Application form annex: Category checklist (tailings storage facilities)

This checklist outlines additional information requirements for applications under Part V Division 3 of the *Environmental Protection Act 1986* (EP Act) to:

- construct or operate a tailing storage facility (TSF), or
- amend an instrument to change the conditions or characteristics related to an existing TSF (e.g. new TSFs or wall rises or lifts, or changes to delivery process or material characteristics).

'TSF' includes containment cells or dams and the retaining embankment, delivery system, water return system and ancillary structures required to support operations, including spillways and decant facilities.

The information in this checklist is needed to allow the Department of Water and Environmental Regulation (the department) to assess environmental and public health risks from discharges and emissions from TSFs. The required information is consistent with the department's *Guideline: Risk assessments* and with the Australian national *Leading Practice Handbook on Tailings Management*.

Notes included throughout this checklist must be read in conjunction with the instructions and requirements of the relevant application form. The information requirements outlined in this checklist are not exhaustive. Applicants are advised to provide additional supporting information and environmental investigations as required to support the application and assessment process. Information requirements and attachments can be combined and submitted as one or more consolidated documents if desired, provided it is clear to which section of the application checklist the information/attachments relate.

Before you submit this checklist, please check you have correctly completed all the fields and included relevant supporting documents (including maps etc.). If an application form and checklist has been submitted and are incomplete the Chief Executive Officer (CEO) of the department may request further information which may result in protracted assessment timeframes, or the CEO may decline to deal with incomplete or incorrectly completed applications.

Part 1 – Applicability of checklist

The table below indicates the sections of this checklist required to be completed for different types of TSF applications, as described within Schedule 1 Part 1 of the Environmental Protection Regulations 1987 (EP Regulations):

Category 5(c) – "Processing or beneficiation of metallic or non-metallic ore: premises on which - (c) tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam."

Scenario	Application type	Parts / sections of checklist to be completed
1	Applications involving: • a new above ground (including valley) or in pit TSF • a new cell to an existing TSF • a change to the TSF location, proposed liner, type of construction or staging of an approved TSF.	**Complete to the extent required or (if amendment) changed** Part 2; part 8.1 and 8.3, part 9.2 **Must be completed:** All other parts Attachments 1 to 9
2	Wall raise/lift to existing TSF (in-pit or above-ground, including valley TSF)	**Complete to the extent required or (if amendment) changed** Part 2 Part 7.1, 7.2 Part 8.1, 8.3 Part 9.1 (if any change to layout), Part 9.2 and 9.3 Attachment 9 **Must be completed:** All other parts Attachments 1 to 8
3	Significant change to tailings delivery process (i.e. cyclone, thickener, etc) which will change the physical characteristics of tailings.	**Must be completed:** Part 3, Part 7.4, Attachment 1 to 4 **Complete to the extent required or (if amendment) changed** All other parts Attachments 5 to 9
4	Change to the tailings material characteristics (e.g. change in geochemical character, ore body, ore type, ore material character, etc) or the reprocessing of tailings.	**Must be completed:** Part 3, Part 6 Attachments 1 to 4 **Complete to the extent relevant for the change:** All other parts. Attachments 5 to 7; Attachment 9

Part 2 – Other approvals

	Yes	N/A	Document name or section name
Is the proposal subject to a state agreement act? If yes, specify: • the title of the state agreement act • any relevant considerations relating to the TSF and associated activities or infrastructure • any consultation with the Department of Jobs, Tourism, Science, and Innovation (DJTSI) about the TSF • whether the state agreement act addresses closure.	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025
Are the TSF related activities to be undertaken on tenements granted under the *Mining Act 1978* (Mining Act)? If yes, provide tenement numbers and a description of: • any consultation with the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) about the TSF and • the status of the associated mining proposal (include registration ID if available) and mine closure plan.	☐	☒	
If any TSF activities are outside of Mining Act tenure, provide details of the proposed closure and rehabilitation aspects pertaining to the TSF (i.e. research, investigations, trials, progressive rehabilitation, early closure, closure outcomes and completion criteria). Refer to the DEMIRS guidance on mine closure plans, particularly *Mine Closure Plan Guidance - How to Prepare in Accordance with the Statutory Guidelines*	☒	☐	Will be in accordance with the Jimblebar Hub Mine Closure Plan provided as part of the Jimblebar Hub Significant Amendment Assessment Number: 2397
Has the proposal been referred to the EPA under Part IV of the EP Act? If yes, provide a description (where relevant) of: • what has been referred or assessed under Part IV • any changes made or proposed to the TSF since Part IV referral or approval • Part IV EP Act ministerial statement conditions (if any) relating to the existing TSF or proposed changes to the TSF • Whether the ministerial statement addresses closure.	☒	☐	Jimblebar Hub Significant Amendment Assessment Number: 2397
Has the proposal been referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)? If yes, provide: • any consultation with the Department of Climate Change, Energy, Environment and Water about the TSF • the EPBC approval number and copy of the TSF related approval conditions • a description of any changes made to the TSF since submission or approval (if any)	☐	☒	BHP has a completed validation notice under the BHP's Pilbara Strategic Assessment Program, May 2017 (the Program) covering the Jimblebar operations.

Part 3 – Conceptual Site Model

	Yes	N/A	Document name or section
3.1 Conceptual Site Model (CSM) Table Provide a site-specific conceptual site model (CSM)[1] that clearly identifies all potential Source-Pathway-Receptor (SPR) linkages for identified environmental and public health receptors (refer to Section 3.3 and Appendix 1 of this checklist). If this is for an existing facility that was previously approved under Part V Division 3 of the EP Act, only identify the changes to the model resulting from the proposed modification(s). The complexity of the CSM corresponds to the scale and complexity of the TSF activities and should be devised to assist in the TSF design process to identify appropriate design and operational measures as well as environmental monitoring requirements. A site-specific SPR assessment[2] for seepage must be undertaken as part of the CSM. Refer to Section 7.4 for seepage requirements. Note 1: Guidance on developing CSMs is provided in the department's Assessment and management of contaminated sites guidelines. Note 2: Assessment should be conducted as part of and be consistent with the requirements outlined in the emissions and discharges section of the relevant application form.	☒	☐	*Conceptual Exposure Model Definition Phase Study, Jimblebar Beneficiation Project* (WSP, 2025)
Attachments			
3.2 Attachment 1: Locality map(s) An aerial photograph, map, and/or site plan of sufficient scale showing the proposed premises and locality of the TSF and supporting infrastructure in respect to nearby sensitive receptors and surrounding land uses. Multiple maps at different scales can be provided if required.	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025
3.3 Attachment 2: CSM table In accordance with Part 3.1 above, provide a site-specific CSM in table format. The CSM table should clearly summarise the identified SPR linkages for construction and operation. An example CSM table is provided in Appendix 1 to this checklist.	☒	☐	Table 5.1 of *Conceptual Exposure Model Definition Phase Study, Jimblebar Beneficiation Project* (WSP, 2025)

Part 4 – Design concept

You must provide a detailed overview of the design concept including all related infrastructure, such as seepage collection and management infrastructure.

The proposed design should take into consideration the environmental setting, adjacent current and future land uses, available materials and infrastructure, and materials characteristics of the tailings to be received.

	Yes	N/A	Document name or section
4.1 Design overview Provide an overview of the TSF design (e.g. TSF footprint, cells and division embankments etc.). Specified design detail must be provided for each proposed cell of the TSF. Will the facility be lined? What material will be used for the liner (clay, geotextile, other)? What is the expected permeability of the liner? If a change is being applied for (i.e. not a new facility) clearly define only: • changes proposed and • how they differ from the existing as built design and facility management measures.	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025
4.2 Staging and storage capacity Provide details on proposed staging and storage capacity. As a minimum, include the: • expected crest elevation/pit depth • tailings storage area (m^2) • tailings storage volume (m^3) • cumulative storage volume (m^3) for the starter embankment(s) and raise(s) • expected tailings density used to determine the required storage capacity (refer to water balance calculations section 7.3).	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025
4.3 Starter embankments and raises Provide details on the proposed starter embankments and raises including: • general approach (upstream, centreline, downstream) • maximum height • materials properties, and availability.	☐	☒	

Attachments	Yes	N/A	Document name or section
4.4 Attachment 3: Premises map and site layout plan(s) Provide a premises map and site layout plan(s) and include: • premises boundary and relevant tenure • TSF cell(s), proposed staged build (if required) and final landform • construction borrow source • seepage and groundwater monitoring bores • dewatering bores • roads (including haulage) and access tracks • topsoil stockpiles • pipelines, including connectivity (e.g. processing plant to the TSF) and scour pits if relevant • key environmental aspects or features (e.g. watercourses, groundwater) • other key site infrastructure (e.g. pits, plant, accommodation village, administration offices) • topographical contours on and around the TSF • scale, north arrow, GPS coordinates and legend.	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025
4.5 Attachment 4: Design figures Provide design figures that include the following: • TSF layout depicting all TSF-related infrastructure (existing and proposed) including, but not limited to: - TSF cell(s) - embankments - supernatant pond(s) - stormwater infrastructure - tailings and water pipelines, including decant lines and pump locations, and related tanks and/or ponds - tailings discharge location(s) - seepage management and/or underdrainage design. • schematic cross-sections of the TSF cell(s) and or embankments, including related geology. For amendments, clearly highlight/identify the proposed changes.	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025

Part 5 – Construction overview

You must provide a detailed overview of the proposed construction works including all related infrastructure that are proposed under this application to clarify the scope of assessment.

	Yes	N/A	Document name or section
5.1 Scope of construction works Provide details of construction works including, but not limited to: • general site preparation works • infrastructure to be constructed • construction phases • timing of works – including all lifts being applied for if applicable (within the next five years) • summary of management measures and controls to be adopted for key environmental factors including: - noise - dust - stormwater/surface water - erosion and sediment - hydrocarbon management (fuel spills). Information must be consistent with the requirements outlined in the emissions and discharges section of the application form. • for all TSFs not on Mining Act tenure, information on construction quality assurance (CQA) measures and procedures to be employed. Provide information consistent with DEMIRS published guidance, particularly Code of Practice for TSFs in WA and Guide to the Preparation of a Design Report for TSFs.	☒ ☐	☐ ☒	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025

Part 6 – Materials characterisation

You must provide a detailed overview of the physical and geochemical characteristics of the tailings and embankment materials.

Geochemical characteristics of representative material (tailings or other) must be defined so that the geochemical risks are understood at least to a high level. The sampling program must sufficiently consider the different type(s) of materials, such that the variability/heterogeneity is represented. Altered weathering zone(s) should be considered in the sampling program where applicable.

Representative samples of tailings/process residues should be obtained from metallurgical test work conducted during the feasibility and development stages of the project.

For existing sites, sampling should cover the full lateral and vertical extent from existing facilities/stockpiles, where possible.

	Yes	N/A	Document name or section
6.1 Materials characterisation Provide materials characterisation for tailings material including, but not limited to: • where each tailings type is coming from • details of any planned blending and ratios • number of samples taken relative to the volume/throughput • process chemicals used • water used and any additional inputs to the process (e.g. wastewater, decant recycled) • deposition methodology • physical details of each tailings type (i.e. material characterisation, wet/dry material, moisture content, dispersion characteristics, attenuation properties, modelled/actual consolidation) • geochemical performance of each tailings type (i.e. composition, contaminants of concern) • assessment of acidic and/or metalliferous drainage (AMD) potential, inclusive of: - risk of AMD, neutral mine drainage (NMD), saline drainage, and acidic drainage of the tailings - risk of metalliferous drainage (encompassing all metals and metalloids, regardless of whether the conditions are acidic) - where there is risk of AMD, results of static and kinetic testing consistent with the international Global Acid Rock Drainage (GARD) Guide (particularly Chapter 4) - naturally occurring radioactive material (NORM) and technologically enhanced naturally occurring radioactive materials (TENORM). • erosive, sodic and/or dispersive materials • Fibrous materials (asbestiform materials, respirable crystalline silica); or mica • leachability of contaminants with environmental significance from the tailings • water quality of tailings decant and seepage • continuity and variability of the geochemical characteristics of tailings. Where a new tailings material (including new pit) is proposed, a comparison against existing tailings should be provided.	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025

	Yes	N/A	Document name or section
6.2 Embankment materials characterisation Provide materials characterisation for all embankment materials including, but not limited to: • where each material type is coming from • number of samples taken relative to the volume • geochemical composition (highlighting contaminants of concern) • assessment of acidic and/or metalliferous drainage (AMD) potential, inclusive of: - risk of AMD, neutral mine drainage (NMD), saline drainage, and acidic drainage - risk of metalliferous drainage (encompassing all metals and metalloids, regardless of whether the conditions are acidic) - where there is risk of AMD, results of static and kinetic testing consistent with the international Global Acid Rock Drainage (GARD) Guide (particularly Chapter 4). - naturally occurring radioactive material (NORM) and technologically enhanced naturally occurring radioactive materials (TENORM). • erosive, sodic and/or dispersive materials • Fibrous materials (asbestiform materials, respirable crystalline silica); or mica • continuity and variability of the geochemical characteristics.	☐	☒	

Part 7 – Seepage and water management

You must provide a detailed overview of seepage and water management. This includes seepage minimisation measures and the proposed seepage management system, including seepage recovery requirements.

The premises must be designed and constructed so that stormwater is diverted away from the TSF (including individual cells). This may be achieved through surface grade changes, bunding, interceptor drains, piping and other drainage systems. Stormwater that has come into contact with the surface of the TSF (including embankments) must be collected and managed as decant in the decant management system.

	Yes	N/A	Document name or section
7.1 Hydrogeology Provide a detailed overview on the following in relation to the TSF: • local geology • topography • shallow geology under the TSF • hydrogeology including surface waterways and drainage plans, depth to groundwater, groundwater quality (including salinity) and direction of groundwater flow • for in-pit TSFs, include known preferential and fracture pathways and blasting history to allow risk assessment of potential environmental risks from blasting residues. Aerial overview and geological cross-section drawings must be provided (refer also to requirements under section 7.5).	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025
7.2 Stormwater management Provide details on the proposed stormwater management and controls for the TSF including, but not limited to: • diversion of stormwater away from the TSF using drainage features, bunds, interceptor drains or other drainage systems • details (including design specifications and an overview of construction works) of clean stormwater holding ponds to be constructed (if required) • details of any proposed controlled releases of clean stormwater into the environment and/or proposed reuse options on site, including worst case contingencies • erosion and sediment control along drainage lines and discharge points (e.g. stormwater flow control, vegetation, detention ponds, minimising land disturbance and other temporary and permanent erosion protection measures). Guidance on stormwater management can be found in the department's Stormwater management manual of Western Australia.	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025

	Yes	N/A	Document name or section
7.3 TSF water management Provide details on the proposed TSF water management and controls including, but not limited to details of the: • operational water balance assessment, including approach, assumptions, and estimates • proposed tailings delivery and decant/reclaim system • proposed cut-off trenches/toes and underdrainage system • operational freeboard assessment of storm storage capacity of the TSF (for each cell) at the proposed final height, relevant to its consequence category • proposed decant/reclaim system, including: - inlet/outlet locations - pumps and contingencies for failures, rain events, shut downs - incidental rainfall collection on the TSF - pipelines, including location and specifications - access causeway construction - emergency spillway(s) - decant ponds (i.e. size, capacity, freeboard requirements, elevations, locations, etc). For existing facilities, provide information on existing water and seepage management. Include details such as updated water modelling. Data should be provided in Excel format to demonstrate trends over time.	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025

7.4 TSF seepage management Has a seepage assessment been carried out? Provide details on seepage including, but not limited to: • where seepage is expected to occur (include a figure or map of plume modelling or estimated groundwater flow rates over time) • seepage rate and flow direction – including within pit walls if applicable • estimated seepage migration timeframes in relation to receptors • seepage water quality and known contaminants of concern • consideration of existing seepage (including adjacent TSFs if applicable) as cumulative emissions in water balance calculations • seepage management measures. A site-specific self-assessment[4] based on the SPR model and risk-rating matrix outlined in the department's Guideline: Risk assessments must be undertaken for seepage as part of the CSM: • The self-assessment should be conducted as part of and be consistent with the requirements outlined in the emissions and discharges section of the application form. • The CSM must be completed as outlined in Part 3 of this form. • Proposed mitigation measures, triggers and timeframes, along with any residual risks must be clearly identified. • Self-assessment should include identifying any SPR linkage of seepage to near surface (i.e. land or soils), surface water and/or groundwater receptors. If the department's risk assessment (conducted as part of the assessment of this application) results in a residual risk the following further information may be required: o a time-dependent model including sensitivity of key parameters o relevant cross-sections of the pore pressure conditions for key time steps in the TSF's life. At a minimum this should include pre-mining conditions, year 1, mid-life, final year and post-operational drain-down o seepage management measures, including plan location, depth and expected efficiency. It is recommended that the above information is provided with the application up-front if the self-assessment identifies a 'high' or 'extreme' risk to avoid delays in the application process.[5] Note 4: The risk assessment must be undertaken in accordance with the department's Guideline: Risk assessments. Note 5: Risk ratings are to be in accordance with the risk rating matrix outlined in the department's *Guideline: Risk assessments*.	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025

	Yes	N/A	Document name or section
Attachments			
7.5 Attachment 5: Topography, geology and hydrogeological plan(s) An aerial overview and cross-section drawings of topographical, geological, and hydrogeological features related to the TSF, including existing monitoring bores and other monitoring instrumentation.	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025
7.6 Attachment 6: Layout of seepage management system Provide a layout plan of the proposed seepage management system that clearly depicts all associated infrastructure and equipment. Multiple plans can be provided.	☐	☒	
7.7 Attachment 7: Stormwater / Surface Water Management Infrastructure Provide design drawings and layout figure(s) of the proposed stormwater / surface water management infrastructure.	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025

Part 8 – Other operational and management aspects

This section outlines the operational management aspects of the TSF that must be addressed as part of an application. Focus on the day-to-day activities undertaken at the TSF and the practices to be implemented to minimise environmental impacts.

	Yes	N/A	Document name or section
8.1 Dust management Where risk assessment concludes there may be impacts to sensitive environmental receptors or risk of amenity or public health impacts, provide details on the proposed dust mitigation measures to control dust emissions from the TSF. Where saline water is used for dust suppression, all reasonable measures must be taken to avoid detrimental impacts to surrounding environmental receptors including native vegetation. These measures must be documented in the application. 'Dust' includes dried tailings lift-off from the surface of the TSF.	☐	☒	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025
8.2 Tailings delivery and return water pipelines Provide details on the proposed tailings delivery and return water pipelines including, but not limited to: • location/route • design specifications • connectivity (i.e. processing plant to TSF) • decant and reclaim system • supernatant ponds (location, size, etc). Provide details of the proposed management measures for tailings delivery and return water pipelines including, but not limited to: • trenches and diversion bunds • flow meters • telemetry / process monitoring • leak detection/monitoring system • shut-off valves • inspections schedule and responsible officers • deposition strategy • contingency measures in event of pipeline spills or ruptures.	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025

	Yes	N/A	Document name or section
8.3 Impacts to birds and bats from contact with tailings or tailings water			
For gold or silver mining operations, is the applicant a signatory to the International Cyanide Code ?	☐	☒	
If not a signatory, provide details of proposed monitoring and management to mitigate risk of cyanide poisoning of birds or bats consistent with the Australian national Leading Practice Handbook on Cyanide Management (particularly Appendices 1-3).[1]	☐	☒	
For all mining operations (whether targeting gold or other substances) is there a risk to birds or bats from other toxic materials in tailings or tailings water (e.g. arsenic, cadmium, lead, selenium, thallium)? If so, provide details of proposed management to mitigate this risk.	☐	☒	

[1] Note this does not apply where water is hypersaline as salinity of 50 000 mg/L TDS or above is protective since wildlife cannot consume such high salinity water and will likely avoid its ingestion during foraging activities Adams MD et al 2013 Hypersaline-Induced Reduction in Cyanide Ecotoxicity at Gold Operations

Attachments			
8.4 Attachment 8: Layout of tailings delivery and return water pipelines Design drawings and layout figure(s) of the proposed tailings delivery and return water pipeline infrastructure must be provided.	☐	☒	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025

Part 9 – TSF monitoring and inspections

You must provide an overview of the proposed monitoring and inspection aspects of the TSF operation.

A comprehensive monitoring program is required to support the ongoing operation of the TSF. Aspects that should be included in the monitoring program (as a minimum) include seepage, surface water and groundwater, relevant to the risks identified.

The operator must continually review the quality of data obtained and the positioning of monitoring points during the regular review of monitoring data.

Typical monitoring aspects are outlined further below. Where an operator elects not to commit to certain monitoring programs, they must provide clear justification and rationale for this decision.

	Yes	N/A	Document name or section
9.1 Groundwater, surface water and seepage monitoring Provide details on the proposed groundwater and surface water monitoring program including, but not limited to: • groundwater, surface water, and seepage sampling / monitoring locations (including monitoring and recovery bores) • bore construction specifications • nearest stock bore(s) • nearest supply bore(s) • sampling methodology • analysis suite • sampling frequency. For a new TSF, the operator should seek to demonstrate baseline groundwater and surface water conditions before construction works and to feed the results of this monitoring into the initial CSM development. The monitoring program should as a minimum seek to establish: • background groundwater quality, groundwater levels (in mAHD and mBGL), flow rates, and flow directions	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025

	Yes	N/A	Document name or section
• background surface water quality, levels, flow rates and flow direction • local aquifers, and groundwater flow direction and rates of each aquifer (if available) • a monitoring network that acts as an early indicator of seepage contamination in groundwater or surface water prior to offsite migration. Monitoring bores need to be designed and installed to detect seepage at expected depths based on local geology and soil characteristics (before receptors are impacted). For amendments to established TSFs, the operator should: • explain whether any models/assumptions provided in original approval applications are still applicable. • provide a summary of at least the past five years of groundwater monitoring data, identifying and discussing any trends or impacts to receptors, and • provide details on model calibration with real data and management actions to be implemented with timeframes (if applicable). A sampling and analysis quality plan (SAQP) should be prepared to ensure that the data collected are valid, representative, and sufficient to address critical gaps and uncertainties identified in the CSM so that the information obtained provides a reliable basis for continually reviewing site operations and meeting compliance requirements of the operating licence. Further guidance on developing a groundwater and surface water monitoring program, including the development of a SAQP, can be sourced from the Victorian EPA Groundwater Sampling Guidelines and from Schedule B2 of the National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM).			
9.2 Dust monitoring Where dust is identified as a potential risk to sensitive receptors (see section 8.1), provide details on the proposed TSF dust monitoring plan including, but not limited to: • locations of residences / other sensitive receptors • monitoring locations • monitoring methodology (i.e. visual, monitoring stations, DustTrak etc.) • monitoring frequency and duration • dust management triggers contingency measures.	☐	☒	
9.3 TSF inspections Provide details on the proposed TSF inspections including, but	☐	☒	

	Yes	N/A	Document name or section
not limited to: • timing and frequency • erosion and sediment monitoring (including locations, methodology, frequency) • inspection locations / TSF components (i.e. drainage, freeboard, pipelines, vegetation etc.) • DEMIRS inspection requirements outlined in the TSF Operating Manual • relevant tenement requirements imposed by DEMIRS.			

Attachments			
9.4 Attachment 9: Monitoring locations Provide layout figure(s) of the proposed monitoring locations (with GPS coordinates) including, but not limited to: • monitoring bore locations (including groundwater, seepage and recovery bores) clearly numbered / labelled • surface water monitoring locations • dust monitoring locations • vegetation monitoring locations (where justified based on risk).	☒	☐	See Attachment 8 Jimblebar Operations – Jimblebar Beneficiation Project Works Approval Application for a Works Approval Supporting Documentation (Including Information relating to Attachments 1 to 11) January 2025

Appendix 1 - Example Conceptual Site Model (CSM) table

Source / Activities	Potential emissions, pollutants, or contaminants of concern	Potential pathway	Potential receptors	Potential impacts	Proposed controls and contingencies
TSF-Cell 1 (deposition of tailings) *.*	*TSF-Cell 1 supernatant potentially containing concentrations of substances with environmental significance such as cyanide, or arsenic.*	*Seepage / infiltration.*	*Underlying groundwater (20 mBGL) low salinity (potable)*	*Groundwater contamination*	*Groundwater modelling, underdrainage, monitoring bores and recovery bores, specified management triggers and contingency actions.*
			Groundwater users located at Green Town, 500 metres away	*Public health impacts*	
		Groundwater mounding, seepage expression.	*Native vegetation adjacent to TSF and beside Blue Creek.* *Surface water (specifically Blue Creek located 200 m south of the southern embankment of the TSF-Cell 1.*	*Reduced surface water quality, and ecosystem disturbance.* *I*	
Decant pipeline and/or tailings delivery pipeline failure.	*Decant water potentially containing concentrations of substances with environmental significance such as cyanide.*	*Direct discharge* *Infiltration into soil or groundwater*	*Surface water (specifically Blue Creek located 200 m south of the southern embankment of the TSF-Cell 1.*	*Reduced surface water quality, and ecosystem disturbance.*	*Telemetry, auto cut-offs, visual monitoring.* *Clean up response, reporting, spill containment measures*
			Native vegetation adjacent to TSF and beside Blue Creek	*Reduced vegetation health, and potential loss of vegetation in some areas.*	*Vegetation monitoring, siting of infrastructure*
Stormwater	*Sediment-laden runoff.* *Potentially contaminated stormwater.*	*Overland runoff.*	*Surface water (specifically Blue Creek located 200 m south of the southern embankment of the TSF-Cell 1.*	*Reduced surface water quality, and ecosystem disturbance.*	*Stormwater infrastructure, diversion drains, trenches, monitoring*
			Native vegetation adjacent to TSF and beside Blue Creek	*Reduced vegetation health.*	*Vegetation monitoring, flora surveys*
Overtopping of TSF-Cell 1 due to insufficient freeboard capacity.	*Tailings potentially containing cyanide or other toxic materials.*	*Unplanned direct discharge of tailings into the environment.*	*Underlying groundwater (20 mBGL).*	*Reduced groundwater quality and impacts to downgradient groundwater users.*	*Managing water balance, maintaining adequate freeboard, water recovery measures*
			Surface water (Specifically Blue Creek located 200 m south of the southern embankment of the TSF-Cell 1	*Reduced surface water quality, and ecosystem disturbance / wildlife / aquatic life poisoning.*	

Source / Activities	Potential emissions, pollutants, or contaminants of concern	Potential pathway	Potential receptors	Potential impacts	Proposed controls and contingencies
			Native vegetation adjacent to TSF and beside Blue Creek.	*Reduced vegetation health, and potential loss of vegetation in some areas.*	
Tailings water	*WAD Cyanide in tailings water* *(Tailings water is less than 50,000 TDS and company is not a signatory to the Cyanide Code)*	*Birds, or bats coming in contact with tailings water*	*Birds or bats*	*Poisoning of birds or bats*	*WAD cyanide monitoring and management consistent with Australian national Leading Practice Handbook on Cyanide Management (Appendices 1-3)*
Dust (dried tailings) lift-off from the surface of the TSF-Cell 1, or embankments	*Dust (dried tailings) potentially containing toxic materials.*	*Windblown dust transport through air then deposition.*	*Native vegetation adjacent to TSF*	*Potential impact to health of native vegetation from dust deposition and / or dust containing toxic material deposited on soil*	*Dust monitoring program with predetermined trigger value* *Contingency measures (dust suppression, ceasing dust generating activities where required)*
		Air/wind dispersion, dust inhalation, Contamination of drinking water (roof runoff into rainwater tanks used for water supply). Contamination of home-grown food (from contamination of soil in residents' vegetable gardens, chickens feeding on ground in residents' properties). Amenity impacts from dust soiling surfaces around residents' properties	*Nearby residents (500 m away)*	*Public health / amenity impacts*	*Ambient air quality monitor in Greentown* *Sampling for contaminants (dust speciation) and monitoring of rainwater tanks / soil contamination*