

CONSIDERATIONS AND INITIAL RISK EVALUATION							CONTROL INPUT AND RESIDUAL RISK EVALUATION						Action Program	
Ref / ID #	Risk Event	Cause & Impact		Assessment of Risk without controls in place			Control Input	Assessment of Risk with controls in place			Is Action Required?	PRC Plan Reference to Action Program		
A value must be entered for every row	Hazard or Risk	How could it happen? (Causes)	What Could Happen (Impacts)	Inherent Likelihood	Inherent Consequence	Inherent Risk Assessment	Control Name	Residual Consequence	Residual Likelihood	Current Risk Assessment				
PMLU 1	Stable condition (safe, stable, non-polluting and sustainable) for land described as a PMLU (cattle grazing, woodland habitat, watercourse) is not achieved as a result of: <b>Landform Failure</b>	1. Erosional instability 2. Geotechnical instability 3. Inadequate or inappropriate geotechnical assessment 4. Ineffective placement of spoil material 5. Differential settlement - ineffective and or inappropriate placement of spoil material (including backfilled dams) 6. Insufficient materials to achieve design (rock, growth media) 7. Unsuitable spoil used on final landform surface 8. Not achieving design 9. Inappropriate modelling and design 10. Selection of inappropriate PMLU 11. Fire	- Failure of vegetation (vegetated cover) - Failure of water management / drainage - Failure of growth media - Erosion resulting in gully erosion - Slumping and settlement - Mass movement of landform - Inability to meet surface water quality criteria (due to exposure of problematic underlying materials) - Ecosystem impacts - Fire destroys revegetated areas and compromises landform stability	Almost Certain	Minor	M	<b>Preventative Controls:</b> - Landform design appropriate for PMLU, designed by an AQP, and implemented in accordance with PRCP Schedule requirements. - All major earthworks (including reshaping, pushing, trimming etc) undertaken in accordance with the design specifications provided by an Appropriately Qualified Person (AQP). - Ongoing materials characterisation - Closure landform design, growth media and spoil assessment by AQP to determine ameliorant and fertiliser requirements. - Review the topsoil and rock material balance periodically during operations to ensure sufficient volumes for the rehabilitation needs - Selective handling of materials for placement - No contour banks on slopes - Landform surrounding the spoil dumps and voids to be reshaped to be free-draining where required to prevent impacts - Groundcover including vegetation to provide erosion resistance - Construction governance (work packs) - Bushfire management plan to prevent / mitigate fire risk  <b>Mitigating Controls:</b> - Monitoring of landform stability and rehabilitation success to be undertaken post-rehabilitation - Identify requirements for rectification works - Complete maintenance - Verified rehabilitation performance that already demonstrates criteria achievement (over time)	Minor	Possible	L	Yes	PRC Plan Section 3.7.1.3 (Table 3-58)		
PMLU 2	Stable condition (safe, stable, non-polluting and sustainable) for land described as a PMLU (cattle grazing, woodland habitat, watercourse) is not achieved as a result of: <b>Altered hydrogeological conditions (to modelled/assumed conditions), based on interaction of groundwater with spoil dumps.</b>	1. Release of contaminants to groundwater (percolation through spoil, or toe seepage interacting with shallow aquifer) 2. Change in groundwater flow, recharge and/or discharge characteristics resulting in changes to the hydrogeological system 3. Hydrogeologic conditions that are different to groundwater modelling outcomes	- Groundwater chemistry altered rendering it not suitable for extraction and/or to support PMLU - Groundwater quality not supporting the establishment/maintenance of Environmental Values and Water Quality Objectives for the basins in which the site is located - Acid Metalliferous Drainage (AMD) reporting to shallow and deep groundwater systems - Reduction of groundwater height within surrounding extraction bores - Degradation of terrestrial and aquatic groundwater dependant ecosystems (GDEs)	Unlikely	Minor	L	<b>Preventative Controls:</b> - Regular, ongoing monitoring (re-assessing and calibration of groundwater model, resulting in refined design, as needed) (accounting for climate predictability) - Residual void catchments to be designed and created to establish sinks that provide for the collection of seepage from former operational areas and spoil dumps (maintenance of the void as a sink in perpetuity) - Pre-defined backfill planning aligned to site-wide source-sink retention - Mine-affected water dams to be decommissioned (including investigation for potential contamination and groundwater impacts). - Groundwater monitoring to be undertaken in accordance with EA conditions - Appropriate management, placement, and monitoring of waste (spoil, rejects) during operations - Landforms constructed to minimise the potential for flooding of the residual voids - Groundwater condition assessment integrated into mine planning constraints  <b>Mitigating Controls:</b> - Assessment and remediation of impacted material, where appropriate - Re-establishment of impacted ecosystems - Decommissioning of impacted supply bores and re-instatement in suitable location	Minor	Unlikely	L	Yes	PRC Plan Section 3.7.1.3 (Table 3-58)		
PMLU 3	Stable condition (safe, stable, non-polluting and sustainable) for land described as a PMLU (cattle grazing, woodland habitat, watercourse) is not achieved as a result of: <b>Alteration of surface water systems</b>	1. Release of contaminants to surface water resources 2. Changes to alignments and ecosystems of drainage lines and creek 3. Changes to hydraulic flows 4. Changes to flood patterns/distribution 5. Alteration of surface water infiltration rates 6. Surface water flows over unvegetated/disturbed soils where revegetation has not re-established 7. Overland discharges from neighbouring landforms and rehabilitated areas 8. Creeks and drainage lines not attaining successful rehabilitated state	- Surface water chemistry altered rendering it not suitable for PMLU - AMD reporting to surface water - Degradation of ecosystems and land uses connected to surface water flows and floodplains on and down gradient of the mine - Sedimentation of downstream surface water drainage lines resulting in changes to their hydraulic properties and impacting ecosystems - Surface water quality not supporting the establishment/maintenance of Environmental Values and Water Quality Objectives for the basins in which the mine is located - Accelerated erosion rates from surface water flows in disturbed areas and degraded ecosystems - Reduction in rehabilitation success rates due to reduced surface water quality - Alteration of soil properties associated with contaminants carried by surface waters, including erodibility and geotechnical qualities	Likely	Medium	H	<b>Preventative Controls:</b> - Appropriate management, placement, and monitoring of waste (spoil, rejects) during operations - Mine affected water dams and industrial sites to be decommissioned and areas rehabilitated - Landforms designed and constructed (AQP) to minimise the potential for flooding of the residual voids - Surface water monitoring to be undertaken in accordance with EA conditions - Monitoring of surrounding ecosystems will be undertaken in accordance with EA conditions - Rehabilitation of disturbed areas will be undertaken as soon as possible after land becomes available - Rehabilitation and monitoring of disturbed reaches of creeks undertaken - Erosion and sediment control systems installed per detailed rehabilitation design specifications  <b>Mitigating Controls:</b> - Surface water monitoring data to be collected in accordance with the EA. If impacts are identified, further investigations will be undertaken to determine appropriate remedial measures - Any loss of hazardous contaminants that cause contaminated land/environmental harm will be reported and investigated/remediated as appropriate - Remedial works will be undertaken where releases from site result in impacts to surface waters, which may include alteration of the landforms, implementation of additional controls/measures that reduce the potential for surface water impacts and/or re-establishment of impacted ecosystems where appropriate - Rehabilitated landforms and watercourses that do not attain a stable state to be repaired and revegetated - Ongoing geochemical testing to continue to verify low likelihood of AMD reporting to surface water	Medium	Unlikely	M	Yes	PRC Plan Section 3.7.1.3 (Table 3-58)		

PMLU 4	Stable condition (safe, stable, non-polluting and sustainable) for land described as a PMLU (cattle grazing, woodland habitat, watercourse) is not achieved as a result of: <b>Contaminated land impacting on environmental receptors, rehabilitation and attainment of PMLUs</b>	1. Discharges and accumulation of hazardous contaminants (including emerging contaminants) from operational activities. 2. Deterioration of retained built infrastructure in mining industrial areas, from lack of maintenance	- Contaminants present within soil or water that present an unacceptable risk to the receiving environment or PMLU - Alteration of soil chemistry that impacts on structural characteristics - Contaminants reducing the soil suitability for rehabilitation species - Degradation of terrestrial and aquatic groundwater dependant ecosystems (GDEs) - Contamination of surface water runoff affecting integrity of local catchments	Likely	Medium	H	<b>Preventative Controls:</b> - Ongoing contaminated land assessments as required to identify and verify sources - Hazardous substance assessment and approval process - Environmental Authority conditions and Australian Standards govern hazardous substance use, storage and management requirements - Cleaning up of spills upon identification - Remediation or management of residual contamination - Ongoing surface water and groundwater monitoring providing an earlier indication of contamination - Management of operational activities to limit any potential contamination - All imported hazardous materials to be stored and used in accordance with relevant standards and removed from site on completion of operations - Infrastructure inspections and ongoing maintenance of plant, measures and equipment  <b>Mitigating Controls:</b> - Investigate and remediate contamination incidents - At the completion of operations all stored hazardous materials and infrastructure within the MIA and CHPP, that have the potential to release contaminants to environmental receptors, will be either remediated in-situ, disposed of on-site as authorised under the Environmental Authority, or removed and disposed of at an approved landfill, with waste tracking information recorded and submitted. - Contaminated Land Investigation where required, completed in accordance with the Environmental Protection Act 1994, including a site investigation report, and where required, a Validation Report and/or a draft Site Management Plan. - Removal of primary or secondary sources - Restrict site usage - Undertake ongoing monitoring to manage contaminated land risks	Medium	Rare	L	Yes	PRC Plan Section 3.7.1.3 (Table 3-58)
PMLU 5	Stable condition (safe, stable, non-polluting and sustainable) for land described as a PMLU (cattle grazing, woodland habitat, watercourse) is not achieved as a result of: <b>Flooding influences on rehabilitation and final landforms</b>	1. Water inundation of landforms 2. Saturation of materials within landforms 3. Velocities of floodwaters on rehabilitated landforms 4. Inaccurate modelling	- Reduction in geotechnical stability of landforms causing failure of the landforms - Activation of dispersive materials resulting in accelerated erosion and sedimentation - Mobilisation of any contaminants contained within the landforms and impacts to downstream water and groundwater quality - Alteration of terrestrial ecology through introduction of weeds, sedimentation, or damage to rehabilitation species not able to withstand flooding - Erosion of landforms due to increased velocities of flood waters - Loss of flood waters/environmental flows to residual voids	Almost Certain	Major	C	<b>Preventative Controls:</b> - Flood modelling for 0.1% Annual Exceedance Probability (AEP) informing landform design - Establishment of landforms that are stable and provide appropriate level of flood protection to the residual voids (0.1% AEP flood event (extremely conservative). - Removal of surface water drainage infrastructure from watercourses (crossings and culverts), decommissioning of dams and remediation of contaminated material where required - Establishment of vegetation suitable for the environment and reduces erosion risks  <b>Mitigating Controls:</b> - Assessment of landform failure and required rectification works upon safe access to site immediately after the flood event. Assessment to include identification of measures that would limit potential for ongoing impacts. - Re-engineering of landforms to mitigate future failures followed by re-construction of landforms, and rehabilitation works. - Assessment of downstream impacts and undertake remediation/rehabilitation as required to re-establish drainage line hydraulics and ecosystems in liaison with the administering authority. - Monitoring of landform stability and rehabilitation success to be undertaken	Medium	Rare	L	Yes	PRC Plan Section 3.7.1.3 (Table 3-58)
PMLU 6	Stable condition (safe, stable, non-polluting and sustainable) for land described as a PMLU (cattle grazing, woodland habitat, watercourse) is not achieved as a result of: <b>Rehabilitated landforms result in alteration of flood hydrology upstream and downstream.</b>	1. Changes to drainage network hydraulics 2. Artificial landforms reducing or increasing flood extent and changing velocities/flows 3. Changes to vegetation cover and soil type which alter runoff and infiltration rates 4. Environmental flows impacted due to incorrect runoff coefficients	- Increasing/decreasing of flood extents, frequency and severity - Degradation of ecosystems due to altered flows, flood extent, duration or frequency - Infrastructure damage - Health and safety risks to on-site and off-site land users associated with increased flood heights, velocities and frequency	Almost Certain	Minor	M	<b>Preventative Controls:</b> - Removal of surface water drainage infrastructure that would adversely interfere with stream hydraulics (crossings and culverts) and decommissioning of dams - Establishment of landforms that are stable and provide appropriate level of flood protection to the residual voids (0.1% AEP flood event (extremely conservative) - Undertake monitoring and maintenance works where required to maintain landforms - Landform design with consideration of water balance and catchment size - Reduction of catchment with landform and rehabilitation - Flood modelling for 0.1% AEP informing landform design  <b>Mitigating Controls:</b> Due to the off-site nature of the impacts, which occur during significant flood events, available mitigating controls at the time of the impact are limited due to safety and accessibility restrictions. After flooding has receded, landform design and alteration could be undertaken to reduce possible future events.	Minor	Rare	L	Yes	PRC Plan Section 3.7.1.3 (Table 3-58)
PMLU 7	Stable condition (safe, stable, non-polluting and sustainable) for land described as a PMLU (cattle grazing, woodland habitat, watercourse) is not achieved as a result of: <b>Insufficient or inappropriate growth media required for rehabilitation activities.</b>	1. Insufficient growth media and rock quantities of suitable quality 2. Unstable material (erosive, dispersive, saline materials) 3. Weed infestation (soil is already infested with weed seeds) 4. Insufficient placement depth and surface treatment 5. Incorrect soil characterisation and amelioration 6. Inappropriate topsoil stockpiling and management	- Erosion - Growth media loss - Topsoil deficit - Failure of vegetation (poor vegetation growth or incorrect vegetation affecting PMLU)	Possible	Minor	L	<b>Preventative Controls:</b> - Growth media surveys and mapping (growth media management system) - Review the growth media and rock resource quantities periodically during operations to ensure sufficient volumes for the rehabilitation needs (material balance for mine and rehab planning) - Implement rehabilitation execution including amelioration to address requirements for growth media, rock, seed and management for the PMLU (work packs) - Management of topsoil and rock stockpiles and application during rehabilitation. - Execution governance (compliance to plan work packs)  <b>Mitigating Controls:</b> - Monitoring of landform stability and rehabilitation success to be undertaken post rehabilitation to confirm stability and identify requirements for rectification works. - Repair erosion areas, retest growth media and revegetate.	Minor	Unlikely	L	Yes	PRC Plan Section 3.7.1.3 (Table 3-58)

PMLU 8	Stable condition (safe, stable, non-polluting and sustainable) for land described as a PMLU (cattle grazing, woodland habitat, watercourse) is not achieved as a result of <b>Inadequate and/or inappropriate management of mineral waste.</b>	<ol style="list-style-type: none"> <li>Poor material characterisation</li> <li>Geochemistry not correctly defined for materials stored in permanent landforms</li> <li>Inappropriate placement of adverse material</li> <li>Poor landform execution</li> <li>Inappropriate mineral waste management strategy</li> <li>Generation and release of AMD from coal processing waste and / or coal during operation accumulating in groundwater, surface water, soils</li> <li>Failure to review / audit mineral waste disposal practices</li> </ol>	<ul style="list-style-type: none"> <li>Release of contaminants to surface water and/or groundwater from rehabilitated landforms.</li> <li>Impact to flora (vegetation failure)</li> <li>Impact to fauna (aquatic)</li> <li>Water cannot be used by end user (human and ecosystem)</li> </ul>	Possible	Medium	M	<p><b>Preventative Controls:</b></p> <ul style="list-style-type: none"> <li>Monitoring of growth media and spoil to be undertaken post rehabilitation to confirm stability and identify requirements for rectification works.</li> <li>Rehabilitation maintenance and/or corrective actions</li> <li>NUMAs are acting as sinks for groundwater</li> <li>Spoil materials have buffering capacity (high neutralising ANC)</li> <li>Post-capping QA/QC</li> <li>Ongoing groundwater modelling to validate particle tracking is still going to the void</li> </ul> <p><b>Mitigating Controls:</b></p> <ul style="list-style-type: none"> <li>Material characterisation (outcomes to be stored into GeoBank) in line with Whitehaven Materials Standards</li> <li>Remove and / or cover undesirable materials</li> <li>Sampling of coarse and fine rejects from processing plant</li> <li>Sampling of overburden / Interburden</li> <li>Appropriate material placement and selective handling during operations</li> <li>Management of operational activities to limit any potential contamination</li> <li>Appropriate water quality monitoring for surface and groundwater to enable tracking of processes affecting water quality during operation and into closure</li> <li>Undertaking appropriate fate and transport modelling during operations</li> <li>Ongoing geochemical testing to continue to verify low likelihood of AMD reporting to surface water</li> <li>Audit of mineral waste disposal locations and practices</li> </ul>	Medium	Unlikely	M	Yes	PRC Plan Section 3.7.1.3 (Table 3-58)
PMLU 9	Stable condition (safe, stable, non-polluting and sustainable) for land described as a PMLU (cattle grazing, woodland habitat, watercourse) is not achieved as result of: <b>Inadequate and/or inappropriate revegetation.</b>	<ol style="list-style-type: none"> <li>Unfavourable climatic conditions and/or weather events</li> <li>Incorrect species and or insufficient availability</li> <li>Poor seed quality</li> <li>Weed contaminated seed</li> <li>Poor quality growth media or seed bed preparation</li> <li>Erosion</li> <li>Land contaminants</li> </ol>	<ul style="list-style-type: none"> <li>Exposed soils due to poor vegetation establishment and growth, resulting in enhanced erosion rates.</li> <li>Increased weed establishment and growth.</li> <li>Reduction in land capability of PMLU (woodland habitat and/or cattle grazing)</li> <li>Need for ongoing or additional corrective action (soil sampling and analysis, amelioration and re-vegetation).</li> </ul>	Likely	Minor	M	<p><b>Preventative Controls:</b></p> <ul style="list-style-type: none"> <li>Landform design</li> <li>Growth media and spoil assessment by AQP to determine ameliorant and fertiliser requirements</li> <li>Revegetation species selection aligned to growth media, landforms and PMLU</li> <li>Management of seed selection, provenance and quality control implemented as per PRCP Schedule requirements.</li> <li>Plant at optimal time of year.</li> <li>Post execution governance (compliance to plan work packs)</li> </ul> <p><b>Mitigating Controls:</b></p> <ul style="list-style-type: none"> <li>Monitoring of landform stability and rehabilitation success to be undertaken post operations to confirm stability and identify requirements for rectification works.</li> <li>Repair erosion areas, retest materials, review seed mix and revegetate.</li> </ul>	Minor	Unlikely	L	Yes	PRC Plan Section 3.7.1.3 (Table 3-58)
NUMA 1	NUMA does not achieve safe, structurally stable condition or causes environmental harm as a result of: <b>Void walls not achieving geotechnical stability</b>	<ol style="list-style-type: none"> <li>Increase/decrease in predicted void water levels</li> <li>Use of inaccurate geological model (geotechnical parameters)</li> <li>Poor low-wall and high-wall design</li> <li>Erosional instability</li> <li>Non-conformance to design</li> </ol>	<ul style="list-style-type: none"> <li>Failure of landform protecting final void from flooding</li> <li>Failure of void walls leads to instability beyond NUMA extent</li> </ul>	Likely	Major	H	<p><b>Preventative Controls:</b></p> <ul style="list-style-type: none"> <li>Geotechnical assessment to be completed by AQP</li> <li>Pit wall designs based on geotechnical assessments and flood modelling (as required)</li> <li>Pit walls are constructed per AQP designs, using non-dispersive materials</li> <li>Pit floor treatments as required during operations to improve low-wall stability.</li> <li>Geotechnical monitoring during operations.</li> <li>Updated geotechnical assessment to be completed as mining approaches final limits and wall design and NUMA extent adjusted if required.</li> <li>NUMA extents designed to include the required factor of safety (FoS) limit.</li> <li>Bunding, fencing and signage placed at FoS limit.</li> </ul> <p><b>Mitigating Controls:</b></p> <ul style="list-style-type: none"> <li>Geotechnical monitoring</li> <li>Identify requirements for rectification works.</li> </ul>	Major	Rare	M	Yes	PRC Plan Section 3.7.1.3 (Table 3-59)
NUMA 2	NUMA does not achieve safe, structurally stable condition or causes environmental harm as a result of: <b>Uncontrolled access to NUMA areas</b>	<ol style="list-style-type: none"> <li>Inappropriate design, management and construction of safety bund</li> <li>Inadequate/poorly maintained fencing and signage</li> </ol>	<ul style="list-style-type: none"> <li>Unmanaged access to NUMA by people or livestock, resulting in fall from high-wall</li> </ul>	Likely	Major	H	<p><b>Preventative Controls:</b></p> <ul style="list-style-type: none"> <li>Safety bund, fencing and signage placed at FoS limit, where required.</li> </ul> <p><b>Mitigating Controls:</b></p> <ul style="list-style-type: none"> <li>Compliance checks as part of monitoring</li> </ul>	Major	Rare	M	Yes	PRC Plan Section 3.7.1.3 (Table 3-59)
NUMA 3	NUMA does not achieve safe, structurally stable condition or causes environmental harm as a result of: <b>Uncontrolled flooding into residual voids</b>	<ol style="list-style-type: none"> <li>Flood mitigation (landforms) is not constructed or installed correctly</li> <li>Inaccurate flood modelling</li> </ol>	<ul style="list-style-type: none"> <li>Uncontrolled capture of flood waters</li> <li>Altered/changed alignment of creeks and drainage lines</li> <li>Removal of downstream environmental flows</li> <li>Filling of residual void with water and interconnecting groundwater units</li> <li>Geotechnical instability of residual void</li> <li>Contamination of clean surface water flows, within residual void</li> <li>Contamination of groundwater resources</li> </ul>	Almost Certain	Major	C	<p><b>Preventative Controls:</b></p> <ul style="list-style-type: none"> <li>Flood modelling completed by an AQP, confirms the landform design prevents the inundation of floodwaters into the residual void, up to and including the 0.1% AEP event</li> <li>Flood mitigation designed to correct flood event and outside of the predicted failure slope assessed with a suitable factor of safety</li> <li>Regular, ongoing monitoring (re-assessing and calibration of groundwater model, resulting in refined design, as needed, accounting for climate change)</li> </ul> <p><b>Mitigating Controls:</b></p> <ul style="list-style-type: none"> <li>Compliance checks as part of monitoring</li> <li>Review flood modelling following flood events to refine model</li> </ul>	Medium	Rare	L	Yes	PRC Plan Section 3.7.1.3 (Table 3-59)

<p>NUMA 4</p>	<p>NUMA does not achieve safe, structurally stable condition or causes environmental harm as a result of: <b>Water in the void causes environmental harm outside of the mining tenure (due to pit lake)</b></p>	<p>1. Groundwater outflow seepage in the long term stabilised voids is not identified by groundwater modelling                  2. Poor water quality                  3. Overtopping or interconnection of the void lake with shallow groundwater water units                  4. Groundwater significantly above model forecast/predictions                  5. Contributing catchment to the void is larger due to changes to landform or failure to divert clean water catchments</p>	<p>- Pit lake level elevated, turning it into a source                  - Reduction in surface and/or groundwater quality down gradient of the site                  - Degradation of ecosystems interacting with impacted water                  - Changes to the chemistry of shallow groundwater units                  - Groundwater extraction/use off site impacted</p>	<p>Possible</p>	<p>Medium</p>	<p>M</p>	<p><u>Preventative Controls:</u>                  - Maximum area of each NUMA is limited to the extents defined in the approved PRCP Schedule                  - Clean water diversions included in landform design                  - Ongoing groundwater modelling to validate predicted flows                  - Ongoing water balance modelling to validate predicted lake levels                  - Water quality modelling completed by AQP                  - Catchment area minimised where possible and practical to do so                  - Flood mitigation (partial backfill and/or landforms) designed to provide protection for a 0.1% AEP event                  - Groundwater quality and level monitoring                  - Water quality monitoring                  - Containment of potential sediment as a result of erosion from the low-wall within the residual void</p> <p><u>Mitigating Controls:</u>                  - Rectification works on impacted ecosystems or bores                  - Installation of engineering controls to limit potential for ongoing impacts</p>	<p>Medium</p>	<p>Rare</p>	<p>L</p>	<p>Yes</p>	<p>PRC Plan Section 3.7.1.3 (Table 3-59)</p>
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<b>WHC-FRM-RISK MATRIX</b>												

**Whitehaven Coal Risk Assessment Criteria (Risk Matrix)**

The risk assessment criteria is used to evaluate the materiality of a risk event to Whitehaven Coal and is used to determine whether a specified level of risk is within appetite. The risk matrix is a tool used to reflect the Whitehaven Coal Risk Appetite Statement, STRIVE values, Whitehaven Policies and Standards; and where applicable has been influenced by external standards and legislation.

**Consequence Categories**

		Consequence Rating				
		1. Negligible	2. Minor	3. Medium	4. Major	5. Catastrophic
Consequence Categories	<b>Health &amp; Safety</b>	First Aid from injury or occupational illness.	Medical Treatment from injury or occupational illness.	Lost time from disabling injury or occupational illness / multiple medical treatments / restricted work.	Fatality (≤5) / permanent incapacity due to injury or occupational illness.	Multiple fatalities (≥6), multiple cases of permanent incapacity due to injury or occupational illness.
	<b>Environment</b>	No lasting environmental impact (typically <24hr).	Short term environmental impact (typically <week), requires minor remediation.	Medium term environmental impact (typically <year), requires moderate remediation.	Long term environmental impact (2 to 10 years), requires significant remediation.	Unconfined and widespread environmental damage or effect (permanent; >10 years), requires major remediation.
	<b>Legal &amp; Compliance</b>	Minor administrative breach of regulation without action.	Breach of law / regulation or non-compliance, minor legal issues, minor litigation possible.	Serious breach of law / regulation, regulatory investigation, enforcement action.	Major breach of law / regulation and prosecution at operational level, suspension of licence.	Major litigation / prosecution at business level, loss of licence.
	<b>Reputation &amp; Community</b>	Negligible media interest. Public concern restricted to local complaints. Low level repairable impact to common place structures.	Local media coverage. Verified complaint received from an internal or external stakeholder. Impact to low significance cultural heritage.	Media coverage at regional level. Local stakeholder action resulting in regional public concern. Permanent impact to items of cultural significance.	Media coverage at national level. Campaign from government and / or high-profile NGOs threatening continuity of operations. Significant impact to items of cultural significance.	Media coverage at international level. Sustained campaign from government and / or high-profile NGOs threatening business continuity. Major irreparable impact to highly valuable items of cultural significance.
	<b>Financial</b>	Revenue EBITDA NPV	<\$5m <\$1m <\$5m	\$5m - \$40m \$1m - \$30m \$5m - \$100m	\$40m - \$160m \$30m - \$80m \$100m - \$400m	\$160m - \$800m \$80m - \$400m \$400m - \$2b

**Risk Matrix**

		Consequence Rating				
		1. Negligible	2. Minor	3. Medium	4. Major	5. Catastrophic
Likelihood	The unwanted event occurs one or more times per year and is expected to occur.	M	M	H	C	C
	The unwanted event has occurred at WHC and is likely to reoccur within five years.	L	M	H	H	C
	The unwanted event has occurred within industry; or could happen within ten years.	L	L	M	H	H
	The unwanted event has occurred at some time; or could happen within twenty years.	L	L	M	H	H
	The unwanted event has never been known to occur; or is highly unlikely to occur within twenty years.	L	L	L	M	H

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<b>WHC-FRM-RISK MATRIX</b>												

**Control Effectiveness**

		Description
Effectiveness Rating	<b>Effective</b>	<ul style="list-style-type: none"> <li>Controls are well designed and appropriate for the risk.</li> <li>Controls are largely "preventative" and address the root causes.</li> <li>Management believes that they are always effective and reliable.</li> <li>Nothing more to be done except review and monitor the existing control.</li> <li>An effective control does not mean the risk has been eliminated; rather it means the control is designed and executed as intended.</li> </ul>
	<b>Improvement Required</b>	<ul style="list-style-type: none"> <li>Most controls are designed correctly and are in place and effective.</li> <li>Controls may only treat some of the root causes of the risk, and/or are not currently effective and/or there may be an over-reliance on "reactive" controls.</li> <li>Management has doubts about operational effectiveness and reliability.</li> <li>More work is required to improve operating effectiveness.</li> </ul>
	<b>Ineffective</b>	<ul style="list-style-type: none"> <li>Significant control gaps or no credible control.</li> <li>Either controls do not treat root causes, are non-existent or, if they exist, they are ineffective.</li> <li>Management has no confidence that any degree of control is being achieved due to poor control design.</li> <li>Very limited or no operational effectiveness.</li> </ul>

**Risk Management Action**

		Control effectiveness trigger	Action required when minimum control effectiveness requirement not met	Escalation & approval of treatment plan	Acceptance authority
Residual Risk Rating	<b>Critical</b>	Improvement Required Ineffective	Risk treatment plan must be in place immediately. Risk reviewed monthly by Risk Owner.	Report to ARMC and Managing Director for review and approval of the treatment plan.	CEO/MD
	<b>High</b>	Improvement Required Ineffective	Risk treatment must be considered. Risk reviewed quarterly by Risk Owner.	Report to ARMC and Managing Director. Report to Executive General Manager for review and approval of associated treatment plan.	EGM
	<b>Moderate</b>	Improvement Required Ineffective	Risk treatment must be considered. Risk reviewed annually by Risk Owner.	Report to General Manager for review and approval of associated treatment plan.	GM
	<b>Low</b>	Ineffective	No risk treatment required. Risk reviewed annually by Risk Owner.	Report to Risk Owner.	Risk Owner