



Attachment 9

South32 - BRDA Raises FY25, BRDA 4X Stage 6 and BRDA 5 Stage 6A

Region Application form annex: Category checklist (tailings storage facilities)

Part V Division 3, *Environmental Protection Act 1986*,
Environmental Protection Regulations 1987

INSTRUCTIONS:

- This checklist outlines additional information requirements for applications under Part V Division 3 of the *Environmental Protection Act 1986* (EP Act) to:
 - construct and operate Tailing Storage Facilities (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).
- References to 'TSF' in this form include 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.
- This checklist must be completed and submitted as an attachment to the main 'works approval, licence or amendment application form' (see Part 12 of that form). Notes included throughout this checklist must be read in conjunction with the instructions and requirements of the main application form.
- The application checklist must be completed with all relevant Application Supporting Information (ASI) attached. The 'ASI reference' column must clearly identify where in the supporting attachment(s) the relevant information has been provided or the relevant requirements have been met. Attachments containing ASI can be combined and submitted as one or more consolidated documents if desired, provided it is clear which section of the checklist the content relates to.
- If a checklist has been submitted and is incomplete the Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (the department) will decline or return the application (as applicable).
- The information requirements outlined in this checklist are not exhaustive. Applicants are advised to provide the ASI and environmental investigations as required to support the application and assessment process.

Completion matrix

The matrix below explains what sections are required to be completed for different types of TSF applications, as described in 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.”

Key:	Scenario 1	Scenario 2	Scenario 3	Scenario 4
<ul style="list-style-type: none"> ● Form section must be completed and relevant supporting information provided. △ To the extent required or (if amendment) changed. N/A Not applicable (information not required with application). 	New ¹ above-ground or in-pit TSF (including valley TSF)	Wall raise/lift to existing TSF (in-pit or above-ground, including valley TSF)	Significant change to tailings delivery process (i.e. cyclone, thickener, etc) which will change the physical characteristics of tailings	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
Form section				
Part 1: Other approvals	△	△	△	△
Part 2: Conceptual Site Model	●	●	●	●
Part 3: Design overview	●	●	△	△
3.1 Design overview	●	●	△	△
3.2 Staging and storage capacity	●	●	△	N/A
3.3 Starter embankments and raises	●	N/A	N/A	N/A
Part 4: Construction overview	●	●	△	N/A
Part 5: Materials characterisation	●	N/A	△	●
Part 6: Seepage and water management	●	△	△	△
6.1 Hydrogeology	●	△	△	△
6.2 Stormwater management	●	△	△	△
6.3 TSF seepage and water management	●	●	△	△ (if increase in risk)

Part 7: Other operational and management requirements	•	Δ	Δ	Δ
7.1 Dust	•	Δ	Δ	Δ
7.2 Tailings delivery and return water pipelines	•	•	Δ	N/A
Part 8: Monitoring and inspections	•	Δ (if change to layout)	Δ	Δ
8.1 Groundwater, surface water and seepage monitoring	•	Δ (if change to layout)	Δ	Δ
8.2 Dust monitoring	•	Δ	Δ	Δ
8.3 TSF inspections	•	Δ	Δ	N/A
Attachments	•	•	•	•
Att. 1 Drawings and figures (locality maps)	•	•	•	•
Att. 2 CSM table	•	•	•	•
Att. 3 Premises map and site layout	•	•	•	•
Att. 4 Design figures	•	•	•	•
Att. 5 Topography, geology and hydrogeological plans/maps	•	•	Δ	Δ
Att. 6 Layout of seepage management system	•	•	Δ	Δ
Att. 7 Stormwater or surface water management infrastructure	•	•	Δ	Δ
Att. 8 Layout of tailings delivery and return water pipelines	•	•	Δ	N/A
Att. 9 Monitoring locations map	•	Δ	Δ	Δ

Note 1: for Scenario 1, 'new' means:

- a new above-ground or in-pit TSF (i.e. whole facility)
- a new above-ground or in-pit storage cell to an existing licensed above-ground or in-pit TSF
- a change to the location, a change in the proposed liner or a change in the type of construction and staging of an approved TSF.

Part 1: Other approvals			
	Yes	N/A	ASI reference
<p>1.1 State Agreement Act</p> <p>Is the premises subject to a State Agreement Act?</p> <p>If yes, provide a description of:</p> <ul style="list-style-type: none"> • title of State Agreement Act. • relevant considerations within that State Agreement Act pertaining to the TSF and associated activities or infrastructure. • any consultation with the Department of Jobs, Tourism, Science and Innovation (DJTSI) about the TSF. • if the proposed/existing TSF is not on <i>Mining Act 1978</i> 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). <p>Refer to the Department of Mines, Industry Regulation and Safety (DMIRS) guidance on mine closure plans, particularly How to prepare in accordance with the Statutory Guidelines.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Attachment 3B – Supporting Documentation</p> <p>Section 5.1</p> <p>The BRDA wall lifts are discussed in Worsley’s Annual Environmental Report (AER) which is reviewed by DJTSI.</p> <p>Worsley have presented the previous works approval and an update in the most recent Environmental Management Liaison Group (EMLG) meeting where DJTSI is lead agency.</p>
<p>1.2 Mining Act 1978 approvals</p> <p>Provide a description of:</p> <ul style="list-style-type: none"> • any consultation with DMIRS about the TSF. • status of the associated mining proposal (include registration ID if available) and mine closure plan. 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Attachment 3B – Supporting Documentation</p> <p>Section 5.2</p>
<p>1.3 Part IV Environmental Protection Act 1986 (EP Act)</p> <p>Provide a description of:</p> <ul style="list-style-type: none"> • what has been referred and assessed in a Part IV referral. • all changes made to the TSF since Part IV referral or approval. • Part IV EP Act ministerial statement conditions pertaining to the existing TSF or proposed changes to the TSF. 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Attachment 3B– Supporting Documentation</p> <p>Section 5.3</p>
<p>1.4 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</p> <p>Provide:</p> <ul style="list-style-type: none"> • any consultation with the Department of Climate Change, Energy, Environment and Water about the TSF. • a description of any changes made to the TSF since submission or approval. • the EPBC approval number and copy of the TSF-related approval conditions. 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Attachment 3B – Supporting Documentation</p> <p>Section 5.4</p>

Part 2: Conceptual Site Model			
	Yes	N/A	ASI reference
<p>2.1 Conceptual Site Model (CSM) table</p> <p>Provide a site-specific conceptual site model (CSM)² that clearly identifies all potential Source-Pathway-Receptor (SPR) linkages for related environmental and public health receptors (refer to Section 2.3; Attachment 2 below). 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).</p> <p>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.</p> <p>A site-specific SPR assessment³ for seepage must be undertaken as part of the CSM. Refer to Section 6.3 for seepage requirements.</p> <p>Note 2: Guidance on developing CSMs is provided in the department's Assessment and management of contaminated sites guidelines.</p> <p>Note 3: Assessment should be conducted as part of and be consistent with the requirements outlined in Part 9 of the main application form (potential emissions and discharges).</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Attachment 3B – Supporting Documentation</p> <p>Section 7</p>
Attachments			
<p>2.2 Attachment 1: Locality map(s)</p> <p>An aerial photograph, map, and/or site plan of sufficient scale showing the proposed prescribed premises boundary and locality of the TSF and supporting infrastructure in respect to:</p> <ul style="list-style-type: none"> • nearby sensitive receptors and surrounding land uses. • multiple maps at different scales can be provided. 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Attachment 3B – Supporting Documentation</p> <p>Section 3</p>
<p>2.3 Attachment 2: CSM table</p> <p>In accordance with Part 2.1 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 form.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Attachment 3B – Supporting Documentation</p> <p>Section 7</p>

Part 3: Other approvals			
<p>INSTRUCTIONS:</p> <ul style="list-style-type: none"> This section requires applicants to provide a detailed overview of the design concept including all related infrastructure, such as seepage collection and management infrastructure. The proposed design should consider and acknowledge the interactions between all elements and 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	ASI reference
<p>3.1 Design overview</p> <p>Provide details on the design overview (e.g. TSF footprint, cells and division embankments etc.). Specified design detail must be provided for each proposed cell of the TSF.</p> <p>If a change is being applied for a facility previously approved under Part V Division 3 of the EP Act (i.e. not a new facility) clearly define:</p> <ul style="list-style-type: none"> changes proposed how they alter from the existing design and facility management measures. 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Attachment 3B – Supporting Documentation</p> <p>Section 4.1</p>
<p>3.2 Staging and storage capacity</p> <p>Provide details on proposed staging and storage capacity. As a minimum, include the:</p> <ul style="list-style-type: none"> expected crest elevation/pit depth, tailings storage area (m²), tailings storage volume (m³), cumulative storage volume (m³) for the starter embankment(s) and raise(s). 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Attachment 3B – Supporting Documentation</p> <p>Section 4.2 Section 4.5</p>
<p>3.3 Starter embankments and raises</p> <p>Provide details on the proposed starter embankments and raises including:</p> <ul style="list-style-type: none"> general approach (upstream, centreline, downstream) maximum height materials properties, and availability. 	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A
Attachments			
<p>3.4 Attachment 3: Premises map and site layout plan(s)</p> <p>A premises map and site layout plan(s) must be provided and include:</p> <ul style="list-style-type: none"> 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 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Attachment 3B – Supporting Documentation</p> <p>Section 3</p>

Part 3: Other approvals			
<ul style="list-style-type: none"> pipelines, including connectivity (e.g. processing plant to the TSF) and scour pits if relevant key environmental aspects or features (e.g. watercourses) other key site infrastructure (i.e. pits, plant, accommodation village, administration offices, etc.) topographical contours on and around the TSF scale, north arrow, GPS coordinates and legend. 			
<p>3.5 Attachment 4: Design figures</p> <p>A series of design figures must be provided that include the following:</p> <ul style="list-style-type: none"> TSF layout depicting all TSF-related infrastructure (existing and proposed) including, but not limited to: <ul style="list-style-type: none"> - 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 clear highlighting/identifying of the proposed changes (if applicable) schematic cross-sections of the TSF cell(s) and or embankments, including related geology. 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Attachment 3B – Supporting Documentation Section 3 Section 4.2

Part 4: Construction overview			
INSTRUCTIONS:			
<ul style="list-style-type: none"> This section requires applicants to 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	ASI reference
<p>4.1 Scope of construction works</p> <p>Provide details of construction works including, but not limited to:</p> <ul style="list-style-type: none"> general site preparation works infrastructure to be constructed construction phases timing of works – including all lifts being applied for, if applicable, (including all lifts proposed for within the next five years) summary of management measures and controls to be adopted for key environmental factors including, but not limited to: <ul style="list-style-type: none"> - noise - dust - stormwater/surface water - erosion and sediment - hydrocarbon management (fuel, spills) 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Attachment 3B – Supporting Documentation Section 4.1 Section 4.2

Information must be consistent with the requirements outlined in Part 9 of the main application form (potential emissions and discharges).			
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Part 5: Materials characterisation

INSTRUCTIONS:

- This section requires applicants to provide a detailed overview of the physical and geochemical characteristics of the tailings and embankment materials.
- Geochemical characteristics of representative material (i.e. tailings or other) should be defined, such that the geochemical risks are understood at least to a high level.
- A sampling program that sufficiently addresses the different type(s) of materials, such that their variability/heterogeneity is represented, should be conducted.
- 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	ASI reference
<p>5.1 Materials characterisation</p> <p>Provide details on materials characterisation including, but not limited to:</p> <ul style="list-style-type: none"> • where is each tailings type coming from? • any blending and ratios • number of samples taken relative to the volume/throughput • process chemicals used • water used, additional inputs to the system (any 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) • where a new tailings material (including new pits) is proposed, a comparison against existing tailings should be provided • acidic and/or metalliferous drainage (AMD), inclusive of: <ul style="list-style-type: none"> - potential risk of AMD, neutral mine drainage (NMD), saline drainage, and acidic drainage of the tailings - metalliferous drainage (encompassing all metals and metalloids, regardless of whether the conditions are acidic) - naturally occurring radioactive material (NORM) and technologically enhanced naturally occurring radioactive materials (TENORM). • erosive, sodic and/or dispersive materials • fibrous minerals • 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 • characteristics of embankment material. 	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>N/A</p> <p>Proposed raise is an addition to an existing TSF, therefore, Scenario 2 applies which does not require a material characterisation.</p>

Part 6: Seepage and water management			
INSTRUCTIONS:			
<ul style="list-style-type: none"> This section requires applicants to provide a detailed overview of seepage and water management. Information must be provided on the proposed seepage management system including seepage recovery requirements. The premises must be designed and constructed to ensure that stormwater is diverted away from the TSF (including individual cells). This may be achieved through the use of 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	ASI reference
<p>6.1 Hydrogeology</p> <p>Provide a detailed overview on the following in relation to the TSF:</p> <ul style="list-style-type: none"> local geology topography geotechnical characteristics hydrogeology including waterways and drainage plains for in-pit TSFs, include known preferential and fracture pathways. <p>Aerial overview and geological cross-section drawings must be provided.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Hydrogeology not changed from previous BRDA Raise Works Approval application.
<p>6.2 Stormwater management</p> <p>Provide details on the proposed stormwater management and controls for the TSF including, but not limited to:</p> <ul style="list-style-type: none"> diversion of stormwater away from the TSF using drainage features, bunds, interceptor drains or other drainage systems details on clean stormwater holding ponds to be constructed (if required). Design specifications and an overview of construction works should also be provided. details of any proposed controlled releases of clean stormwater into the environment and/or proposed reuse options on site erosion and sediment control along drainage lines and discharge points. This includes stormwater flow control, vegetation, detention ponds, minimising land disturbance and other temporary and permanent erosion protection measures. <p>Guidance on stormwater management can be found in the department's Stormwater Management Manual for Western Australia.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Attachment 3B – Supporting Documentation Section 6.1
<p>6.3 TSF water and seepage management</p> <p>Provide details on seepage including, but not limited to:</p> <ul style="list-style-type: none"> 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 in-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. 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Attachment 3B – Supporting Documentation Section 6.1 Section 6.2

Part 6: Seepage and water management

Has a seepage assessment been conducted for the works proposed under this application?

A site-specific self-assessment⁴ 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 Part 9 of the main application form (potential emissions and discharges).
- The CSM must be completed as outlined in Part 2 of this form.
- Proposed mitigation measures, triggers and timeframes, along with any residual risks must be clearly identified.
- Self-assessment should include 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:
 - a time-dependent model including sensitivity of key parameters
 - 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
 - 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 process⁵.

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](#).

Provide details on the proposed TSF water management and controls including, but not limited to details of the:

- proposed tailings delivery and decant/reclaim system
- proposed cut-off trenches/toes and underdrainage system
- operational water balance assessment, including approach, assumptions and estimates
- 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
 - 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 sites previously approved under Part V Division 3 of the EP Act, provide information on existing water and seepage management.

Included in design report Attachment 8B Section 2.13.9

GISTM Public Disclosure Attachment 8E

Water Management included in Attachment 8C

Part 6: Seepage and water management			
Include details such as updated water modelling. Data should be provided in Excel format to demonstrate trends over time.			
Attachments			
6.4 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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Hydrogeology not changed from previous BRDA Raise Works Approval application.
6.5 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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Attachment 8A Sections 2.2 and 6.2 Attachment 8B Sections 2.2 and 5.4

Part 7: Seepage and water management			
INSTRUCTIONS: <ul style="list-style-type: none"> This section outlines the operational management aspects of the TSF that must be addressed as part of an application. Focus should be given to the day-to-day activities undertaken at the TSF and the practices to be implemented to minimise environmental impacts. 			
	Yes	N/A	ASI reference
7.1 Dust 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. These measures must be documented in the application. 'Dust' includes dried tailings lift-off from the surface of the TSF.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Attachment 8D – Air Quality and Dust Management Plan
7.2 Tailings delivery and return water pipelines Provide details on the proposed tailings delivery and return water pipelines including, but not limited to: <ul style="list-style-type: none"> locations 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: <ul style="list-style-type: none"> trenches and diversion bunds monitoring devices flow meters 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Attachment 3B – Supporting Documentation Section 4.2 Section 4.3 Section 6.1 Attachment 8A Section 6.2 Section 6.4 Attachment 8B Section 5.4 Section 7.1

Part 7: Seepage and water management			
<ul style="list-style-type: none"> telemetry leak detection/monitoring system shut-off valves inspections deposition strategy contingency measures in event of pipeline spills or ruptures. 			
Attachments			
7.3 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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Attachment 8A Section 6.2 Attachment 8B Section 5.4

Part 8: TSF monitoring and inspections			
INSTRUCTIONS: <ul style="list-style-type: none"> This section requires applicants to provide an overview of the proposed monitoring and inspection components of the TSF. A comprehensive monitoring program should be developed 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	ASI reference
8.1 Groundwater, surface water and seepage monitoring Provide details on the proposed groundwater and surface water monitoring program including, but not limited to: <ul style="list-style-type: none"> groundwater, surface water, and seepage sampling/monitoring locations (including monitoring and recovery bores) nearest stock bore(s) nearest supply bore(s) well construction specifications 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: <ul style="list-style-type: none"> background groundwater quality, levels (in mAHD and mBGL), flow rates and flow directions background surface water quality, levels, flow rates and flow directions 	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No change to existing monitoring layout and sampling program. See Attachment 8C – Water Management Plan

Part 8: TSF monitoring and inspections			
<ul style="list-style-type: none"> 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. <p>For established TSFs, the operator should seek to demonstrate no changes from baseline conditions; and that any models/assumptions provided in original approval applications are sound.</p> <p>A Sampling and Analysis Quality Plan (SAQP) should be prepared to ensure that the data collected are 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.</p> <p>For established TSFs please provide a summary/trend of the results of the data from the past five years and identify if there are any issues.</p> <p>Further guidance on developing a groundwater and surface water monitoring program, including the development of a SAQP, can be sourced from the department's Assessment and management of contaminated sites guideline and from Schedule B2 of the National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM).</p>			
<p>8.2 Dust monitoring</p> <p>Provide details on the proposed TSF dust monitoring including, but not limited to:</p> <ul style="list-style-type: none"> monitoring locations monitoring methodology (i.e. visual, monitoring stations, DustTrak etc.) monitoring frequency and duration contingency measures. 	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>No change to dust monitoring layout and sampling/management program.</p> <p>See Attachment 8D – Air Quality and Dust Management Plan</p>
<p>8.3 TSF Inspections</p> <p>Provide details on the proposed TSF inspections including, but not limited to:</p> <ul style="list-style-type: none"> timing and frequency erosion and sediment monitoring (including locations, methodology, frequency) inspection locations and TSF components (i.e. drainage, freeboard, pipelines, vegetation etc). 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Attachment 3B – Supporting Documentation</p> <p>Section 4.4 Section 7 (Table 7.1)</p>
Attachments			
<p>8.4 Attachment 9: Monitoring locations</p> <p>Provide layout figure(s) of the proposed monitoring locations (with GPS coordinates) including, but not limited to:</p> <ul style="list-style-type: none"> monitoring bore locations (including groundwater, seepage and recovery bores) surface water monitoring locations dust monitoring locations vegetation monitoring locations. 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Attachment 3B – Supporting Documentation</p> <p>Figure 6.2 Figure 6.2</p> <p>Figure 6.3 N/A</p>

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 elements with environmental significance such as cyanide	Seepage/infiltration	Underlying groundwater (20 mBGL)	Reduced groundwater quality	Groundwater monitoring, recovery bores, triggers and actions
		Groundwater mounding, seepage expression)	Groundwater and/or surface water users located at Green Town, 15 km	Health and amenity impacts	
			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	
Decant pipeline and/or tailings delivery pipeline failure	Decant water potentially containing concentrations of elements 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
			General native vegetation. No Threatened Ecological Communities (TECs), Priority Ecological Communities (PECs) or threatened or priority flora were recorded within or near the proposed works area of the TSF	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. No TECs, PECs or threatened or priority flora were recorded within or near the proposed works area of the TSF	Reduced vegetation health	Vegetation monitoring, flora surveys
Overtopping of TSF-Cell 1 due to insufficient freeboard capacity	Tailings potentially containing concentrations of cyanide	Unplanned direct discharge of tailings into the environment	Underlying groundwater (20 mBGL)	Reduced groundwater quality and impacts to downgradient groundwater users	Freeboard, water balance, 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	
			Native vegetation. No TECs, PECs or threatened or priority flora were recorded within or near the proposed works area of the TSF	Reduced vegetation health, and potential loss of vegetation in some areas	
Dust (dried tailings) lift-off from the surface of the TSF-Cell 1, or embankments	Dust (dried tailings) potentially containing contaminants	Windblown dust transport through air then deposition	General native vegetation. No TECs, PECs or threatened or priority flora were recorded within or near the proposed works area of the TSF	Health/amenity impacts	Monitoring, triggers, dust suppression measures; modelling
		Air/wind dispersion	Residents located in proximity		