OCEANAGOLD

Environmental Standards Manual

OUR VALUES: RESPECT | INTEGRITY | TEAMWORK | INNOVATION | ACTION | ACCOUNTABILITY

Issued Version History

Date	Version	Prepared by	Notes
23 April 2019	1	Kerry Watson	Major review of environmental standards
31 December 2019	2	Kerry Watson, Duncan Ross and Elecia Duly	Major review of environmental standards, and design, consistency and formatting changes

Contents

Meaning of Environmental Material Risk

Environmental Material Risk (EMR) refers to any environmental aspect that could create a level three or greater consequence event(s), either as a one-off incident or as a result of cumulative effects. Risk levels are as described in the OceanaGold (OGC) Operational Risk Matrix in relation to the following;

- Climate Change, Energy Use and Greenhouse Gas (GHG) Management;
- Biodiversity;
- Water Management;
- Tailings Storage Facilities;
- Closure;
- Hazardous Materials and Chemical Substances; and
- Any other risk identified via a site risk assessment that meets the definition of an EMR.

Environmental Material Risk Management Requirements

All EMR's require an Environmental Material Risk Management Plan (EMRMP). This plan shall include;

- A statement as to the nature of the EMR, as addressed by the EMRMP;
- The results of any risk assessment completed in respect to the EMR;
- A description of the control measures required to be implemented to manage the EMR;
- A description of how permit conditions and OGC standards and framework requirements apply to the EMR, and how they shall be complied with;
- Identification of where emergency preparedness for the EMR 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 an EMR.

Environmental Material Risk Standards

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 Establish a clear direction, Key Performance Indicators (KPIs) and targets for energy and GHG, including; standards, goals and commitments.

1.2 Publicly report material energy and GHG emission in accordance with Global Reporting Initiative (GRI) requirements, which are externally assured.

1.3 Formalise energy and GHG emission related accountabilities including the identification of a single point of accountability at each Business Unit.

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

Engage proactively and inclusively

External engagement

1.5 Identify and engage people and groups that may influence, be interested in or impacted by our Business Units energy use and GHG emissions.

1.6 Identify areas where collaboration can be used to create opportunities for shared value and risk management relating to energy use and GHG emissions.

1.7 Engage the supply chain and other users to explore and understand shared and sequential exposures to energy and GHG emission risks.

1.8 Monitor developing initiatives in energy and GHG emission management.

1.9 Explore third-party energy and GHG emission initiatives and tools used to reduce energy and GHG emission.

1.10 Incorporate energy and GHG emission management into external communication plans.

1.11 Engage with stakeholders to explore and establish partnerships to address energy and GHG emission challenges.

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

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

1.14 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.

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

Energy and GHG emission reduction approach

District definition

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

Characterisation of baseline conditions

1.17 Define baseline energy use and GHG emissions for each Business Unit to set a baseline for future comparisons.

1.18 Identify and implement opportunities to reduce energy use and GHG emissions at Business Units.

1.19 Use the Business Units energy and GHG emission understanding to develop a site level management plan. 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

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

1.21 Invest in projects and research that aim to improve energy and GHG emission outcomes.

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

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

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

1.25 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 Establish a clear direction for biodiversity management, including; as far as reasonably practical, no net loss in areas of natural habitat and net gain in critical habitat areas.

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

2.3 Formalise biodiversity related accountabilities, including; the identification of a single point of accountability for biodiversity management at each Business Unit.

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.

Characterisation of baseline conditions

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

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

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

2.10 Understand baseline Business Unit biodiversity composition and classify both terrestrial and freshwater habitats as modified or natural and weather these are critical or not.

Current district conditions

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

Future district conditions

2.12 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.

2.13 Explore opportunities to enhance biodiversity.

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

2.15 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

2.16 Identify and engage people and groups that may influence, be interested in or impacted by our Business Units.

2.17 Identify areas where collaboration can be used to create opportunities for shared value and manage risk.

2.18 Engage the supply chain and other users to explore and understand shared and sequential exposures to biodiversity risks.

2.19 Monitor developing initiatives in biodiversity management.

2.20 Explore third-party biodiversity initiatives and tools re biodiversity stewardship.

2.21 Incorporate biodiversity management into external communication plans.

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

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

Internal engagement

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

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

2.26 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

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

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

2.29 Mitigation measures shall be included in the closure plans.

Operational performance

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

2.31 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.

2.32 A formal process shall exist for the approval of vegetation introduction and clearance on-site.

2.33 Invest in projects and research aiming to improve biodiversity outcomes.

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

2.35 Consider biodiversity restoration, rehabilitation and mitigation costs in the planning cycle.

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

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

2.38 Establish KPI's and reporting and communication requirements in relation to biodiversity management at each Business Unit.

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 ensures risks are appropriately assessed and managed.

Minimum Standards

Transparent and accountable

3.1 Establish a clear direction for water, including; standards, goals and commitments, considering external and operational factors.

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

3.3 Formalise water related accountabilities, including; the identification of a single point of accountability for water management at each Business Unit.

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, 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 Identify and engage people and groups that may influence, be interested in or impacted by our Business Units.

3.18 Understand community access requirements and concerns and strive to create a shared benefit.

3.19 Identify areas where collaboration can be used to create opportunities for a shared value and to manage risk.

3.20 Engage the supply chain and other users to explore and understand shared and sequential exposures to water risks.

3.21 Monitor developing initiatives in water management.

3.22 Explore third-party water initiatives and tools regarding water stewardship.

3.23 Incorporate water management into external communication plans.

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

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

Internal engagement

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

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

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

Effective water resource management

Social, cultural and environment

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

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

3.31 Mitigation measures shall be included in the closure plans.

Operational performance

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

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

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

Operational water management and compliance

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

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

3.37 Invest in research, technology and infrastructure to improve water management.

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

3.39 Consider water management costs in the planning cycle.

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

3.41 Establish KPI's and reporting and communication requirements in relation to water management at each Business Unit to reduce use and improve the overall management of water.

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 a clear statement on Tailings Storage Facilities (TSF), including; goals, standards, commitments and aspirations.

4.2 Recognise accountability for the overall governance of TSF's resides with their owners and operators.

4.3 Establish organisational structures and roles to define positional and personal accountability for TSF management.

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

Transparent communication and engagement

External

4.5 Identify and engage people and groups that may influence, be interested in or impacted by our operation of TSF.

4.6 Monitor and engage in developing initiatives in TSF management.

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

4.8 Incorporate TSF management into external communication plans, including; GRI and ESG requirements.

Internal

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

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

Planning, review and assurance

Planning

4.11 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.

4.12 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.

4.13 Standards 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.

4.14 Documents and records that support TSF planning, design, construction, operation, closure, monitoring, management and governance shall be maintained and kept suitably current and accessible.

Review

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

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

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

Assurance

4.18 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.

Effective tailings storage facility management

Resourcing

4.19 All resources necessary to implement and maintain activities within this governance framework shall be provided.

4.20 Include TSF operating costs, capital costs and human resource needs in relevant business planning processes.

Monitoring

4.21 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.

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

Management

4.23 RACI requirements shall be defined for critical roles to support accountable personnel.

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

4.25 Site level TSF management plans shall demonstrate our compliance with permits, regulation and company requirements.

4.26 Review TSF performance against the site management plan and KPI's at the Business Unit by a cross-functional technical team.

4.27 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.

4.28 Emergency preparedness and response plans shall specify roles, responsibilities and communication procedures associated with the potential response scenario.

4.29 Periodically test emergency preparedness and response plans.

Management of change

4.30 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 establish 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 Establish a clear direction for closure, including; standards, goals and commitments, considering the external and operational factors.

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

5.3 Formalise closure related accountabilities.

5.4 Promote strong external closure governance, and predictable and consistent regulation.

Closure and rehabilitation planning

Closure definition

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

5.6 Identify and understand regulatory, environmental, social and cultural closure obligations.

5.7 Identify and understand key closure risks and develop actions for their reduction.

Current closure conditions

5.8 Understand and monitor the process of progressive rehabilitation.

Future closure conditions

5.9 Identify and assess the implications of current and long-term cumulative impacts of Business Units that need to be addressed during closure and include these in Business Unit plans.

5.10 Robust assessment of rehabilitation species shall be undertaken to best improve biodiversity gains in the area.

5.11 Evaluate potential changes within the catchment, which could impact mine closure.

5.12 Use the OceanaGold Closure Assumptions and Criteria Management Plan Template to develop a site-specific plan. This plan shall demonstrate compliance with permits, regulation and company requirements for material risk management plans.

Engage Proactively and inclusively

External engagement

5.13 Identify and engage people and groups that may influence, be interested in or impacted by the closure of our Business Units.

5.14 Understand community access desires, requirements and concerns, and strive to create shared benefit where practicable.

5.15 Identify areas where collaboration can be used to create opportunities for shared value and risk management.

5.16 Monitor developing initiatives in closure management.

5.17 Explore third-party closure initiatives and tools.

Communication and engagement

5.18 Incorporate closure management into external communication plans.

Governance

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

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

Internal engagement

5.21 Identify a single point of accountability for closure management at each Business Unit.

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

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

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

Effective closure and rehabilitation management

Social, cultural and environment

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

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

5.27 Mitigation measures shall be clearly documented in closure plans.

Operational performance

5.28 Develop diagrams that capture all final land uses and material segregated and reserved for closure work.

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

5.30 Develop a closure cost estimation based on closure and assumptions management plan.

5.31 Develop and implement an annual closure action plan to reduce closure risks.

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

Operational water management and compliance

5.33 Invest in research, technology and infrastructure to improve closure outcomes.

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

5.35 Consider progressive rehabilitation and closure costs in the planning cycle.

5.36 Establish KPIs and reporting and communication requirements in relation to closure management at each Business Unit.

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 (within 10 minutes) and within 5 years' currency of issue date.

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 monitor for air quality affected by Business Unit activities and to manage emissions in order to protect employee health, the environment and to comply with relevant regulatory requirements.

Minimum Standards

7.1 Where air quality is not assessed as an EMR, the Business Unit shall document systems and processes that demonstrate how air quality is managed at the Business Unit.

7.2 Baseline air quality conditions shall be characterised prior to the construction of new facilities and extensions to existing facilities, that may be the source of air emissions.

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

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

7.5 Business Units shall apply for and maintain all required permits and licences for a point source of air emissions and shall operate in compliance with the statutory conditions specified. In the absence of host country requirements and guidelines, the current NZ ambient air quality guideline values shall be applied.

7.6 Wherever there may be significant changes to air emissions, the Business Unit shall determine the requirement for any licence and permit changes. Processes shall be implemented to ensure this occurs prior to any modifications or upgrades being made, including the consultation with Business Unit environmental personnel and regulatory authorities.

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.

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 Where hydrocarbon management is not assessed as an EMR the Business Unit shall document systems and processes demonstrating how hydrocarbons are managed at the Business Unit.

8.2 Used oil shall be stored in tanks, drums or containers of good condition. Any leaks or spills shall be dealt with immediately and reported to the appropriate governmental authorities where required (typically if the spill enters the receiving environment).

8.3 Bunding shall be 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, outlining appropriate protection for workers and the environment.

8.4 Containment and clean-up measures shall be documented and implemented when a spillage of used hydrocarbons occurs.

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

8.6 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.

8.7 Unless the oil in transformers is known to be non-PCB any used oil removed from transformers shall be tested for polychlorinated biphenyl (PCBs) by an accredited external laboratory.

8.8 Used oil that could potentially contain lead, PCB, chlorinated solvents or any other potentially harmful contaminant shall not be reused or burned on-site and shall be sent to a licensed oil processor.

8.9 Where PCB material (any material containing PCB liquids or PCB solids containing 50 ppm or more PCBs) is discovered, a detailed risk assessment and legal reference shall be undertaken to allow safe and legal handling, storage and disposal of material.

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

8.11 Any oil contaminated material shall not be placed in any internal or external landfill if there is free flowing oil visible. Landfill disposal shall be in accordance with local regulations.

9 Environmental Noise, Vibration, Light and Dust

Purpose

To ensure Business Unit activities comply with relevant licences and regulations, and controls exist to minimise the potential for environmental impact and nuisance to the community from noise, vibration and night time lighting.

Minimum Standards

9.1 The Business Unit shall identify and comply with all regulatory requirements regarding noise, vibration and light.

9.2 Where applicable, noise, vibration and light monitoring shall be undertaken to identify any adverse effects from the Business Unit impacting on the surrounding environment and communities.

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

9.4 Surface blasting may only be carried out at specified times during daylight hours to minimise impacts on residents. All other blasting shall consider the impacts of Business Units on the community.

9.5 Peak overall sound pressure level due to air blasts shall not exceed 128 dB (unweighted) at any residential property not owned by Business Units.

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

9.7 Baseline noise and vibrations conditions shall be characterised prior to the construction of new facilities or extensions to existing ones that may be the source of environmental noise and vibration.

9.8 Business Units shall apply for and maintain all required permits and licences for noise and vibration and shall operate in compliance with statutory conditions specified. In the absence of host country requirements or guidelines Australian Standard AS 2187.2-2006, Explosives – Storage and Use of Explosives shall be applied.

9.9 Lighting impacts from the Business Unit at night shall be kept to a minimum.

9.10 Dust impacts from the Business Unit shall be assessed and control measures implemented to avoid or mitigate impacts on the local community.

10 Cultural and Heritage Sites

Purpose

To minimise disturbance to heritage and culturally significant 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 If required, a plan shall be developed and followed to manage and protect the identified cultural and heritage sites.

10.4 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 Procedures shall focus on the identification, reporting, recording and protection of any previously unidentified sites during exploration, development, expansion and construction work.

10.6 Cultural and heritage site information shall be incorporated into site training, including; new hire inductions and refreshers.

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.

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 and able to contain 110% of the largest container stored. Where this requirement is not able to be met, the Business Unit shall detail additional controls in their plan, providing appropriate protection for workers and the environment. Incompatible wastes shall be stored separately or protected by physical barriers. Waste storage facilities shall be routinely inspected and maintained.

11.6 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.

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

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

Hazardous Waste

Minimum Standards

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

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

11.10 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.

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

11.12 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.

11.13 Emergency response procedures and recovery equipment related to hazardous waste spillage shall be included in the Emergency Management Plan.

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.