgee, Gulgong and Rylstone.

Environment

Effects on biodiversity and ecology are limited to the mine site and may not be accurate assessment and more information is needed. Groundwater dependent ecosystems particularly around creeks is not adequately assessed.

The effects on soils and land capability is limited to the mine site and does not consider risks outside the mine site. This includes changes to ground and surface water and its effects on salinity and soil acidity.

In conclusion the EIS considers the effects on the mine site and does not adequately consider impacts outside the mine perimeter. The EIS does not consider whether changed use is compatible with current and preferred future use of the site. It does not meet the Mining SEPP standards for impact

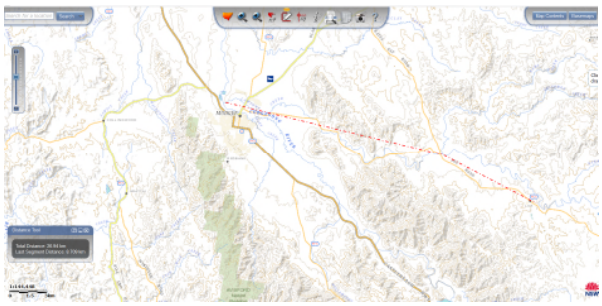
Water Balance Model

I hold a Water Access Licence from Lawsons Creek. Over the last three years, no water has been available from this source apart from stock and domestic supply. The period of measurement in 2017 is not representative of water availability for modelling. The use of data from an adjoining catchment may prove to be not consistent in this site.

I am concerned that creek flows mentioned in the EIS are overstated. The average flows overstate the baseflow of Lawsons Creek observed at the Havilah bridge, particularly during the last three years. Farm rainfall records that under the current water sharing agreements the proposed mine would have been shut down during the last 2 years because of lack of water.

Weather data used for Consultants modelling does not adequately consider the extremes of rainfall experienced in the proximity of the mine and understates the risk of local flooding, possible breach of the tailings storage facility into Lawsons Creek. The highest daily rainfall events in this region have not been captured by official rainfall recording sites. The highest daily rainfall event I have seen was 225 mm in 12 hours in February 2003 (Rylstone Show Day). This caused record high water levels in Lawson Creek. Rainfall events of 100mm plus occur in this region and are not captured by local weather stations. The most recent event greater than 100mm in an hour occurred on 12 February 2020. 25mm was recorded at Mudgee for the 24hour period. I am concerned that the risks of local flooding at the mine site are not adequately considered. I am concerned that this may lead to a breach of the tailings dam into Lawsons Creek. This is a critical project defect.

No discussion or consultation from the proponent has occurred about the acquisition and use of Water Access Licences (WAL) in this region. It is not possible to acquire a licence in the lower catchment and move the allocation upstream. Surface water or groundwater would have to flow upstream elevation of 140M to get to Lawsons Creek at Lue (Table 1).



Location	Distance from Lue	Elevation at Lawsons Creek
Mudgee	26.9km	450M
Havilah	8.7km	500M
Lue	0km	540M

Table 1 Lawson Creek catchment elevations between Mudgee and Lue.

Water licencing (EIS 4.6.6).

The EIS mentions options to purchase entitlements within the catchment – implying the impossible- that you relocate flow from lower catchment to upper catchment for surface water or groundwater extraction. I object to WAL surface water from lower Lawsons Creek catchment being transferred to the upper catchment

Actual levels of water harvesting by farms is overstated, this means that modelling is overstating surface water flows. The consultants have assumed that current entitlements of water harvesting are completely taken up. Recommendation: that an assessment of current water harvesting be undertaken.

It appears that the only water that could be taken is surface water collected and licences used to account for this water. Water drawn from Lawsons Creek surface water or ground water would be at a cost to current water use and cannot be taken without affecting current licenced users, stock and domestic users, agricultural systems use and water dependent ecosystems

It is not clear in the water balance table water table how much water collected will be taken by the mine. If the water proves to contain too much sediment and is not available for environmental flows, does this require licencing?

Groundwater quality- reduction of surface water results in inundation of groundwater of poorer quality – mineralisation but better N levels 1350-2900uS/cm for groundwater p4.126 tailings material 850uS/cm – how can they keep at this level with high groundwater values

Water sharing agreements in place in our region impacted by mining development.

- Ulan water sharing plan shows that some mines have excess water and some are requiring extra water
- Cadia Mine requires water and is purchasing grey water from Orange
- Proposed McPhillamys Gold Mine will draw water from Colo River catchment 90km pipeline and located 23 km from Carcoar Dam in the Lachlan catchment.
- Carcoar Dam, Blayney, Millthorpe, Organe Molong, Cumnock and Yeoval linked by a 160km including a supply pipeline from the Macquarie River to Orange at a cost of $160M to secure water for the future of this region.

Recommendation: that MWRC investigate and plan to mitigate the risks associated with demands of water for mining and to prepare for the risk of contamination of Lawsons Creek water quality and quantity. This might require a pipeline connecting Gulgong, Mudgee and Lue with the ability to move potable water both ways by providing supply from Windemere Dam, Mudgee groundwater and the Cudgegong River near Gulgong to secure safe and reliable water supply for our region for the next 50 years. This would form part of the economic impact of mine development at Bowdens Mine.

Water Balance Table

Surface water and groundwater users includes the group who currently use water for stock and domestic (licenced and unlicensed) from surface water and groundwater, licenced irrigation water users, environmental users including water dependent ecosystems and downstream water users and environmental requirements.

I have concerns about the water supply from:
NSW Murray Darling Basin porous rock groundwater sources 2011 – Sydney Basin Murray Darling Basin groundwater source – 194ML
Macquarie Bogan Unregulated and alluvial water source 2012 – 136ML
(EIS 2.10.1)

Has Silver Mines Ltd (SVL) secured sufficient allocation? How does this affect current entitlements of other users? Does the water exist, given this is not being fully utilised by current users?

Recommendation: SVL to discuss water sharing with local users as this has not happened at time of this submission.

The Groundwater Model uncertainty analysis (EIS p4.121) does not consider low groundwater supply and low surface water supply. This is a risk given the high correlation to surface water supply and rainfall. Lawsons Creek relies heavily on runoff. Recommendation: SVL to further investigate links between runoff and creek flow. The project design should not rely on average flows. In agriculture we must have strategies for 0.05 decile rainfall occurring for one month 3 moths and greater than 6 months. This is a reality that has a serious effect on water supply in Lawsons Creek.

Pipeline Ulan to Lue

Pipeline water may not be treated until it gets to Lue (EIS p2-63). Where is the location of treatment sites and risks from treatment residues? The pipeline water quality is to be 800uS/cm, what are the risks associated with water quality along the pipeline as it is possible that EC could be as high as 4040 in the pipeline from Ulan. Recommendation: that if water is used from Ulan that it be a condition that water quality is below 802 EC before leaving Ulan.

T able 19 Electrical Conductivity Monitoring Summary (µS/cm)

	Alluvium	Site	Regional	Springs
Mean	802	1420	1820	150
Min	121	153	310	71
Max	2620	5680	4040	252

EIS Vol2 part5 Groundwater May 2020 p100

2.10.3 Ulan – Lue pipeline design

- 64L/sec
- Ulan 420MAHD processing plant 640MAHD
- 375mm pipe 20bar
- Construction 6-10M corridor 1.4M deep trench.

There are concerns about the effects of a pipeline break and the discharge of poor quality water onto agricultural land. The concerns extend to the ability to remediate after a pipeline failure. Recommendation: EIS to include mention of this risk and include a plan to manage to allow landowners to make an accurate assessment of risks before allowing access for a pipeline on their property.

Groundwater

The linkages between groundwater and surface water, the statement that groundwater strikes to 60M show variability in supply and quality referred to in Table 4.39 existing groundwater settings (EIS p4.107) are questioned by Shield (2020) and Flavel (2020). Creeks are regions of groundwater sinks (EIS p4.109) indicating creeks are dependent on groundwater in this region.

The potential to access groundwater supply within mine site and surrounding land (EIS p4.111) is a concern, is this effect considered? Data for decisions about potential groundwater impacts is not sufficient to support this mining development. Recommendation: Groundwater extraction should cease when baseflow at Hawkins creek ceases (EIS Fig 4.6.2 conceptual model).

SVL has entitlements of 1066Ml of groundwater entitlements at Lue (EIS p2.64). Could you provide us with more information to make an informed decision about effects on groundwater supply in our area?

Groundwater is available at 600M (EIS p2.67). What is the quality and risk of using this water? Would this be a permittable use? Not sufficient information is provided to make an assessment on risks of using this water to surface and groundwater users.

Water drawdown may be overpredicted in Sydney Basin lithologies north of site (EIS p4.117), implying there may be more reliance on Rylstone volcanics.

The model considers mounding of water below TSF (EIS p4.119), does this mean the model considers the TSF will be leaking?

Recommendation: At times when the baseflow of Lawsons Creek less 0.024ML/day reduction, use 12 month moving average as the measure rather than daily measure to allow sufficient recharge of groundwater systems in Lawsons Creek.

Groundwater quality creates risks to surface water. The - reduction of surface water results in inundation of groundwater of poorer quality – mineralisation but better N levels 1350-2900uS/cm for groundwater p4.126 tailings material 850uS/cm – how can they keep at this level with high groundwater values

As EIS states that No shallow alluvial deposits should be considered as highly productive (EIS p4.127), possibly over allocated and current users not extracting full entitlement. Recommendation: caution about use of shallow level groundwater resources in the Lawsons Creek catchment. ask for more information as water use is not ground truthed by consultants and reliance upon this is not acceptable

The Post mine void groundwater sink in perpetuity not acceptable. This will continue to draw down groundwater for 200 years post mine closure.

Heath

Dust is the primary pollutant from the mine. This contains lead. There is no safe level of lead in the human body. The EIS underestimates community exposure levels as it does not consider concentrate, mine ore materials (stockpiled oxide material and tailings) as sources of dust. The EIS fails to assess all sources of lead and arsenic bioaccessibility (as no data is provided) to enable reliable health risk assessment to be performed and assess ingestion pathways. Samples show lead bioaccessibility values of 14.6% to 53.8% (average 32.7%) indicating that ingestion of surface and near surface mined material by people at Lue will have higher absorption of lead than found at Mt Isa. Noller (2020) and Taylor (2020)

Noise

Noise monitoring did not measure below 25dBA, measurements all below 35dBa daytime and 30dBA night time. base for modelling is well above actual measurement (EIS p4.33). The data from rural settings records background 25dBA or less. The monitoring level for possible Voluntary Land Acquisition and Mitigation Policy (VLAMP) is too high. Historically assessments from mining developments have proved to be not valid, either understated or not accurate, yet no compensation is available because it was not predicted in modelling at the planning stage. RVLAMP designed to

address problems that are predicted to exist before construction commences but unclear about problems that emerge after Ziller p22
Recommendation: the lower measured reference points for background noise be adopted.

Explosives

Concerns have been raised with me about storage on site and transport of these materials to the site. The EIS does not provide enough detail to support the current proposal for storage of explosives on site (EIS p 2.76). Concerns have been raised with me about the storage and transport of dangerous and hazardous materials to the site. This includes cyanide chemicals.

Employment

2.12.1 construction 320 jobs but only 131 FTE (EIS p2.77)
2.12.2 operations 190-228 jobs. 46 day appear to be for mine operations (EIS table 2.8 p2.78)
I am not sure about the number of jobs and how many will go to local people in the MWRC area.
Recommendation - There is no guarantee of local jobs, this should be a condition of the mining lease and any offers made transferred to future owners in the event of a sale or other acquisition of the mine.

Final landform

A critical flaw of the project includes

- Mine Void 53Ha will remain after mine closure
- Waste Rock Encasement (WRE) is to be covered and sealed.
- Leachate management dam rehabilitation not clear, will something remain to contain leachate from WRE
- TSF remain as a self-draining landform, does this mean it will continue to provide leachates to Lawsons Creek catchment after mine closure (EIS P2.91 & fig 2.26 p2.92)

There are serious concerns raised by experts White (2020) and Shield (2020) about mien design and the risks to groundwater and surface water by the mine site after closure. The greatest risk is of Acid Mine Drainage.
Recommendation – the mining lease be rejected.

Community consultation

The location of a mine at Lue is not considered in the MWRC Local Environment Plan 2012 and not adequately considered in the EIS. There is no plan for post mine use of the site and impacts on the community. There is little consideration of the future of the region beyond the life of the mine. I am concerned that this will not be positive and will result in decline in land prices, a loss of sense of place for the community as they have been displaced or relocated. I do not feel that this satisfies the conditions of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP)

The effects on Bushfire control of land fuel load and volunteers for Lue Havilah BFB is not adequately considered

The EIS allows 7 years for rehabilitation, is this enough and will this responsibility remain with the landowner and community via groups such as Bingman Landcare Group?

It is stated that Bingman Catchment Landcare Group was approached to be involved in design of rehabilitation but declined to be involved. I am a member of Bingman Landcare which is our local group taking in the Lawsons Creek catchment and Watershed Landcare which is the regional Landcare network covering the whole MWRC area. Bingman Landcare is not involved in mine design or advocacy for mines but rather responsible and sustainable agriculture and natural environment protection so commenting on EIS without details of what was proposed by RW Corkery & Co was not possible.

Mine rehabilitation involvement with Landcare groups and Aboriginal groups does not appear satisfactory or understood by the proponent (EIS p2.89). It is a challenge when mining processes are so threatening to many things valued about place that it is not possible to provide input into mine design. To disengage with both groups is a serious breach of corporate social responsibility. It must be a condition of mining lease that the mining company actively engage with the whole community. The recent history of mining companies as recent as this year are leading to serious breaches of mistrust. Community consultation focused on Mudgee Gulgong and Rylstone.
Assumption offered in Expert assessment has proved to be wrong

Recommendation: community consultation must include the local community.

Summary of recommendations

1. Recommendation: that an assessment of current water harvesting be undertaken.
2. Recommendation: that MWRC investigate and plan to mitigate the risks associated with demands of water for mining and to prepare for the risk of contamination of Lawsons Creek water quality and quantity.
3. Recommendation: SVL to discuss water sharing with local users as this has not happened at time of this submission.
4. Recommendation: SVL to further investigate links between runoff and creek flow.
5. Recommendation: that if water is used from Ulan that it be a condition that water quality is below 802 EC before leaving Ulan.
6. Recommendation: EIS to include mention of this risk and include a plan to manage to allow landowners to make an accurate assessment of risks before allowing access for a pipeline on their property.
7. Recommendation: Groundwater extraction should cease when baseflow at Hawkins creek ceases
8. Recommendation: At times when the baseflow of Lawsons Creek less 0.024ML/day reduction, use 12 month moving average as the measure rather than daily measure to allow sufficient recharge of groundwater systems in Lawsons Creek.
9. Recommendation: caution about use of shallow level groundwater resources in the Lawsons Creek catchment. ask for more information as water use is not ground truthed by consultants and reliance upon this is not acceptable
10. Recommendation: the lower measured reference points for background noise be adopted.
11. Recommendation – the mining lease be rejected.
12. Recommendation: community consultation must include the local community.

Conclusion

Based upon information available to me from the EIS for Bowdens Mine I recommend that this project be rejected

Signed

Hunter White OAM.
Havilah
Mudgee NSW 2850

27 July 2020.

Bibliography – submitted with Lue Action Group Submission.

- Aberton, M & Serov, P. (2020). Technical Review of selected EIS reports (Biodiversity and Aquatic Ecology) in response to the Proposed Bowden's Silver Mine Development, State Significant Development No. 5765, Lue NSW. Absolution Ecology.
- Flavel, C. (2020). Groundwater EIS report concerns. Australian Water Environments
- Noller, B.N. (2020). Key issues and weaknesses of the Bowdens Silver Project. Environmental Impact Statement. Centre for Mined Land Rehabilitation, Sustainable Minerals Institute, The University of Queensland
- Rayment, B. (2020). Landholder property rights and responsibilities in relation to the proposed water supply pipeline that forms part of the Bowdens Silver Project. Environmental Defenders Office NSW
- Shield, S. (2020). Technical Review - Surface Water Assessment (SSD-5765). Engeny Water Management
- Taylor, M. (2020). Comments and assessment of potential lead exposure risks reported in the Bowdens Silver EIS May2020. Dept of Earth & Environmental Sciences, Macquarie University
- Wassermann, J. (2020). Bowdens Silver Pty Ltd Lead, Zinc, Silver Project - Review of Noise and Vibration Assessment. Wilkinson Murray.
- White, M. (2020). A High-Level Mining Review of the Bowdens Lead, Zinc, Silver Project A High-Level Mining Review of the Bowdens Lead, Zinc, Silver Project.
- Ziller, A & Walton, H. (2020). SIA review re: proposed Bowdens Silver, Zinc and Lead mine.