Amendment Report

Application for Licence Amendment

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

Licence Number	L4612/1989/11
Licence Holder	BHP Nickel West Pty Ltd
ACN	004 184 598
File Number	2012/006877-1
Premises	Nickel West Leinster Nickel Operations Legal description - Mining tenements ML255SA, M36/4, M36/87, M36/102, M36/103, M36/131, M36/156, M36/230, M36/389, M36/439, L36/93, G36/49, G36/50 and G36/51 LEINSTER WA 6437 As defined by the Premises map attached to the Revised Licence
Date of Report	27 July 2021
Decision	Revised licence granted

Carmen Standring
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A/MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

Licence L4612/1989/11 is held by BHP Billiton Nickel West Pty Ltd (Licence Holder) for the Nickel West Leinster Nickel Operations (the Premises), located at Mining tenements ML255SA, M36/230, L36/93, M36/4 and M36/389, Leinster WA 6437.

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 L4612/1989/11 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. The Revised Licence has been granted in a new format with existing conditions being transferred to the new format. Some conditions have also been re-assessed as part of this amendment, refer to Section 5.1 of this report.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, 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.

2.2 Application summary

On 26 October 2020, the Licence Holder submitted an application to the department to amend Licence L4612/1989/11 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Construction and operation of dewatering infrastructure at Camelot open pits, including pipeline between Camelot and Harmony pits alongside the current haul road corridor.
- Amendment of conditions relating to management of dewatering to include Camelot pits and flexibility of discharge points.
- Increase in Category 6: Dewatering throughput.
- Increase in Category 5: Processing or beneficiation of metallic or non-metallic ore.
- Amend several conditions to allow for updating of infrastructure relating to management and monitoring of seepage and decant discharges from the TSF's.
- Addition of tenements: M36/102, M36/131, M36/103, M36/87, M36/156, M36/230, M36/439, G36/49, G36/50 and G36/51.
- Addition of Category 12: Crushing and screening. The Koonoonooka Quarry has been included in the premises boundary for several years as part of the Category 5 activities however, Category 12 is the correct category for the activity of crushing and screening of sand and rock that is not ore. This is also to cover the operation of mobile crushing and screening plants within the premises.
- Construction and operation of landfill cells within any major Waste Rock Landform, not restricted to just Rocky's Reward. This allows flexibility in moving the landfill including tyre disposal to fit with operational areas on the premises.
- Amendment of conditions relating to management of waste.

- Updating of licence holder name as per communication dated 13 July 2021.

This amendment is limited only to changes to Categories 6, 57 and 64 activities from the Existing Licence and the inclusion of Category 12 onto the licence. No changes to the aspects of the existing Licence relating to Category 5 and 85 have been requested by the Licence Holder.

Table 1 below outlines the proposed changes to the existing Licence

Table 1: Proposed throughput capacity changes

Category	Current throughput capacity	Proposed throughput capacity	Description of proposed amendment
5	3,600,000 tonnes per annual period	3,600,000 tonnes per annual period	The licence holder has requested that the Category 12 throughput no longer be included as Category 5 but that the Category 5 throughput remain the same. In effect this means adding 1,780,000 tonnes per annual period to the processing plant throughput as that is the amount being requested for Category 12 even though the crushing and screening activities are not being altered.
12	N/A	1,780,000 tonnes per annual period	NLN operates the Koonoonooka sand quarry located approximately 8 km northeast of the concentrator plant. The screening plant has a process capacity of 1,780,000 tonnes per annum (tpa). The screened sand is transported to the NLN sand and tailings mixing pad. In addition NLN intermittently operates mobile crushing and screening plants to produce products from onsite waste rock. These products are solely for use on site, and include such products as road base and stemming (used in blasting operations). The production rates vary but these plants may produce up to 1 million tonnes per annum.
6	2,000,000 tonnes per annual period	2,500,000 tonnes per annual period	The licence holder requested that the discharge of volume be doubled from 2,000,000 tonnes per annual period to 4,000,000 tonnes per annual period. However, the dewatering of the open pits is expected to only add 500,000 tonnes per annual period to the volume extracted for dewatering of mines as managed under the ground water licences

			GWL66248 and GWL167071. The discharge volume of water is significantly lower than that extracted as large volumes are used for mining, processing and dust suppression purposes. Although the mining proposal for Camelot Pits (BHP, 2019) indicated that the excess water to be discharged was unlikely to exceed the 50,000kL per annual period the reason for the addition of the Camelot pits on this licence is to be contingency to allow flexibility in water management at Harmony and Rocky's Reward pits. **After reassessment of the request for 4,000,000 tonnes per annual period, the Licence Holder has amended the requested amount to 2,500,000 tonnes per annual period.**

2.3 Consolidation of Licence

As part of this amendment package the department has consolidated the licence by incorporating changes made under the Amendment Notices as summarised in Table 2.

Table 2: Licences consolidated in this amendment

Instrument	Issued	Summary of approval
L4612/1989/11	19/10/2013	Licence re-issue
L4612/1989/11	17/12/2015	Licence was amended to add an additional dewatering bore (RRDB02) and pump at the Rocky's Reward Open Pit and an additional pipeline to a discharge at Harmony Open Pit.
L4612/1989/11	29/04/2016	Department initiated amendment in accordance with section 59(1)(k) of the *Environmental Protection Act 1986* to amend the duration of the licence date month year.
L4612/1989/11	15/12/2016	**Amendment Notice 1**: on 21 August 2016 the licensee submitted an application to install and operate a new replacement wastewater treatment plant (WWTP) of a capacity of 40m^3 /day. Also Condition W6(a) has been modified to remove the sampling requirement for RRDB03.
L4612/1989/11	22/08/2017	**Amendment Notice 2** was issued to authorise the construction of a further embankment raise to the perimeter walls of TSF3 Cell CD at Nickel West Leinster (also known as Leinster Nickel Operation). The raise increases the height of the cell by approximately 2.5m to RL 10,556.5m to provide further tailings storage capacity.
L4612/1989/11	20/03/2018	**Amendment Notice 3** was issued to authorise the construction of a further embankment raise to the perimeter walls of TSF3 Cell AB at Nickel West Leinster (also known as Leinster Nickel Operation). The

Instrument	Issued	Summary of approval
		raise increases the height of the cell by approximately 2.5m to RL 10,556.5m to provide further tailings storage capacity.
L4612/1989/11	30/01/2019	**Amendment Notice 4**: on 14 December 2018 an application for licence amendment was made to Category 5: processing or beneficiation of metallic or non-metallic ore; specifically for the construction of a paste plant to service the below ground mining of the Venus deposit at the Leinster Nickel Operations (which includes the Perseverance underground mine, Rocky's Reward open pit, Harmony open pit mine).
L4612/1989/11	27/07/2021	Amendment applied for to expand premises, increase dewatering throughput, add dewatering infrastructure relating to Camelot open pits, add Category 12 to the licence to cover activities at the Koonoonooka Quarry, add further monitoring bores to groundwater monitoring program, amend various conditions relating to emissions and waste management on the premises including tailings seepage and decant water discharge; and landfill activities. Addition of condition to specify tailings discharge point. DWER also initiated amendment to amalgamate/consolidate separately issued licence amendment notices in the licence.

The obligations of the Licence Holder have not changed in consolidating the licence. The department has not undertaken any additional risk assessment of the Premises related to previous Amendment Notices.

In consolidating the licence, the CEO has:

- updated the format and appearance of the Licence;
- deleted the redundant AACR form set out in schedule 1 of the previous licence and advise the Licensee to obtain the form from the department's website;
- revised licence condition's numbers, and removed any redundant conditions and realigned condition numbers for numerical consistency; and
- corrected clerical mistakes and unintentional errors.

The full consolidation of licence conditions as they relate to this Revised Licence are detailed in Section 5.1. Previously issued Amendment Notices will remain on the department's website for future reference and will act as a record of the department's decision making.

2.4 Completion of TSF3 Cell F Stage 1a under works approval W6280/2019/1

On 23 April 2021 the compliance documents were provided for the completion of the works under W6280/2019/1 to Stage 1a of the construction of the tailings storage facility TSF3 Cell F. These documents meet the requirements of condition 3 with respect to stage 1a for works approval W6280/2019/1. From a desktop assessment, it appears that works are predominantly compliant with the requirements of Table 2 of W6280/2019/1.

It is noted that piezometers have not yet been installed and that they are scheduled to be completed within the first 3 months of operation. As piezometer data is used primarily for stability analysis, DWER will defer further regulation on the timing or piezometer installation to the Department of Mines, Industry Regulation and Safety.

Section 10.2 of the Construction Summary Report notes that the toe drain filter materials are slightly coarser than specified which could result in tailings fines reporting to the toe drain.

This will require visual monitoring to ensure that toe drain capacity is maintained.

As the final drafting of the applied for amendments, and consolidation of Amendment Notices, to the licence have not been completed, DWER will add the required details of the completed TSF3 Cell F to this licence amendment.

The environmental risk assessment for the construction of the TSF cell carried out during the drafting of works approval W6280/2019/1 included a risk assessment of the discharge of tailings to the cell during operational activities. There were no public comments received during the consultation period for the works approval and no appeals against conditions after the granting of the works approval. The findings of the risk assessment for discharge to the TSF cell are added to the risk assessment tables (Tables 3 - 5) in Section 3 of this report.

3. 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 *Guidance Statement: Risk Assessments* (DER 2017).

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.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Amendment Report are detailed in Table 3 below.

Table 3 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 3: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Dust	Construction of pipeline between Camelot and Harmony pits	Air/windborne pathway	Dust suppression techniques, including: • water carts for roads and • water sprays and curtains for the mobile screening plant Current licence conditions also address dust management.
Noise	Crushing and screening of material	Air/windborne pathway	The operation will have little impact on the surrounding community due to: • the isolated location of the project and • the operation will only operate between 06:00 and 18:00. • all equipment is maintained and correctly operated so that excessive noise levels do not occur.

Emission	Sources	Potential pathways	Proposed controls
Hypersaline/saline water	Dewatering from mines being discharged to evaporation ponds or other pits. Leaks and spills from pipelines carrying the saline water	Direct contact with vegetation. Groundwater mounding. Direct contact with soil contaminating surface water flows.	Current licence conditions. Camelot Pits are a “hydraulic sink” so long as the water level within the pit lake itself is lower than the regional groundwater levels. To ensure that any potential future discharge from Harmony or Rocky’s Reward Pits does not introduce contaminants from the recovery of seepage from the TSFs, the pond water level for Camelot North will be maintained at no higher than 455m AHD. There are monitoring bores currently used for reporting SWL, pH and TDS as per groundwater licence GWL167071 operating strategy. All pipelines on site that contain waters with saline or alkaline constituents, including the pipeline between Camelot and Leinster operations, will be installed and operated with one or more of the following management measures: 1. equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures; or 2. equipped with automatic cut-outs in the event of a pipe failure; or 3. buried; or 4. provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections. Uncontaminated surface flow is directed away from pits and western ROM pad and drained along the western boundary of the haul road. The flow is then directed to the eastern catchment via a culvert under the haul road just south of the workshop / office area.
Tailings decant water	Transport via overland pipeline to Harmony or Rocky’s Reward pits	Direct contact with vegetation. Direct contact with soil contaminating surface water flows.	Pipelines to be provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.

Emission	Sources	Potential pathways	Proposed controls
Leachate	Seepage into surrounding soil	Direct contact with vegetation. Groundwater mounding. Direct contact with soil contaminating surface water flows.	Inclusion of Rocky's Reward to the points TSF return (circuit) water may be discharged to is not expected to increase risk as the current discharge point, Harmony Pit is in close proximity to Rocky's Reward and the Category 5 volume is not increasing. TSF3 Cell F is constructed with the following seepage control measures: • Underdrainage – a seepage collection pipe is contained within an internal toe drain that collects seepage and directs it via pipelines to return water pipeline outside the TSF wall. • Use of low permeability compacted materials with specified performance criteria for the TSF embankment. • Replacement of monitoring bores lost in the construction of TSF3 Cell F with installation of four monitoring bores to the north and two to the east of TSF3 Cell F. • Replacement of the recovery bores lost in the construction of Cell F with installation of at least one groundwater recovery bore to the north of TSF Cell F. • A pipeline corridor drain (equivalent to 'perimeter drains' referred to in W4 of Existing Licence) to capture seepage that is not captured by the internal toe drain. • A cut-off key down to cap rock in Stage 1a and eastern section of 1b design; to minimise seepage under the downstream embankments. • Decant structures installed to maximize the recovery of process water. • Conduct tailings discharge in a manner to ensure process water is constantly positioned around the central decant structure, keeping ponding away from the perimeter embankments. • Piezometer arrays will be constructed along the perimeter embankments to allow for early detection of seepage within the

Emission	Sources	Potential pathways	Proposed controls
			embankments. Location will be consistent with designs approved under the *Mines Safety and Inspection Act 1994* (Mining Proposal ID 82020). Monitoring required for assessment of TSF stability will meet or exceed requirements for seepage monitoring. • Monitoring and recovery bores included in the current seepage management system of TSFs 2 and 3 in the licence conditions.
	Leaks and spills from pipelines carrying recovered leachate from sumps and bores.		All pipelines on site that contain waters with saline or alkaline constituents will be installed and operated with one or more of the following management measures: 1. equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures; or 2. equipped with automatic cut-outs in the event of a pipe failure; or 3. buried; or 4. provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.
Tailings	Rupture of pipelines causing tailings discharge to land	Direct contact with vegetation. Direct contact with soil contaminating surface water flows.	
	Overtopping of TSF cells		Design - freeboard, stormwater management, gravity fed central decant tower Leinster Nickel Operation Tailings Management Master Plan includes use of freeboard markers, routine inspections (at least every 12 hours), regular maintenance, and minimising size of decant pond.
Acid mine drainage	Water being in contact with potentially acid forming material within the walls of the open pit.	Groundwater mounding	Pond levels of in pit lakes are maintained below PAF zones.

3.1.2 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), 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 activities upon or emission and discharges from the prescribed premises *(Guidance Statement: Environmental Siting* (DER 2016)).

Table 4: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	**Distance from prescribed activity**
Leinster townsite – nearest residential premises	Approximately 24km south south east of the Camelot pits, approximately 10km south of the Leinster Nickel Processing Plant and approximately 117km from the Koonoonooka Quarry.
Environmental receptors	**Distance from prescribed activity**
Surface water drainage channels	3 surface water drainage channels intersect the proposed pipeline route between Camelot pits and Harmony pit. Surface water flows from west to east.
Groundwater	"Natural groundwater levels were approximately 12 metres below ground level or about 462 m AHD prior to dewatering. Groundwater occurs in localised fractured bedrock features, which show enhanced permeability and storativity within the lower regolith (saprock) part of the weathering horizon. Weathered zone groundwater occurs mainly in the saprock layer between the base of oxidation and the base of transition, particularly over the pods of komatiite ultramafic which host the nickel mineralisation. The saprock zone (and overlying saprolite aquitard) can be considered a low transmissivity relatively high storativity unconfined aquifer which is enhanced by the rock type, weathering and mineralisation processes local to the orebody and pit area. This aquifer is anisotropic (high permeability aligned with strike orientation) and hydraulically bounded to the east and west. Within the fresh basement rocks groundwater occurrence is limited to minor/localised aquifers with low-moderate permeability and low storage capacity. Strike length and permeability along strike in these structures is variable. The "aquifers" extend up to and are replenished by low permeability, high storage saprock." (from Leinster Groundwater Licence Operating Strategy – 2020) Although the initial background groundwater measurement of TDS was 2,000mg/L; the salinity measured since commencement of dewatering is significantly higher. Camelot is highly saline in comparison with the Harmony, Cliffs and Rocky's Reward mines with a TDS of 41,200mg/L as measured in September 2020. Harmony had a measurement of 9,600mg/L. (from Nickel West Leinster Annual Groundwater Monitoring Summary November 2019 – October 2020). The closest pastoral wells include Baileys Bore: 3km SE (abandoned) and Miranda Well: 3km west (abandoned).
PEC (Priority 1) Lake Miranda east calcrete groundwater assemblage types on Carey palaeodrainage on	The Camelot disturbance envelope intersects 67.12 ha (0.34%) of the surface area of this PEC. No subterranean fauna species were found to occur in the southern portion of the Project Area. A single stygofauna species, Chiltoniidae

Yakabindie Station	OES7, and two troglofauna species, Ideoblothrus OES1 and Symphylella nr bornemisszai, were collected from in, or near, the north pit within gravel dominated colluvial regolith. The stygofauna species, Chiltoniidae OES7, was found to inhabit the regolith and fractured rock aquifer system hosted within the Project Area. Within the Project Area, all of the bores from which the amphipod was collected are located close together in the northern deposit area in the proposed impact zones of the north pit and associated pit dewatering groundwater drawdown. No stygofauna were found to occur south of the northern part of the north pit. The pseudoscorpion species was represented by a single specimen only (singleton) collected from a trap sample within the proposed north pit boundary. The symphylan, also a singleton, was collected from a scrape sample taken close to the northern pit boundary (within 75m) within the pit dewatering groundwater drawdown impact zone. No troglofauna were found to occur south of the northern part of the proposed north pit. Four troglofauna species (three isopods and one hemipteran species) were collected from the northern reference Lake Miranda East calcrete sites located outside of the Project Area within calcrete habitat. (BHP, 2019)
Priority flora: Bossiaea ermaea (P3) Euromyrtus inflata (P3)	Both P3 species are within the tenement M36/4 in the immediate vicinity of the Koonoonooka Quarry.

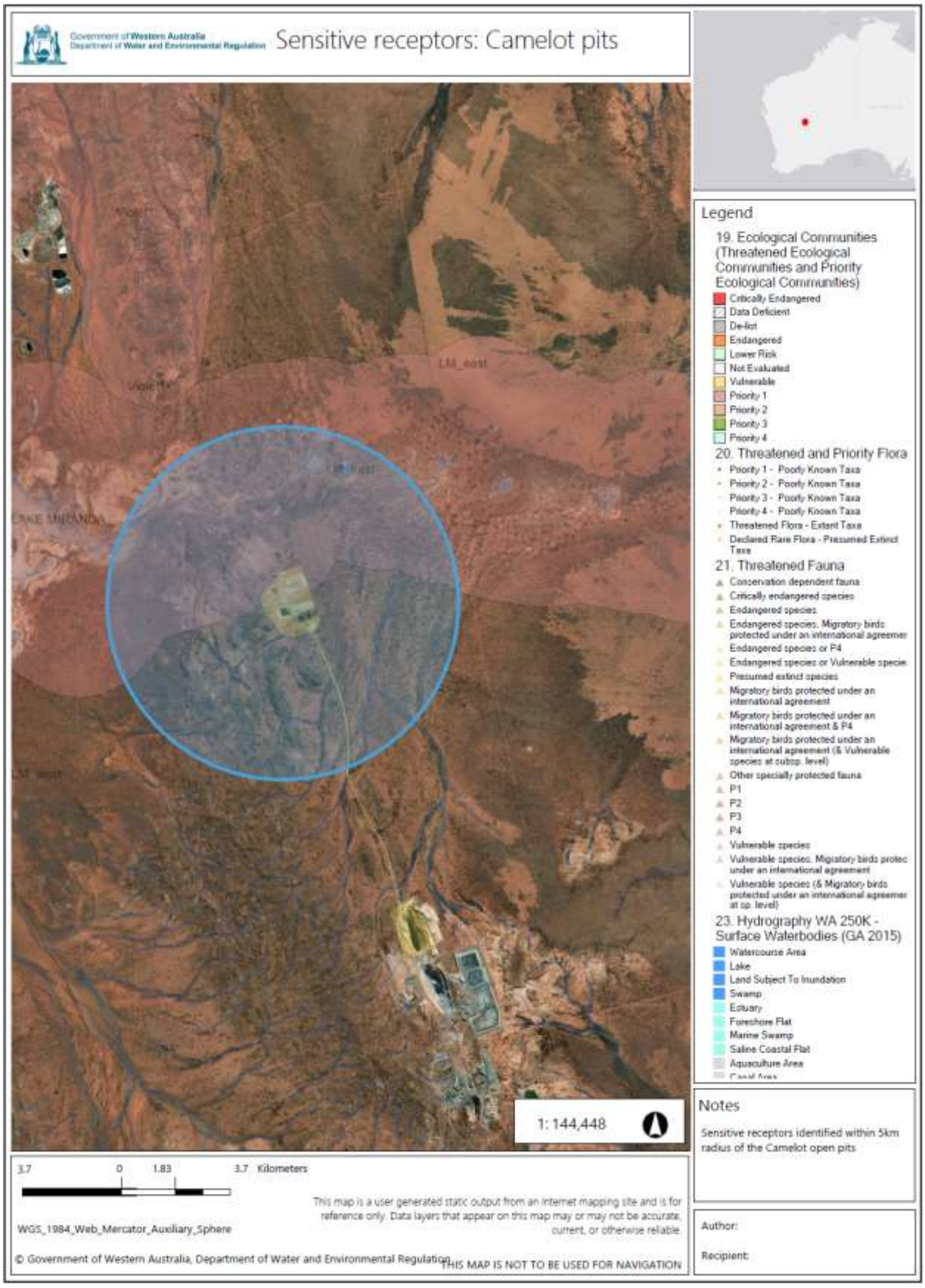

Figure 1: Distance to sensitive receptors

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. 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 in Section 3.1), 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 L4612 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Categories 5, 6, 12, 57, 64 and 85 activities.

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 Premises during construction, commissioning and operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Construction								
Construction of the pipeline between Camelot and Harmony pits	Dust	Air/windborne pathway causing impacts to health and amenity	Surrounding vegetation and fauna	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Current conditions 4 and 5 General requirements for dust controls including in open areas and management of water used in dust control. Condition 6 Maintenance of dust collection and control systems	N/A
Commissioning								
Commissioning of the pipeline	Saline water	Pipeline leaks and failures causing impacts to vegetation health through direct contact and contamination of soil	Surrounding vegetation Surface water	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Current condition 29 Requirement for telemetry and/or secondary containment updated to include all measures used on pipelines across premises.	N/A
Operation								
Dewatering to Camelot North pit from Camelot South pit	Saline water	Groundwater mounding	Vegetation surrounding Camelot pits PEC (Priority 1) Miranda East Calcrete	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	**Condition 16 has the phrase 'for the purpose of sampling for and recovering seepage in the vicinity of the TSF and evaporation ponds' This phrase is deleted as the monitoring of groundwater includes the monitoring of dewatering discharge**	The Project intersects with the Lake Miranda East Calcrete PEC to the north. Consultant MWES developed a hydrogeological model to conservatively assess dewatering requirements. This modelling indicated that the drawdown from the

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
							points. **Condition 17 has the monitoring bores positioned at Camelot added to Table 2: Groundwater monitoring bore sampling regime.** **Condition 37: The licence holder shall maintain a maximum pond water level in Camelot North pit of 455m AHD.**	Camelot Project extends 1.6km north of the North Pit and approaches the margin of the PEC. The impacts of drawdown of groundwater to the PEC is not assessed here as the extraction of the groundwater on surrounding environment was assessed during the granting of the groundwater extraction licence GWL167071. Although it is considered unlikely that there is any hydraulic connection between the minor deeper Archean basement aquifers (in which Camelot dewatering occurs) and the major regional shallow aquifer sustaining the PEC; the disposal of the dewatering into Camelot North pit could raise the water level in the pit such that seepage from the pit enters the shallower aquifer. Seepage at this shallow depth also has the potential to impact the root zone of surrounding vegetation, impacting the health of the plants. The monitoring bores should provide feedback as to the presence of seepage into the surrounding ground if the screening of them is sufficient to identify shallow seepage above 12m (the approximate depth of the groundwater prior to mining

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
								and dewatering). The salinity of the water pumped from the Camelot dewatering bore is of higher salinity than was first sampled prior to pumping but is still within the range of salinity that the stygofauna Chiltoniidae OES7 has been found within the Lake Miranda East calcrete system. The salinity measured within the Harmony and Rocky's Reward pits has a lower salinity (from Nickel West Leinster Annual Groundwater Monitoring Summary November 2019 – October 2020), however, given the presence of stygofauna and troglofauna within the vicinity of Camelot North Pit the dewatering discharged there should not include water that been contaminated by the TSF return water. This would include the water currently contained in Harmony pit and Rocky's Reward in the future under these proposed licence amendments.
Dewatering between pits and underground mines within the Leinster Mining Operations	Saline water	Pipeline leaks and failures causing impacts to health through direct contact and contamination of soil	Surrounding vegetation and surface water.	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Current condition 29 Requirement for telemetry and/or secondary containment updated to include all measures used on pipelines across premises.	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Discharge of TSF return water to Rocky's Reward open pit	Leachate	Through pit walls to surrounding aquifer.	Groundwater	Refer to Section 3.1	C = Slight L = Possible **Low Risk**	Y	Current condition 17 includes monitoring of dewatering water prior to discharge or re-use.	N/A
		Pipeline leaks and failures causing impacts to health through direct contact and contamination of soil	Surrounding vegetation and surface water.		C = Minor L = Unlikely **Medium Risk**	Y	Current condition 29 Requirement for telemetry and/or secondary containment updated to include all measures used on pipelines across premises.	N/A
Crushing and screening of material within Koonoonooka Quarry and mobile crushing and screening plants within the prescribed premises boundary	Dust	Air/windborne pathway causing impacts to health and amenity	Surrounding vegetation including priority flora	Refer to Section 3.1	C = Slight L = Possible **Low Risk**	Y	Conditions 4,5 and 6 General requirements for dust controls including in open areas and management of water used in dust control.	N/A
	Water contaminated with sediments and hydrocarbons	Runoff from area contaminating stormwater.	Surrounding vegetation and surface water.	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	N	**Conditions 56 and 57** **Crushing and screening surface water management**	There are currently no conditions providing for the management of surface water runoff and as the position of the mobile crushing and screening plants has not been determined, so that a risk assessment cannot be accurately performed, a precautionary approach of setting conditions has been applied.
Discharge of tailings to TSF3 Cell F	Tailings	Rupture of pipelines causing tailings discharge to land	Native vegetation and soil adjacent to tailings pipelines	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Current conditions 12 and 29 Requirement for telemetry and/or secondary containment and catchpits. Condition 29 updated to	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
							include all measures used on pipelines across premises.	
		Overtopping of facility	Native vegetation and soil adjacent to TSF.		C = Moderate L = Unlikely **Medium Risk**	Y	Current condition 26 Freeboard of >300mm within all storage facilities. **<u>Condition 3:</u>** **<u>Establishes the locations tailings may be discharged to.</u>**	The new condition lists the points that tailings may be discharged to at the prescribed premises. It is a standard condition in similar licences to specify authorised discharge points.
	Leachate	Seepage from TSF3 Cell F or new return water pond (RWP)	Native vegetation and soil adjacent to TSF.		C = Minor L = Unlikely **Medium Risk**	Y	Current conditions 15 – 17: Installation and maintenance of seepage collection infrastructure. Installation, maintenance and monitoring of groundwater wells and recovery bores for the purpose of monitoring and recovering seepage in the vicinity of the TSFs. Updated as some of the bores were lost with the construction of the TSF cell and further bores added. Current conditions 27 - 28: requires inspection of the TSFs 12 hourly and to note the ponding of decant within the TSF cells, seepage on the embankment walls and tailings deposition.	N/A
	Decant water	Overtopping of decant water	Native vegetation and soil	Refer to Section 3.1	C = Minor L = Unlikely	Y	Current condition 26 Freeboard of >300mm within	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
		facility	adjacent to pond.		**Medium Risk**		all storage facilities.	

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

Note 2: Proposed Licence Holder's controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 6 provides a summary of the consultation undertaken by the department.

Table 6: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website (07/01/2021)	None received	N/A
Local Government Authority advised of proposal (07/01/2021)	None received	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (07/01/2021)	DMIRS replied on 24/02/2021 advising that 1. The proposed transfer of water from Camelot North Pit to Harmony was not contemplated in the Camelot Mining Proposals submitted. There was no pipeline along that haul road in November 2019 2. The proposed changes to the location of the tyre disposal cells and other waste (outside of the Rocky's Reward WRL) does have implications from a mine closure perspective.	1. DWER acknowledges that further approval may be required for the construction of the pipeline. This requirement does not preclude DWER from assessing the risk of the activity or authorising the activity under the licence. Such approvals do not limit DMIRS assessment of the pipeline, 2. DWER will be assessing the environmental discharge of the tyres to the landfill given the surrounding environmental conditions. It is understood that the authorisation from DWER to use the waste rock landforms does not overrule the requirements of the premises to meet mine closure requirements.
Licence Holder was provided with draft amendment on (22/03/2021 with a second draft provided 03/05/2021)	Refer to Appendix 1	Refer to Appendix 1

5. Conclusion

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.

5.1 Summary of amendments

Table 7 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 7: Summary of licence amendments

Condition no.	Proposed amendments
Cover page	Addition of tenements M36/87, M36/102, M36/103, M36/131, M36/156, M36/230, M36/439 G36/49, G36/50 and G36/51 Addition of Category 12 to the prescribed premises category table Increasing throughput of Category 6
3	Addition of condition for the location of tailings discharge points.
4 and 6	**Dust – General requirement** Inclusion of crushing and screening operations **Dust – Maintenance of collection and control systems** Inclusion of crushing and screening plant.
11 and 12	**TSF – contaminated matter conditions:** 11 – Remove exception statement as unnecessary. 12 - Include Rocky's Reward open pit as a discharge point for TSF return (circuit) water.
15	**Seepage collection infrastructure: TSFs, evaporation ponds and concentrate storage ponds** Reworded to allow for flexibility in installing and maintaining seepage collection to allow for groundwater mounding management.
16	**Groundwater monitoring and recovery bore locations** Updated to include Figure 8 (Camelot open pits)
17	**Groundwater monitoring program** Updated to remove bores no longer in use due to the construction of TSF2 Cell F, include monitor dewater prior to discharge or re-use, and include monitoring bores for Camelot pits.
W9(a), W9(b), W9(c) and W9(d)	**Construction of TSF embankment raises** Deleted as embankment raises completed. Construction report received
26	**Management of saline dewatering** Replaced with standard condition specifying authorised discharge points for dewatering. *EP Act* makes it an offence to cause environmental harm so specific conditions covering a non-specified area of vegetation is not required.
27	**Freeboard** Amended to include reference to conditions 37 and 38.
W14(a), W14(b), W14(c)	**Liquid chemical storage** This condition has been removed from the Revised Licence as it duplicates existing legislation, namely the Dangerous Goods Safety Act 2004 and associated regulations and Codes of Practice
28	**TSF visual inspections** Amended to reflect the changes in record keeping away from logbooks.
29	**Pipeline bunding** Amended to include all pipeline management options on the premises.

37, 38 and 39	**Open pit pond level limit** Condition 37 inserted to protect potential stygofauna and troglofauna in proximity of Camelot North Pit. 38 amended to replace a set height limit in just Harmony Pit to regulation of pond height in Harmony, Camelot and Rocky's Reward pits dependent on the presence of a PAF zone and the storage required for a 1:100 year flood event. 39 amended to include condition 37 in survey requirements for standing water levels of open pit ponds.
50	**Tyre storage** Condition amended to update the storage of tyres to be in keeping with the DFES Guidance Note: GN02: Bulk storage of rubber tyres including shredded and crumbed tyres (DFES November 2019).
56 - 59	**Crushing and screening surface water management** Conditions 57 – 58 conditions added to manage emissions from mobile crushing and screening plants within the prescribed premises boundary. **Crushing and screening record keeping** Conditions 59 and 60 added to provide records of the crushing and screening within the prescribed premises.

Table 8: Consolidation of licence conditions in this amendment

Existing condition	Condition summary	Revised licence condition	Conversion notes
N/A	Expiry Date: 18 October 2018	Expiry Date: 18 October 2030	In accordance with the Notice of Amendment of Licence Expiry Dates (29/04/2016)
N/A	Prescribed Premises Category table	N/A	Revised to current licensing format
N/A	Premises description and licence summary	N/A	Redundant section. Description removed from licence. Licence summary replaced with Licence history table.
N/A	Definitions	N/A Interpretation section, Definitions, Table 8	Revised to current licensing format.
G1 G2	Annual report Annual audit compliance report	Condition 1 and Condition 2	Revised to current licensing format; removing reference to attachment 7 in Condition G2. Amended through AN1.
A1(a) and A1(b)	Dust general requirement	Conditions 4 and 5	Revised to current licensing format.
A2	Dust – maintenance of collection and control systems	Condition 6	Revised to current licensing format.
A3	Primary crusher – Dust control	Condition 7	Revised to current licensing format.

Existing condition	Condition summary	Revised licence condition	Conversion notes
A4	Stack sampling ports, platforms, and access ways	Condition 8	Revised to current licensing format.
A5(a) and A5(b)	Atmospheric discharge monitoring	Conditions 9 and 10	Revised to current licensing format.
W1(a) and W1(b)	TSF – contaminated matter	Conditions 11 and 12	Revised to current licensing format and changes detailed in Table 7 of this report.
W2	Location of waste retention facilities	Condition 13	Revised to current licensing format.
W3	Stormwater diversion away from TSFs and evaporation ponds.	Condition 14	Revised to current licensing format.
W4	Seepage collection infrastructure: TSFs, evaporation ponds and concentrate storage ponds	Condition15	Revised to current licensing format and changes detailed in Table 7 of this report.
W5	Groundwater monitoring and recovery bore locations	Condition 16	Revised to current licensing format and changes detailed in Table 7 of this report.
W6(a), W6(b) and W6(c)	Groundwater monitoring program	Conditions 17, 18 and 19	Revised to current licensing format and changes detailed in Table 7 of this report.
W7	Groundwater level limit	Condition 20	Revised to current licensing format.
W8(a) and W8(b)	Groundwater level target	Conditions 21 and 22	Revised to current licensing format.
W9(a), W9(b), W9(c) and W9(d)	Construction of TSF embankment raises	N/A	Deleted. Details in Table 7 of this report.
W10	Vegetation monitoring program	Condition 23	Revised to current licensing format.
W11	Waste management from ancillary operations	Condition 24	Revised to current licensing format.
W12 and W13	Management of saline dewatering	Condition 25	Revised to current licensing format and changes detailed in Table 7 of this report.
W14(a), W14(b), W14(c)	Liquid chemical storage	N/A	Deleted. Details in Table 7 of this report.
W15	Freeboard	Condition 26	Revised to current licensing format.
W16(a) and W16(b)	TSF visual inspections	Conditions 27 and 28	Revised to current licensing format.

Existing condition	Condition summary	Revised licence condition	Conversion notes
W17(a) and W17(b)	Pipeline bunding	Condition 29	Revised to current licensing format and changes detailed in Table 7 of this report.
W18(a), W18(b) and W18(c)	Wastewater treatment plant	Conditions 33, 31 and 32	Revised to current licensing format.
W19	Installation of recovery trench below irrigation area	Condition 33	Revised to current licensing format.
W20	Treated effluent discharge sampling point	Condition 34	Revised to current licensing format.
W21	Wastewater treatment plant system maintenance	Condition 35	Revised to current licensing format.
W22	Capacity constraints of wastewater treatment plant system	Condition 36	Revised to current licensing format.
W23 and W24	Harmony open pit pond level limit	Conditions 37, 38 and 39	Revised to current licensing format and changes detailed in Table 7 of this report.
S1(a), S1(b), S1(c) and S1(d)	Waste acceptance and management	Conditions 40 – 43	Revised to current licensing format. Reference to landfill definitions document updated and definition added to ‘Definitions, Table 7.
S2	Management of landfill activities	Condition 44	Revised to current licensing format.
S3	Windblown waste	Condition 45	Revised to current licensing format.
S4(a) and S4(b)	Stormwater drains putrescible landfill	Conditions 46 and 47	Revised to current licensing format.
S5(a) and S5(b)	Groundwater and superficial water body	Conditions 48 and 49	Revised to current licensing format.
S6(a – g)	Used tyre storage	Condition 50 and Table 6	Revised to current licensing format and changes detailed in Table 7 of this report.
C1(a – d)	Construction of paste plant	Condition 51 – 54	Revised to current licensing format.
S7	Paste plant runoff	Condition 55	Revised to current licensing format.

References

1. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
2. DER 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
3. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
4. DER 2019, *Works Approval W6280 Decision Report.* Perth, Western Australia
5. BHP Billiton Nickel West Pty Ltd (BHP) 2019, *Camelot Project – South Pit Extension: Mining proposal M36/102, M36/131, M36/103, M36/87*, Western Australia.

Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions

Comments to first and second drafts provided 22/03/2021 and 03/05/2021

Condition	Summary of Licence Holder's comment	Department's response
Prescribed premises category descriptions and throughput	References towards Category 12 in the decision report and licence (page 2) refer to "add Category 12 to the licence to cover activities at the Koonoonooka Quarry". This terminology is incorrect. BHP Nickel West applied for the licencing of Category 12 within the entire prescribed premises boundary, not solely at Koonoonooka Quarry.	The reference to the Category 12 activities in the decision report have been expanded to include mobile crushing and screening operations. Details on the expected positioning of mobile plant and throughput have not been provided and as such Conditions 59 – 60 have been added to the licence to obtain a report on the annual activity under Category 12 including the position of crushing and screening activities on the premises.
	The combined volume of dewatering of Harmony Pit lake and mining at Camelot requires the Category 6: Mine Dewatering Licence limit to be increased to 4,000,000 tonnes per year.	There were no supporting details to demonstrate that there is sufficient capacity for the receiving environment to receive the increased throughput. The request for increased throughput was subsequently reduced to a total annual throughput of 2,500,000 tonnes (a 500,000 tonnes per annual increase), which has been assessed and conditioned by DWER as appropriate.
Decision report details	Further information on the position and screening of the monitoring bores at the Camelot Pits was provided.	Noted by DWER
Condition 17, Table 3: Groundwater monitoring	Row 4 – remove discharge as there is no intended discharge Revision of the table as a whole by replacing the use of 'March, June, September and December' with 'quarterly' or 'quarterly when in use'.	Discharge remains in Row 4 as the application does indicate that the water abstracted from the pits will be discharged to other pits. The phrase 'initial discharge' is to allow for the capturing of the background water quality in the Camelot Pits prior to first being discharged to so that subsequent sampling can illustrate what, if any, changes to water quality have occurred. The use of 'March, June, September and December' rather than 'quarterly' is retained. The monitoring is required at three monthly intervals and, in standard conditions, if the term

Condition	Summary of Licence Holder's comment	Department's response
		quarterly is used then it is defined in the definitions table as to the months intended. To use that method would not provide for a change in the moths required to carry out the monitoring. To amend the months intended further details would need to be supplied.
Conditions 26 and 32: secondary containment of dewatering and above ground pipelines	Remove as condition 29 makes them redundant.	Conditions removed
Condition 38: Open pit pond water level	Amend to: The licence holder shall ensure that the pond water level in the Harmony, Camelot South, Camelot North and Rocky's Reward open pit void lakes is maintained: (a) below oxidised PAF zones (b) to allow sufficient capacity to accommodate a 1:100 year flood event without overtopping.	Condition amended to: The licence holder shall ensure that the pond water level in the Harmony, Camelot South, and Rocky's Reward open pit void lakes is maintained: (a) below oxidised PAF zones (b) to allow sufficient capacity to accommodate a 1:100 year flood event without overtopping. The insertion of condition 37 manages the water levels within Camelot North Pit to meet the requirements of protecting stygofauna and troglofaunal in the vicinity of that pit.
Condition 51: Construction of paste fill plant	Remove reference to attachment 10, suggest amending to Figure 2, shown as Venus Surface Infrastructure	Amended as suggested.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)					
Application type					
Works approval	☐				
Licence	☐	Relevant works approval number:		None	☐
		Has the works approval been complied with?		Yes ☐ No ☐	
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes ☐ No ☐ N/A ☐	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes ☒ No ☐	
		Date Report received:			
Renewal	☐	Current licence number:			
Amendment to works approval	☐	Current works approval number:			
Amendment to licence	☒	Current licence number:	L4612/1989/11		
		Relevant works approval number:	W6280/2019/1	N/A	☐
Registration	☐	Current works approval number:		None	☐
Date application received		26/10/2020			
Applicant and Premises details					
Applicant name/s (full legal name/s)		BHP Billiton Nickel West Pty Ltd			
Premises name		Nickel West Leinster Nickel Operations			
Premises location		Mining tenements ML255SA, M36/230, L36/93, M36/4 and M36/389			
Local Government Authority		Shire of Leonora			
Application documents					
HPCM file reference number:		2012/006877-1			
Key application documents (additional to application form):		• L4612/1989 Prescribed Premises Licence Amendment Supporting Document October 2020 • Response to Request for Further Information – Application for Licence Amendment L4612/1989/11 • Approval for mining proposal- Camelot revised mining proposal on M36/87, M36/102, M36/103 and M36/131: Registration ID: 74747 • Premises maps • Approval for mining proposal- camelot project - south pit extension mining proposal revision 3 on M36/87, M36/102, M36/103 and			

	• M36/131: Registration id: 81247 • Nickel West Mt Keith - Surface and groundwater aspects of Leinster Camelot mining proposal • Leinster Triennial Groundwater Monitoring Summary November 2016 – October 2019 • Notice of Intent, Works Approval and Project Management Plan: • Koonoonooka Sand Quarry Operation: April 2003 • Mobile screen specifications
Scope of application/assessment	
Summary of proposed activities or changes to existing operations.	• Construction and operation of dewatering infrastructure at Camelot open pits. • Amendment of conditions relating to management of dewatering. • Increase in Category 6: Dewatering throughput. • Amend several conditions to allow for updating of infrastructure relating to management and monitoring of seepage and decant from the TSF's. • Addition of tenements: M36/102, M36/131, M36/103, M36/87, M36/156, M36/230, M36/439, G36/49, G36/50 and G36/51. • Addition of Category 12: Crushing and screening (not a new activity, It was previously listed as part of the Category 5 activities. • Construction and operation of landfill cells within any major Waste Rock Landform, not restricted to just Rocky's Reward. • Amendment of conditions relating to management of waste.

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	**Proposed production or design capacity**	**Proposed changes to the production or design capacity (amendments only)**
Category 12: Screening, etc. of material	1,780,000 tonnes per annual period	N/A
Prescribed premises category and description	[Proposed] [Assessed] production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 5: Processing or beneficiation of metallic or non-metallic ore	3,600,000 tonnes per annual period	N/A
Category 6: Mine dewatering	2,000,000 tonnes per annual period	4,000,000 tonnes per annual period
Category 57: Used tyre storage(general)	500 tyres or less	N/A
Category 64: Class II putrescible landfill site	20 tonnes or more per annual period	N/A
Category 85: Sewage facility	40m^3 per day	N/A

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes ☐ No ☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☐ No ☐	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☐ No ☒	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☒ No ☐	Mining lease / tenement ☒ Expiry: New tenements: • M36/102 - 13/11/2030 • M36/131 - 11/06/2031 • M36/103 - 13/11/2030 • M36/87 - 11/07/2030 • M36/156 - 03/12/2031 • M36/230 - 20/05/2034 • M36/439 - 04/02/2029 • G36/49 - 18/11/2040 • G36/50 - 18/11/2040

		• G36/51 - 18/11/2040
Has the applicant obtained all relevant planning approvals?	Yes ☐ No ☐ N/A ☒	If N/A explain why? Activities on mining tenements
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☐ No ☒	No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ No ☒	No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ☒ No ☐	Licence/permit No: GWL 63834, GWL 66248, GWL 167071
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☒ No ☐	Name: Goldfields Groundwater Area Type: Proclaimed Groundwater Area Has Regulatory Services (Water) been consulted? Yes ☐ No ☒ N/A ☐ Regional office: Goldfields
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	Name: N/A Priority: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes ☐ No ☐ N/A ☒
Is the Premises subject to any other Acts or subsidiary regulations (e.g. *Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx*)	Yes ☒ No ☐	*Nickel (Agnew) Agreement Act 1974* *Mining Act 1978*
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes ☐ No ☒	
Is the Premises subject to any EPP requirements?	Yes ☐ No ☒	

Is the Premises a known or suspected contaminated site under the *Contaminated Sites Act 2003*?	Yes ☒ No ☐	Classification: Reported – awaiting classification Date of classification: N/A