

16-36. MONITORING AND TRIGGER VALUES

Concern:

A Water Management Strategy and details of a Trigger Action Response Plan are required in the SEARs. Impacts to significant water resources and threatened species must be minimised to the greatest extent practicable. There is no inference of where new monitoring wells will be drilled, nor which locations will be used to monitor what during and post mining. Identifying the dependence of groundwater users, including ecosystems, on the native groundwater system would enable an effective monitoring plan, including trigger levels against analytes or water levels (availability), to be determined.

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;
- A summary of commitments
- Part 3: Any interference with an aquifer caused by the development does not exceed the respective water table, water pressure and water quality requirements specified for item 1 in columns 2, 3 and 4 of Table 1 of the *Aquifer Interference Policy 2012* for each relevant water source listed in column 1 of that Table.
- Part 3: impacts to significant water resources or threatened species are minimised to the greatest extent practicable
- Assessment of Lawsons Creek and Price Creek
- Assessment of likely impacts to aquifers; detailed site water balance, management of excess water and reliability
- DRG, Attachment 2A requires rehabilitation methods including
 - e) monitoring for rehabilitation
 - i) details of triggering intervention
 - k) details of post-rehabilitation management
 - l) i) assessment of rehabilitation techniques against objectives
 - l) ii) assessment of potential acid mine drainage
 - l) iii) processes to identify and management geochemical risks throughout mine life
 - m) iii) groundwater assessment for final water level in any tailing storage facility void
 - o) consideration of controls
- 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

DISCUSSION

Groundwater near the site is classified as Vulnerable by the Mid-Western Regional Local Environmental Plan 2012. Section 4.6 of Jacobs (2020) states that additional investigation would be required to prove that a 'sustained' supply would be available from bores near the site. Impacts to groundwater availability is estimated using a regional groundwater model. The EIS states that it is a Class 2 model, however, this has not been verified by the peer reviewer. Under the Australian Modelling Guidelines, a Class 3 confidence level model would be used to provide information for sustainable yield assessments for high-value regional aquifer systems.

The risk to water quality, especially from contaminated groundwater bypassing seepage collection ponds, has not been modelled in the EIS. The proposed location and number of seepage collection ponds has not been stated.

Water of non-potable salinity from the pit lake is free to enter the aquifer once the pit water level equalises after mining, however, neither salinity monitoring around the lakes nor trigger levels and remedial actions have been specified. Due to the potential for evolution of sulfuric acid from waste rock and tailings which can liberate heavy metals from minerals in contact with groundwater, clear trigger levels and comprehensive monitoring is required to validate the predictions made in the impact assessment and to ensure that the rights of existing users are protected.

Developing a framework for a risk assessment would enable objectives to be agreed and trigger levels to be set. A Trigger Action Response Plan can then identify actions that would be taken to remediate exceedances.

REFERENCES

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.