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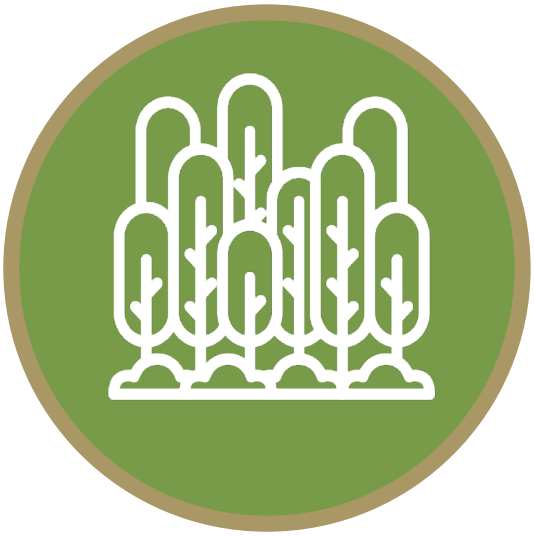

Environmental Performance Standards Manual

Department	Sustainability
Location/Site	Brisbane

Approval table

	Position title	Name	Date
Authored by	Group Manager - Environment	Kerry Watson	Dec 2019
Reviewed by	Group Manager - Environment (acting) Group Manager - Health and Safety Systems Advisor - External Affairs & Social Performance	Jamie Lees Bernie Murphy Danielle Crawford	Dec 2021
Approved by	General Manager - Health, Safety & Environment	Greg Scanlan	Dec 2021

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1	Dec 2019	All		Major review of environmental standards	Dec 2019
2	Dec 2019	All		Major review of environmental standards, and design, consistency and formatting changes	Dec 2019
3	Dec 2021	All		Major review of environmental standards and alignment to IMS and EA&SP Standards	Dec 2021

Contents

A. Responsible Mining Framework

The purpose of this manual is to provide all Business Units with an understanding of OceanaGold's expectations regarding relevant environmental performance and compliance obligations while conducting business activities.

The implementation of these standards is to be read in conjunction with OceanaGold's Environmental Policy and the minimum standards required in the Integrated Management System (IMS) (OGC-450-STD-1). Stakeholder engagement and management is to be undertaken in accordance with the External Affairs and Social Performance Manual (EA&SP) (OGC-500-STD-003).

The IMS provides a common framework for the management of OceanaGold business's activities and details the processes, structures and documentation required at each Business Unit to meet the minimum requirements of the system. Specifically, **IMS Std 1.1.2**. requires Business units to implement the "*requirements specified in OGC's Responsible Mining Policies, IMS and Operational Performance Standards*". The requirements and supporting guidelines, tools and operational processes are collectively termed the Responsible Mining Framework.

B. Environmental Material Risk Areas and Operational Risks

Context and Risk identification minimum requirements

The Environmental Operations Performance Standards have been developed based on critical risks identified for the business. Where relevant the minimum standards are aligned with current industry practices and standards.

Business Units shall identify specific environmental hazards and impacts as required by **IMS Std 2**. If this process identifies additional environmental risk areas, then a management plan should be developed in accordance with **IMS Std 2.1.5**. As a minimum Business Unit Risk Registers shall be reviewed annually (**IMS Std 2.1.4**)

For the nominated Environmental Material Risk specified in **Table 1**, a management plan shall be developed in accordance with **IMS Std 2.1.5** (and be consistent with the Principal Hazard Management Plan (PHMP) requirements set out in the section below). These plans shall apply the hierarchy of controls as required by **IMS Std 2.1.7**.

In accordance with Corporate HSE Definition Guideline (OGC-450-GUI-010) the following definitions apply:

- *Environmental Material Risk* (EMR) - Any environmental aspect that could create a level 3 or greater consequence event(s) either as a one-off incident or as a result of cumulative effects.
- *Environmental Material Risk Management Plan* (EMRMP) - The Plans that describe the Environmental Material Risk and its management.

Table 1 – Environmental Standards – risk classification

Environmental Standards	Risk Classification	Plan Requirement
Climate Change, Energy Use and Greenhouse Gas (GHG) Management	EMR	PHMP
Biodiversity	EMR	PHMP
Water Management	EMR	PHMP
Tailings Storage Facilities	EMR	PHMP
Closure	EMR	PHMP
Hazardous Materials and Chemical Substances	EMR	PHMP
Air Quality	Operational Risk	Management Plan
Hydrocarbon Management	Operational Risk	Management Plan
Environmental Noise, Vibration, Visual Impacts	Operational Risk	Management Plan
Cultural and Heritage Sites	Operational Risk	Management Plan
Waste Management	Operational Risk	Management Plan
Waste Rock	Operational Risk	Management Plan

Environmental Material Risk Management Plan minimum requirements

All Environmental Material Risks require an *Environmental Material Risk Management Plan* (EMRMP). The plan shall include:

- Use of the Corporate document control system and templates;
- A statement as to the nature of the Material Risk Area, as addressed by the EMRMP;
- The results of any risk assessment completed in respect to the Material Risk Area;
- A description of the control measures using the hierarchy of controls required to be implemented to manage the Material Risk Area;
- A description of how permit conditions and OGC standards and framework requirements apply to the Material Risk Area, and how they shall be complied with;
- Identification of where emergency preparedness for the Environmental Risk Area is documented;
- A description of the roles and their corresponding responsibilities under the EMRMP, including the competencies required to carry out such roles and responsibilities; and
- Any other matter required by host country legislation or OGC standards particularly relating to a Material Risk Area.

C. Environmental Performance Standards

Environmental Material Risks

1 Climate Change, Energy Use and Greenhouse Gas Management

Purpose

To monitor, manage and identify GHG emissions to maximise energy use efficiency and reduce net GHG emissions.

Minimum Standards

Leadership and accountable

1.1 Define, document and communicate responsibilities for energy and GHG emission management at each Business Unit.

1.2 Establish targets for energy use and GHG emissions to support delivery of Corporate KPI's.

1.3 Publicly report climate change disclosures in accordance with the Task Force on Climate-related Financial Disclosures (TCFD) and material energy and GHG emission in accordance with Global Reporting Initiative (GRI) requirements, which are externally assured.

1.4 Promote strong external energy and GHG emission governance, and predictable and consistent regulation.

Engage proactively and inclusively

External engagement

1.5 Stakeholder engagement activities shall align with External Affairs and Social Performance Standards (OGC-500-STD-003), and incorporate energy and GHG emission management.

1.6 Explore third-party energy and GHG emission initiatives, tools and opportunities to reduce energy and GHG emission.

1.7 Engage with stakeholders to understand potential changes in GHG and Energy regulations that could impact Business Units.

Internal engagement

1.8 Establish cross-functional teams with the required skills and experiences in to support day-to-day energy use and GHG emissions management and implementation of at each Business Unit.

1.9 Regularly communicate about energy and GHG emission issues and actions within the workforce.

Energy and GHG emission reduction approach

District definition

1.10 Clearly define energy uses and discharges of GHG at each Business Unit.

Characterisation of baseline conditions

1.11 Define baseline energy use and GHG emissions for each Business Unit to set a baseline (carbon footprint) for future comparisons.

1.12 Identify and implement opportunities / initiatives to reduce energy use and GHG emissions at Business Units.

1.13 Use the Business Units energy and GHG emission understanding to develop a site level EMRMP. This plan shall demonstrate how compliance with permits, regulation and company requirements shall be met.

Effective energy and GHG emission management

Operations energy and GHG emission management and compliance

1.14 Business Unit infrastructure shall be properly designed, constructed and monitored to minimise as far as reasonably practicable energy use and GHG emission production.

1.15 Conduct appropriate energy and GHG emission risk evaluations at each Business Unit and review these annually.

1.16 Review the effectiveness of energy and GHG reduction initiatives on an annual basis.

1.17 Monitor and report key energy and GHG emission data as lead indicators.

1.18 Consider energy and GHG emission costs in the planning cycle and when purchasing new equipment.

1.19 Maintain a robust system to store, retrieve and evaluate energy and GHG emission data to demonstrate compliance with host country legislation and OGC energy and GHG emission Management Framework requirements.

2 Biodiversity and Natural Environments

Purpose

To establish minimum OGC requirements in relation to responsible biodiversity management to ensure all Business Units comply with relevant legislation, permits, covenants, licences and the OGC Biodiversity Management Framework and that risks are appropriately assessed and managed.

Minimum Standards

Transparent and accountable

2.1 Define, document and communicate responsibilities for biodiversity management at each Business Unit.

2.2 Establish targets to achieve biodiversity outcomes to support delivery of Corporate KPI's.

2.3 Publicly report material biodiversity stewardship risks and performance at a corporate level, using a meaningful and recognised biodiversity matrix.

2.4 Promote strong external biodiversity governance, and predictable and consistent regulation. Adopt a biodiversity and ecological unit-based approach.

District definition

2.5 Clearly define the biodiversity and ecological unit/s we operate in.

2.6 Identify and understand local, regional, and national biodiversity and natural environment governance processes and requirements in our host communities.

2.7 Identify and locate designated World Heritage areas to prevent impacts from exploration or proposed new mining operations.

Characterisation of baseline conditions

2.8 Define pre-mining biodiversity conditions and assess any predicted impacts (environmental, social and cultural) on biodiversity.

2.9 Aquatic and terrestrial biodiversity compliance requirements shall be appropriate and clearly defined.

2.10 Define pre-mining social and cultural uses/ values of biodiversity.

2.11 Understand baseline Business Unit biodiversity composition and classify both terrestrial and freshwater habitats as modified or natural and whether these are critical or not unless there is jurisdictional classification requirement guidance.

Current district conditions

2.12 Understand the current biodiversity district composition with respect to anticipated life of mine requirements.

Future district conditions

2.13 Identify and assess the implications of current and long-term cumulative impacts of Business Units and other users within the biodiversity/ecological units we operate in and respond accordingly.

2.14 Explore opportunities to enhance biodiversity.

2.15 Evaluate and plan for potential biodiversity related changes within the district, that could impact access to land in the future.

2.16 Use district understanding to develop site level biodiversity management plans to manage stewardship risks and safeguard recognised high value biodiversity. This plan shall demonstrate compliance with permits, regulation and company requirements.

Engage proactively and inclusively

External engagement

2.17 Stakeholder engagement activities shall align with External Affairs and Social Performance Standards (OGC-500-STD-003), and incorporate biodiversity management considerations including identification of opportunities and initiatives to manage risk and enhance biodiversity outcomes.

2.18 Engage with stakeholders to explore and establish community biodiversity partnerships to address biodiversity challenges.

2.19 Engage with stakeholders to understand potential changes in regulations that could impact Business Units.

Internal engagement

2.20 Establish cross-functional teams with the required skills and experiences in place to support day-to-day management and implementation at each Business Unit.

2.21 Regularly communicate about biodiversity issues and actions with our workforce, including; the prohibition of capturing, purchasing or acquiring native wildlife on sites without regulatory approval.

Effective biodiversity management

Social, cultural and environment

2.22 Implement appropriate mechanisms to avoid, minimise, restore, rehabilitate and/or offset effects on social, cultural and environmental uses and values. Where relevant, habitat offset is to achieve ‘no net loss’ or ideally lead to a ‘net gain’ in the conservation value of an area impacted by the development.

2.23 Regularly evaluate current mitigation efforts to ensure they are achieving their purpose.

2.24 Mitigation measures shall be included in the closure plans.

Operational performance

2.25 Develop Business Unit biodiversity maps capturing all biodiversity areas on-site.

2.26 Business Unit infrastructure shall be properly designed, constructed located and monitored to minimise as far as reasonably practicable impacts on areas of high biodiversity value.

2.27 A formal approval process shall exist to minimise to the most practical extent clearance of vegetation on-site and for the introduction of vegetation (seeds and propagated plants).

2.28 Conduct appropriate biodiversity risk evaluations at each site and review these annually.

2.29 Implement a monitoring program to assess the condition of biodiversity values of rehabilitated and offset areas and vulnerable species against baseline conditions to support ongoing management plans and actions.

2.30 Maintain a robust system to store, retrieve and evaluate biodiversity monitoring data to ensure compliance with host country legislation and OGC requirements.

2.31 Develop and implement weed and pest control processes to manage species established on-site and prevent the introduction of unwanted species to site.

3 Water Management

Purpose

To establish the minimum OGC requirements in relation to responsible water management to ensure water abstraction, use and discharge complies with relevant legislation, permits, covenants, licences and OceanaGold's Water Management Framework, and ensure risks are appropriately assessed and managed.

Minimum Standards

Transparent and accountable

3.1 Define, document and communicate responsibilities for water management activities at each Business Unit.

3.2 Establish targets for water management to support delivery of Corporate KPI's.

3.3 Publicly report material water stewardship risks and performance at a corporate level, using a meaningful and recognised water metric.

3.4 Promote strong external water governance, and predictable and consistent regulation.

Adopt a catchment-based approach

Catchment definition

3.5 Clearly define the catchments we operate in.

3.6 Identify and understand catchment governance processes and requirements in our catchments.

3.7 Identify and understand high value water assets and catchment water stress classification, so measures can be implemented for their safeguard.

Characterisation of baseline conditions

3.8 Define pre-mining water conditions and assess any predicted impacts (environmental, social and cultural) on water bodies.

3.9 Surface and groundwater quality compliance standards shall be clearly defined and appropriate for their water uses.

3.10 Define pre-mining social and cultural uses and values of water.

3.11 Understand baseline catchment water balances.

Current watershed conditions

3.12 Understand water availability and allocation in the catchment with respect to anticipated life of mine requirements.

Future catchment conditions

3.13 Identify and assess the implications of current and long-term cumulative impacts of Business Units and other users within the catchment and respond accordingly.

3.14 Explore opportunities to enhance water availability for third parties.

3.15 Evaluate potential changes within the catchment that could impact mine water security supply in the future.

3.16 Use catchment understanding to develop site level water management plans to manage water stewardship risks and safeguard recognised high value water assets. This plan shall demonstrate how compliance with permits, regulation and OceanaGold's Water Management Framework shall be met.

Engage proactively and inclusively

External engagement

3.17 Stakeholder engagement activities shall align with External Affairs and Social Performance Standards (OGC-500-STD-003), and incorporate water management considerations including:

- identification of opportunities and initiatives to manage risk and enhance water management outcomes;
- Understand community access requirements and concerns and strive to create a shared benefit.

3.18 Engage with stakeholders to explore and establish community water partnerships to address water challenges.

3.19 Engage with stakeholders to understand potential changes in regulations and water rights, which could impact Business Units.

Internal engagement

3.20 Establish cross-functional teams with the required skills and experiences in place to support day-to-day management and implementation at each Business Unit.

3.21 Regularly communicate about water issues and actions with our workforce.

Effective water resource management

Social, cultural and environment

3.22 Implement appropriate mechanisms to avoid, minimise, restore, rehabilitate and/or offset effects on social, cultural and environmental uses and values.

3.23 Regularly evaluate current mitigation efforts to ensure they are achieving their purpose.

3.24 Mitigation measures shall be included in the closure plans.

Operational performance

3.25 Develop operational flow diagrams capturing all critical water management and process components.

3.26 Develop a site-wide water balance properly reflecting the water system.

3.27 Adequate consideration shall be given to the effects of climate change and flood planning and protection at Business Units.

Operational water management and compliance

3.28 Water management, infrastructure and environmental controls shall be properly designed, constructed and monitored for the site-specific conditions.

3.29 Water quality sources shall be matched with Business Unit activities to improve water use efficiency and recycling.

3.30 Conduct appropriate water risk evaluations at each Business Unit and review these annually.

3.31 Maintain a robust system to gather, store, retrieve and evaluate water monitoring data to ensure compliance with host country legislation and OGC requirements.

4 Tailings Management

Purpose

To ensure the potential for mine tailings material to impact the environment is managed through appropriate construction, monitoring and management.

Minimum Standards

Leadership and accountable

4.1 Establish organisational structures and roles to define positional and personal accountability for TSF management in accordance with OceanaGold's TSF Responsibility and Governance Framework that is aligned to the Global Industry Standard for Tailings Management (GISTM).

4.2 Establish targets for TSF management outcomes to support delivery of Corporate KPI's.

4.3 Publicly report material Tailings Storage Facility risks and performance in accordance with GRI requirements which are externally assured.

Transparent communication and engagement

External

4.4 Stakeholder engagement activities shall align with External Affairs and Social Performance Standards (OGC-500-STD-003), and incorporate TSF management considerations including engaging with people and groups that may influence, be interested in, or impacted by the TSF though out all lifecycle stages (including design, construction, operation and closure of the TSF).

4.5 Engage with stakeholders to understand potential changes in regulations that could impact on TSF management.

Internal

4.6 Implement a cross functional working group e.g. engineering, operations, processing, HSE, EA&SP, that meet on a regular basis to review the effective TSF performance against relevant OceanGold Standards, operation and surveillance requirements and permits.

4.7 Communicate processes to ensure personnel understand their responsibilities for TSF management.

4.8 Regularly communicate about TSF governance and performance with our workforce.

Planning, review and assurance

Planning

4.9 Robust risk assessments shall be undertaken in relation to impacts on social, cultural and environmental aspects, potentially resulting from the construction, operation, closure and potential failure of TSF's. These shall be used to inform an alternative options analysis.

4.10 Suitably qualified and experienced experts shall be involved in TSF development, reviews and risk assessments - where the effectiveness of associated controls is reviewed, considering each aspect of the TSF life cycle, including; design, construction, operation and closure.

4.11 Standards (including the GISTM) and KPI's shall be identified, referenced and implemented to underpin the quality and effectiveness of the whole individual TSF life cycle, including; design, construction, operation and closure.

4.12 Maintain an inventory of existing and planned TSFs and ensure relevant documents and records that support TSF planning, design, construction, operation, closure, monitoring, management and governance are maintained and kept suitably current and accessible.

Review

4.13 Conduct internal reviews to evaluate management processes and to continually improve the effectiveness of risk controls.

4.14 Outcomes and actions arising from monitoring and review processes shall be recorded, allocated, communicated and validated for completion.

4.15 Performance about TSF governance and risk management programs shall be reported to executive management and the Board on a regular basis.

Assurance

4.16 Provide quarterly performance reports to the OceanaGold Tailings Governance Committee to demonstrate effectiveness of risk controls, compliance with permits and timely close out of external review actions.

4.17 Conduct external reviews and independent assurance annually to verify the performance of TSF risk management programs and to continually review the effectiveness of risk controls.

4.18 Conduct external independent safety reviews at maximum 5-year interval or earlier if there is a material change to the TSF in accordance with the design criteria specified in the relevant Standard.

Effective tailings storage facility management

Monitoring

4.19 Develop and implement monitoring programs, meeting host country regulatory and OGC requirements to verify the performance of the TSF and the effectiveness of risk controls.

4.20 Develop and implement internal reporting and verification processes to communicate TSF performance KPI's and escalate the monitoring results.

Management

4.21 Conduct training to maintain currency of knowledge and skills for accountable personnel.

4.22 Site level TSF EMRMP shall demonstrate our compliance with permits, regulation and company requirements.

4.23 Establish action thresholds and their corresponding response to early warning signs of potential catastrophic failure and included these in operational monitoring programs and emergency response plans.

4.24 Undertake an annual test of emergency preparedness and response plans.

Management of change

4.25 Apply processes to involve the identification, assessment, control and communication of risks to TSF integrity, arising from both internally-driven and externally-driven change, to avoid introducing uncertain, unacceptable, and/or unmanaged risks.

5 Closure and Rehabilitation Management

Purpose

To apply a lifecycle approach for closure planning by establishing the minimum OGC requirements in relation to responsible closure and rehabilitation management to ensure our Business Units comply with relevant legislation, permits, covenants, licences and OceanaGold's closure and rehabilitation Framework.

Minimum Standards

Transparent and accountable

5.1 Define, document and communicate responsibilities for closure and rehabilitation management activities at each Business Unit.

5.2 Establish targets for closure and rehabilitation outcomes to support delivery of Corporate KPI's.

5.3 Publicly report material closure risks and management performance at a corporate level, using a meaningful and recognised reporting metrics.

Closure and rehabilitation planning

5.4 Clearly define and document closure planning requirements for each lifecycle phase of the Business Units and incorporate requirements into the annual Life of Mine Planning process.

5.5 Develop final landform and land use diagrams (vision) that capture all agreed and required obligations.

5.6 Clearly define closure and completion criteria based on agreed and measurable levels of achievement.

5.7 Identify regulatory, environmental, social and cultural closure obligations.

5.8 Identify key closure risks (physical, bio-physical/rehabilitation, social, financial) including residual risks and develop actions for their management.

5.9 Design and establish a monitoring program to evaluate and demonstrate performance against completion criteria.

5.10 Identify, protect or stockpile adequate material and resources required for rehabilitation and closure activities e.g. hollow logs, competent rock and capping material, infrastructure etc.

5.11 Identify external expertise with the necessary skills and experience to support the development of closure plans and address identified risks.

5.12 Develop and implement plans to ensure the preservation of water sources and the prevention of acid rock drainage and potential metal leaching.

5.13 Robust assessment of rehabilitation species shall be undertaken to best improve rehabilitation outcomes and closure goals.

5.14 Evaluate potential changes within the catchment or through climate change, which could impact mine closure.

Engage Proactively and inclusively

External engagement

5.15 Stakeholder engagement activities shall align with External Affairs and Social Performance Standards (OGC-500-STD-003), and incorporate closure and rehabilitation management considerations including:

- Identification of community access desires, requirements and concerns
- Future land use opportunities
- Development of closure and rehabilitation outcomes and completion criteria

5.16 Engage with stakeholders to explore and establish community closure partnerships to address closure challenges.

5.17 Engage with stakeholders to understand potential changes in regulations, which could impact closure plans.

Internal engagement

5.18 Establish cross-functional teams with the required skills and experiences in place to support closure and rehabilitation planning and management at each Business Unit.

5.19 Regularly communicate about closure issues and actions with our workforce.

Effective closure and rehabilitation management

Social, cultural and environment

5.20 Implement appropriate mechanisms to avoid, minimise, restore, rehabilitate and/or offset effects on social, cultural and environmental uses and values during closure.

5.21 Regularly evaluate current and proposed closure efforts to ensure they are achieving their purpose.

5.22 Conduct appropriate rehabilitation and closure risk evaluations at each Business Unit and review these annually.

5.23 Mitigation measures shall be clearly documented in closure plans.

5.24 Adequate consideration shall be given to the effects of climate change and flood planning during rehabilitation and closure planning.

Rehabilitation performance

5.25 Make areas available for progressive rehabilitation as soon as reasonably practicable.

5.26 Implement controls in the mine planning process to ensure landforms are constructed to comply with legal obligations and completion criteria.

5.27 Monitor the performance of progressive rehabilitation and landforms to achieve the required completion criteria and implement corrective actions if required.

Closure management and compliance

5.28 Implement an annual closure action plan to reduce closure risks.

5.29 Develop a closure cost liability estimate and review annually. Closure liabilities estimate to consider post mining retention times as determined by legal requirements and risks.

6 Hazardous Materials and Chemical Substances

Purpose

To ensure the effective selection, purchase, transportation, handling, and storage of hazardous substances, compliant with all legislative and licence requirements and to minimise their potential adverse impacts of hazardous materials and chemical substances on workers and the environment.

Minimum Standards

6.1 Comply with host countries legislative requirements regarding the safe transport, storage, use, handling and disposal of hazardous materials.

6.2 A risk assessment shall be conducted to identify the risks associated with the security, transportation, storage, compliance and handling of hazardous materials generated and used by the Business Unit.

6.3 A plan describing all systems, processes, procedures, controls and safeguards undertaken to manage risks identified in the risk assessment shall be developed, implemented, communicated and maintained.

6.4 Where cyanide is used at the Business Unit, a Cyanide Management Plan shall be developed, implemented and communicated in accordance with the OceanaGold Statement of Position on Cyanide use. This plan shall describe how;

- Cyanide use is minimised;
- Monitoring, validation and reporting of compliance with all regulatory requirements relating to cyanide is undertaken;
- Transparent communication and collaboration with stakeholders in relation to cyanide management is achieved;
- Host country regulatory requirements and the principles of the International Cyanide Management Institute (ICMI)) are achieved;
- Conformance against the Cyanide Management Plan is reviewed annually with corrective actions developed for issues and opportunities identified during the audit process; and
- Independent third-party audits of compliance against the Cyanide Management Plan are undertaken every three years and ensure corrective actions for issues and opportunities identified during the audit process are developed.

6.5 The General Manager of the relevant Business Unit shall review and authorise any plan's and shall be accountable for their implementation and ongoing effectiveness.

6.6 A process shall be implemented to assess and approve all substances prior to being allowed on-site.

6.7 All substances shall have a current Safety Data Sheet (SDS) readily available.

6.8 Each Business Unit shall maintain a Hazardous Substances Register providing details of the following:

- Quality and certification requirements for tyre, rim, and wheel assemblies;
- The product name;
- The United Nations identification code;
- Storage locations, requirements and precautions;
- Summary of maximum inventories;
- Estimation of current inventories;
- Approved disposal methods; and
- Hazardous substance identification as identified by any statutory approval requirement.

6.9 All personnel handling hazardous substances as part of their work activities shall be trained and competent in the safe use, handling and storage of these substances.

6.10 Signage shall be placed on all storage vessels, containers and tanks that complies with host country legislation or SDS requirements.

6.11 Where the type or volume of chemicals used or stored changes materially, the Business Unit shall determine the need for any required licence and permit changes. Processes shall be in place to ensure this occurs prior to any modifications being made.

6.12 Storage tanks and piping shall be certified, regularly inspected and approved for the conditions of use, and be made of a suitable material to be impervious to the chemicals stored in them. They are to be routinely inspected and maintained and situated above ground.

6.13 Piping and flow lines shall be colour-coded and marked to indicate the contents and direction of flow.

6.14 Plant control systems shall be in place wherever practicable to eliminate the need for operator intervention. Such controls shall incorporate fail safe systems in the event of emergencies. Where automatic control is not practicable, risk assessments shall be used to identify and implement operational processes, that reduce the risk to As Low as Reasonably Practicable (ALARP) and include;

- Training and competency;
- Storage and handling;
- Signage, demarcation and restricted access; and
- Monitoring and alarms.

6.15 Adequately segregated stored hazardous substances, based on:

- Quantity of materials stored;
- Physical state of the chemicals (solid, liquid or gas);
- Degree of incompatibility;
- Manufacturer’s instructions; and
- Known behaviour of the materials.

6.16 Store all new installations and environmentally hazardous chemicals within low permeability bunded compounds designed in compliance with AS 1940 –2017 The Storage and Handling of Flammable and Combustible Liquids.

6.17 All bunded compounds shall be maintained to provide:

- Capability to allow recovery of liquid;
- Chemical resistant to the substances stored;
- Valves, pumps and metres associated with the transfer are operable as required;
- Adequately protected and contained equipment;
- Any potential jetting from any storage vessel or fitting is captured within the bunded area;
- Incompatible chemicals are physically segregated and do not come into contact with each other; and
- Capable of holding 110% of the largest vessel in that area. Where this requirement is not able to be met the Business Unit shall detail additional controls in their plan to provide appropriate protection for workers and the environment.

6.18 Make available spill response kits and place them in work areas where hydrocarbons and other substances may require containment and clean-up.

6.19 Conduct spill recovery and clean-up.

6.20 Document emergency response to chemical events in the Business Units Emergency Management Plan.

Radiation

6.21 Where radiation sources are used by a Business Unit, a Radiation Safety Officer shall be appointed.

6.22 A register of all radiation sources shall be maintained and reviewed annually.

6.23 Sign post all radiation sources, and all unused and expired sources shall be securely held in a locked storage facility that meets the host country legislation. These disused radiation gauges shall be removed off-site by an approved contractor, at intervals not exceeding 10 years.

6.24 Test all radiation sources for the presence of leaks on a regular basis using an approved and regularly maintained radiation leak detection device or method.

Operational Environmental Standards

7 Air Quality

Purpose

To ensure effective control measures and monitoring programs are implemented by Business Units to manage emissions and mitigate air quality impacts, to the environment and to comply with relevant regulatory requirements.

Minimum Standards

7.1 Business Unit shall document systems and processes that demonstrate how air quality is monitored and managed to meet relevant regulatory requirements as a minimum.

7.2 Baseline air quality conditions shall be characterised prior to the construction of new facilities and extensions to existing facilities.

7.3 Business units shall identify all affected external receivers and applicable air quality criteria to be achieved.

7.4 Business Units shall identify all point source and diffuse source forms of air emissions for the mine life cycle including construction, operation and closure.

7.5 Business Units that emit mercury and mercury compounds to air from point sources are to demonstrate the use of controls aligned to best available techniques and best environmental practices (Minamata Convention).

7.6 Document the operational controls to be implemented to minimise dust generation from the Business Unit to avoid or mitigate impacts on the local community.

7.7 Plant and facilities shall be designed, constructed and operated with appropriate air emission controls in order to comply with the host country's applicable laws and regulations.

7.8 Risk assessments shall be conducted to identify the risk exposure associated with air quality and the effectiveness of implemented controls.

7.9 Monitoring systems and programs shall be established to ensure Business Units operate in compliance, including a mechanism for assessing air quality monitoring results against the relevant air quality criteria.

8 Hydrocarbon Management

Purpose

To ensure the storage, use, disposal and reuse of hydrocarbons are conducted in a sustainable manner that meets relevant legislation, standards, permits and licence conditions.

Minimum Standards

8.1 Business Unit shall document systems and processes demonstrating how hydrocarbons are managed..

8.2 Hydrocarbons must be stored and handle in accordance with a recognised standard e.g. AS1940 (or equivalent), including:

- Storage facility and containment requirements
- Operating procedures
- Emergency planning and fire protection

8.3 Any leaks or spills shall be dealt with immediately and reported in accordance with Business Unit incident management procedures and external reporting requirements.

8.4 Third-party used oil recyclers, processors and transporters utilised by Business Units shall be appropriately certified and comply with all relevant regulatory requirements.

8.5 Business Units shall conduct audits of used oil, waste grease, oil filter and oil rag processors and recyclers to ensure correct standards of transport, storage and processing are met before they are contracted to receive waste hydrocarbons.

8.6 Oils that contain PCB shall not be used by Business Units.

8.7 Business Units shall establish a register of transformers known to contain PCB oils and develop a work program to remove the oil from the Business Unit.

8.8 Used oil burned as fuel oil for heating or power generation shall be used in an approved designed boiler, furnace or an oil-fired space heater, and is to be properly vented to correctly and safely burn the oil.

8.9 Disposal of hydrocarbon contaminated material shall be in accordance with local regulations.

8.10 Third Parties that collect and dispose of hydrocarbon affected material shall report waste category volumes to the Business Unit with the appropriate records.

9 Environmental Noise, Vibration and visual impacts

Purpose

To ensure effective control measures and monitoring programs are implemented to manage noise, vibrations and visual impacts and comply with relevant regulatory requirements.

Minimum Standards

9.1 Where noise, vibration and visual impacts are not assessed as Material Risks, the Business Unit shall document systems and processes that demonstrate how impacts from these aspects are managed at the Business Unit.

9.2 Baseline noise and visual impact conditions shall be characterised prior to the construction of new facilities and extensions to existing facilities.

9.3 Business units shall identify all affected external receivers that will be impacted by noise, vibration and intrusive visual impacts.

Where applicable, noise, vibration and visual impact monitoring shall be undertaken to identify any adverse effects from the Business Unit.

9.4 Equipment design and purchasing requirements shall consider the minimisation of noise and vibration levels.

9.5 Blasting activities shall comply with regulatory requirements and consider the potential impacts to the community.

9.6 In the absence of host country requirements and guidelines, peak overall sound pressure level due to air blasts shall not exceed 128 dB (unweighted) at any residential property not owned by Business Units.

9.7 Blasting shall be designed to prevent damage to structures unless they are owned by Business Units.

9.8 Monitoring systems and programs shall be established to ensure Business Units activities operate in compliance, including a mechanism for assessing noise and vibration monitoring results against the relevant criteria.

9.9 In the absence of host country requirements or guidelines Australian Standard AS 2187.2-2006, Explosives – Storage and Use of Explosives (or equivalent) shall be applied.

10 Cultural and Heritage Sites

Purpose

To minimise disturbance to heritage and culturally significant and sensitive sites and establish appropriate management and protective measures for identified areas consistent with host country requirements and the requests of appropriate heritage custodians and traditional landowners.

Minimum Standards

10.1 Business Units shall identify any requirements regarding the protection of cultural or heritage sites, in accordance with relevant legislation, permits and agreements.

10.2 Business Units shall undertake an initial survey to identify any significant sites of cultural or heritage importance, this may form part of any exploration, development or expansion processes.

10.3 Cultural and Heritage sites shall be recorded on a site register with relevant records retained.

10.4 If required, a plan shall be developed and followed to manage and protect any identified cultural and heritage sites. The plan shall include:

- Processes and required actions in the event of accidental discovery; and
- Requirements for communication and consultation with government authorities, heritage custodians and indigenous groups with a special interest in the location.

10.5 Due diligence procedures shall be implemented and focus on the identification, reporting, recording and protection of any known or previously unidentified sites during exploration, development, expansion and construction work.

10.6 Cultural and heritage awareness and site information shall be incorporated into site inductions.

11 Waste Management

Purpose

To manage all Business Unit waste (general and hazardous) and their potential impact on the environment by reducing and reusing where possible and recycling suitable waste materials in accordance with all relevant legislation, permits and licences.

11.1 General Waste

Minimum Standards

11.1 The Business Unit shall develop and maintain a current inventory and location map of all wastes, identifying their sources, classification and quantities. Analysis of the waste to confirm contaminants shall be undertaken as required.

11.2 The volume, handling, storage, labelling, inspection, monitoring, reporting and disposal of all waste shall meet all relevant regulatory and licensing requirements. All necessary permits and licences shall be secured, maintained and complied with.

11.3 Waste handling and storage shall be managed to prevent any release to the environment, including; any wastewater discharges generated.

11.4 Dust, odour and pests from waste disposal and treatment facilities are to be controlled and the area is to be kept aesthetically acceptable.

11.5 Storage tanks and containers used to retain waste shall be made from suitable material to be impervious to waste stored in them and marked to identify contents.

11.6 Incompatible wastes shall be stored separately or protected by physical barriers. Waste storage facilities shall be routinely inspected and maintained.

11.7 Containers used to transport off-site waste shall comply with relevant legislation, permits and licence requirements. Records shall be retained of all waste shipped for disposal and/or recycling. These records shall clearly reflect the type and quantity of waste transported.

11.8 External waste transport and recycling and disposal facilities used by the Business Units shall be audited to assess its compliance with local requirements.

11.9 The Business Unit shall undertake periodic waste management reviews to seek opportunities to minimise waste disposal through elimination, source reduction, reuse and recycling strategies.

11.10 Third Parties that collect and dispose of general waste shall report waste category volumes to the Business Unit with the appropriate records.

11.2 Hazardous Waste

Minimum Standards

In addition to the requirements under Standard 10 General Waste the Business Unit shall:

11.11 Identify and comply with all legislation, permits and licence requirements for the management of hazardous wastes;

11.12 The Business Unit shall implement processes to recognise and authorise any potential change to the type or volume of hazardous wastes generated or stored. These processes shall include; consultation with site environmental personnel and regulatory authorities to determine any required licence and permit modifications.

11.13 Hazardous waste storage facilities shall be centralised and clearly designated, secured and have restricted access to authorised personnel.

11.14 Monitoring shall be carried out as required to detect any release or impact from hazardous waste storage. Where detected appropriate reporting and corrective actions shall be promptly taken.

11.15 Implement due diligence processes to review how mercury captured from processes is used by customers in order to ensure those uses are deemed acceptable by international conventions (Minamata Convention).

11.16 Third Parties that collect and dispose of hazardous waste shall report waste category volumes to the Business Unit with the appropriate records.

12 Waste Rock

Purpose

To manage waste rock to minimise medium to long-term environmental impacts, promote beneficial post- mining land use and to reduce post-mining closure liabilities, in compliance with all relevant legislation, permits and licences.

Minimum Standards

12.1 Waste rock disposal facilities shall be designed and constructed to maximise geotechnical stability and to limit the potential of these facilities to be impacted by water erosion and seepage issues.

12.2 Design and construction shall include;

- Use of suitable up-gradient surface water diversion channels around waste rock facilities;
- Determination of area baseline conditions prior to placing and designing of the waste rock disposal facility;
- An evaluation of the balance of Potentially Acid Forming (PAF) and Non- Acid Forming (NAF) material and the design controls to isolate PAF material from the environment, shall be identified and developed;
- Physical and geochemical characterisation of all waste rock;
- Determination of any Acid Rock Drainage (ARD) potential using acid-base accounting methodology;
- Engineering and physical control measures to minimise the generation of acid;
- PAF material shall not be made available or otherwise used for construction purposes unless appropriate treatment is assessed as appropriate by an independent third-party consultant, and all treatment recommendations are undertaken;
- Design of waste rock disposal facilities to control surface water run on and run off - minimise low quality seepage, erosion, sedimentation and the potential for geotechnical instability;
- Provision for progressive rehabilitation;
- Ability for site to achieve closure requirements;
- A regular review process for the above requirements; and
- Stability assessment – seismic and long-term.

12.3 Waste rock disposal facility designs shall be reviewed by a suitably qualified geotechnical engineer.

12.4 Waste rock disposal facilities shall be constructed and closed in accordance with all relevant legislation, permits and licences.

12.5 Monitoring programs shall be designed, implemented, communicated and reviewed to monitor ARD and structural integrity.

12.6 Waste rock disposal facilities shall be inspected following periods of heavy rain to assess any water ponding, seepage or evidence of ARD.

12.7 When available waste rock disposal facilities shall be progressively re-contoured to the final landform, final erosion controls installed, and vegetation shall be established.

12.8 Waste rock disposal facilities and acid-generating infrastructure shall be closed to meet rehabilitation success criteria and the attainment of the designated post-mining land use.