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Attention: Rose-Anne Hawkeswood

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EPA Advice on Submissions Report

Dear Ms Hawkeswood

Thank you for the request for advice from Public Authority Consultation (PAE-24168116), requesting the review by the NSW Environment Protection Authority (EPA) of the Submissions Report for the proposed Bowdens Silver Project (Application SSD 55765) approximately 2km from Lue.

The EPA has reviewed the following documents:

- Bowdens Silver Submissions Report – R.W. Corkery & Co. PTY. Limited – June 2021

The EPA understands the proposal is for:

- A main open cut pit and two satellite open cut pits, collectively covering approximately 52ha.
- A processing plant and related infrastructure covering approximately 22ha;
- A waste rock emplacement covering approximately 77ha;
- Miscellaneous oxide and low-grade ore stockpiles, soil and waste rock stockpiles covering approximately 14ha, including 9ha that would be located on the waste rock emplacement;
- An oxide ore stockpile covering approximately 8ha;
- A tailings storage facility covering approximately 117ha;
- A southern noise barrier to provide visual and acoustic protection to properties south of the Mine Site;
- Water supply pipeline from Ulan/Moolarben Coal mines; and
- The proposed realignment of the 500kv Wollar-Mt Piper transmission line.

Based on the information provided, the proposal will require an environment protection licence under sections 43, 47, 55 and/or 122 of the *Protection of the Environment Operations Act 1997* (POEO Act) for crushing, grinding or separating, mineral processing and mining for minerals under Schedule 1 of the POEO Act.

The EPA has reviewed the Submissions Report and has the following additional comments and associated recommended conditions of consent:

1. Matters to be addressed with consent conditions

a. Processing Limit

Recommended condition of consent:

No more than 2.5 million tonnes per annum of ore can be extracted and processed at the site throughout the project life.

b. Air Quality Impacts

Surface Stabilisation

The Response to Submissions (RtS) provides evidence to justify the adopted emission reduction factors for surface watering for hauling operations and surface stabilisation. However, the additional information does not include:

- Detailed information regarding the proposed approach to ensure that the revegetation/land stabilisation targets (as assumed in the AQIA) will be met
- Specific measurable and auditable revegetation/land stabilisation targets for achieving the level of controls assumed in the AQIA
- Discussion on contingency measures to be implemented to ensure revegetation/land stabilisation targets are met. These strategies need to be designed and implemented to prevent and minimise the risk of dust emissions due to wind erosion as assumed in the AQIA.

It is therefore pertinent that the proponent ensures the diligent and ongoing implementation of the proposed controls, mitigation measures and strategies as assumed in the AQIA which includes surface stabilisation through rehabilitation and revegetation activities. The proponent's commitment to the diligent implementation of proactive and reactive management strategies should be reflected in an Air Quality Management Plan.

The EPA advises that failing to achieve in practice the assumed levels of control, including but not limited to surface watering and surface stabilisation, will increase the risk of adverse air quality impacts due to wind erosion form the proposed operations.

Recommended condition of consent:

The Proponent must prepare and implement an Air Quality Management Plan (AQMP) prior to the commencement of construction operations. As a minimum, the AQMP must include the following parts:

i. Proactive and reactive mitigation strategies for all significant, and potentially significant emissions sources, including the implementation of those mitigation measures contained in the Statement of Commitments (Appendix 2 of the Submissions Report).

ii. Monitoring method(s), including but not limited to:
    a. Continuous Particulate Matter Monitoring
    b. Meteorological monitoring
    c. Location, frequency, and duration of monitoring

    Note: All monitoring equipment associated with the monitoring network must be operated maintained and calibrated to the minimum standard required by the equipment manufacturer or reference method. The number of monitors used must be appropriate for the effective management of dust at the premises.

iii. Trigger response management protocols to be used in combination with the continuous Particulate Matter and Meteorological monitors.
    The Selected trigger levels must be informed by the results and conclusions presented in the Updated Air Quality Impact Assessment (AQIA), and must be clear, measurable, and auditable.

iv. Identification of clear and specific reactive mitigation measures to be implements in accordance with the trigger response management protocol.
v. Description of specific and measurable revegetation and land stabilisation targets that are in line with the assumptions made in the preparation of the Updated AQIA. Specific evaluation and reporting mechanisms must also be developed to ensure periodic reporting against the targets.
vi. Record keeping.
vii. Response mechanisms and contingency measures
viii. System and performance review for continuous improvement
ix. Compliance reporting.

Blast Emissions

The proponent has considered the potential for impacts from blasting operations via a review of meteorological conditions, by hour of the day, to identify ideal conditions to undertake blasting. Whilst modelling of blast fume was not undertaken, due to noted challenges and limitations, the review undertaken by the proponent is considered sufficient due to the infrequent occurrence of blasting and the proponent's commitment to prepare and implement a Blast Management Plan.

Recommended condition of consent:
The Proponent must prepare and implement a Blast Management Plan. *The Code of Good Practice: Prevention and Management of Blast Generated NOx Gases in Surface Blasting* (Australian Explosives Industry and Safety Group Inc. 2011) must be considered in the development of the plan. The Plan must include as a minimum, appropriate blast management practices and identify specific sub-optimal meteorological conditions during which blasting should not occur.

c. Noise

The EPA wishes to emphasise that whilst the predicted noise levels from the proposal may not exceed the minimum Project Noise Trigger Levels under the Noise Policy for Industry (NPfI), given the rural nature of the environment, it does not mean that operations will be inaudible and it is likely that some residents will be able to hear noise from the proposal. This is also clearly outlined in Section 1 of the NPfI.

Out of Hours Construction Work

The RtS requests for construction work to be conducted outside recommended standard hours on Saturday afternoons (1300 to 1800). The RtS argues that because the area is rural there is likely to be limited noise impacts. This claim does not align with the predicted noise levels in Table 5.10, which indicates up to 17dBA exceedance of the Noise Management Levels at the residential receivers.

Table 5.12 characterises the exceedance of the Noise Management Levels (NMLs) as negligible to marginal, moderate, and significant. This, and the subsequent justification of the impact, is not consistent with the requirements of the Interim Construction Noise Guideline (ICNG) where any exceedance of NMLs require specific noise management actions.

The EPA considers that the justification for the out of hours construction works does not align with the predicted noise impact on the community.

Recommended condition of consent:

The Standard hours of construction, as described in Table 1 of the *Interim Construction Noise Guideline* (ICNG) must be applied to the proposal, if approved (i.e. Monday to Friday 0700 – 1800, Saturday 0800 to 1300 and no work on Sundays or Public Holidays).

Haul Road Section of Maloney's Road

Construction of this section of the relocated Maloney's Road has been assessed in the RtS against the *Noise Policy for Industry* Project Noise Trigger Levels and indicates up to 5 dBA exceedances of the Project Noise Trigger Levels.

Recommended condition of consent:

Any noise mitigation that is deemed necessary for operation of this haul road, must be implemented early during construction stages to provide some protection for residents during the construction.

d. Surface Water Impacts

Water Management Plan

The applicant has committed in the RtS to the development of a Water Management Plan which would be developed in consultation with the EPA prior to the commencement of operations. The Water Management Plan would include monitoring locations, proposed parameters, and site-specific trigger values.

Recommended condition of consent:

Prior to construction, the applicant must develop a Surface Water Monitoring Program that includes but is not limited to:

a. Water quality monitoring locations

b. Analyte list and sampling frequency for each monitoring location

c. The sampling method for each location

d. The method of analysis for each analyte (as per Approved Methods for the sampling and Analysis of Water Pollutants in NSW, 2004) and practical quantitation limit

e. A site-specific relationship between TSS and turbidity if triggers are provided in TSS concentrations

f. Timing and frequency information for each sampling regime. Sampling should be carried out with a frequency commensurate with risk and stage of operation (including ongoing monitoring for post closure stages)

The applicant must also:

- Develop a Trigger Action Response Plan (TARP) that includes decommissioning and rehabilitation monitoring. The TARP should include contingencies to identify and manage any unpredicted impacts and their consequences to ensure corrective actions are implemented
- Apply ANZECC (2000) Interim working levels or ANZG (2018) draft DGVs for toxicants where no moderate or high reliability guideline value is available; and
- If site-specific guideline values are developed, they are to be consistent ANZG 2018. The reference sites should be representative of a slightly disturbed condition.

Water balance

The RtS notes that the water balance indicated that under a high rainfall and runoff scenario the system would retain all water within the containment zone without discharge. The Tailing Storage Facility (TSF) capacity varies depending on the stage of development of the embankment with the lowest storage capacity prior to an embankement rise. The RtS indicates each stage would provide capacity for further tailings deposition, decant storage, storm storage and design contingency.

Recommended condition of consent:

For each embankment stage, the TSF must be designed, constructed, and managed to wholly contain at least a 1 in 100, 72-hour storm event.

The site will be operated so that no discharge will occur from the premises.

Processing Plant Area Dams

The EPA previously requested clarification around which Processing Plant Area Dams are contaminated water storages, including their storage capacity and overflow frequency. The RtS notes the processing plant dams would be hydraulically connected via pumps and managed to reduce the risk of overflow. Water in these dams would be the priority water source for use in processing.

Recommended condition of consent:

Details of each non-potable water storage including sizing and operating rules must be specified in the Water Management Plan. The size of the storage must be based on a design rainfall event or as required by the water balance to demonstrate sufficient capacity for the site to operate as a nil discharge site.

Dam Liner

The RtS indicates a 1.5mm low permeability HDPE liner will underly all processing plant area dams and the details of the liner permeability would be confirmed during detailed design.

Recommended condition of consent:

All water storages containing non-potable water must have a liner that achieves a hydraulic conductivity of $1x10^{-9}$ m/s or less with a constructed clay liner of at least 1000mm or a geosynthetic liner providing equivalent or better protection.

Contaminated Water Reuse

The EIS indicates that water within the Processing Plant Areas Dams may be used as a secondary priority water source for dust suppression and the wheel wash. The RtS indicates that water within these dams may not be suitable, however this would be determined.

Reuse of contaminated water for dust suppression could affect long term soil structure, vegetation growth and create long term legacy issues.

Recommended condition of consent:

Prior to the use of any non-potable water or effluent for dust suppression, an assessment of the suitability and sustainability of its use must be prepared in consultation with the EPA. This includes but is not limited to assessment against the *Environmental Guidelines- Use of Effluent by Irrigation* (DECC 2004). Any potential occupational health and safety issues should also be considered in consultation with NSW Health.

Characterisation of Water Quality

The applicant has committed to continuing to conduct geochemical testing to characterise water quality runoff from Non-Acid Forming (NAF) waste rock emplacement areas, low grade ore and oxide ore stockpiles to confirm whether any captured runoff can be considered suitable for release, prior to commencement of detailed design.

The EPA does not support the off-site discharge of water that does not meet ambient water quality objectives of the receiving environment. The water balance indicates that the site should operate as nil discharge.

If discharges are proposed, the water balance should be re-calculated and resubmitted with an accompanying assessment of the potential impacts of discharge.

If a discharge from the site is proposed, a water pollution impact assessment will be required to inform licensing consistent with Section 45 of the POEO Act. This assessment

will need to accompany any application for an environment protection licence. Any such assessment must:

- Be prepared in consultation with the EPA, with the level of assessment commensurate with the potential water pollution risk
- Demonstrate that all practical and reasonable measures to avoid or minimise water pollution and protect human health and the environment from harm are investigated and implemented
- Estimate the frequency and volume of the proposed discharges
- Characterise the expected quality of each discharge in terms of the typical and maximum concentrations of all pollutants likely to be present at non-trivial levels (including coagulants/flocculants)
- Assess the potential impact of the proposed discharges on the environmental values of the receiving waterway, including for typical through to worst-case scenarios, with reference to relevant guideline values consistent with the national Water Quality Guidelines (ANZG 2018)
- Where a mixing zone is required, demonstrate how the guideline values for relevant chemical and non-chemical parameters will be met at the edge of the initial mixing zone of the discharge
- Where relevant, identify measures to mitigate impacts including increased reuse, greased swales, enlarged basins, or transfer to other onsite storages

Recommended consent condition:

Prior to detailed design the applicant must complete geochemical testing to characterise the expected water quality runoff/ leachate from all NAF, low grade ore and oxide stockpiles to inform detailed design of pollution control devices associated with these emplacements.

g. Groundwater Impacts

The RtS report has addressed the major groundwater concerns from the review of the Environmental Impact Statement (EIS). The potential for harm to groundwaters is reduced and outstanding matters can be conditions through the following recommended condition of consent.

Recommended consent condition:

The applicant must prepare and provide an updated Water Management Plan, and Groundwater Monitoring and Management Program (including Trigger Action Response Plans, Mitigation Measures Plans, and ongoing updates to baseline monitoring data) to the EPA for assessment prior to the commencement of construction and operation of the project.

The updated plans must include the details of constructed seepage monitoring bores proposed around the Tailings Storage Facility (TSF), their monitoring frequency, and the proposed suite of water quality analytes that are to be sampled.

2. Matters to be addressed with Licence conditions

a. Proposed Environment Protection Licence Conditions

If the project is approved the EPA has provided the proposed recommended licence conditions:

Air Operating Conditions

OX.1 All operations and activities occurring at the premises must be carried out in a manner that prevents and minimises the emission of air pollutants from the premises.

OX.2 The premises must be maintained in a manner that prevents and minimises the emission of air pollutants from the premises.

OX.3 Blasting must not occur outside the hours of 10am to 4pm.

OX.4 Blasting activities must be undertaken in accordance with the Blast Management Plan and Air Quality Management Plan.

Air Monitoring Conditions

MX.1 The Meteorological weather station must be maintained to be capable of continuously monitoring the parameters specified in condition M2.2.

MX.2 For each monitoring point specified in the table below the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period, and sample at the frequency, specified opposite in the other columns. The table showing monitoring parameters and corresponding requirements can be found in the Meteorological Monitoring Station section below.

Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method
Siting				**AS3580.1.1**
Air temperature at 2 metres	degrees Celsius	Continuous	1 hour	AS 3580.14
Air temperature at 10 metres	degrees Celsius	Continuous	1 hour	AS 3580.14
Wind direction at 10 metres	Degrees	Continuous	15 minute	AS 3580.14
Wind speed at 10 metres	m/s (metres per second)	Continuous	15 minute	AS 3580.14
Sigma theta	Degrees	Continuous	15 minute	AS 3580.14
Rainfall	mm	Continuous	15 minute	AS 3580.14
Relative humidity	%	Continuous	1 hour	AS 3580.14

Note 1 - The weather monitoring instrumentation installed and operated at the site must have a stall speed or lower limit of measure for measuring wind speed less than 0.2m/s

MX.3 The proponent must maintain and calibrate the meteorological monitoring station in accordance with the reference test methods and manufacturer's specifications. Records of the calibration and maintenance must be made available to the EPA upon request.

MX.4 the proponent must develop and implement a quality assurance/ quality control procedure for the data collected from the meteorological monitoring station. Outcomes from the procedure must be made available to the EPA upon request.

The EPA can supply additional proposed license conditions associated with noise limits if the Planning and Assessment Division require these prior to determination of the project.

If you have any questions about this request, please contact Miss Lucy Apps on 6333 3800 or via email at EPA.Southopsregional@epa.nsw.gov.au.

Yours sincerely

Dr Sandie Jones
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Regulatory Operations Regional