



Environmental Performance Standards

Environment

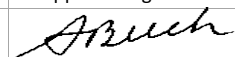
Purpose and Scope

The Environmental Performance Standards provide the key mandatory overarching requirements to be met to achieve the necessary operational environment management in accordance with the Environment Policy, Environmental Management System (EMS) and Operational Environmental Management Plan.

The Environmental Objectives, Targets and Key Performance Indicators provide the framework to measure Roy Hill's compliance with the Environmental Performance Standards. The environmental outcomes required in the Environmental Performance Standards are embedded and further defined in environmental plans, procedures and work instructions.

These Environmental Performance Standards cover all facilities, assets and activities under the operational control of Roy Hill. Compliance with these Environmental Performance Standards is mandatory for all Roy Hill personnel, contractors and their sub-contractors.

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Environmental Performance Standard – Land

Purpose

To ensure that appropriate controls are implemented to manage environmental risks to land associated with activities at Roy Hill.

Environmental Performance Requirements – Native Vegetation Clearing

- 1 The clearing conditions of Ministerial Statements, Native Vegetation Clearing Permits (NVCP) and approved Mining Proposals shall be complied with. The key Roy Hill requirements for achieving this are as follows:
 - a. Conduct clearing of native vegetation in accordance with the conditions of Ministerial Statements (MS), Native Vegetation Clearing Permits and approved Mining Proposals.
 - b. Report native vegetation clearing and submit records to the required Government agencies in accordance with the reporting conditions of Ministerial Statements, NVCPs and approved Mining Proposals.
- 2 Adverse impacts on the abundance, species diversity, geographic distribution and health of vegetation communities shall be minimised. The key Roy Hill requirements for achieving this are as follows:
 - a. Monitor mangroves in accordance with Ministerial Statement 858 (MS858), Ministerial Statement 859 (MS859) and the Mangrove Health Monitoring Plan.
 - b. Conduct clearing of native vegetation in accordance with the Roy Hill Ground Disturbance Permit Procedure and Clearing and Soil Management Procedure.
 - c. Undertake monitoring of vegetation, in particular riparian and mulga, in accordance with the Vegetation Health Monitoring Plan.
 - d. Minimise clearing of native vegetation (particularly mangroves, mature stands of vegetation, riparian vegetation and significant flora species) where possible.
 - e. Undertake operational activities in previously cleared areas where practical.
 - f. Avoid clearing of Declared Rare Flora (DRF), Priority Flora (PF), Threatened Ecological and Priority Ecological Communities unless otherwise approved by the Manager Environment and Approvals under a Ground Disturbance Permit (GDP).
 - g. Travel on designated roads and tracks unless off road vehicle travel is approved under a GDP.
 - h. Use saline water for dust suppression only where it does not adversely impact on native vegetation.
 - i. Inspect operational areas to ensure that vegetation communities have been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Topsoil

- 1 The loss of ecological integrity and seed viability in topsoil, subsoil and cleared vegetation shall be minimised to allow for use in rehabilitation. The key Roy Hill requirements for achieving this are as follows:
 - a. Manage topsoil and subsoil in accordance with the Roy Hill Clearing and Soil Management Procedure.
 - b. Remove and stockpile all topsoil, subsoil and vegetation in an approved area during clearing and re-spread during progressive rehabilitation in accordance with the Roy Hill Clearing and Soil Management Procedure.
 - c. Maintain stockpiles so that they are not disturbed or driven over after placement until required for rehabilitation, unless authorised by the Manager Environment and Approvals.

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- d. Recover subsoil up to a minimum depth of 2 m where available during excavation of resources, and stockpile or immediately replace over backfilled mine pits.
- e. Ensure that cleared vegetation is not burnt.
- f. Inspect operational areas to ensure that topsoil, subsoil and cleared vegetation has been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Weeds

- 1 Activities shall be undertaken in a way that prevents the introduction of new weed species. The key Roy Hill requirements for achieving this are as follows:
 - a. Quarantine material, equipment or goods, particularly material from overseas in accordance with the *Quarantine Act 1908* and with Department of Agriculture, Fisheries and Forestry (DAFF) requirements prior to use. Retain records of quarantining.
 - b. Manage weeds in accordance with the Roy Hill Weed Management Plan and the conditions of approvals in Ministerial Statements, NVCPs, Operating Licences and approved Mining Proposals.
 - c. Clean soil and vegetation material from all machinery and vehicles prior to arriving or entering on site and prior to exiting any weed infested areas as required by the Roy Hill Weed Management Procedure and/or GDP conditions.
 - d. Obtain certification by the supplier for imported fill, ballast, gravel or other potential weed mediums as being sourced from weed-free areas prior to arrival on site using the Weed Risk Materials Hygiene Form.
 - e. Inspect operational areas to ensure that weed hygiene has been managed in accordance with the requirements of this section.
- 2 The spread of existing weed populations within the site shall be minimised. The key Roy Hill requirements for achieving this are as follows:
 - a. Avoid works within areas containing declared or priority weeds or where this is not possible, implement strict hygiene measures in accordance with the Roy Hill Weed Management Procedure and/or GDP conditions.
 - b. Undertake periodic weed spraying of declared weeds and priority weeds as directed by the Manager Environment and Approvals.
 - c. Inspect operational areas to ensure that weeds have been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Rehabilitation

- 1 Disturbed lands shall be stabilised to minimise erosion and maximise opportunities for revegetation in a way that is compatible with surrounding landscapes. The key Roy Hill requirements for achieving this are as follows:
 - a. Rehabilitate disturbed land progressively as soon as practicable once no longer required (including the decommissioning of infrastructure) in accordance with Ministerial Statements, NVCPs, approved Mining Proposals, the Rehabilitation Management Plan and the Mine Closure Plan.
 - b. Manage rehabilitation of disturbed land on the Project in accordance with the Roy Hill Rehabilitation Management Procedure.
 - c. Rip compacted surfaces no longer required for Project activities on the contour where ground conditions and hydrology allow as required in the Roy Hill Rehabilitation Management Procedure.

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- d. Return topsoil to cleared areas that are no longer required for Project activities and rip as required in the Roy Hill Rehabilitation Management Procedure.
- e. Rehabilitate areas so that they are erosion resistant, landscaped to be consistent with surrounding landforms without forming permanent water bodies and have a final shape, stability and ability to support local native vegetation.
- f. Use endemic plant species only in revegetation.
- g. Inspect operational areas to ensure that rehabilitation has been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Borrow Pits

- 1 Borrow pit areas shall be rehabilitated and left in a condition that is consistent with the natural landscape. The key Roy Hill requirements for achieving this are as follows:
 - a. Manage the borrowing of materials on the Project in accordance with the Roy Hill Borrow Pit and Quarry Management Procedure.
 - b. Design and construct borrow pits so that they minimise ponding of water following rainfall events, they do not form permanent water bodies, fauna have easy egress and risk to people and animals is minimised.
 - c. Progressively rehabilitate borrow pits so that they are erosion resistant, landscaped to be consistent with surrounding landforms and have a final shape, stability and ability to support local native vegetation, as well as in accordance with the above requirement.
 - d. Inspect operational areas to ensure that borrow pits have been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Fire

- 1 Fire events related to Project activities shall be prevented. The key Roy Hill requirements for achieving this are as follows:
 - a. Minimise the likelihood of fire on the Project by undertaking activities in accordance with the Roy Hill Fire Management Procedure.
 - b. Prevent all open fires on site unless undertaken in accordance with an emergency response training exercise approved by the General Manager HSE.
 - c. A hot work permit must be issued for all hot works outside of designated hot works areas.
 - d. Undertake hot works and maintenance on machinery in workshops or in designated cleared areas.
 - e. Regularly check vehicle undersides (e.g. at daily prestarts, during and after use in spinifex areas etc.) for any material stuck around the exhaust system, and remove any vegetative material.
 - f. Fit all vehicles, buildings, machinery and drill rigs with fire extinguishers.
 - g. Ensure that appropriate fire-control equipment is available in fire-risk areas including but not limited to hazardous substance storage areas, hot works sites and on service trucks.
 - h. Maintain all fire control equipment in good working order.
 - i. Establish and maintain fire breaks around camps, key infrastructure and active operations areas.
 - j. Train relevant personnel in basic fire awareness, fire response and the use of fire suppression equipment.

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- k. Confine smoking to designated smoking areas. Provide fireproof receptacles for disposal of cigarette butts.
- l. Inspect operational areas to ensure that fire risks have been minimised in accordance with the requirements of this section.

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Environmental Performance Requirements – Hazardous Chemicals

- 1 Uncontrolled releases of hazardous chemicals to the environment during transport, storage and use shall be prevented. The key Roy Hill requirements for achieving this are as follows:
 - a. Transport, handle and store hydrocarbons and other hazardous materials in accordance with the *Dangerous Good Safety Act 2004* and *Dangerous Good Safety (Storage and Handling of Non-Explosives) Regulations 2007* and relevant Operating Licences.
 - b. Store and isolate flammable materials and explosives appropriately at all times in accordance with Australian Standard 1940-2004.
 - c. Manage hazardous chemicals on the Project in accordance with the Roy Hill Dangerous and Hazardous Goods Management Procedure.
 - d. Fit meters to all fuel transfer pumps, and record volumes transferred.
 - e. Locate all bulk chemical and hydrocarbon storage tanks and associated pipelines above ground unless the underground pipelines are contained within a secondary duct and containment facility. Design the secondary duct and containment facility to facilitate pipeline inspection, leak and rupture detection and to allow for recovery of any leakage that may occur.
 - f. Ensure that all chemical and hydrocarbon storage tanks or containers are double skinned or are contained within impervious bunding including all equipment holding more than 20 L of hydrocarbon or chemicals.
 - g. Install secondary containment for all hydrocarbon and chemical transfer/refuelling points to ensure capture of any spillage. Ensure that any spillage in the containment area is readily seen and that there is a mechanism for removal of any spillage in the containment area.
 - h. Use liners and drip trays under drill rigs to minimise risk of hydrocarbon spillage.
 - i. Use High Density Polyethylene (HDPE) liners with a maximum permeability of 1×10^{-9} m/s in plastic lined, bunded hydrocarbon and chemical storage areas, and ensure that black 'builder's plastic' is not used for lining bunds.
 - j. Grade bunded storage areas to drain away from the storage tanks to a sump which can be emptied or pumped, as required.
 - k. Remove storm water within bunding/spill containment areas immediately after a rain event. Dispose of the contents of bunding/spill containment areas offsite to an approved disposal facility or pass through an oily water separator system to recover hydrocarbon materials and to achieve a water quality of Total Petroleum Hydrocarbons (TPH) < 5 ppm.
 - l. Treat hydrocarbon contaminated soil at the minesite bio-remediation facility where possible or dispose to an off-site licensed landfill facility.
 - m. Inspect areas regularly where hazardous chemicals are being used or stored to ensure that chemicals are being managed in accordance with the requirements of this section.
- 2 A timely response to the unauthorised release of hazardous chemicals to land shall occur. The key Roy Hill requirements for achieving this are as follows:
 - a. Report all chemical and hydrocarbon spills to land using the Roy Hill Incident Management System, notify the General Manager HSE and the Manager Environment and Approvals. Manage the spills in accordance with the Roy Hill Spill Response Procedure.

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- b. Train all site personnel undertaking activities where there is a potential for a hydrocarbon or chemical spill, in spill response.
- c. Ensure that spill kits and other management equipment and emergency response equipment is available, appropriate to the volume and type of hydrocarbons or chemicals being stored, clearly labelled and highly visible at each chemical/hydrocarbon storage location at all times.
- d. Inspect operational areas to ensure that the impact of unauthorised releases of hazardous chemicals have been minimised in accordance with the requirements of this section.

Environmental Performance Requirements – Waste

- 1 The generation of waste shall be minimised where practical, and economically viable opportunities to reuse or recycle material in preference to landfill disposal shall be implemented where practical. The key Roy Hill requirements for achieving this are as follows:
 - a. Dispose of non-hazardous waste into facilities that are licensed or registered under the *Environmental Protection Act 1986* and Regulations, and in accordance with the Roy Hill Waste Management Procedure.
 - b. Collect and dispose of all controlled wastes in accordance with the *Environmental Protection (Controlled Waste) Regulations 2004* and transport off site via a licensed controlled waste carrier.
 - c. Operate the bioremediation facility and landfills in accordance with the specific Part V *Environmental Protection Act 1986* Operating Licence, and the Roy Hill Landfill Management Procedure and the Bioremediation Facility Operating Manual.
 - d. Manage waste tyres in accordance with the specific Part V *Environmental Protection Act 1986* Operating Licence and the Roy Hill Tyre Storage and Disposal Management Procedure.
 - e. Recycle materials where practicable and cost effective and where there are established recycling markets in accordance with the Roy Hill Waste Management Procedure.
 - f. Manage Potentially Acid Forming (PAF) and Acid Mine Drainage materials in accordance with the Roy Hill PAF/AMD Management Procedure.
 - g. Manage and operate the Tailings Storage Facility (TSF) in accordance with the Operating Licence, approved Mining Proposals and Roy Hill TSF Operating Manual.
 - h. Implement the waste management hierarchy (i.e. eliminate, reduce, reuse, recycle, treatment and disposal).
 - i. Establish waste stations around the Project which comprise sufficient and appropriate bins to facilitate waste segregation. Ensure that waste skips and bins are labelled and have lids which are kept closed to contain litter and prevent animal access.
 - j. Keep all sites free from wind-blown waste generated by Project activities. Clean up windblown waste around Project work sites and landfills regularly (at least monthly).
 - k. Place waste rock generated during mining activities in permanent engineered landforms during the operation of the mine or use to backfill mined pits, unless otherwise being used for the construction of other landforms.
 - l. Inspect operational areas regularly to ensure that waste is being managed in accordance with the requirements of this section.

Environmental Performance Requirements – Drilling

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- 1 Drilling activities shall be managed to minimise environmental risk and ensure compliance with regulatory requirements. The key Roy Hill requirements for achieving this are as follows:
 - a. Carry out all drilling in accordance with the approved Mining Proposals, Program of Works, relevant Tenement Conditions and the Roy Hill Drilling Management Procedure.
 - b. Cap, plug or otherwise make safe drill holes or surface holes immediately after completion and until rehabilitated.
 - c. Rehabilitate exploration drill holes that are not required for further use using a secure plug below ground at minimum depth of 400 mm or refill and compact within 6 months of drilling unless otherwise approved by the Manager Environment and Approvals.
 - d. Construct sumps to contain all water and sediment generated during drilling. Locate the sump away from significant vegetation, GDP boundaries and water courses.
 - e. Backfill excavations (e.g. sumps, costeans etc.) as soon as possible and re-spread with topsoil and cleared vegetation.
 - f. Ensure that hydro-test water is discharged under a GDP and undertaken in a way that minimises impact to the environment.
 - g. Recirculate drilling muds and fluid where possible, and dispose of within sumps.
 - h. Inspect drilling areas to ensure that they have been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Concrete Batching

- 1 Concrete batching activities shall be managed to minimise environmental impacts and ensure compliance with regulatory requirements. The key Roy Hill requirements for achieving this are as follows:
 - a. Carry out all concrete batching in accordance with the *Environmental Protection (Concrete Batching and Cement Product Manufacturing) Regulations 1998* and the Roy Hill Concrete Batching Management Procedure.
 - b. Clean up material spilt during concrete batching or transport as soon as possible.
 - c. Ensure that all water from any area where agitators, mixers or moulds are loaded or where concrete is batched, drains into a HDPE lined slurry pit.
 - d. Empty and maintain slurry pits, settling ponds, silt traps and oil interceptors as often as necessary, to ensure their efficient operation.
 - e. Wash vehicles carrying concrete, or any of the components of concrete so that they are free of cement slurry before they leave the site.
 - f. Reuse excess concrete waste onsite wherever possible or dispose of in onsite landfill facilities.
 - g. Inspect concrete batching areas regularly to ensure that concrete batching is being managed in accordance with the requirements of this section.

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Related EMS Documents

Borrow Pit and Quarry Management Procedure (OP-PRO-00150)
Bunds, Sumps, Washdowns and Oil Water Separator Management Procedure (OP-PRO-00178)
Clearing and Soil Management Plan (OP-PLN-00051)
Clearing and Soil Management Procedure (OP-PRO-00187)
Concrete Batching Management Procedure (OP-PRO-00004)
Contractor Environmental Demobilisation Management Procedure (OP-PRO-00032)
Dangerous and Hazardous Goods Management Procedure
Environmental Audit and Inspection Management Procedure (OP-PRO-00018)
Environmental Basis of Design (100RH-0000-EN-SPC-2001)
Environmental Reporting Management Procedure
Environmental Spill Response Procedure
Fire Management Procedure
Flora Management Procedure (OP-PRO-00182)
Fortescue Marsh Management Plan
Ground Disturbance Permit Procedure (OP-PRO-00193)
Landfill Management Procedure (OP-PRO-00049)
Mangrove Health Monitoring Plan (Port) (100RH-4000-EN-REP-2004)
Mangrove Health Monitoring Plan Addendum (Port) (100RH-4000-EN-REP-2005)
Mine Closure Plan (OP-PLN-00031)
Mine Environmental Monitoring Manual (OP-MAN-00007)
Native Seed Collection and Inventory Management Procedure (OP-PRO-00005)
PAF/AMD Management Procedure (OP-PRO-00066)
Port and Rail Environmental Monitoring Manual (OP-MAN-00011)
Rehabilitation Management Plan (OP-PLN-00044)
Rehabilitation Management Procedure (OP-PRO-00101)
Significant Flora, Fauna and Weed Species Identification Guide (100RH-0000-EN-GUI-2004)
Spill Response Environmental Management Procedure (OP-PRO-00275)
Temporary Wharf Access Road Mangrove Rehabilitation Plan (Port) (100RH-4000-EN-PLN-2006)
Tyre Storage and Disposal Management Procedure (OP-PRO-00060)

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Vegetation Monitoring Plan (Mine) (RH1-001-10-EN-PLN-0967-1)
Waste Management Procedure (OP-PRO-00063)
Waste Rock Management Procedure
Weed Management Plan (Rail) (100RH-3000-EN-PLN-2002)
Weed Management Procedure (OP-PRO-00010)
Weed Monitoring Plan (Rail) (100RH-3000-EN-REP-2021)
Wharf Access Road Mangrove Rehabilitation Plan

Note: some of the above documents are yet to be finalised

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Environmental Performance Standard – Fauna

Purpose

To ensure that appropriate controls are implemented to minimise the risk of impact to fauna at Roy Hill.

Environmental Performance Requirements – Habitat Clearing

- 1 Temporary and permanent reduction or fragmentation of existing fauna habitat shall be minimised. The key Roy Hill requirements for achieving this are as follows:
 - a. Manage habitat clearing on the Project in accordance with the Roy Hill Ground Disturbance Permit Procedure and the Clearing and Soil Management Procedure.
 - b. Remove native vegetation via a bulldozer, rubber tyre dozer or front end loader using a raised blade to reduce fauna deaths.
 - c. Minimise the clearing of native vegetation within potential significant habitat areas.
 - d. Return vegetation and rocks where available during rehabilitation to provide potential habitat for returning fauna.
 - e. Inspect areas being cleared and following clearing to ensure that habitat has been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Interaction with Fauna

- 1 Direct impact to fauna including through vehicle collision, entrapment in works, or extraordinary exposure to predators shall be minimised. The key Roy Hill requirements for achieving this are as follows:
 - a. Ensure that all work affecting fauna complies with the provisions of the *Wildlife Conservation Act 1950* and the Roy Hill Fauna Management Procedure.
 - b. Construct trenches/excavations and inspect for trapped fauna in accordance with the conditions detailed in MS 829 and MS 847 and the Roy Hill Fauna Management Procedure.
 - c. Ensure that native fauna or feral animals are not fed or captured, unless specifically authorised by the Manager Environment and Approvals.
 - d. Remove dead animals (e.g. road kill) off the road where safe to do so to reduce the risk of vehicle impact to scavenging species.
 - e. Ensure that domestic animals, off-road recreational vehicles and firearms (unless specifically authorised by the Registered Manager) are not permitted on site.
 - f. Fence evaporation ponds and turkeys nests to protect native fauna and stock and prevent access by feral animals.
 - g. Install fauna egress matting or equivalent to below the water level in evaporation ponds, turkeys nests and infiltration basins to allow fauna to escape from the water body.
 - h. Capture native fauna found in the work area with the potential to injure personnel or be injured or killed by work activities, using trained fauna rescue personnel, and relocate to a suitable habitat.
 - i. Inspect water storage areas daily for trapped fauna, fauna deaths and the condition of egress matting.
 - j. Inspect operational areas to ensure that fauna have been managed in accordance with the requirements of this section.

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- 2 Disturbance to, and mortality of, all native fauna within the site shall be minimised. The key Roy Hill requirements for achieving this are as follows:
 - a. Record and report all fauna deaths (including feral animals and stock) as an incident in the Roy Hill Incident Management System. Report any mortality of listed threatened vertebrate fauna species (conservation significant fauna) as defined by the *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999* immediately to the Roy Hill Site Environmental Team and the Specialist Biological Sciences.
 - b. Record all sightings of turtles and cetaceans (e.g. whales, dolphins) in the Project area, as well as observations of feral (e.g. cats, dogs) or conservation significant animal species (e.g. quolls, bilbies, mulgara, Pilbara Olive Pythons).
 - c. Inspect operational areas to ensure that fauna have been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Drilling

- 1 Drilling activities shall be managed to minimise environmental risk and ensure compliance with regulatory requirements. The key Roy Hill requirements for achieving this are as follows:
 - a. Install a shallow incline (maximum 1V:4H) for drilling sumps on at least one side to allow for fauna egress.
 - b. Cover drill mud on the drill pad surface or within the sump with dry soil to prevent potential hazards to wildlife as soon as drilling at that location is completed.
 - c. Inspect the surface of the drill pad and sump daily following drilling until dry to ensure that fauna entrapment is avoided.
 - d. Inspect drilling areas to ensure that they have been managed in accordance with the requirements of this section.

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Related EMS Documents

Animal Track Identification Guideline (OP-GUI-00002)
Contractor Environmental Demobilisation Management Procedure (OP-PRO-00032)
Environmental Audit and Inspection Management Procedure (OP-PRO-00018)
Environmental Basis of Design (100RH-0000-EN-SPC-2001)
Environmental Reporting Management Procedure
Fauna Management Plan (OP-PLN-00036)
Fauna Management Procedure (OP-PRO-00134)
Ginbata Aerodrome Wildlife Hazard Management Plan (100RH-0000-HS-PLN-2025)
Ginbata Aerodrome Bird Species Identification Guide (100RH-0000-EN-GUI-2014)
Ground Disturbance Permit Procedure (OP-PRO-00193)
Mine Environmental Monitoring Manual (OP-MAN-00007)
Northern Quoll Research Plan (100RH-3000-EN-REP-2033)
Port and Rail Environmental Monitoring Manual (OP-MAN-00011)
Roy Hill Threatened Fauna Offset Plan (100RH-3000-EN-PLN-2005)
Significant Flora, Fauna and Weed Species Identification Guide (100RH-0000-EN-GUI-2004)
Turtle and Marine Mammal Guideline
Vertebrate Fauna Management Plan for the Roy Hill Rail Corridor (100RH-3000-EN-REP-2009)

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Environmental Performance Standard – Water

Purpose

To ensure that appropriate controls are implemented to manage the environmental risks to water resources at Roy Hill.

Environmental Performance Requirements - Groundwater

- 1 The quantity and quality of groundwater shall be maintained within licensed limits to minimise impacts to the surrounding environment. The key Roy Hill requirements for achieving this are as follows:
 - a. Abstract groundwater in accordance with the *Rights in Water and Irrigation (RIWI) Act 1914* 5C licence and Roy Hill's specific Groundwater Operating Strategy.
 - b. Monitor groundwater levels, quantity and quality at the Port, Rail and Mine in accordance with RIWI Act 5C licences, Ministerial Statements, approved Mining Proposals, Operating Licences, Groundwater Operating Strategies and Part V EP Act Operating Licences.
 - c. Fit and maintain cumulative water meters of a type approved under the *Rights in Water and Irrigation (Approved Meters) Order 2009* to all production bores and any other water abstraction points, and take meter readings prior to and during operation.
 - d. Construct water bores in accordance with a RIWI Act 1914 26D licence.
 - e. Manage groundwater on the Project in accordance with the Roy Hill Groundwater and Storage Facility Management Procedure.
 - f. Monitor groundwater quality within the vicinity of the waste rock dumps, waste fines storage facilities, evaporation ponds and boundary of the Mine area in accordance with the Mine Monitoring Manual.
 - g. Install cut-off switches or similar control devices to prevent over-filling of water storage facilities and water tanks.
 - h. Maintain adequate freeboard within water storage facilities at all times to ensure overflow does not occur.
 - i. Fence water storage facilities and line with a HPDE plastic liner, and where practicable design it so that excess water from tanker filling points drain back into the water storage facility.
 - j. Inspect water storage areas daily to ensure that they have been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Surface Water

- 1 The quantity and quality of surface water shall be maintained in order to minimise environmental impacts on the existing downstream environment. The key Roy Hill requirements for achieving this are as follows:
 - a. Manage surface water quality and disturbance to the beds and banks of watercourses in accordance with Ministerial Statements and approved Mining Proposals.
 - b. Maintain a 500 m drainage buffer zone along the western boundary of the Roy Hill lease area in accordance with Ministerial Statement 824 and 829.
 - c. Monitor surface water flows at the Mine and Port in the vicinity of Mulga and riparian vegetation and mangroves, in accordance with Ministerial Statements and approved Mining Proposals. Undertake monitoring as outlined in the Port and Mine environmental monitoring manuals.

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- d. Ensure that surface water on the Project is managed in accordance with the Roy Hill Surface Water Management Procedure.
- e. Monitor surface water within the vicinity of the waste rock dumps, waste fines storage facilities, evaporation ponds and boundary of the Mine area in accordance with the Mine Monitoring Manual.
- f. Maintain a minimum setback of 50 m between disturbed or cleared areas and the riparian zone of drainage lines within a GDP unless approved by the Manager Environment and Approvals.
- g. Reinstate natural drainage channels wherever possible following disturbance to a watercourse.
- h. Design, install and manage surface water diversion structures to direct non-contaminated water around disturbed areas and return it into the natural watercourse at a downstream location.
- i. Complete the stabilisation of disturbed areas and new drainage lines prior to the wet season.
- j. Undertake rehabilitation of the banks of diversion channels with direct seeding of native vegetation species endemic to water courses in the region.
- k. Utilise rock armouring or other materials (e.g. geoweb) as approved by the Manager Environment and Approvals in areas of high erosion potential (e.g. steep gradients and bends).
- l. Capture storm water and use for mining activities where practicable.
- m. Ensure that potentially contaminated storm water (e.g. runoff which contains hydrocarbons >5 ppm TPH) is not released to the environment. Test water prior to release to ensure that the water quality is <5 ppm TPH.
- n. Install erosion and sediment control structures downstream of disturbance areas. Construct sedimentation controls prior to the clearing of any large areas at risk of generating runoff.
- o. Treat water draining from disturbed areas to ensure discharge from these areas is clean and consistent with naturally occurring water quality from nearby creeks.
- p. Undertake equipment servicing in designated areas and in a manner that ensures containment of all hydrocarbons and chemicals.
- q. Inspect all sediment basins/ponds regularly and clean out debris and sludge so that their effective volume is maintained.
- r. Inspect operational areas to ensure that surface water has been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Marine

- 1 The impact of Project activities on the marine environment shall be minimised. The key Roy Hill requirements for achieving this are as follows:
 - a. Report incidents of unauthorised discharges of waste (liquid or solid) (as defined in the *Environmental Protection (Unauthorised Discharge Regulations) 2004*) entering the marine environment immediately to the Superintendent Environment Port, and immediately commence appropriate clean up procedures.
 - b. Ensure that all vessels associated with the Project from overseas or from within Australia comply with the Pilbara Port Authority's (PPA) requirements.
 - c. Manage ballast water in accordance with the DAFF guidelines for ballast water management and the Australian and New Zealand Environment Conservation Council Code of Practice for Anti-fouling and In-Water Hull Cleaning and Maintenance.

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- d. Check, maintain and monitor all sewage and grey water treatment systems on Roy Hill controlled vessels within the PPA area to ensure systems are efficient, fully operational and discharging treated water in accordance with the PPA's Ship Waste Discharge Guidelines (DOC-EH023).
- e. Ensure all waste discharges from Roy Hill controlled vessels within the PPA area are in accordance with the PPA's Ship Waste Discharge Guidelines (DOC-EH023).
- f. Carry out all works on or near the marine environment in accordance with the Roy Hill Port Marine and Nearshore Works Management Procedure.
- g. Prevent the discharge of materials into the marine environment, including liquid or solid wastes, at all times unless approved in writing by the Manager Environment and Approvals.
- h. Ensure that recreational boating, fishing, diving, spear-fishing and fossicking (i.e. collecting shells and any other biological or natural material such as animal bones) by Project personnel is prohibited in Project areas.
- i. Inspect and clean all areas where mud and sediments can collect, including anchor and chain lockers and hoppers, prior to a vessel's departure for Port Hedland. Include in the inspection equipment that has been deployed overboard such as anchor chains and cables, and clean of any attached or entangled marine growth. Repeat these procedures prior to departure from Port Hedland to prevent translocation of marine species away from the region.
- j. Inspect operational areas to ensure that marine waters have been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Hazardous Chemicals

- 1 Uncontrolled releases of hazardous chemicals to the marine and nearshore environment during transport, storage and use shall be prevented. The key Roy Hill requirements for achieving this are as follows:
 - a. Transport, handle and store hydrocarbons and other hazardous materials in accordance with the *Dangerous Good Safety Act 2004* and *Dangerous Good Safety (Storage and Handling of Non-Explosives) Regulations 2007* and relevant Operating Licences.
 - a. Store and isolate flammable materials appropriately at all times in accordance with Australian Standard 1940-2004.
 - b. Manage hazardous chemicals on the Project in accordance with the Roy Hill Dangerous and Hazardous Goods Management Procedure.
 - c. Design and operate equipment to prevent spills and leaks through the provision of inbuilt safeguards such as relief valves, overflow protection, and automatic and manual shut-down systems.
 - d. Fit meters to all fuel transfer pumps, and record volumes transferred.
 - e. Ensure that all chemical and hydrocarbon storage tanks or containers are double skinned or are contained within impervious bunding including all equipment holding more than 20 L of hydrocarbon or chemicals.
 - f. Install secondary containment for all hydrocarbon and chemical transfer/refuelling points to ensure capture of any spillage. Ensure that any spillage in the containment area is readily seen and that there is a mechanism for removal of any spillage in the containment area.
 - g. Remove storm water within bunding/spill containment areas immediately after a rain event. Dispose of the contents of bunding/spill containment areas offsite to an approved disposal facility or pass through an oily water separator system to recover hydrocarbon materials and to achieve a water quality of Total Petroleum Hydrocarbons (TPH) < 5 ppm.

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- h. Inspect areas regularly where hazardous chemicals are being used or stored to ensure that chemicals are being managed in accordance with the requirements of this section.
- 2 A timely response to the unauthorised release of hazardous chemicals onto surface water or into the marine environment shall occur. The key Roy Hill requirements for achieving this are as follows:
- a. Manage hydrocarbon and chemical spills at the Port in accordance with the requirements of PPA's Emergency Response Procedure (PR-MO003) and the Roy Hill Spill Response and Management Procedure. The PPA will co-ordinate all spill response activities where there is a spill to the marine environment.
 - b. Report all hydrocarbon or chemical spills to water using the Roy Hill Incident Management System and notify the General Manager HSE and the Manager Environment and Approvals immediately.
 - c. Train all site personnel undertaking activities where there is a potential for a hydrocarbon or chemical spill, in spill response.
 - d. Ensure that spill kits and other management equipment and emergency response equipment is available, appropriate to the volume and type of hydrocarbons or chemicals being stored, clearly labelled and highly visible at each chemical/hydrocarbon storage location at all times.
 - e. Inspect operational areas to ensure that the impact of unauthorised releases of hazardous chemicals have been minimised in accordance with the requirements of this section.

Environmental Performance Requirements – Acid Sulphate Soils and Potentially Acid Forming Materials

- 1 The risk of generating acid leachate from Acid Sulphate soils (ASS) and PAF materials exposed during works shall be minimised. The key Roy Hill requirements for achieving this are as follows:
- a. Identify potential or actual ASS soils via onsite investigations and sampling as required, prior to commencement of disturbance in accordance with the Department of Environment Regulation's (DER) *Identification and Investigation of Acid Sulphate Soils and Acidic Landscapes* guideline.
 - b. Avoid disturbance of ASS soils wherever possible and undertake any disturbance in accordance with the DER's *Treatment and Management of Soils and Water in Acid Sulphate Soil Landscapes* guideline and the Roy Hill Acid Sulphate Soils Management Plan.
 - c. Treat acid dewater from potential or actual ASS soils to the standard required by the DER's *Treatment and Management of Soils and Water in Acid Sulphate Soil Landscapes* guideline and monitor pH prior to discharge. Record pH readings and maintain the records.
 - d. Identify and manage PAF/AMD materials in accordance with the Roy Hill PAF/AMD Management Procedure.

Environmental Performance Requirements – Wastewater and Sewage

- 1 The collection and treatment of wastewater and sewage shall be managed to minimise the risk of environmental impacts. The key Roy Hill requirements for achieving this are as follows:
- a. Operate and monitor wastewater treatment plants (WWTP) in accordance with the specific Part V *Environmental Protection Act 1986* Operating Licence and the relevant approval application.
 - b. Treat waste from toilets and crib rooms in accordance with the *Health Act 1911* and local government guidelines.

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- c. Ensure that washdown facilities comply with the requirements of the *Water Quality Protection Note 68 Mechanical Equipment Washdown* (Department of Water, 2006) and are approved by the Manager Environment and Approvals prior to use.
- d. Manage WWTPs in accordance with the Roy Hill Wastewater Management Procedure.
- e. Maintain high level audio and visual warning alarms on WWTPs to ensure that they indicate a malfunction within the system.
- f. Fit and maintain cumulative volume meters for all effluent that is discharged to an irrigation sprayfield, and record volumes as required by the relevant environmental monitoring manual.
- g. Fit wastewater level indicators on all demountable toilet blocks to indicate that the facility is nearing capacity.
- h. Remove portable ablutions sewerage and WWTP sludge offsite by a licenced carrier.
- i. Inspect and maintain washdown equipment and oil recovery facilities such as oily water separators (OWS) regularly to ensure effective operation.
- j. Dispose of washdown bay wastewater either by disposal offsite to a licensed facility or direct to an OWS prior to discharge to the environment. Prevent discharge of washdown bay wastewater to the environment if the quality of the water is >5 ppm TPH.
- k. Inspect WWTPs and OWSs regularly to ensure that they have been managed in accordance with the requirements of this section.

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Related EMS Documents

Acid Sulphate Soils Management Plan (100RH-4000-EN-PLN-2005)
Bunds, Sumps, Washdowns and Oil Water Separator Management Procedure (OP-PRO-00178)
Contractor Environmental Demobilisation Management Procedure (OP-PRO-00032)
Dangerous and Hazardous Goods Management Procedure
Drilling Management Procedure (OP-PRO-00036)
Environmental Audit and Inspection Management Procedure (OP-PRO-00018)
Environmental Basis of Design (100RH-0000-EN-SPC-2001)
Environmental Reporting Management Procedure
Ground Disturbance Permit Procedure (OP-PRO-00193)
Groundwater and Storage Facility Management Procedure (OP-PRO-00002)
Mine Environmental Monitoring Manual (OP-MAN-00007)
Mine Site Water Use Efficiency Guideline (OP-GUI-00003)
PAF/AMD Management Procedure (OP-PRO-00066)
Port and Rail Environmental Monitoring Manual (OP-MAN-00011)
Port Marine and Nearshore Works Management Procedure (OP-PRO-00132)
Spill Response Environmental Management Procedure (OP-PRO-00275)
Surface Water Management Procedure (OP-PRO-00034)
Wastewater Management Procedure (OP-PRO-00208)
Waste Water Treatment Plant Effluent Sampling and Monitoring Guidelines (100RH-0000-EN-GUI-2008)

Note: some of the above documents are yet to be finalised

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Environmental Performance Standard – Air Quality

Purpose

To ensure that appropriate controls are implemented to manage environmental risks and minimise impacts to local and regional air quality.

Environmental Performance Requirements – Dust

- 1 Dust emissions from all work sites shall be minimised. The key Roy Hill requirements for achieving this are as follows:
 - a. Manage air emissions from Roy Hill facilities in accordance with the specific Operating Licence.
 - b. Manage and monitor dust emissions at the Port in accordance with the Port Dust Management Plan.
 - c. Manage dust on the Project in accordance with the Roy Hill Dust Management Procedure.
 - d. Maintain ore received at the Port at a minimum Dust Extinction Moisture level of 5.1% w/w Lump and 6.0% w/w Fines.
 - e. Ensure that transfer stations at the Port shall have a fully enclosed ore stream and are fitted with misting sprays at transfer chute exits where required.
 - f. Avoid vegetation clearing and earthworks during high winds (>50 km/hr) within all Project areas, or implement additional management measures to minimise and control dust emissions.
 - g. Rehabilitate cleared land as soon as practicable.
 - h. Seal all heavily trafficked areas where practical and regularly clean and maintain at all Roy Hill operations to reduce dust emissions.
 - i. Use dust suppression techniques (e.g. water trucks) on unsealed roads and access tracks, cleared areas and at locations of high dust risk and where dust generation is visible.
 - j. Prevent the use of saline water (>5,000 mg/L TDS) for dust suppression unless approved by the Manager Environment and Approvals. Spray any saline water that has been approved for dust suppression only onto cleared areas and direct away from adjacent vegetation.
 - k. Limit vehicle speed limits on haul roads, work areas and camp sites to minimise dust emissions.
 - l. Ensure that vehicles remain within designated roads and only park in allocated areas.
 - m. Inspect work areas regularly to ensure that dust has been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Fibrous Materials

- 1 The amenity and safety of people shall be protected from impacts resulting from fibrous materials generated by activities associated with the Project. The key Roy Hill requirement for achieving this is as follows:
 - a. Manage fibrous materials on the Project in accordance with the Roy Hill Fibrous Materials Management Procedure.

Environmental Performance Requirements – Noise and Vibration

- 1 The amenity of people and fauna shall be protected from noise impacts resulting from activities associated with the Project. The key Roy Hill requirements for achieving this are as follows:

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- a. Ensure that noise emissions from all facilities comply with the *Environmental Protection (Noise) Regulations 1997*.
- b. Restrict blasting to the noise limits outlined in Regulation 11 of the *Environmental Protection (Noise) Regulations 1997*.
- c. Manage noise on the Project in accordance with the Roy Hill Noise and Vibration Management Procedure.
- d. Inspect, maintain and repair mobile equipment regularly so that noise levels are minimised during the equipment life.

Environmental Performance Requirements – Light

- 1 Impacts from light overspill on terrestrial and marine fauna shall be minimised. The key Roy Hill requirements for achieving this are as follows:
 - a. Manage lighting on the Project in accordance with the Roy Hill Light Emissions Management Procedure.
 - b. Use the type of lighting in work areas that minimises impacts on fauna, as outlined in the Roy Hill Light Emissions Management Procedure.
 - c. Minimise light overspill to minimise impact to the fauna habitat areas outside of work and accommodation areas.
 - d. Operate lighting at the minimum wattage that enables activities to be safely undertaken in work and accommodation areas.
 - e. Inspect operational areas to ensure that light has been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Greenhouse Gas

- 1 Greenhouse gas emissions shall be adequately addressed and minimised during Project activities. The key Roy Hill requirements for achieving this are as follows:
 - a. Record and report relevant fuel and chemical use in accordance with the *National Greenhouse Energy Reporting Act 2007*. Collect data using the Contractor Environmental Report, EnviroSys and the Hydrocarbon Management System as necessary.
 - b. Maintain trucks and operations plant entering the site so that they comply with the Australian Design Rules required under the *Motor Vehicles Act 1989*. Withdraw vehicles with excessive smoke emissions from service for maintenance.
 - c. Manage air emissions from Roy Hill facilities in accordance with the specific Operating Licence and Air Emission Management Plan.
 - d. Manage greenhouse gases generated on the Project in accordance with the Roy Hill Greenhouse Gas Management Procedure.
 - e. Avoid unnecessary idling of trucks and plant where practical to reduce fuel usage and minimise greenhouse gas emissions.

Environmental Performance Requirements – Abrasive Blasting

- 1 Abrasive blasting activities shall be managed to minimise environmental impacts and ensure compliance with regulatory requirements. The key Roy Hill requirements for achieving this are as follows:

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- a. Carry out all abrasive blasting in accordance with the *Environmental Protection (Abrasive Blasting) Regulations 1998* and the Roy Hill Abrasive Blasting Management Procedure.
- b. Prevent the use of any material containing 2% or more free silica (crystalline silicon dioxide) in abrasive blasting.
- c. Ensure that corrosion inhibitors containing chromate, nitrate or nitrite are not used in wet abrasive blasting.
- d. Ensure that all abrasive blasting involving the use or removal of organotin or other heavy metal protective coatings is not carried out in or near an aquatic environment unless all waste material drains into, and is contained within an impervious holding sump until it is disposed to a facility licenced to receive this material.
- n. Collect all waste material at the conclusion of each abrasive blasting operation and contain prior to removal to an approved site.
- o. Inspect abrasive blasting areas regularly to ensure that they have been managed in accordance with the requirements of this section.

Environmental Performance Requirements – Concrete Batching

- 1 Concrete batching activities shall be managed to minimise environmental impacts and ensure compliance with regulatory requirements. The key Roy Hill requirements for achieving this are as follows:
 - a. Carry out all concrete batching in accordance with the *Environmental Protection (Concrete Batching and Cement Product Manufacturing) Regulations 1998* and the Roy Hill Concrete Batching Management Procedure.
 - b. Ensure that concrete batching is carried out in such a manner so that no visible dust escapes from the premises or onto any place to which the public has access.
 - c. Fit all cement storage silos with an air cleaning system through which all air is extracted from the silo while it is being filled so that air must pass through the system before it is discharged into the environment.
 - d. Store all aggregate and sand kept on-site so that airborne dust and erosion into the environment is minimised.
 - e. Apply dust suppression (e.g. water or surfactants) to trafficable areas as often as necessary.
 - f. Maintain all wind shields, water sprays, dust extraction systems and other devices used in good working order.
 - g. Wash vehicles carrying concrete, or any of the components of concrete, before they leave the site so that they are free of cement dust.
 - h. Inspect concrete batching areas regularly to ensure that they have been managed in accordance with the requirements of this section.

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Environmental Performance Requirements – Crushing and Screening

- 1 Crushing and screening activities shall be managed to minimise environmental impacts and ensure compliance with regulatory requirements. The key Roy Hill requirements for achieving this are as follows:
 - a. Carry out all crushing and screening in accordance with the Roy Hill Crushing and Screening Management Procedure.
 - b. Use water sprays to wet down stockpile materials prior to movement of material to crushing plant.
 - c. Use water sprays on the conveyor belts and feed hoppers to wet down the raw feed material.
 - d. Investigate significant dust emissions to determine solutions required which may include additional spray heads to be added to increase wetting.
 - e. Avoid crushing and screening during high winds (>50 km/hr) where possible unless dust emissions are being adequately controlled.
 - f. Inspect crushing and screening areas regularly to ensure that they have been managed in accordance with the requirements of this section.

Related EMS Documents

Abrasive Blasting Management Procedure (OP-PRO-00017)
Concrete Batching Management Procedure (OP-PRO-00004)
Contractor Environmental Demobilisation Management Procedure (OP-PRO-00032)
Crushing and Screening Management Procedure (OP-PRO-00152)
Dust Management Plan (Port)
Dust Management Procedure (OP-PRO-00180)
Environmental Audit and Inspection Management Procedure (OP-PRO-00018)
Environmental Basis of Design (100RH-0000-EN-SPC-2001)
Environmental Reporting Management Procedure
Fibrous Materials Management Procedure
Greenhouse Gas Management Procedure
Ground Disturbance Permit Procedure (OP-PRO-00193)
Light Emissions Management Procedure
Mine Environmental Monitoring Manual (OP-MAN-00007)
Noise and Vibration Management Procedure
Port and Rail Environmental Monitoring Manual (OP-MAN-00011)

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Abbreviations

Abbreviation	Full Term
AMD	Acid Mine Drainage
ASS	Acid Sulphate Soils
DRF	Declared Rare Fauna
EMS	Environmental Management System
EP	Environmental Protection
GDP	Ground Disturbance Permit
GIS	Geographic Information System
H	Horizontal
HDPE	High Density Polyethylene
hr	Hour
HSE	Health, Safety and Environment
km	Kilometres
L	Litres
m	Metres
mg	Milligrams
mm	Millimetres
MS	Ministerial Statement
nm	Nautical Miles
NVCP	Native Vegetation Clearing Permit
OWS	Oily Water Separator
PAF	Potentially Acid Forming
PF	Priority Flora
PPA	Pilbara Port Authority (previously known as the Port Hedland Port Authority)
ppm	Parts Per Million
RIWI	Rights in Water and Irrigation
s	Second
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
V	Vertical
w	Weight
WWTP	Wastewater Treatment Plant

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Definitions

Term	Definition
Secondary containments	Containment or bunding that is installed to capture any spills from chemical or hydrocarbon containers stored within it

Review

These Environmental Performance Standards are to be reviewed as follows:

- Following the grant of or modification to relevant approvals;
- Following the update of relevant plans or procedures;
- Annually; or
- As a result of findings or actions identified through inspections, audits and incident reporting.

Reviews are to examine the appropriateness of these Standards, taking into consideration corporate, system and compliance requirement changes since the last review was undertaken.

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