2-9 RISK TO LICENSED BORE USERS

Concern:
The right to access groundwater is governed under Water Sharing Plans. Proposed activities require a formal risk assessment to clarify and enable approval decisions. Development of a clear risk assessment framework would enable the risks to be considered.

This concern responds to the following SEARs for SSD 5765:

- A description of the existing environment likely to be affected by the development, using sufficient baseline data;
- A description of mitigations and
    - Whether these are best practice and represent a full range of measures
    - Whether they will be effective / key performance indicators
    - Contingency plans for residual risks / monitoring and reporting on environmental performance
- An assessment of the likely impacts of all stages of the development, including any cumulative impacts, taking into consideration any relevant legislation, environmental planning instruments, guidelines, policies, plans and industry codes of practice;
- Part 3: impacts to significant water resources or threatened species are minimised to the greatest extent practicable
- DRE/DPE requires a Water Management Strategy that considers
    - the existing surface and groundwater qualities
    - a robust baseline
    - a description of how groundwater and aquatic ecosystems will be monitored, Trigger Action Response Plan and trend identification

As groundwater yields can supply > 5L/s and total dissolved solids are less than 1,500 mg/L, the Fractured Rock aquifer is classed as “highly productive” under the Aquifer Interference Policy. Despite conclusions based on averages portrayed in Table 22 (Jacobs (Australia), 2020, pp. 5-110), there is no consistent evidence of non-potable water quality in Lue bores from the sampling undertaken. The aquifer around Lue has potable water quality and is used by the villagers. Groundwater quality impacts to WAL 28443 (19 ML/a) NSW Murray Darling Basin Fractured Rock Groundwater Sources 2020 and WAL 29014 (6 ML/a) are also close to Lue Village.

Principles 1 and 3 of the *Groundwater Quality Policy 1998* are designed to prevent a deterioration in groundwater quality.

Minimal impact includes:

- Less than 2 m decline at any water supply work without make-good provisions
- Any change in groundwater quality should not lower the beneficial use category of the groundwater source beyond 40 m from the activity

From (Jacobs (Australia), 2020, pp. 5-125)

> *Potential groundwater quality impacts include:*
>
> - *Acidification of groundwater and mobilisation of heavy metals due to exposure and oxidisation of potentially acid forming materials associated with groundwater drawdown.*
> - *Salinisation of the final pit lake void.*
> - *Seepage from the TSF and/or waste rock emplacement (WRE).*
> - *Deterioration of the groundwater quality leading to a reduction in the beneficial uses of groundwater.*

Whether future impacts to bore users are minimal, such as salinisation of the proposed final pit lake void and connected aquifer, are not clearly or convincingly explained in the EIS. A clearly explained risk assessment framework such as *AS/NZS ISO 31000:2009 Risk Management Process (AS/NZS 31000:2009)* would enable a consistent evaluation of the proposed Project risks. This would include a risk assessment framework including:

- Key principles for managing risk
- Risk management assessment process
- Risk rating methodology
- Residual risk assessment and treatment plan

Furthermore, the clear definitions of terms such as 'low', 'negligible' and 'minimal' that are used throughout the EIS could enable shared understanding of the proposed activity and the required detail around how these risks would be acceptably managed.

Drawdown is predicted in wells GW061475 and GW802888 both located outside of the mine lease. If water supplies to these groundwater users are compromised due to mining induced water level drawdown, then undisclosed 'make good' provisions would apply.

REFERENCES

ANZ Guidelines, 2020. *Guideline values for water/sediment quality.* [Online]
Available at: https://www.waterquality.gov.au/anz-guidelines/guideline-values
[Accessed 26 June 2020].

Bowdens Silver, 2020. *Monitoring.* [Online]
Available at: https://bowdenssilver.com.au/monitoring/
[Accessed 21 June 2020].

Jacobs (Australia), 2020. *Part 5 - Groundwater Assessment,* Sydney: Silver Mines Pty. Limited.

R. W. Corkery & Co. Pty. Limited, 2020. *EIS Bowdens Silver Project,* Sydney: Bowdens Silver Pty Limited.