Amendment Report

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	2012/003930-4~13
Premises	Kalgoorlie Nickel Smelter Smelterman Road, FEYSVILLE, WA, 6431 Part of Lot 100 on Deposited Plan 212288 As defined by the Premises maps in Schedule 1
Date of Report	18/09/2025
Decision	Revised licence granted

Amendment summary

Licence L8653/2012/2 (L8653) is held by BHP Nickel West Pty Ltd (Licence Holder) for the Kalgoorlie Nickel Smelter (the Premises), located on Smelterman Road, Feysville. approximately 8 kilometres south of Boulder.

This Amendment Report documents the assessment of potential risks to the environment and public health from the emissions and discharges during a substitution trial whereby the Licence Holder uses tyre derived fuel (TDF) as a replacement for a portion of coke in the Premises Flash Furnace. As a result of this assessment, Revised Licence L8653 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 30 June 2023, the BHP Nickel West Pty Ltd (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) to gain approval for the storage and use of tyre derived fuel (TDF) as a replacement for a portion of coke in the Premises Flash Furnace.

This amendment is limited only to the assessing the risk associated with the storage of TDF material and use the of TDF as a reductant in the Premises smelter. No changes to the production or design capacities of the current Prescribed Premises Categories have been requested by the Licence Holder.

In completing the assessment documented in this report, the Department of Water and Environmental Regulation (the department) has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

Background

The licence holder operates the Kalgoorlie Nickel Smelter (the Premises), located on Smelterman Road, Feysville. The Premises was constructed and commissioned in 1973 under the *Nickel Refinery (Western Mining Corporation Limited) Agreement Act 1968* (the State Agreement).

The Premises smelts nickel concentrate supplied from BHP Nickel West, and third-party mines and concentrators, which has a nickel content of approximately 15%. The concentrate received is smelted to produce a nickel matte of approximately 66% nickel content, which is then transported to the BHP Nickel West Kwinana Nickel Refinery for further processing.

The nickel concentrate received contains approximately 18% iron. The primary function of the smelting process is to remove iron by converting iron sulphides into iron oxide. Dry nickel concentrate powder is injected into the furnace operating at 500°C and 40% oxygen, enabling high temperature conversion and producing slag and matte in the three conversion chambers. A coke mixture (with silica and quartz), in addition to dehydrated fuel oil (DFO), diesel and natural gas, are utilised as a reductant in the smelting furnace bed.

The smelting process results in the release of sulphur dioxide (SO2), particulates (including heavy metals), waste gases, and waste heat. A portion of the waste gases are cleaned and passed through the onsite acid plant to produce saleable 98.4% sulphuric acid product, and a waste heat recovery unit is utilised to produce steam and up to 20 MWe of electricity. The remaining waste gases which are not subject to secondary processing are discharged via the common stack.

Proposed Amendment

Storage of tyre derived fuel (TDF)

The licence holder proposes to accept and store up to 270m^3 of already shredded tyres to use as a fuel TDF which will be used during a trial to substitute a portion of the coke used in the flash furnace. As such, the Licence Holder has applied for Category 57 to be included in the amended licence. Category 57 authorises the storage of used tyres.

The TDF is proposed to be store in accordance with the Department of Fire and Emergency Service (2020) Guidance Note: GN02 Bulk Storage of Rubber Tyres Including Shredded and Crumbed Tyres.

During the trial, TDF material will be transported by road or rail to the Premises as required. Following receipt at the Premises, a loader will be used to manage the stockpiling of the TDF material in a designated existing bunded concrete hardstand approximately 20m in length and 12m in width (Figure 6 in Schedule 1 of amended Licence L8653/2012/2).

The storage area drains to a series of concrete constructed sumps of sufficient capacity to contain effluent, should a tyre fire occur on the stockpiles and firefighting foam/water required to extinguish. Should the sumps reach full capacity the effluent will gravity flow into the southernmost sump. The southernmost sump has a vacuum truck extraction point to remove any water and sedimentation.

The layout of the TDF storage area is detailed in Figure 7 in the Licence.

Use of TDF in the Premises Flash Furnace

The Licence Holder currently uses approximately 50 tonnes of coke per day as a reductant in the slag cleaning appendage of the flash furnace (Figure 1), to remove nickel from the slag. The requirement for coke in the appendage section of the furnace is to provide a carbon source (C), which under limited exposure to air acts to reduce the nickel oxides (NiO) in the slag to liquified elemental nickel (Ni) and carbon monoxide (CO) as noted in the general formula below:

NiO (liquified) + C(solid) → Ni(liquified elemental) + CO(gas)

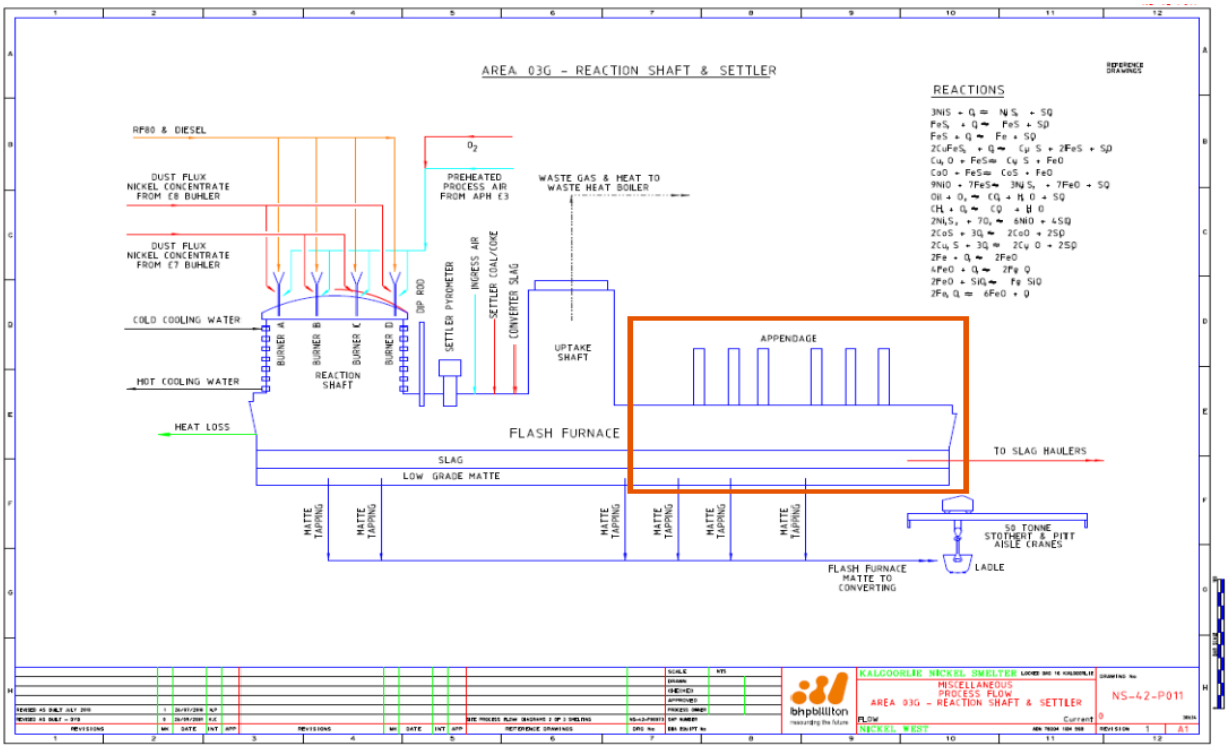

Figure 1: Flash furnace

The Licence Holder proposes to trial the use of TDF as a source of carbon to replace up to 30% of coke in the flash furnace. TDF is a product where the steel component of the used tyre is first removed, and the remaining rubber material shredded into smaller fragments with size dependent on end use. With the steel component removed, the proposed trial aims to use the carbon content in tyres to reduce the nickel oxides in the furnace slag layer. The typical carbon content of tyres is comparable to coke, approximately 80% by weight, and is expected to act in a similar manner in reducing nickel oxides to form liquified elemental nickel and carbon monoxide gas. It is proposed that TDF and coke will be mechanically combined, prior to being charged into the furnace through the existing systems (Figure 2).

The Licence Holder notes that the reduction of nickel oxides to elemental nickel is an endothermic reaction, and as such combustion (chemical process in which a substance reacts with an oxygen-rich environment and gives off heat) or pyrolysis (the heating of an organic material, such as TDF, in the absence of oxygen) of the TDF material is undesirable as it is not intended to be used as a fuel source.

The waste gas evolved from the furnace will pass to Dry Electrostatic Precipitators (ESPs), which generate an electric field in the gas phase imparting a negative charge on remaining dust particles. These charged particles are drawn to a series of positively charged collector plates.

The gas is then directed to Premises acid plant, where the Reverse Jet Scrubber (RJS) passes weak acid against the downward flow of gas cooling it to approximately 60 °C. At this stage most of the volatile metals such as zinc are removed from the gas, along with approximately 80% of the remaining dust particles. The gas is then passed through the remaining stages of the acid plant where concentrated sulphuric acid is produced, and remaining gas is discharged via the Acid Plant Stack.

If the acid plant becomes non-operational, the Licence Holder will reduce the concentrate feed to the furnace. The reduction is termed ‘feed off’ and is considered worst case operating conditions in terms of potential air quality impacts by the Licence Holder. If the concentrated feed is reduced, the waste gas stream (potentially carrying zinc compounds) is discharged via the Main Stack rather than the Acid Plant Stack. It is noted under this scenario the waste gas

will still pass through the waste heat boiler and ESPs, therefore most of the zinc in the waste gas stream would still be captured from the initial gas cleaning stages.

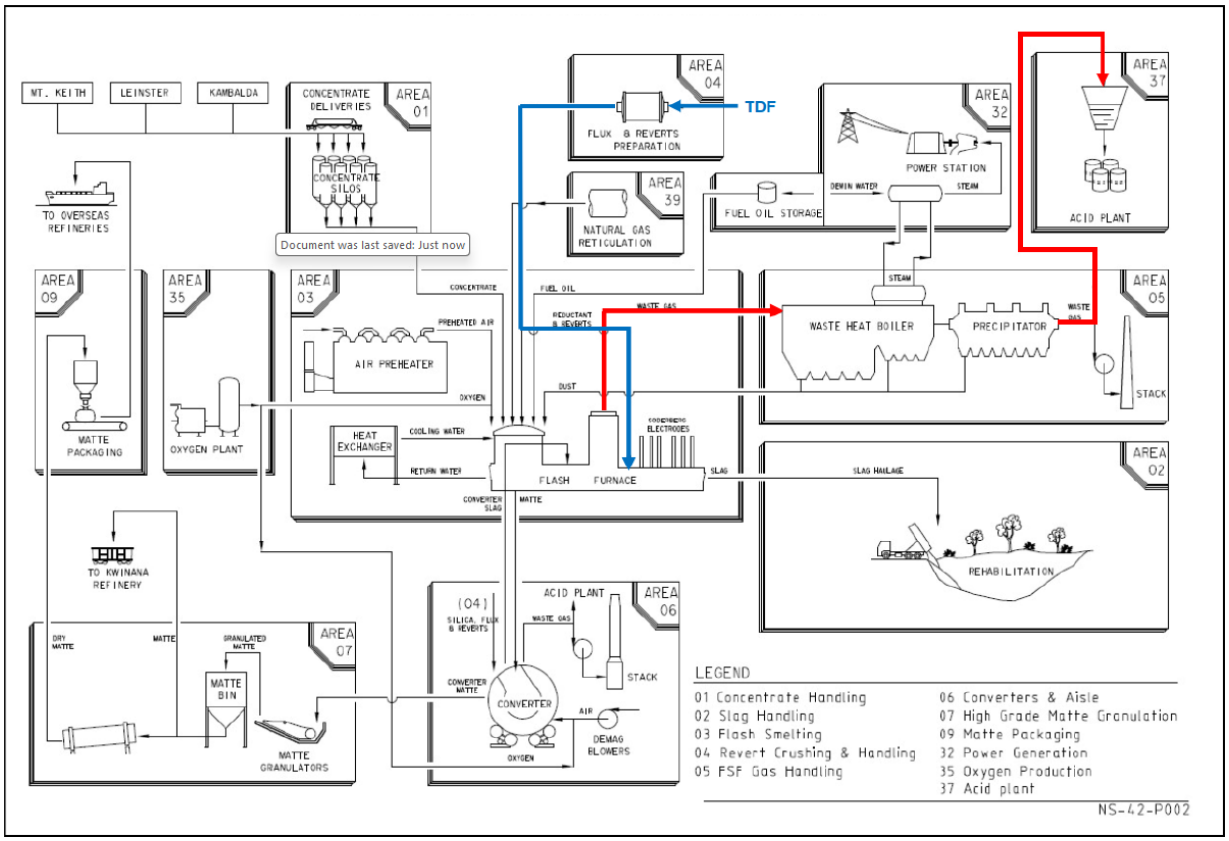

Figure 2: Proposed smelter flow

The Licence Holder proposes the partial substitution of TDF for coke trial will be completed in an up to four-staged approach by increasing the percentage of TDF to coke from 5 to 30%, as detailed in Table 4 of the Licence. The proposed incremental increase will enable the Licence Holder sufficient time to assess the operation effectiveness and any potential environmental impacts.

The effectiveness of the use of TDF is assessed by analysing any increases of nickel concentration in the slag. If an increase of nickel concentration in the slag is detected, then it indicates the process is not operating efficiently.

It is proposed that the furnace will operate each staged increase of TDF substitution for 48 hours, unless adverse outcomes are identified sooner, before moving to the next stage of the trial. Each trial will be stopped, and results of the monitoring will be reviewed prior to moving to the next trial.

The slag will be sampled every 2 hours, and the analysis results are likely to be available approximately 45 minutes later.

If the process is not operating efficiently, the Licence Holder revert back to the previous stage TDF substitution percentage and proceed with the TDF percentage that provided acceptable results.

Once a satisfactory TDF percentage has been determined by the Licence Holder, the trial will stop, and the results will be provided to the Department for review and comment.

The Licence Holder may then submit an application to amend the Licence for ongoing use of TDF in the smelter.

Due to the difference in composition of TDF and coke, it is likely there may be an increase in adverse air emissions. The table below (Table 2) documents the typical composition differences between TDF, coke and the nickel concentrate used in the furnace. As a result of the different composition of contaminants in TDF compared with coke, additional monitoring of the smelting process and product quality will be undertaken.

Table 2: Metal contaminants in TDF, Coke and Nickel Concentrate

Trace metal	Concentration (parts per million)		
	TDF	Coke	Concentrate
Arsenic	10	-	1,500
Cadmium	10	-	2
Chromium	90	-	144
Lead	50	-	22
Manganese	700	147	126
Zinc	20,000	33	180

The Licence Holder undertook an air quality modelling assessment to address the potential change to air emissions from the proposed use of TDF. The assessment focused on zinc emissions as it did not consider the other metals shown in Table 2 were at concentrations significantly higher than in already experienced in coke and the nickel concentrate currently being used in the furnace. The assessment concluded that based on the modelling results there was no significant increase in the predicted ground level concentrations of zinc in particulate matter (PM) at any of the sensitive receptors for all proposed TDF replacement rate scenarios, or across the model domain beyond the Premises boundary. The assessment concluded that the predicted cumulative impact of the proposed TDF Trial due to the increase in zinc, where replacement rates are up to 30% TDF, was unlikely to be distinguishable from the current baseline predicted impact.

Other approvals

State Agreement

Premises was constructed and originally operated in accordance with the State Agreement. The State Agreement was terminated in 2008 under the agreement ratified by the Nickel Refinery (BHP Billiton Nickel West Pty Ltd) (Termination of Agreements) Agreement Act 2008 (WA).

EP Act Part V Approval

The emissions and discharges from this Premise are conditioned under Part V Licence L8653/2012/2 which expires on 10 June 2034.

Environmental Protection (Clearing of Native Vegetation) Regulations 2004

Vegetation clearing for the purpose of mineral processing is permitted under state clearing permit (CPS) 8164/2 and vegetation clearing for the purpose of expansion of slag dump and associated processing infrastructure, associated activities and road corridor maintenance is permitted under CPS 9556/1.

EP Act Part IV Approval

There is no active ministerial statement or assessment applicable to Licence Holders operations.

The Licence Holder approached the Environmental Protection Agency (EPA) for advice regarding whether the proposal should be officially referred to them for review and assessment. The EPA did not consider that an Approval under Part IV of the EP Act was required.

Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

Source-pathways and receptors

Emissions and controls

The key emissions and associated actual or likely pathway during storage and use of TDF in the Premises flash furnace have been considered in this Amendment Report and are detailed in Table 3 below. Table 3 includes the measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 3: Licence Holder Proposed Controls

Emission	Sources	Potential pathways	Proposed controls
Dust	Dust from TDF material handling.	Air/windborne pathway	• Minimise dust generating activities during periods of high wind. • Application of dust suppression as required.
Air emissions	Emissions from the use of TDF in the flash furnace Zinc oxide as a component of TDF.	Air/windborne pathway	• The off gas from the furnace will be directed to the waste heat boiler where the fumed zinc will be condensed into small particles and captured by the dust system on the boiler. • Air emissions from furnace directed to gas cleaning system.
	Emissions to air from TDF fire		• Manage stockpile in accordance with DFES guidelines. • Reduction of TDF stockpile from usage in furnace reduce risk of heat build-up causing combustion. • Should fire occur, separate and extinguish fire. • NKS emergency response team and procedures.

Emission	Sources	Potential pathways	Proposed controls
Wastewater	Fire resulting in effluent from firefighting activities or contaminated stormwater being discharge to land.	Seepage to soil and groundwater	• Storage of TDF material within bunded area. • Storage in accordance with DFES guidelines. • Reduction of TDF stockpile from usage in furnace reduce risk of heat build-up causing combustion.
Waste	Incorrect disposal of waste.	Transport: incorrect handling and disposal of waste material.	• Appropriately licenced waste transport contractors. • Site disposal procedures (Waste Management Procedure NIW-HSEC-PRO-005.
Hydrocarbons	Hydrocarbon spills from equipment during operations.	Hydrocarbon spills from equipment during handling of TDF material.	• Immediate removal of spilled material, contaminated material disposed of to an approved location.

Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies and is provided for under other state legislation.

Table 4 below provides a summary of potential human and environmental receptors that may be impacted as a result of the potential emission and discharges from the change of activities at the prescribed premises *(Guideline: Environmental siting* (DWER 2020).

Table 4: Sensitive environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Boulder residential area	Singler residential dwelling is approximately 3km north east of the premises boundary. The residential area of Kalgoorlie is located approximately 8km north of the prescribed activity
Karrawang Community	The Karrawang Community is approximately 13.6km west of the premises
Easter Goldfields Regional prison	The EGRP is approximately 7.8km north of the premises. A 400-bed facility six beds of which has the potential to accommodate mothers with children.
Aboriginal Site of significance	There are four non-occupied sites located approximately 3.5km east of the smelter.
Environmental receptors	**Distance from prescribed activity**
Threatened/ Priority Flora	Priority 3 flora has been recorded 3.7Km NW of the

	premises boundary
Threatened Priority Fauna	Critically endangered fauna has been caught or trapped at two locations approximately 6.4km west of the premises boundary.
Groundwater	The premises lies within the Goldfields Groundwater Areas and is hypersaline >35,000 mg/L and approximately 9.5m below ground level.
Hydrography WA 250K- surface water polygons (GA2015)	There are two wetland systems within proximity of the premises including Hannan Lake approximately 2.6km east of the premises A scattering of small lakes associated with White Lake lie west of the premises with the boundary of one small wetland area intersecting with the western boundary.

Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified above. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the Licence Holder has proposed mitigation measures/controls (as detailed above), these have been considered when determining the final risk rating. Where the Delegated Officer considers the Licence Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 5.

The Revised Licence L8653/2012/2 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises within the scope of the application i.e. storage and use of TDF in the flash furnace within the premises boundary.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 5: Risk assessment of potential emissions and discharges from the operation of the nickel concentrate storage shed on the Premises.

Risk Event				**Consequence rating[1]**	**Likelihood rating[1]**	**Risk rating[1]**	**Reasoning**	**Regulatory controls**
Source/Activities	**Potential emission**	**Potential receptors, pathways and impact**	**Licence Holder's controls** **See Table 3**					
Operation								
Importation of TDF Materials, mechanical mixing and storage with Coke within existing bunded concrete hardstand areas on site.	Dust	Air/windborne pathway causing impacts to health and amenity of residential dwellings	Minimising dust generation activities during high winds Application of dust suppression as required Handling and mixing activities	Low-level on-site impacts **Minor**	Not likely to occur in most circumstances **Unlikely**	**Medium** Acceptable, subject to regulatory controls	Fugitive dust may be generated from the movement of TDF material and mixing of TDF with coke within the premises boundary. The Delegated Officer considers that based on the distance to the nearest sensitive receptors (singular residential dwelling 3km NE of	The delegated officer considers that applicants controls are adequate to manage dust emissions from importation and mixing of TDF material within the designated storage bunkers located in the central portion of the Premises.

Risk Event				Consequence rating[1]	Likelihood rating[1]	Risk rating[1]	Reasoning	Regulatory controls
Source/Activities	**Potential emission**	**Potential receptors, pathways and impact**	**Licence Holder's controls** **See Table 3**					
			restricted to designated areas (storage bunkers)				the Premise and threatened flora 3.7km NW of the Premise), and controls such as dust suppression and mixing within designated storage bunkers, there is a low likelihood of adverse impacts occurring associated with fugitive dust emissions from the premises.	However, the Licence holder's controls will be conditioned the revised licence.
	Noise	Air/windborne pathway causing impacts to health and amenity of residential dwellings	As the Premises operates 24 hours a day 7 days a week and consequently noise emissions from the operation are required to comply with the most conservative night-time assigned noise levels as defined in the Environmental Protection (Noise) Regulations 1997. The facility is surrounded primarily by rural land, with the nearest township at Kalgoorlie Boulder located	Minimal on-site impacts **Slight**	Not likely to occur in most circumstances **Unlikely**	**Low** Risk event is acceptable.	No additional regulatory controls required.	The delegated officer considers that the separation distance between the material handling area and nearby residential dwellings is sufficient for there to be minimal to no impacts and maintain compliance with the Noise Regulations.

Risk Event				Consequence rating[1]	Likelihood rating[1]	Risk rating[1]	Reasoning	Regulatory controls
Source/Activities	**Potential emission**	**Potential receptors, pathways and impact**	**Licence Holder's controls** **See Table 3**					
			approximately 8km north of the facility.					
	Fire (smoke) – particulates and noxious gases from fire/tyre combustion		TDF material stored in accordance with DFES Guidance Note: GN02 Bulk Storage of Rubber Tyres) Secure premises; Emergency Response Procedures for fire	Mid-level impact to amenity **Moderate**	Not likely to occur in most circumstances **Unlikely**	**Medium** Acceptable, subject to regulatory controls	Polychlorinated dibenzodioxins and furans may be produced if TDF material is incinerated in the presence of oxygen. This is due to the chlorine content in tires from chlorinated butyl rubber liner. Given adverse wind conditions, these gasses may travel to residential areas effecting the health of humans and other animals	The delegated officer considers that applicants controls are adequate to mitigate potential combustion of the TDF material preventing the formation of dioxins and furans. However, the Licence holder's controls will be conditioned the revised licence.
	Wastewater leachate generated from extinguishing a fire with water and firefighting foam Contaminated stormwater	Seepage through breaches in hardstand area and soil profile adjacent to hardstand causing soil and groundwater contamination	Stored within Materials Handling Area (MHA) That the bay has a hardstand made of concrete 20m length x 12m width. Tyres stored in accordance with DFES Guidance	Low-level on-site impacts **Minor**	Not likely to occur in most circumstances **Unlikely**	**Medium** Acceptable, subject to regulatory controls	The Delegated Officer considers that based on the distance to the nearest sensitive flora and fauna receptors (3.7km NW of the Premise), and controls such as a concrete hardstand, water drains and sumps, there is a low likelihood of adverse impacts occurring associated with wastewater from the TDF stockpiling area.	The delegated officer considers that applicants controls are adequate to manage potential wastewater leachate. However, the Licence holder's controls will be conditioned the revised licence.

Risk Event				Consequence rating[1]	Likelihood rating[1]	Risk rating[1]	Reasoning	Regulatory controls
Source/Activities	**Potential emission**	**Potential receptors, pathways and impact**	**Licence Holder's controls** **See Table 3**					
		Overland and stormwater run off potentially impacting on health of vegetation	Note:GN02; Secure premises; Emergency Response Procedures Water drains to constructed sumps					
Air emission from inclusion of TDF materials in furnace as NiO reductant. (up to 30% mix with coke proposed)	Alteration in noxious gases generated compared with 100% coke usage-relatively minor increases in arsenic, cadmium, chromium lead and manganese.	Air/windborne pathway causing impacts to health and amenity of residential dwellings.	Air emissions from furnace directed to gas cleaning system.	Mid-level impact to amenity **Moderate**	Not likely to occur in most circumstances **Unlikely**	**Medium** Acceptable, subject to regulatory controls	TDF/coke mixture will be introduced into the slag cleaning appendage of the furnace, which is considered an oxygen poor, but not oxygen deficient section of the furnace. Therefore, there is the potential that combustion of the TDF material may occur and produce dioxins and/or furans. This is due to the chlorine content in tires from chlorinated butyl rubber liner. If the gas cleaning system is not able to mitigate the risk of dioxins and/or furans being captured, then there is a risk that these gases may enter the atmosphere and effect nearby receptors.	The delegated officer considers that applicants controls are adequate to mitigate the release of potentially formed dioxins and furans from the smelting operation. However, the Licence holder's controls will be conditioned the revised licence.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020).

Consultation

The licence holder was provided with the draft amendment on 19 August 2025, and the following comments were provided on 15 September 2025:

Condition	Summary of Licence Holder's comment	Department's response
Condition 1, Table 1, Line 20	Insert the phase 'During storage of TDF' to the top of Line 20 in Table 1	Condition revised accordingly
Condition 41, Table 11	Remove the specified months and leave the frequency at quarterly.	

Decision

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during use of TDF in the Premises flash furnace. It is considered that the potential risks of such activities are likely to be adequately managed by controls proposed by the Licence holder and the additional regulatory controls included in the amended licence.

Storage of TDF at the Premises:

The Licence Holder applied for Prescribed Premises Category 57 to be included in the amended licence. Category 57 authorises the storage of used tyres. However, as the TDF will be actively used as a fuel for the Flash Furnace, the Delegated Officer does not consider that Category 57 strictly applies to this activity. Therefore, the Delegated Officer does not consider Category 57 is applicable for the active use of stockpiled TDF.

Based on the assessment in this amendment report, the Delegated Officer has determined to approve the importation and storage of TDF within the materials handling area of the Premises. Subject to the regulatory controls outlined in Table 5, the proposal is unlikely to result in a material change to the overall risk of the premise.

Use of TDF as a partial substitute for coke in the Premises flash furnace:

The Licence Holder requested approval for the use of TDF as a source of carbon in the smelter flash furnace. It is proposed that the TDF will replace up to 30% of the coke used as a reductant to remove nickel from the furnace slag layer (waste stream).

It is proposed that the TDF/coke mixture will be introduced into the slag cleaning appendage of the furnace, which is considered an oxygen poor, but not oxygen deficient section of the furnace. It should be noted that tyres commonly use a chlorinated butyl rubber liner which presents as a source of chlorine. There is the potential that combustion of the TDF material may occur in the presence of oxygen in the furnace. As the TDF is likely to include chlorinated butyl rubber liner, the combustion of the TDF may produce dioxins and/or furans. The presence of certain metals in TDF such as manganese, nickel and zinc not only present additional emissions to air but can also serve as a catalyst for dioxin formation. Health effects associated with human exposure to dioxins and furans include skin disorders, such as chloracne. liver problems. impairment of the immune system, the endocrine system and reproductive functions, effects on the developing nervous system and other developmental events and certain types of cancers.

Due to the potential formation of dioxins and furans within the furnace and potentially being

released to the atmosphere, the Delegated Officer considers continuous stack emissions testing for dioxins and furans are a necessary monitoring requirement. The maximum permissible emissions for dioxins and furans, as documented in the EU Directive 2000/76/EC, has been adopted into the licence and will be used for compliance purposes.

The Delegated Officer has considered the findings of the Air Quality Modelling Assessment provided as supporting information to the Licence Holders application to amend the licence. The modelling undertaken for the assessment generally meets the requirements of the DWER *Air Quality Modelling Guidance Notes*.

The air quality modelling assessment used the CALMET/CALPUFF model to predict ground level concentrations (GLCs) of zinc, using a combination of the Premises meteorological data and meteorology produced by the Weather Research and Forecasting (WRF) model. Data sourced from the Bureau of Meteorology (BOM) weather station at Kalgoorlie Airport was used to identify a representative meteorological year. The study presented the predicted GLCs of zinc for all four trial percentages of TDF use (5, 10, 20 and 30%) and found that under worst case scenario the predicted GLC at the nearest receptor are less than 1% of all the assessment criterion.

Although the air quality modelling assessment did not identify a significant increase of risk from the proposed use of TDF in the furnace, it was noted that the assessment focused on zinc emissions as it did not consider the other metals commonly identified in tyres, such as Arsenic, Cadmium, Chromium, Lead, and Manganese. Therefore, monitoring of these metals and zinc is required to ground truth the modelled results. The Licence Holder may wish to amend the licence in the future should it be found that no significant risk is identified by these metals.

Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to regulatory controls and this amendment supersedes the existing Licence previously granted in relation to the Premises. The Revised Licence has been granted with existing conditions being transferred but not reassessed.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. BHP Ni West June 2023, *Application to amend the licence* (BHP, 30 June 2023)
5. The European Parliament and of the Council December 2000, *Directive 2000/76/EC of 4 December 2000 on the incineration of waste*
6. Environmental Technologies and Analytics May 2023, *Kalgoorlie Nickel Smelter: Air Quality Modelling Assessment for a Tyre Derived Fuel Trial*