



Application for Works Approval

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

Works Approval Number	W6691/2022/1
Applicant	Newcrest Operations Limited
ACN	009 221 505
File number	DER2018/001042-7
Premises	Havieron Project Stage 1 Landfill Part of Mining Tenement M45/1287 EAST PILBARA WA 6760 As defined by the coordinates in Schedule 2 of the works approval
Date of report	29/08/2022
Decision	Works approval granted

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A/MANAGER, WASTE INDUSTRIES
REGULATORY SERVICES

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, works approval W6691/2022/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) 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 and overview of premises

On 20 May 2022, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works relating to Category 89 – Putrescible Landfill Site within the existing waste rock landform as part of Stage 1 of the Havieron Underground Mine Project at the premises. The premises is approximately 260 km east of Nullagine, WA.

The proposed landfill is required to manage non-mineral wastes generated onsite during the construction of the Project. The landfill is required as waste is currently being transported to Port Hedland over a distance of approximately 520 km.

The premises relates to the category and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6691/2022/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W6691/2022/1.

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 *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.

3.1 Source-pathways and receptors

Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in Table 1 below.

Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Adverse weather conditions Construction of landfill Vehicle movement and use of machinery and equipment	Air / windborne pathway	<ul style="list-style-type: none"> • Use of water cart as required • Construction activities will cease during periods of high winds and cyclonic events • Vehicles will be restricted to a maximum speed of 30km/h, or as otherwise signed
Noise			<ul style="list-style-type: none"> • Vehicles will be restricted to a maximum speed of 30km/h unless otherwise signed • All equipment and machinery will be maintained in good working condition
Operation			
Dust	Adverse weather conditions Unloading, loading and storage of material Vehicle movements	Air / windborne pathway	<ul style="list-style-type: none"> • Use of water cart as required • Landfill will contain a compacted basal layer to limit dust • Operations to cease during periods of high winds and cyclonic events • Vehicles restricted to a maximum speed of 30km/h, or otherwise signed • All waste loads to be covered during transport
Windblown Waste			<ul style="list-style-type: none"> • All waste will be unloaded as close to the ground as possible and will be covered on day of deposition • All waste loads entering the site will be covered to prevent uncontrolled release of litter • A 1.8m high chain-link boundary fence will be installed to prevent litter from escaping • The boundary fence will be inspected daily, and any maintenance works scheduled accordingly • Any litter generated around the site and along fence lines will be collected

Emission	Sources	Potential pathways	Proposed controls
			<p>as soon as practicable</p> <ul style="list-style-type: none"> The landfill will be rehabilitated as per the Mine Closure Plan
Noise	<p>Vehicle movements</p> <p>Operation of plant for loading and unloading of waste material</p>		<ul style="list-style-type: none"> Vehicles will be restricted to a maximum speed of 30km/hr unless otherwise signed All equipment and machinery will be maintained in good working condition Noise reducing workplace procedures will be adopted such as slow unloading of materials from the lowest height possible
Smoke/fire	<p>Fire arising from faulty equipment and machinery</p> <p>Fire/smoke emissions arising from landfill fires</p>		<ul style="list-style-type: none"> An emergency response team is to be made available 24 hours a day to respond to fires as they arise and is to have a dedicated watercart for this purpose. Fire measures included in design of landfill: <ul style="list-style-type: none"> - A 3m firebreak to allow access for firefighting - Small landfill cell size and dispersed cell location to minimize risk of fire spreading - Security fence around the perimeter of the site
Contaminated stormwater	Stormwater runoff entering the landfill	Overland runoff	<ul style="list-style-type: none"> Use of landfill bunds to prevent stormwater from entering the landfill A 300mm raised basal layer or a 300mm drive-over bund at the entrance to each landfill cell to prevent stormwater ingress Surface water runoff from the WRL resulting from rainfall events will be directed into the evaporation ponds forming part of the WRL surface water management system on site
Odour	Storage/decomposition of putrescible waste	Air / windborne pathway	<ul style="list-style-type: none"> Landfill operations are only expected to occur appx. 2-3 times a week Putrescible waste to be covered by 300mm cover soil immediately after unloading Odour levels to be continuously monitored by staff and action taken if required

Emission	Sources	Potential pathways	Proposed controls
Landfill gas			<ul style="list-style-type: none"> The landfill will be designed to have a small dry waste mass. Landfill gas is expected to be minimal and will be unable to accumulate next to the landfill as it will oxidise and disperse.
Leachate		Infiltration through the soil profile to groundwater	<ul style="list-style-type: none"> Landfill base will consist of a 300mm compacted layer of in-situ soils and the base of the entire Waste Rock Landform was constructed with a +500mm low-permeability saprolite layer to mitigate leachate seepage Landfill cell perimeter will be mostly bunded to contain any leachate Landfill floor to be sloped away from entrance to the landfill cell Waste will be regularly covered Groundwater will be monitored hydraulically down-stream of the site monthly to identify whether any contamination of groundwater has occurred. If issues are identified, then further monitoring and investigations will be undertaken.
Vermin and pests	Waste providing a breeding habitat for feral animals and disease vectors	Air and land via vermin/pests	<ul style="list-style-type: none"> Generation of odour and litter will be minimized through the implementation of appropriate measures Regular litter collections will be undertaken onsite All waste loads will be covered during transport Waste will be covered daily and putrescible waste will be covered as soon as practicable after deposition with greater cover soil requirement A 1.8m high chain-link perimeter fence will be installed, monitored and maintained on a regular basis A feral cat control program will be implemented in line with broader Project management measures Any suspected and/or known shelters or breeding ground for vermin onsite will be eliminated Professional services will be utilised to eradicate vermin onsite if vermin issues experienced

Receptors

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

Table 2 and

Figure 1 below provides a summary of potential human and environmental receptors that may be impacted upon as a result of activities or emission and discharges from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020)).

Table 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Residential Premises/ Homesteads/ Hospitals	None within 10 km The Delegated Officer considers that due to distance there is no likely impact on human receptors. Therefore, human receptors have not been considered further in this assessment.
Environmental receptors	Distance from prescribed activity
Soil/Geology	The base of the waste rock landform consists of approximately 540mm of low-permeable saprolite, with an approximate permeability of 6×10^{-10} m/s.
Groundwater	Rockwater Pty Ltd, <i>H3-Level Hydrogeological Assessment of the Havieron Project</i> , May 2021 identified four distinct aquifers beneath the premises, with the unconfined aquifer being observed at a depth of approximately 7 metres below ground level (mbgl). The applicant states that with the construction of the first waste rock landform bench, the depth to groundwater in the unconfined aquifer has increased to 10mbgl. The premises sits within the proclaimed <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act) Canning-Kimberley Groundwater area. The groundwater flow overall is presumed to be to the north and roughly parallel to groundwater flow in other aquifers of the Canning Basin regionally. The unconfined aquifer water quality is highly saline to hyper-saline, with the upper confined aquifer being brackish to highly saline.
Surface waters	There are no classified surface waterbodies in the vicinity of the proposed landfill. Lake Dora is the nearest major surface water body, located approximately 40 km south-east of

	<p>the project.</p> <p>The Delegated Officer considers that due to distance there is no likely impact on surface waterbodies. Therefore, surface water bodies have not been considered further in this assessment.</p>
<p>Fauna</p> <ul style="list-style-type: none"> • <i>Macrotis lagotis</i> (Greater Bilby) • <i>Notoryctes caurinus</i> (Northern Marsupial Mole) • Stygofauna 	<p>Fauna Records identified within 6 km of the Stage 1 waste rock landform include Greater Bilby diggings, individual sightings, scat and tracks; and inactive Northern Marsupial Mole burrows as depicted in Figure 1.</p> <p>The near surface unconfined aquifer/perched aquifer is a prospective stygofaunal habitat with two stygofaunal morphospecies recorded within the Project Area.</p>

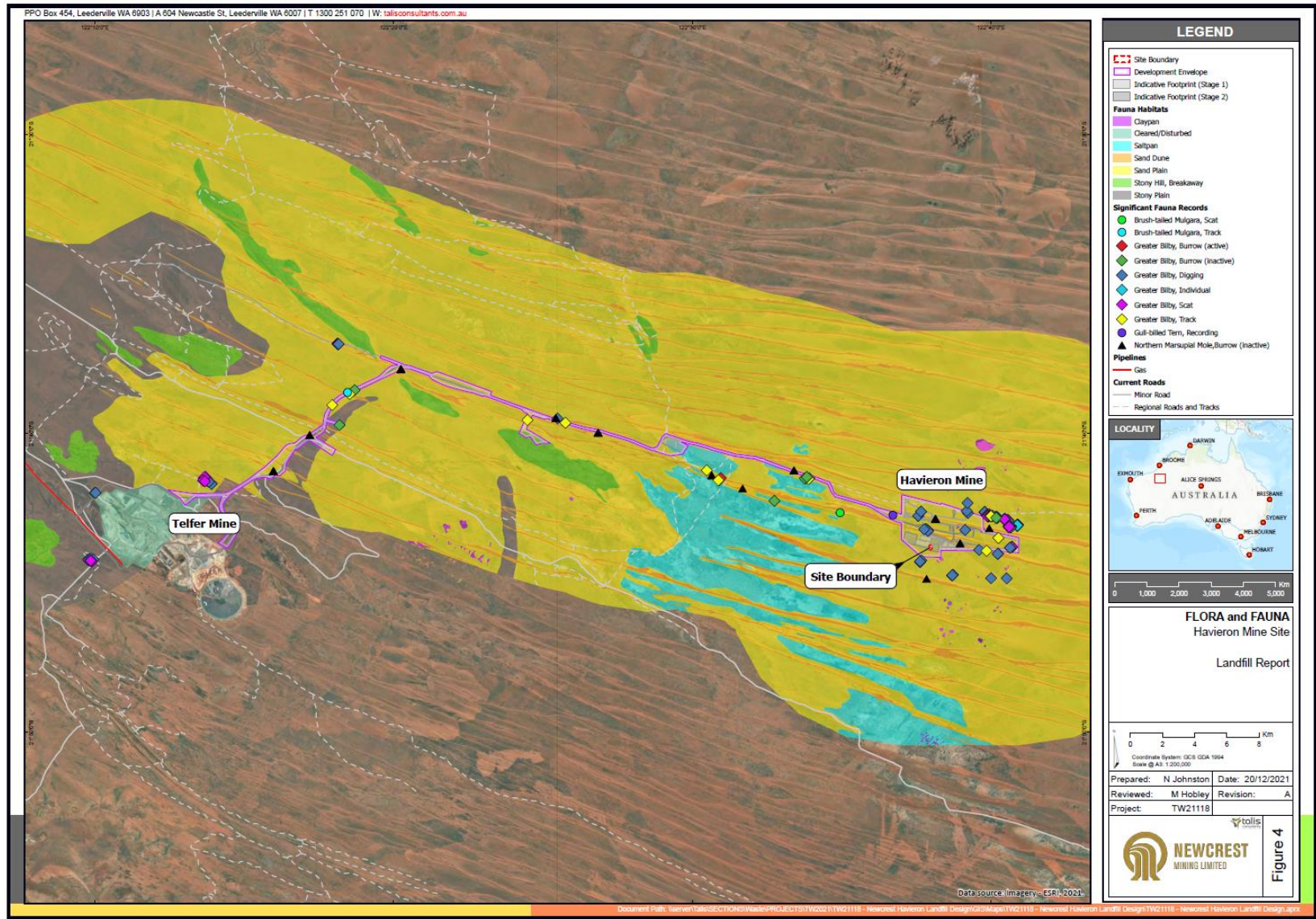


Figure 1: Distance to threatened flora and fauna habitat and sightings

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IR-T13 Decision report template (short) v3.0 (May 2021)

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source 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 applicant 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 applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

Works approval W6691/2022/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A Registration is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises.

Table 3: Risk assessment of potential emissions and discharges from the premises during construction, and operation

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Adverse weather conditions Construction of landfill Vehicle movement and use of machinery and equipment	Dust	Air/windborne pathway causing ecosystem disturbance	Fauna	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	N/A	N/A
	Noise			Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	N/A	N/A
Operation (including time-limited-operations)								
Vehicle movement and use of machinery and equipment Acceptance and burial of waste	Dust	Air/windborne pathway causing ecosystem disturbance	Fauna and surrounding environment	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	N/A	N/A
	Windblown waste		Fauna and surrounding environment	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Conditions 1, 6, and 10	N/A
	Noise		Fauna	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	N/A	N/A

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Fire arising from faulty equipment and machinery Fire/smoke emissions arising from landfill fires	Smoke/fire		Fauna and surrounding environment	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1 and 6	N/A
Decomposition of putrescible waste	Stormwater	Overland runoff causing erosion and ecosystem disturbance	Fauna	Refer to Section 3.1	C = Minor L = Rare Low Risk	Y	Conditions 1, 6 and 10	N/A
	Potentially contaminated stormwater	Infiltration through soil profile to groundwater, causing ecosystem disturbance and the degradation to the beneficial use of groundwater	Beneficial uses of groundwater, including future uses					
	Odour	Air/windborne pathway causing ecosystem disturbance	No receptors present					
	Landfill gas	Air pathway causing air pollution, and ecosystem disturbance	Fauna	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Conditions 1 and 10	N/A

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
	Leachate	Infiltration through the soil profile to groundwater causing degradation to the beneficial use of groundwater	Fauna Beneficial uses of groundwater, including future uses	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1, 6, 7, 8, 9 and 10	The WRL has the potential to contain Potentially Acid Forming (PAF) rock material. Putrescible waste may interact with PAF rock material, changing the characteristics of leachate. Given that the WRL will have a compacted low-permeable base, the anticipated amount of putrescible waste will be small, and that all waste will be covered daily, the Delegated Officer considers the applicant's proposed controls are adequate to mitigate this risk.
Decomposition of putrescible waste	Vermin and pests	Air and land via vermin/pests causing ecosystem disturbance	Fauna		C = Minor L = Unlikely Medium Risk	Y	Conditions 1, 6, 7, 8 and 10	N/A

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

Note 2: Proposed applicant controls are depicted by standard text. **bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Table 4: Consultation

Consultation method	Comments received	Department response
Application advertised on the Department's website (21 June 2022)	None received	N/A
Shire of East Pilbara advised of proposal (21 June 2022)	None received	N/A
DMIRS advised of proposal (21 June 2022)	None received	N/A
Applicant was provided with draft documents on 3 August 2022	None received	N/A

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

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. Rockwater Pty Ltd, May 2021, *H3-Level Hydrogeological Assessment of the Havieron Project*

Appendix 1: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)				
Application type				
Works approval	<input checked="" type="checkbox"/>			
Licence	<input type="checkbox"/>	Relevant works approval number:	W6691/2022/1	None <input type="checkbox"/>
		Has the works approval been complied with?		Yes <input type="checkbox"/> No <input type="checkbox"/>
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes <input type="checkbox"/> No <input type="checkbox"/>
		Date report received:		
Renewal	<input type="checkbox"/>	Current licence number:		
Amendment to works approval	<input type="checkbox"/>	Current works approval number:		
Amendment to licence	<input type="checkbox"/>	Current licence number:		
		Relevant works approval number:		N/A <input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:		None <input type="checkbox"/>
Date application received		20 May 2022		
Applicant and premises details				
Applicant name/s (full legal name/s)		Newcrest Operations Limited		
Premises name		Havieron Project Stage 1 Landfill		
Premises location		Mining Lease 45/1287 East Pilbara, WA 6760		
Local Government Authority		Shire of East Pilbara		
Application documents				
HPCM file reference number:		DER2018/001042-7		
Key application documents (additional to application form):		Environmental Assessment and Management Plan Waste Projections and Void Modelling DumpSolver Memorandum and Dump Records Fire Management TARP Traffic Management Plan		
Scope of application/assessment				

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)

Summary of proposed activities or changes to existing operations.	<p>Works approval</p> <p>Construction and time-limited operation of a small rural landfill to manage onsite non-mineral waste produced during Stage 1 of the Havieron Underground Mine Project (the Project). The proposed landfill will operate for the duration of Stage 1 only, with the completion of Stage 1 expected in the first quarter of 2024.</p>
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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 89: Putrescible Landfill Site: premises (other than clean fill premises) on which waste of a type permitted for disposal for this category of prescribed premises, in accordance with the Landfill Waste Classification and Waste Definitions 1996, is accepted for burial.	Maximum of 5000 tonnes per annum.	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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	Referral decision No: Stage 2 has been referred to the EPA Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Mining lease / tenement <input checked="" type="checkbox"/> Expiry: 9/9/2041
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	The project is located on mining tenure, and therefore no planning approval is required
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	No clearing is proposed.

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)

Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	3 assessment draw points and 1 groundwater licence within 1 km from the proposed premises
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Name: Canning-Kimberley Grounwater Area Type: Canning-Kimberley Proclaimed Groundwater Area RIWI Act Has Regulatory Services (Water) been consulted? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Regional office: North West
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx</i>)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>Environmental Protection (Rural Landfill) Regulations 2002</i>
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)

Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
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