



Application for Licence Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L8653/2012/2
Licence Holder	BHP Nickel West Pty Ltd
ACN	004 184 598
File Number	2012/003930-4
Premises	Kalgoorlie Nickel Smelter Smelterman Drive FEYSVILLE WA 6431 Part of Lot 100 on Deposited Plan 212288 As defined by the Premises maps attached to the Revised Licence
Date of Report	16/01/2024
Decision	Revised licence granted

Amendment description

Licence L8653/2012/2 is held by BHP Nickel West Pty Ltd (the Applicant, BHP) for the Kalgoorlie Nickel Smelter (the premises) (the Premises), located at Smelterman Rd Kalgoorlie.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the operation of the Premises. As a result of this assessment, Revised Licence L8653/2012/2 has been granted.

The Revised Licence issued as a result of this amendment consolidates and supersedes the existing Licence previously granted in relation to the Premises.

Purpose and scope of assessment

On 7 November 2023, the Licence Holder submitted an application to the department to amend Licence L8653/2012/2 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendment is being sought:

- To include newly constructed residue storage dam 3 (SRD3) onto the Licence.

Background

The nickel smelting process at the premises produces waste gases containing sulphur dioxide, particulates (including heavy metals), combustion gases and waste heat. Waste gases are cleaned and passed through an acid plant to produce saleable sulphuric acid. The waste gas cleaning system produces a weak acid by-product (effluent) typically comprising 10-12% (wt/wt) acid strength and approximately 0.2% (wt/wt) solids. The effluent also contains a soluble arsenic material as a result of the chemical composition of the concentrate feed stocks.

Effluent is collected and transferred to the site effluent treatment plant where it undergoes the following processes:

- Neutralisation: The weak acid is mixed with lime slurry to produce calcium sulphate (gypsum); and
- Arsenic fixation: Gypsum slurry is pumped to the arsenic fixation process where, at a pH target of 7.0, ferric sulphate and sodium hypochlorite are added to convert soluble arsenic into a fixated, insoluble ferric arsenate within the gypsum.

The resulting stabilised gypsum slurry is transferred to the Residue Storage Facility for storage and recovery of liquids. The existing Residue Storage Facility comprises of Gypsum and Brine Ponds and Stabilised Residue Dams (SRD) 1,2 and 3. SRD3 was constructed under Works Approval 6659/2022/1 between February 2023 and August 2023 and this Licence amendment is for the inclusion ongoing operation of SRD3 under the operational Licence from the premises L8653/2012/2.

SRD3 has capacity to store up to 60,000m³ of slurry over its operational life and has been designed in accordance with relevant guidelines for the design and construction of tailings management facilities and meets appropriate ANCOLD (2019) Factor of Safety requirements.

Construction Compliance

On the 2 October 2023 the Critical Containment Infrastructure Report (CCIR) as required by Condition 4 and Condition 5 of Works Approval 6659/2022/1 was received by the Department prior to the commencement of time limited operations. *The Kalgoorlie Nickel Smelter – Stabilised Residue Storage Facility No.3 Construction Summary Report* (Golder Associates, 2023) provided appropriate standards of evidence, including certification by a qualified

engineer (Appendix I) that SRD3 was constructed according to the design specifications and plans, quality assurance, control and testing methods as specified in the Works Approval.

Deviations to the original design, but which are not considered to materially change the operational aspects of SRD3 by the Delegated Officer include:

- The external toe drain sump is extended and rock lined.
- HDPE liner was installed below the full length of the spillway.
- The type of welding of the HDPE liner along the basin was changed to a double wedge weld.
- Sand bunds were added to the underdrainage material to allow for construction of the underdrainage system and hold the course filter material in place.
- The safety bund was moved by approximately 0.5 m and placed on the embankment instead of on top of the liner system as per the design.

(from Golder Associates, 2023)

Time Limited Operations

The SRD3 has operated in accordance with the time limited operations provisions of Condition 7 of Works Approval 6659/2022/1 following submission of the CCIR.

Consultation

The Licence Holder was provided a copy of the draft amended licence and decision report on 18 December 2023. On the 22 of December 2023 the Licence Holder waived the remainder of the consultation period. Subsequently, an error was identified in the physical description of the premises address, and this was corrected with approval of the Licence Holder.

Conclusion

The Delegated Officer has considered the risks of emissions from the inclusion of SRD3 including the potential source, pathway and impact to receptors where adequately assessed in the Decision Report that accompanies Works Approval 6659/2022/1. The deviations to the original design as detailed in Section 2.2 of this report do not constitute a material change to works and no further assessment is necessary for the continued operation of SDR3 under L8653/2012/2.

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Summary of amendments

Table 1 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 1: Summary of licence amendments

Condition no.	Proposed amendments
1 Table 1 rows 8 &9	<p>Infrastructure relating to the residue storage facility has been split into two parts and the specific constituent ponds named. The freeboard limits for the older constructed ponds remain unchanged.</p> <p>The operational freeboard for the new SRD3 reflects current practice of a 1 in 100 year 72 hour Annual Exceedance Probability event and is 500mm.</p> <p>The condition also requires supernatant to be recovered and pmped back to the process Water Pond for reuse at the premises (and the volume recorded);</p> <p>Deposition of slurry is also required to occur from a single northern embankment spigot (and the volume recorded)</p>
	Definitions section updated to include SDR 1-3
	Schedule 1 Figure 3 updated to include SRD3

References

1. Australia and New Zealand Committee on Large Dams (ANCOLD) *Guidelines on Tailings Dams* (ANCOLD, 2019).
2. BHP (2023) *Licence Amendment Application Supplementary Information: Stabilised Residue Dam 3*. DWER Document reference number:
3. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
4. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
5. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
6. Golder Associates (2023) *The Kalgoorlie Nickel Smelter – Stabilised Residue Storage Facility No.3 Construction Summary Report*. DWER Document reference number: