

Appendix 11: Prescribed Premises - Risk Assessment Table

Prescribed Premises - Risk Assessment

Source / Activities	Potential Emissions / Contaminants	Potential Pathway	Potential Receptors	Potential Impacts	Proposed controls & Contingencies	Consequence	Likelihood	Risk Level	Reasoning
<p><u>Construction:</u> -Veg. clearing & Topsoil stripping; -Vehicle movement on unsealed roads; Earthmoving activities.</p> <p><u>Operations</u> -Vehicle movement on unsealed roads; -Ore and waste handling; -Crushing and conveying; -Earthmoving activities; -Dry tailings lift-off.</p>	Dust Emission to Air	Windblown (fugitive dust) then deposition.	Native vegetation in vicinity of Processing Plant and TSF3 infrastructure; Sensitive Residential Receptors.	Death or decline of vegetation health due to dust deposition and / or toxic material deposited on leaves or soil. Nearest residence 17km away – no dust impacts anticipated.	Dust suppression using water carts on roads, hardstand areas, ROM and all construction and operational areas; No nearby residential areas or pastoral homesteads Complaints from stakeholders regarding dust emissions will be acted on immediately and management measures reviewed accordingly. Stripping and movement of topsoil and other dust-generating works not undertaken in windy conditions where practical; Vehicle speeds and movements managed via a Traffic Management Plan - which addresses dust management requirements; Vehicle movement vehicles restricted to established roads and speed limits imposed; Water-cannons or sprinklers used on stockpiles or other areas not accessible to water carts; Dust suppression sprays on ore transfer points, chutes and conveyors on the crusher, processing plant and materials handling areas; Progressive rehabilitation of disturbed areas; Moisture conditioning of construction materials prevents dust generation.	Slight	Unlikely	Low	Sufficient controls are in place to minimise dust emissions and potential impacts.
<p><u>Construction</u> -Vehicles, machinery, construction tools & equipment.</p> <p><u>Operations</u> -Vehicles, machinery; tools and equipment; -Process Plant; -Power Station.</p>	Noise	Direct emissions (air/wind)	Sensitive Residential & Fauna	No specific noise-sensitive or conservation significant fauna identified in proximity; Nearest residence 17km away – no dust impacts anticipated.	No nearby residential areas or pastoral homesteads Regular maintenance of vehicles and plant equipment; Noise emissions will be managed in accordance with the Work Health and Safety (Mines) Regulations 2022 and the Environmental Protection (Noise) Regulations 1997 Complaints from stakeholders regarding noise emissions will be acted on immediately and management measures reviewed accordingly.	Slight	Rare	Low	No specific noise-sensitive or conservation significant fauna identified in proximity; Nearest residence 17km away – no dust impacts anticipated.
<p><u>Construction:</u> Internal combustion engines in vehicles;</p> <p><u>Operations</u> Power Station gas and diesel turbines; Carbon regeneration kiln & Gold melting furnaces; Internal combustion engines in mobile and other fixed plant</p>	Gas and particulates: CO ₂ (and CO ₂ equivalent); Oxides of Nitrogen as NO ₂ , CO, SO ₂ and volatile organic compounds (VOCs).	Direct emissions (air/wind)	Conservation significant flora and fauna, staff and residential receptors.	Decline in vegetation or fauna health; Reduced air quality for employees (amenity) in Project area Reduced air quality for Community.	Minimise use of gas and diesel turbines at Power Station via preferential use of PV power, then gas and diesel only as backup; Generators will be housed in a newly fabricated high air-flow steel engine hall including exhaust stacks, air intake and cooling systems; Operate the generators at optimal load to promote cleaner and more efficient operation Undertake regular maintenance of the generators in accordance with the manufacturer specifications. Monitoring of fuel use, power outputs and emissions; Reporting in accordance with NPI, NGERs and licence requirements. No nearby residential areas or pastoral homesteads.	Moderate	Unlikely	Medium	Limited potential impacts to site.

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<p><u>Construction & Operations:</u> Leaks and spills from storage containment, or during operating, servicing or refuelling of fixed or mobile plant.</p>	<p>Hydrocarbons and Chemicals</p>	<p>Leaks & spills direct to soil, infiltration to groundwater or transported with surface water.</p>	<p>Soils and vegetation; Surface water and / or groundwater.</p>	<p>Contamination of soil, groundwater and / or surface water; Vegetation death or decline.</p>	<p>Hydrocarbons and chemicals stored in appropriate bunded areas or containment; Hazardous chemicals, fuel and other hydrocarbons will be stored in accordance with Australian Standards; Waste oils stored in bunded containment, and oily rags, filters, hoses and other contaminated material stored in dedicated bins. Hydrocarbon waste removed from site by a licensed contractor; Generators at the power station contained within bunded, compounds, and portable generators 'self bunded'; Plant, vehicles, machinery and equipment regularly serviced and maintained, within designated workshop areas where possible; Washdown water from hardstand areas directed to an oil water separator for treatment, and sludge from the washdown pad removed to bioremediation area; Ore Processing activities conducted within bunded hardstand areas within the plant footprint, with spills directed to collection sumps; All chemical reagents stored within tanks in appropriately bunded facilities, whereby 110% of the largest vessel is contained and 25% of the total volume is contained (according to AS1940 and AS 1692); Personnel handling hazardous materials made aware of MSDS guidance and trained in spill response of that material prior to commencing work, Spill management equipment appropriate to the volume and type of material stored will be available at the storage location, clearly labelled and highly visible at all times; All spills are contained, controlled and cleaned up immediately; Contaminated soil resulting from spills and / or runoff will be removed for treatment at bioremediation pads constructed on site, treated in situ if appropriate, or removed from site and disposed to a licensed facility; Bunding and surface water management structures in place to contain potentially contaminated runoff; All staff and contractors adhere to Hydrocarbon and Chemical Procedures; Regular inspections of workshops and fuel / chemical storage area are completed by contractors and Rox staff.</p>	Slight	Possible	Low	<p>Sufficient controls are in place to prevent and minimise potential impacts of hydrocarbon and chemical spills.</p>
<p><u>Operations</u> -TSF3 tailings delivery or decant return pipeline failure.</p>	<p>Tailings Solids, process water & chemicals with potentially contaminated levels of salinity, cyanide, heavy metals or acid.</p>	<p>Leaks & spills direct to soil, infiltration to groundwater or transported with surface water.</p>	<p>Soils, surface or groundwater and native vegetation in the vicinity of TSF3 and pipeline infrastructure.</p>	<p>Potential impacts on other groundwater users; Reduced quality of surface water runoff; Reduced vegetation health or death.</p>	<p>All tailings, process water and decant return pipelines are bunded to contain spills, with scour pits or sumps along their length to ensure leaks or spills are contained; Pipelines installed with electromagnetic flow meters and pressure sensors downstream of pump station and upstream of TSF discharge, to provide constant monitoring of the tailings and decant pipelines, and shutdown in the event of pipeline failure; Operate the TSF in accordance the Operations Manual; Undertake routine inspections (twice daily when operational) of the TSF, water storage dams and ponds, and tailings and return water pipelines</p>	Moderate	Unlikely	Medium	<p>Robust controls and management measures in place to minimise tailings and decant water impacts. Saline water used in processing unpalatable to fauna, so does not attract them to source.</p>

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<u>Operations</u> -Tailings deposition to TSF3	Tailings & Decant Water Process water & chemicals with potentially contaminated levels of salinity, cyanide, heavy metals or acid.	Seepage / Infiltration to groundwater or transported with surface water; Overtopping of the TSF 3 after excessive rainfall.	Groundwater, topographic low points within or outside the prescribed premise, including minor creeks and Main Pit mine void;	Reduced quality or contamination of groundwater; Raised groundwater levels with negative impacts to local vegetation; Surface expression of groundwater and consequent impacts on local vegetation and surface water quality; Contaminated mine water beyond the margins of the TSF, with potential impacts on GDE's and other groundwater users	TSF3 design conforms to appropriate Codes of Practice and ANCOLD Guidelines on Tailings Dams; TSF3 constructed in accordance with design specifications by competent, qualified professionals using appropriate equipment with material of correct specifications; TSF3 construction supervised and signed off by competent, qualified professionals; Supernatant water collected from TSF surface via a central rock-ring decant system, to minimise tailings water percolating through the TSF, maximise settled density and manage supernatant water for re-use in the plant; Seepage interception cut-off trench and collection drain installed beneath TSF3, to captures seepage water and direct to external collection sumps and back to process-water ponds for re-use; Undertake routine inspections (twice daily when operational) of the TSF, water storage dams and ponds, and tailings and return water pipelines Supernatant pond size minimised and maintained >100m from embankment; TSF operated with designed freeboard of 0.5m with continuous, in situ telemetry monitoring of pond level. Operate the TSF in accordance the Operations Manual; prepared prior operation of TSF3, in accordance with DMPE guideline. The OMPS covers essential duties and tasks, including deposition methodology, decant operation, Routine daily inspections of tailings lines, decant systems and water return, freeboard, process water pond, embankments; Regular monitoring pf WAD cyanide in process water and tailings decant water; Instrumentation and monitoring program to track phreatic surface, groundwater levels and quality, to identify issues and apply timely remedial actions as required; and Annual geotechnical audit of TSF3 throughout operations.	Slight	Rare	Medium	Robust controls and management measures in place to minimise tailings and decant water impacts. Saline water used in processing unpalatable to fauna, so does not attract them to source.
	Tailings & Decant Water Process water & chemicals with potentially contaminated levels of salinity, cyanide, heavy metals or acid; Tailings physical properties (fine grained & sticky).	Direct ingestion; Entrapment.	Native fauna	Direct mortality of native fauna, in particular bird species.					
<u>Operations:</u> -Dewater, tailings & process water transfer (pipelines); -Dewater, tailings & process water storage or containment.	Saline Water	Leaks or spills direct to soil, infiltration to groundwater or transported with surface water. Overflow of containment.	Soil and vegetation in vicinity or downstream of TSF3, dewater containment or pipelines; Groundwater & surface water.	Vegetation death or decline; Contamination of soils, surface water or groundwater.	Containment infrastructure designed by suitably qualified engineers and constructed to approved designs; Suitable qualifications of pipeline construction crews, and quality control of construction (weld inspections / records); Process water dam constructed with an HDPE liner of permeability 1×10^{-6}m/s; Water level sensors installed on process water pond, to monitor water level, with high level alarms and alerts to management to ensure safe operating freeboard levels; Evaporation ponds fitted with visual level markers, telemetric system to automatically turn off the pump if leak is detected.; Seepage interception trench / drain and collection sumps downstream of evaporation ponds and TSF3, to capture seepage water and return to ponds or plant; Dewatering and water supply pipelines located on disturbed areas surrounded by existing mine disturbance (as far as possible) to reduce impact of leaks or spills;	Minor	Rare	Medium	Robust controls and management measures in place to minimise saline water impacts.

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					<p>Pipelines installed with electromagnetic flow meters and pressure sensors and / or telemetric systems for constant monitoring and shutdown in the event of pipeline failure;</p> <p>All pipelines containing saline fully banded to contain spills, with scour pits or sumps along their length to ensure leaks or spills are contained;</p> <p>Secondary containment sumps sized to contain the maximum water volume pumped between a leak occurring, detection and pump cut-out (redundancy time);</p> <p>Leaks or spills to be controlled and contained immediately on detection, followed by clean up and remediation of impacted area as soon as possible;</p> <p>Pipelines inspected daily during operation to identify leaks or spills and reported immediately (internally) and to DWER as-per licence conditions and S72 of EP Act;</p> <p>Inductions and training of all staff and contractors involved in dewatering, tailings & process water operations, storage and management;</p> <p>Monitor and manage freeboard levels in evaporation ponds to prevent overtopping;</p> <p>Inspection schedule (documented) – daily, plus weekly & monthly by management, with remedial or emergency actions taken as required;</p> <p>Groundwater, surface water and vegetation monitoring.</p>				
<p><u>Operations</u></p> <p>-Dust Suppression.</p>	<p>Saline Water</p>	<p>Direct to soil & vegetation via over-spray;</p> <p>Infiltration to groundwater;</p> <p>or transported by surface water.</p>	<p>Soil and vegetation in vicinity of roads and hardstand areas or downstream;</p> <p>Groundwater or surface water contamination.</p>	<p>Vegetation death or decline;</p> <p>Contamination of soils, surface water or groundwater.</p>	<p>Inductions and appropriate training of all staff and contractors involved in dust suppression & management;</p> <p>Inspection schedule (documented) – daily, plus weekly & monthly by management, with remedial or emergency actions taken as required;</p> <p>Dust suppression preferentially using dribble-bars to prevent overspray, and managed to minimise over-watering and salt build-up on roads and hardstand areas;</p> <p>Groundwater, surface water and vegetation monitoring programs.</p>	<p>Minor</p>	<p>Rare</p>	<p>Low</p>	<p>Sufficient controls are place to minimize potential impacts of dust suppression using saline water</p>
<p><u>Construction & Operations:</u></p> <p>Erosion of infrastructure;</p> <p>Leaks or spills from pipelines or storage containment;</p> <p>Leaks or spills during operation, servicing or refuelling of fixed or mobile plant.</p>	<p>Contaminated Stormwater</p> <p>Sediment, salt, hydrocarbons or chemicals.</p>	<p>Surface water flows.</p>	<p>Surrounding / downstream soils, & drainage lines</p>	<p>Containation of soils and ephemeral drainage lines.</p>	<p>Flood modelling completed to understand site drainage flow paths</p> <p>Install a sump and pump in the Processing Plant reagent area to remove any collected material (including rainwater). The area will be routinely inspected to confirm the bunding integrity and containment volume is not compromised</p> <p>Collect surface water runoff from the Processing Plant via vee drains and culverts and direct into the containment sump.</p> <p>Regular inspection of containment infrastructure</p> <p>Building designed so that hydrocarbon spills and contaminated stormwater are contained directed to spill containment sump</p>	<p>Minor</p>	<p>Rare</p>	<p>Low</p>	
<p><u>Operation of Landfill:</u></p>	<p>Windblown waste, Leachate;</p> <p>Contaminated surface water;</p>	<p>Entrapment;</p> <p>Ingestion of waste;</p> <p>Windblown;</p> <p>Infiltration to soils aquifer;</p> <p>Transported by</p>	<p>Native or feral fauna;</p> <p>Adjacent vegetation areas;</p> <p>Groundwater or surface water;</p>	<p>Increased feral fauna;</p> <p>Direct mortality of native fauna;</p> <p>Contamination of surface water or groundwater.</p>	<p>Existing conditions of L8275/2008/2, and management including:</p> <p>Inert and putrescible waste disposed into trenches, excavated within the United North WRD footprint;</p> <p>United North WRD is located >100m from any surface water feature and >3m above the groundwater table;</p> <p>Putrescible waste disposed is kept separate from the inert waste streams as far as possible;</p>	<p>Slight</p>	<p>Unlikely</p>	<p>Low</p>	<p>Existing licence conditions and controls sufficient to minimise impacts of landfill.</p>

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		surface water;			<p>The tipping area of the landfill not greater than 30 m width and 3m in depth;</p> <p>The landfill is covered monthly with inert material readily available with the waste rock dump footprint;</p> <p>Existing fencing surrounds the landfill facility which is designed to capture windblown waste (should it occur) and to prevent scavenging animals from entering;</p> <p>Stormwater is diverted from the landfill trenches to prevent contact with waste;</p> <p>Regular inspections of landfill, including collection of windblown waste if observed;</p> <p>Records kept of the type and volume of waste disposed in the landfill, to track cumulative waste volume for compliance reporting; and</p> <p>No unauthorised waste is disposed of in the land fill.</p>				
<p><u>Operation of WWTP:</u></p> <p>Spills, pipeline leak or rupture;</p> <p>Uncontrolled or over-discharge;</p> <p>Treated waste water exceeds quality limits.</p>	Raw sewage, partially treated or Treated wastewater	Discharge to land or via surface water	Contamination of surface water, ephemeral creek lines, or local aquifers	Reduced quality or contamination of soil, sediment, surface water, groundwater or reduced vegetation health.	<p>Effluent discharge will be managed to ensure there is no surface water ponding or runoff from the irrigation area. Irrigation area will be fenced to restrict access.</p> <p>Irrigation area located away from drainage lines</p> <p>Regular inspections of WWTP facilities and pipeline.</p> <p>Minor spills to be reported and cleaned immediately and reported through incident reporting procedure.</p> <p>The WWTP will include alarms for aerobic treatment air blown and discharge pump.</p> <p>Secondary containment sufficient to contain spills for a period equal to the time between routine inspections</p> <p>Effluent discharge quality will meet DWER criteria;</p> <p>Quarterly sampling of treated waste water;</p> <p>Schedule inspections.</p>	Possible	Minor	Low	