

Iron Ore (WA)

Mineral Evaluation and Drilling Environmental Management Plan

*Evaluation, exploration and water drilling within all areas of operation,
including environmentally significant areas*

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All acronyms and definitions are located in Section 7.

1 Context

The Mineral Evaluation and Drilling Environmental Management Plan (EMP) has been prepared to manage environmental aspects associated with mineral or hydrogeological evaluation / exploration (Resource Development) related activities within all lands, including areas of conservation significance, managed by Rio Tinto Iron Ore (RTIO). This plan will be implemented by the Resource Development division of RTIO business (WA). This Management Plan will be reviewed and updated as required.

2 Objective

The EMP details the methods and procedures to be applied in order to achieve RTIO's environmental commitments and objectives for Resource Development works.

The specific aims of this EMP are to:

- Summarise plans, guidelines and procedures to manage potential impacts to environmental receptors;
- Detail the planning required to meet environmental requirements;
- Detail specifications and actions to meet environmental requirements;
- Summarise measurements and evaluation of environmental performance;
- Detail accountabilities and responsibilities; and
- Ensure that the relevant stakeholders are contacted at the appropriate stages of the projects when planning and working within areas of conservation significance.

3 Management Procedures

This EMP is aligned with RTIO systems, procedures and work practices which are developed in accordance with legislative requirements and Australian standards.

3.1 Rio Tinto Iron Ore Management Systems

This EMP is an integral part to the Rio Tinto Health, Safety, Environment and Quality Management System (HSEQ MS). All personnel supporting the activities undertaken for Resource Development related activities are to adhere to HSEQ MS, including this EMP, to ensure impacts to environmental receptors are managed in accordance with legal requirements and other commitments.

To demonstrate this commitment, RTIO has an endorsed Health, Safety, Environment, and Communities Policy for all Rio Tinto businesses. The policy is the guiding document for environmental management and provides context and direction for continuous improvement.

This approved EMP supersedes all previous versions of the Mineral Evaluation and Drilling Environmental Management Plan.

RTIO has developed and implemented management plans and work practices to manage environmental aspects relating to and Resource Development. A number of these work practices¹ govern land clearing activities, and include:

- Approvals Request Co-ordination Systems (ARCS);
- Approvals Permit Guidelines and Procedures;
- HSEQ Ground Disturbance, Re-entering a Rehabilitated Area and Track maintenance Standard Work Practice;
- HSEQ Iron Ore (WA) – Equipment Hygiene Inspection Work Practice; and
- HSEQ Closure, Rehabilitation and Monitoring Standard Work Practice.

3.2 RTIO Approval Request Co-ordination System (ARCS)

The RTIO ARCS ensures RTIO obtains the relevant regulatory approvals and facilitates the necessary biological and heritage surveys, prior to the commencement of ground disturbing activities or installation of infrastructure. The process assists RTIO in maintaining legislative compliance and managing environmental risk by minimises the potential to disturb any protected or sensitive areas (biological or otherwise). During the approvals process, signoff and advice is sought from Subject Matter Experts (SMEs) prior to an internal Approvals Request (AR) permit being issued authorising works to occur. The SMEs provide advice on Heritage, Biological, Environmental, Tenure, State, Mining Act, Drinking Water Source Protection, Water Licensing, Part IV Environmental Approvals, Part V Licensing, Clearing Permit and Local Government matters. After SME advice is received (including gaining external regulatory approvals), the RTIO permit requestor is issued an AR permit, typically requiring the permit owner to ensure compliance with a number of conditions prior to commencing, during, and / or at the conclusion of the work.

¹ Note – work practices are internal documents and are subject to review and update in line with continual improvement.

4 Management Plan Environment Aspects

The environmental aspects detailed in this EMP form the requirements for undertaking Resource Development related activities in the Pilbara region of Western Australia. This EMP will apply to all proposed activities including Low Impact Authorised Activities (as defined in the Mining Act Amendment Bill 2015) and those proposed partially or wholly within areas of elevated conservation significance as defined in

Table 1 below.

Table 1: Environmentally Sensitive Areas – Tiered Management Approach

Category	Name	Identifier	Status	Tier	Vested Authority
Declaration of Environmentally Sensitive Areas under section 51B of the Environmental Protection Act 1986, values specially protected by the state Biodiversity Conservation Act 2016 and commonwealth Environment Protection and Biodiversity Conservation Act 1999.	Millstream Chichester National Park	Crown Reserve 38333 and 30071 – Class A	Existing	1	DBCA
	Karijini National Park	Crown Reserve 30082 – Class A	Existing	1	DBCA
	Register of National Estate	-	-	1	-
	Themeda Grasslands on cracking clays Threatened Ecological Community (TEC)	46. Themeda Grasslands {VU A}	Existing	1	DBCA
	Ethel Gorge aquifer stygobiont community TEC	78. Ethel Gorge {EN B ii}	Existing	1	DBCA
	Threatened Fauna and associated critical/core habitat	-	Existing	1	DBCA
	Areas within 50 m of Threatened Flora	-	Existing	1	DBCA
	Infrastructure Corridor	5(1)(g) Reserve 41696 (Class C – managed as part	Existing	1	DBCA

		of Karijini National Park)			
DBCA Land of Interest	Proposed Conservation Estate/ Ex-Pastoral Stations	(Ex-stations) Yarraloola, Yalleen, Hamersley, Juna Downs, Rocklea, Marillana and Karratha stations	Proposed	2	DBCA
Areas designated as Water Reserves or Public Drinking Water Supply Areas (PDWSA)	Millstream Water Reserve	Water Supply Reserve 38991	Existing	2	DWER/ Water Corporation
	Harding Dam Catchment Area	Water Supply Reserve 35798	Existing	2	DWER/ Water Corporation
	Bungaroo Creek Water Reserve	Bungaroo Creek Water Reserve	Existing	2	DWER/ Water Corporation
	Southern Fortescue and Marandoo Water Reserves	Southern Fortescue and Marandoo Water Reserves	Existing	2	DWER/ Water Corporation
	Newman Water Reserve	Newman Water Reserve	Existing	2	DWER/ Water Corporation
Species, communities and ecosystems recognised in the conservation framework	Priority flora and fauna, Priority ecological communities	-	Existing	2	DBCA

All proposed activities are assessed internally by SME's through the ARC System to determine the level of environmental risk relevant to the works. Where a proposal is located within a location listed above in

Table 1, additional external environmental approvals may be required. When operating in these areas of elevated conservation significance RTIO has adopted a tiered management approach to define the additional environmental controls required depending on the environmental risk posed by the activity. Controls in Tier 1 and Tier 2 areas are in addition to the general controls implemented for all Resource Development.

This EMP outlines the objectives, management actions, performance indicators and reporting requirements for each relevant environmental aspect associated with the operations undertaken in Resource Development areas.

When working within Water Reserves or Public Drinking Water Source Areas (PDWSA), staff and contractors will follow, where practicable, the recommendations within the published water quality protection notes (WQPN) relevant to Resource Development activities (available online at Department of Water and Environmental Regulation website). Relevant WQPNs include:

- WQPN 10: Contaminant spills – emergency response
- WQPN 65: Toxic and hazardous substances – storage and use
- WQPN 83: Infrastructure corridors near sensitive water resources
- WQPN 84: Rehabilitation of disturbed land in PDWSA's

The key aspects which will be managed in line with WQPNs include but are not limited to:

- Hydrocarbon management;
- Sewage management;
- Refuelling activities; and
- Vegetation clearing.

4.1 Ground Disturbance and Land Clearing	
Responsibilities	Owner GM Resource Development
	Task Holder Approval Permit Owner
<p>Objectives</p> <ul style="list-style-type: none"> • To comply with all issued approval conditions with AR Permits. • To avoid or minimise impacts to environmentally sensitive areas, where practicable. • To minimise disturbed areas, as far as practicable. • To prevent unauthorised clearing of land and minimise adverse impacts. • Ensure clearing and rehabilitation data is collected and reported in accordance with internal and external requirements. 	
<p>Management</p> <ul style="list-style-type: none"> • All proposed ground disturbance must undergo a planning phase and be approved through the AR process to ensure all internal and external legal requirements are met (includes, but not limited to: exclusion and restriction zones; for example heritage and priority flora). <ul style="list-style-type: none"> ○ Biological SME reviews AR and provides advice on potential features of environmental significance. ○ If review of aerial imagery identifies potential significant flora or fauna habitat, a field survey would be undertaken prior to any ground disturbance. ○ If any features of elevated conservation significance are identified they are avoided through the AR permit process (where practicable). ○ If activities are proposed in an area where no baseline flora and fauna information exists, a desktop assessment (including information from publically available data sets and any data available from nearby or adjacent areas) and / or a field survey is undertaken prior to any ground disturbance. ○ Existing tracks are used where possible to reduce the cumulative impact of activities within an area. • An approved AR permit is required prior to any ground disturbance occurring. Execution of ground disturbing activities to occur in accordance to AR permit. • AR boundary and exclusion and restriction areas are programmed into machinery guidance system that defines the approved work area. • All ground disturbance and rehabilitation activities are recorded in GIS spatial data files which inform annual reporting. • Soil resources and rehabilitation are to be managed as per approval requirements. • Vehicles and machinery are to use existing tracks where practicable. • All tracks will be constructed and maintained to ensure minimal impact on natural surface drainage patterns and to ensure surface run-off does not impact surrounding lands. 	

- Staged or progressive clearing of drill pads and tracks will occur where possible to minimise the potential for erosion.
- Ground disturbance will be planned to avoid surface drainages where practicable.
- Sumps of appropriate capacity will be constructed to contain drilling cuttings.
- Once disturbed areas are no longer required, they will be progressively rehabilitated.
- Potential impacts to priority flora will be identified and risk assessed through the RTIO ARCS process. Priority flora and ecological communities will be avoided in the first instance and impacts minimised.
- All light vehicles (including registered trucks) will carry an appropriate working fire extinguisher while drills rigs / booster units and earthmoving equipment will be fitted with both fire extinguishers and fire suppression.

Additional controls - Tier 1 areas

- RTIO will consult with the Department of Biodiversity Conservation and Attractions (DBCA) prior to accessing National Parks, or progressing any approvals associated with activities within National Parks.
- Prior to undertaking ground disturbing activities a biological survey will be undertaken in accordance with RTIO requirements to support a NVCP application.
- A NVCP will be obtained and the environmental management measures listed both within the issued clearing permit and outlined in this EMP will be implemented.
- For vegetation communities that are not part of a TEC but are directly adjacent to a TEC, additional environmental management measures may be implemented if deemed appropriate on the advice from the RTIO Environment Operations team.
- No clearing within 50m of national parks boundary.
- Final close out report (where required) to be completed when activities are complete.

Additional controls - Tier 2 areas

- RTIO will consult with the DWER (Water branch) and/or DBCA for works in PDWSA or DBCA Land of Interest/Proposed Conservation Estates.
- A Biological Assessment Summary (BAS) will be provided to DBCA/DMIRS for works in DBCA Land of Interest/Proposed Conservation Estate only. The purpose of a BAS is to:
 - Outline RTIO Operational Controls;
 - Review AR and available biological information;
 - Provide an assessment of biological risks; and
 - Summarise amendments and changes to AR that reduce biological risks.
- Works are to be carried out in line with 'Memorandum of Understanding' between Department of Mines, Industry Regulation and Safety and the Department of Water and Environmental Regulation – Environmental Protection Authority Services where applicable (Section 8).
- No clearing within 50m of national parks boundary.
- Final close out report (where required) to be completed when activities are complete.

Performance Indicators

- Compliance with external approvals including but not limited to clearing limits, topsoil storage/handling and rehabilitation.

Monitoring

- Cleared areas are to be assessed for compliance to the AR permit requirements following ground disturbance works.
- Reconciliation of clearing area.

Reporting

- Breaches of the RTIO business AR process (including external approval conditions) shall be reported as an incident as per Iron Ore (WA) Non-Conformance, Incident and Action Management Procedure.
- Out of control bushfires, as a result of the company's activities will be reported to the relevant authority under the *Bush Fires Act 1954*, and if in or adjacent to a conservation area, to the Parks and Wildlife Service's Pilbara Regional Officer (emergency only) and Pilbara Regional Manager (see Section 6).

4.2 Hydrocarbon and Chemical Management	
Responsibilities	Owner GM Resource Development
	Task Holder Approval Permit Owner
Objective	
<ul style="list-style-type: none"> • To collect, treat, transport and dispose of wastes in an environmentally acceptable manner in accordance with relevant legislation. • To manage hydrocarbons and chemicals in accordance with relevant legislation. 	
Management	
<ul style="list-style-type: none"> • All hazardous materials storage facilities will be designed in accordance with the appropriate Australian design standards and legislation (i.e. containment bunds and chemical cabinets). • Spill control equipment shall be stored in high risk or sensitive locations to allow for a quick response to spills. • Any spills/ leaks shall be contained and managed in accordance with the internal spill management processes and procedures which follow the control, contain, clean-up and report methodology and reported in accordance with the relevant tenement conditions. • Biodegradable drilling fluids will be utilised where possible. • A licensed controlled waste carrier shall transport controlled waste in accordance with <i>Environmental Protection (Controlled Waste Regulations) 2004</i> and internal procedures for the management of controlled wastes. 	
Additional controls - Tier 1 and 2 areas	
<ul style="list-style-type: none"> • Where practicable, all refuelling of vehicles and machinery will occur outside of Tier 1 and 2 areas. No refuelling will occur within drainage lines or within the high water mark of PDWSA. If refuelling is required within these areas, fuel will be distributed from a service vehicle with a fuel tank on the back (10,000L maximum). Mobile equipment will be re-fuelled at the drill pad wherever possible and an operator will be present for the duration of the refuelling so as to prevent overfilling. Drip trays will also be used. • All planned servicing of vehicles will be conducted outside proposed and existing nature conservation reserves / areas and PDWSA's at a designated facility. Unplanned servicing (such as breakdowns and maintenance) within these areas will utilise drip trays and / or absorbent matting. • Where practicable, fuel will be sourced from existing facilities (e.g. mine sites) in preference to establishing temporary fuel storage facilities, in line with Water Quality Protection Note 56. <ul style="list-style-type: none"> ○ If required, temporary fuel or chemical storage will not exceed 250 litres within a Priority 1 (P1) PDWSA unless prior written approval has been received from the Department of Water and Environmental Regulation – Regulatory Services (Water). ○ If required, temporary fuel storage would not exceed 5000L in Priority 2 (P2) areas and would be outside of wellhead protection and reservoir protection zones. 	

- No underground hydrocarbon or chemical storage tanks are permitted within PDWSAs or Tier 1 / 2 areas.
- Above ground storage will not be located within well head protection zones (500 m in P1 areas, 300 m in P2 or P3 areas), or within reservoir protection zones (i.e. within 2 km of the top water level of a public water supply reservoir).
- Security locks will be fitted to unattended hydrocarbon dispensing hoses.
- Stormwater accumulated within fuel storage areas will be removed. Contaminated stormwater collected will be disposed of appropriately (e.g. utilise licensed disposal / treatment facility).
- Activities undertaken in accordance with WQPN 10: *Contaminant spills – emergency response* and WQPN 65: *Toxic and hazardous substances – storage and use*.

Performance Indicators

- No chemical or hazardous waste materials spilled which result in material environmental harm and cannot be recovered, including impact to groundwater, surface water or vegetation and which requires external notification to regulatory authorities.
- All environmentally hazardous chemicals stored within appropriately bunded facilities.

Monitoring

- Premise inspections and desktop audits will be completed based on the risk and sensitivity of the area and will determine:
 - Appropriate storage and handling of controlled wastes and neat hydrocarbon/chemical products.
 - Spill kits availability in areas of risk or sensitivity. Hydrocarbon or chemical specific kits are to be available based on the material stored.
 - Evidence of spills or leaks as a result of equipment failure.
 - Internal incident reporting for all spills and external reporting where required.
- Collection of controlled waste data and maintenance of controlled waste receipts in line with the *Environmental Protection (Controlled Waste Regulations) 2004*.

Reporting

- Any incidents, near misses and non-compliances shall be dealt with as per Iron Ore Non Conformance, Incident and Action Management Procedures.
- Spills within existing and proposed conservation areas, where potential environmental harm has occurred, will be reported to the DBCA – Parks and Wildlife Service’s Pilbara Environmental Officer by email as soon as practicable (see Section 6 Project Notification for contact details).
- Spills which are unrecoverable or have the potential to cause material environmental harm within a PDWSA will be reported to the Water Corporation and DWER as soon as practicable (see Section 6 Project Notification for contact details) and in accordance with the tenement conditions or legislative requirements.

4.3 Non-Mineral Waste Management	
Responsibilities	Owner GM Resource Development
	Task Holder Approval Permit Owner
Objectives	
<ul style="list-style-type: none"> • To minimise the generation of waste by Resource Development works. • To dispose and manage waste in a manner compliant with legislative requirements. 	
Management	
<ul style="list-style-type: none"> • The Proponent will implement the appropriate internal Non-Mineral Waste Management Procedures and Management Plans for all Resource Development works. • All waste storage facilities will be designed in accordance with the appropriate Australian design standards and legislation (i.e. containment bunds). • All waste (including hydrocarbon, chemical and other controlled waste) generated is to be removed immediately for disposal at appropriately licensed or approved facilities. • A licensed controlled waste carrier shall transport controlled waste in accordance with <i>Environmental Protection (Controlled Waste Regulations) 2004</i> and Iron Ore Controlled Waste Guidelines and Work Practices. 	
Additional controls - Tier 2 areas	
<ul style="list-style-type: none"> • Drilling programmes within PDWSAs will utilise a 'mobile amenity caravan' with built in black water storage capacity and / or self-contained combusting toilets. 	
Performance Indicators	
<ul style="list-style-type: none"> • Compliance with the requirements of the licensed disposal facilities utilised. • Compliance with <i>Environmental Protection (Controlled Waste Regulations) 2004</i>. 	
Monitoring	
<ul style="list-style-type: none"> • Premise inspections and desktop audits will be completed based on the risk and sensitivity of the area and will determine: <ul style="list-style-type: none"> ○ Segregation of waste is appropriate for the area and type of work being conducted. ○ Disposal facilities are demarcated and placed in locations to maximise use. ○ If wind-blown rubbish is present. • Collection of controlled waste data and maintenance of controlled waste receipts in line with the <i>Environmental Protection (Controlled Waste Regulations) 2004</i>. • Collection of waste data. 	
Reporting	
<ul style="list-style-type: none"> • Non-compliances shall be reported as an incident within the Proponents Non Conformance, Incident and Action Management Procedures and in accordance with legislative requirements. 	

4.4 Weed Management					
Responsibilities	<table border="1"> <tr> <td>Owner</td> <td>GM Resource Development</td> </tr> <tr> <td>Task Holder</td> <td>Approval Permit Owner</td> </tr> </table>	Owner	GM Resource Development	Task Holder	Approval Permit Owner
Owner	GM Resource Development				
Task Holder	Approval Permit Owner				
<p>Objectives</p> <ul style="list-style-type: none"> To prevent the introduction and spread of weeds within disturbance footprints, directly attributable to Resource Development works. <p>Note: RTIO define weed attribution as new weed specimens or populations of existing species that are established within approved footprints that can be directly linked to Resource Development vehicle movement and drilling activities. Factors which may not be attributable to Resource Development include but are not limited to weed movement by wind, cattle or natural surface water flow processes.</p>					
<p>Management</p> <ul style="list-style-type: none"> Prior to works commencing a desktop review of weed occurrence within the proposal area will be undertaken as part of the AR process. Known populations of weeds within project areas will be identified on site plans, with 'weed data' updated in the RTIO business' Geographic Information System (GIS) post vegetation survey work. All earthmoving and ground engaging equipment will be inspected and cleaned of vegetation, mud and soil prior to entry and exit from site. The Proponent will implement equipment hygiene inspection procedure for the cleaning of ground engaging equipment prior to transportation to and between RTIO sites. As outlined in the procedure, all mobile equipment shall be free of all vegetative and soil matter prior to the arrival to an area and also at the departure from a site. Where weeds are identified by field team within the defined approval boundary, additional inspections will be completed. RTIO utilises the methods of dry brushing and/ or air blowing to remove the build-up of rock, mud and vegetation. Once assessed and equipment is clean an equipment hygiene inspection certificate is completed and a copy is saved. Resource Development will implement weed management procedures and management plans, both specific for Resource Development works and in line with RTIO business strategies. The plans/procedures will include provision for weed management activities as required. If a new weed species, which is defined as rapidly invasive and of high ecological impact (as per DBCA Pilbara Impact and Invasiveness ratings), is identified and is found to be directly attributable to Resource Development activities, then weed treatment will be undertaken to a level commensurate with the immediate surrounding land use quality. Only contractors who hold a current pest management technician license are to be used or direct employees of RTIO. <p>Additional Controls – Tier 2 Areas</p> <ul style="list-style-type: none"> Weed Management within PDWSAs will be conducted in accordance with Country Areas Water Supply Bylaws (1957) and Public Sector Circular 88 Use of Herbicides in Water Catchment Areas (PSC88) (Department of Health, 2006). Records of the herbicide and dates of use in PDWSAs will be retained. 					

Performance Indicators

- Weed identification guides maintained on-site (verified during risk based premise inspections).
- Verification of equipment hygiene inspection certificate completion during risk based desktop audits.
- No new weeds which are rapidly invasive and of high ecological impact found at established rehabilitation monitoring locations, which are directly attributable to Resource Development activities.
- No increase in spread of the known populations of weeds within disturbance footprints, directly attributable to implementation of Resource Development activities.

Monitoring

- Annual desktop assessment of priority weed management areas for planned Resource Development works. Information from RTIO's GIS database will be used to inform annual planning for weed management activities.
- Rehabilitation photo monitoring will be completed within 4 years of rehabilitation being completed and is used to make an assessment of weed identification and presence.
- Site inspections for weed presence will be opportunistic and aligned with rehabilitation monitoring activities required by the respective approval.

Reporting – Tier 2

- Weed survey and management information within DBCA Lands of interest and species, communities and ecosystems recognised in the conservation framework will be provided to DBCA as requested.

4.5 Discharge Management	
Responsibilities	Owner GM Resource Development
	Task Holder Approval Permit Owner
Objectives	
<ul style="list-style-type: none"> • To minimise the impacts on the quality and quantity of surface waters. • To contain any contaminated water within appropriately bunded areas. • To minimise unnecessary disturbance to natural surface drainages. 	
Management	
<ul style="list-style-type: none"> • A 26D and / or 5C water licence from the DWER authorising bore construction and discharge during test pumping will be managed through the AR process to ensure all internal and external legal requirements are met. • Design and construct drill pad and sumps to maximise settling period for the collected discharge. • A licensed water bore driller, utilising appropriate drilling equipment and techniques will be utilised to construct bores. • Approved biodegradable drilling fluids will be utilised. • All discharge, including cuttings, to be contained within sumps (where practicable) during bore construction. • In the absence of any regulatory / licensed discharge limits all discharge is to comply with section 4.3 ('Livestock drinking water quality') of the Australian and New Zealand guidelines for fresh and marine water quality: Volume 1, for pH (6.0 - 9.0 pH units), EC (3,730 µS/cm) and TDS (2,500 mg/L) and carry minimal sediment load. Water released to the environment during test pumping is sourced directly from the aquifer below and in un-modified prior to discharge. The immediate receptor, prior to the water soaking into the ground or evaporating, is livestock (or native fauna); thus livestock drinking water quality guidelines for EC, pH and TDS are applicable. The risk of test pumping discharge negatively impacting a PDWSA is low. • Test pumping will be conducted as per program specific Discharge Management Plans, which include: <ul style="list-style-type: none"> ○ A summary of the test pumping program (including predicted discharge volumes and water quality) and the proposed outcomes; ○ A map of the proposed controlled path of discharge; ○ A project / program specific environmental risk register; including a summary of controls for identified environmental risks; and ○ Identification of key operational stakeholders. • Prior to test pumping, groundwater will be analysed in the field (pH, EC or TDS only) to ensure compliance with external licencing requirements and / or section 4.3 ('Livestock drinking water quality') of the Australian and New Zealand guidelines for fresh and marine water quality: Volume 1. 	

- When discharging into a flowing creek, the background water chemistry of the creek and the discharge water (pH, EC or TDS only) will be determined in the field prior to mixing.
- Discharge waters will be monitored during discharge, via in-situ sampling.
- A site specific assessment will be made to determine if water diversion banks / bunds are required to prevent erosion due to surface water flow.
- Erosion control measures will be implemented at the discharge point.
- If discharge has the potential to adversely impact on the surrounding environment, and in particular any sensitive environmental receptors, then preventative measures will be implemented to mitigate any impacts including but not limited to:
 - Ceasing test pumping until the wetting footprint recedes prior to continuing.
 - Designing sumps to capture the anticipated volume of water during test pumping.
 - Instating a flow path which avoids sensitive receptors.
- Water bores that require disinfection will be disinfected in line with Section 14 of 'Minimum Construction Requirements for Water Bores in Australia'.

Performance Indicators

- Compliance with conditions of the 26D and / or 5C water licence.
- Development / implementation of a project / program specific Discharge Management Plan.
- Compliance with discharge water quality limitations, volumes and annual reporting requirements.

Monitoring

- Field analysis of pH, EC and TDS prior to test pumping and comparison to the limits set out in the 'Livestock drinking water quality' section of the Australian and New Zealand guidelines for fresh and marine water quality: Volume 1.
- Post works field inspection of hydro drilling works by the earthworks supervisor or delegate.

Reporting

- All breaches to water licences and water quality limits shall be reported as per the approval requirement.
- Unauthorised discharge will be reported (where required) with any areas impacted by discharge remediated as soon as practicable.

4.6 Rehabilitation	
Responsibilities	Owner GM Resource Development
	Task Holder Approval Permit Owner
Objectives	
<ul style="list-style-type: none"> To ensure landforms and other disturbed areas, at the completion of activities are safe, stable and capable of supporting native vegetation, to allow integration into the surrounding environment. To ensure good environmental outcomes and strategic rehabilitation practices across Pilbara wide operations. 	
Management	
<ul style="list-style-type: none"> Progressive rehabilitation shall occur as soon as practicable at the end of drilling activities with consideration given to timing of rehabilitation due to seasonality changes. Rehabilitation material (including topsoil) removed by clearing is collected and stored. Where tracks remain open for access, it is anticipated that all remaining rehabilitation of these areas to occur no later than 6 months of PoW expiry. Water bore drill holes that are no longer required will be decommissioned, backfilled and capped according to the techniques described in the National Minimum Bore Specifications Committee Minimum Construction Requirements for Water Bores in Australia (National Minimum Bore Specifications Committee 2012) Rehabilitation of abstraction bores or bores that intersect more than one aquifer will be backfilled using packers and cement grout or bentonite seal to prevent contamination or mixing of water between aquifers. Drill holes within confined aquifers will be sealed to prevent uncontrolled discharge to the surface. Remedial earthworks will be undertaken if monitoring determines that regeneration of disturbed areas is unlikely to achieve the species composition, structure and density comparable to adjacent undisturbed reference areas. Rehabilitation of tracks and other disturbance shall be conducted in accordance with this EMP which will consist of: 	
Timeframe	Task
Immediate	Temporary capping of drill holes post drilling. All sample bags will be removed post drilling and disposed of appropriately. Any sump liners, which may have been installed, are to be removed and disposed of.
Within 6 months of holes being drilled	Cutting and plugging of all drill collars at least 400mm below ground level (unless required for subterranean fauna/ groundwater investigations). Sumps and excavation infill.

<p>Within 6² months of cessation of drilling program</p>	<p>Re-establishment of natural landform and drainage patterns.</p> <hr/> <p>Re-spreading of stockpiled topsoil and vegetation.</p> <hr/> <p>Shallow ripping / scarifying along the contour.</p>
<p>Within 6² months of the PoW expiring</p>	<p>All disturbances conducted under a PoW are to be rehabilitated within 6 months of the PoW expiring, unless endorsed (DMIRS) to remain open to facilitate ongoing access to other areas.</p>
<p>Note: A 6 month timeframe for rehabilitation limits RTIO in efficiently executing large scale rehabilitation programs commensurate with the scale of works within the Pilbara.</p>	
<p>Additional controls – Tier 1 areas</p> <ul style="list-style-type: none"> • Representative rehabilitation monitoring of pads and tracks within Resource Development areas and in accordance with the requirements of the relevant PoW and NVCP. • Rehabilitation summaries will be provided to the DBCA – Parks and Wildlife Pilbara Environment officer. 	
<p>Additional Controls – Tier 2 areas</p> <ul style="list-style-type: none"> • Rehabilitation within PDWSAs to be in accordance with WQPN 84: Rehabilitation of disturbed land in PDWSAs. 	
<p>Performance Indicators</p> <ul style="list-style-type: none"> • Rehabilitation is stable, supportive of native vegetation and compatible with surrounding land uses. • Compliance with PoW and NVCP rehabilitation timeframes for pads and tracks. 	
<p>Performance indicators – Tier 1 areas</p> <ul style="list-style-type: none"> • The species composition, density and distribution of plants, within rehabilitated areas, shall be comparable with that of the surrounding environment. • Rehabilitated areas are to be assessed by a suitably qualified specialist as per the requirements of the NVCP. 	
<p>Monitoring</p> <ul style="list-style-type: none"> • Rehabilitation photo monitoring shall be conducted to monitor for rehabilitation success as per the requirements of the approval which the work was completed under (includes erosion risk). • Monitoring will be completed within four years of rehabilitation, or as per the conditions in the PoW or NVCP applicable to the program. 	
<p>Rehabilitation Deferral</p> <ul style="list-style-type: none"> • Where pad and track rehabilitation is proposed to be undertaken, post the approved timeframe for rehabilitation, a formal request to defer rehabilitation will be outlined in the Request for Deferral of the Annual Rehabilitation Report. 	

² All rehabilitation will be undertaken within 6 months of disturbance occurring (a requirement of tenement conditions) unless written approval has been obtained from the DMIRS Environmental Compliance Branch to complete rehabilitation within 12 months of cessation of the drilling program.

- Where areas are proposed to be left open for ongoing access, rehabilitation will be undertaken in all immediately adjacent areas no longer required for the purpose of which they were cleared.
- Deferral of rehabilitation may be required for the following reasons:
- Tracks and pads required for subterranean monitoring (details of areas to remain open and the timeframes required to be outlined in annual report);
- Tracks to remain open for on-going access to monitoring bores;
- Arterial tracks to remain open for future exploration drilling program access (subject to approval) and;
- Tracks to remain open for ongoing access to infrastructure.

4.7 Reporting	
Responsibilities	Owner GM Resource Development
	Task Holder Environment Team
<p>Objectives</p> <ul style="list-style-type: none"> To comply with PoW permit requirement to complete a report for all rehabilitation work that has been completed (includes photo monitoring of rehabilitation) during calendar year reporting period. To provide a process to notify DMIRS of deferral of rehabilitation requests extending beyond 6 months since cessation of the drilling program. To comply with reporting requirements defined <i>Environmental Protection Act 1986</i> Native Vegetation Clearing Permits annual reports submitted to DMIRS and DWER. 	
<p>Reporting</p> <ul style="list-style-type: none"> Out of control bushfires directly resulting from the company's activities will be reported to the relevant authority under the <i>Bush Fires Act 1954</i>, and if in or adjacent to a conservation area, to the Parks and Wildlife Service's Pilbara Regional Officer (emergency only) and Pilbara Regional Manager (see section 6: Project Notification). Accurate records of disturbance and rehabilitation activities of pads and tracks will be kept (GIS spatial files/ metadata and tracking registers). DMIRS will be notified of any breach of this EMP or approval conditions that has the potential to result in environmental harm. A summary of completed rehabilitation assessment (includes photo monitoring) and deferral of rehabilitation within legally required areas provided to DMIRS in the form of the following reports: <p>Annual Exploration Rehabilitation Report</p> <p>This report details PoWs completed within the reporting period and demonstrates all disturbance and rehabilitation (including supporting photos of revegetation establishment). A summary and map of each Reg ID will be populated as per DMIRS guidance document http://www.dmp.wa.gov.au/Documents/Environment/ENV-MEB-033.pdf. A report will be prepared for all PoWs following completion and assessment of rehabilitation.</p> <p>Request for Deferral of Rehabilitation Report</p> <p>This endorsed EMP entails an ongoing agreement between DMIRS and RTIO for the rehabilitation timeframes referenced in Section 4.6 - Rehabilitation. Deferral requests outside of these timeframes will be presented for endorsement within the deferral section of the Annual Exploration Rehabilitation Report.</p>	

Reporting – Tier 1 areas

When activities within National Parks / Proposed Conservation Estates are complete, the DBCA Environmental Officer will be provided with the final close out report that provides evidence that the appropriate environmental management measures were adhered to as well as the ability to undertake joint site inspections.

5 Environmental Risk Assessment

Rio Tinto uses a consistent HSEC qualitative risk analysis methodology for risk assessments, which is based on the following risk matrix.

Table 2: Risk matrix

Likelihood	Consequence				
	1 – Minor	2 – Medium	3 – Serious	4 – Major	5 - Catastrophic
A – Almost Certain	Moderate	High	Critical	Critical	Critical
B – Likely	Moderate	High	High	Critical	Critical
C - Possible	Low	Moderate	High	Critical	Critical
D - Unlikely	Low	Moderate	Moderate	High*	Critical
E - Rare	Low	Low	Moderate	High*	High*

Notes – All risks that have a critical risk classification from a qualitative analysis (using the risk determination matrix) must be re-evaluated using a level 3 quantitative analysis. *Consideration must be given to escalate all risks with a consequence of Major or Catastrophic and a classification of High to a Level 3 quantitative analysis.

Risk = consequence x likelihood

The following criteria are used to determine the consequence and likelihood of a risk event occurring (Table 3 and Table 4). The fundamental rule is to define the consequence first, as different consequences have different likelihoods.

Table 3: Consequence description

Consequence		Consequence description
Minor	On-site ³ Environment	Near-source confined and reversible impact able to be promptly rectified (typically a shift)
	Off-site Environment	Not applicable
Medium	On-site Environment	Near-source confined and short-term impact able to be promptly rectified (typically a week)
	Off-site Environment	Near-source confined and reversible impact, able to be promptly rectified (typically a shift)
Serious	On-site Environment	Near-source confined and medium-term recovery impact (typically a month)
	Off-site Environment	Near-source confined and short-term impact able to be promptly rectified (typically a week)

³ On- site is defined as the PoW/ NVCP boundary

Major	On-site Environment	Impact that is unconfined and requiring long-term recovery, leaving residual damage (typically years)
	Off-site Environment	Near-source confined and medium-term recovery impact (typically a month)
Catastrophic	On-site Environment	Impact that is widespread unconfined and requiring long-term recovery, leaving major residual damage (typically years)
	Off-site Environment	Impact that is unconfined and requiring long-term recovery, leaving residual damage (typically years)

Table 4: Likelihood descriptions

Likelihood	Likelihood description	Frequency
Almost certain	Recurring event during the life of an operation.	Occurs more than twice a year.
Likely	Event that may occur frequently during the life of an operation.	Typically occurs once or twice a year.
Possible	Event that may occur during the life of an operation.	Typically occurs in 1-10 years.
Unlikely	Event that is unlikely to occur during the life of an operation.	Typically occurs in 10-100 years.
Rare	Event that is very unlikely to occur during the life of an operation.	Greater than 100 year event.

To support the environment aspects defined in Section 4 a risk register has been populated of the key environment and compliance risk scenarios (Table 5) for mineral evaluation activities undertaken in the field and suitable management controls.

Table 5: Mineral evaluation and drilling risk register

ID	Tiered level	Environmental Factor	Project Phase	Risk Scenario	Consequence	Likelihood	Inherent Risk Rating	Controls	Consequence	Likelihood	Current Risk Rating
1a	All	Biodiversity / Flora / Fauna / Ecosystem	AR Review	Inadequate biological information resulting in impact to Tier 1 (Threatened flora/fauna/ecological community) or Tier 2 (Priority flora/fauna/ecological community) values	Serious	Possible	High	<ul style="list-style-type: none"> - Clearing is managed in accordance with RTO operating procedures including: <ul style="list-style-type: none"> • AR permits progressed and issued via the ARC System; • Environmental restriction and exclusion areas maintained on RTO's GIS database; • Areas of significance (Tier 1 to 3) are identified via the AR process and through GIS database. - Desktop review of RTO GIS database conducted by Biological SME to ensure previous survey coverage, methodology and age provides an adequate context for assessment of risks to Tier 1 and Tier 2 values. <ul style="list-style-type: none"> • Tier 1 and 2 values within the AR will be excluded and avoided where practical; • If SME deems survey coverage is inadequate, a field survey will be conducted to ensure adequate context for assessment of impacts; and • If desktop review or field survey identifies Tier 1 values are present in application, and these values cannot be excluded from the AR boundary, the relevant external approvals will be sought and managed via specific Conservation Management Plan if required. - AR boundary and exclusion and restriction areas are programmed into machinery guidance system that defines the approved work area. 	Serious	Unlikely	Moderate
1b	Tier 2 – DBCA Land of Interest only	Biodiversity / Flora / Fauna / Ecosystem	AR Review	Inadequate biological information resulting in impact to Tier 1 (Threatened flora/fauna/ecological community) or Tier 2 (Priority flora/fauna/ecological community) values	Serious	Possible	High	<ul style="list-style-type: none"> - As above for 1a, plus; - SME to prepare Biological Assessment Summary for proposed works (including information from desktop assessment and any field surveys), to be submitted to DMIRS & DBCA, identifying biological context, risk assessment and mitigation measures. 	Serious	Unlikely	Moderate

ID	Tiered Level	Environmental Factor	Project Phase	Risk Scenario	Consequence	Likelihood	Inherent Risk Rating	Controls	Consequence	Likelihood	Current Risk Rating
2a	All	Biodiversity / Flora / Fauna / Ecosystem	Mineral/ hydrogeological exploration	Unauthorised ground disturbance resulting in over clearing of vegetation	Serious	Possible	High	<ul style="list-style-type: none"> - Clearing is managed in accordance with RTIO operating procedures including: <ul style="list-style-type: none"> • AR permits issued via the ARC System; • Area is reviewed by Biological SME; and • Environmental restriction and exclusion areas are maintained on RTIO's GIS database. - AR boundary and exclusion and restriction areas are programmed into machinery guidance system that defines the approved work area; - All ground disturbance and rehabilitation activities are recorded in GIS spatial data files which inform annual reporting; - Project notification for access to and works within DBCA managed areas; - An approved AR permit is required prior to any ground disturbance occurring; - Execution of ground disturbing activities to occur in accordance to AR permit; - Soil resources and rehabilitation are to be managed as per approval requirements; - Vehicles and machinery are to use existing tracks where practicable; - All tracks will be constructed and maintained to ensure minimal impact on natural surface drainage patterns and to ensure surface run-off does not impact surrounding lands; - Ground disturbance will be planned to avoid surface drainages where practicable; - Sumps of appropriate capacity will be constructed to contain drilling cuttings; - Once disturbed areas are no longer required, they will be progressively rehabilitated; - Priority flora and ecological communities will be avoided as far as practicable; - All light vehicles (including registered trucks) will carry an appropriate working fire extinguisher while drills rigs / booster units and earthmoving equipment will be fitted with both fire extinguishers and fire suppression and - Ad-hoc premise inspections. 	Serious	Unlikely	Moderate
2b	Tier 1 and Tier 2 DBCA Land of Interest only	Biodiversity / Flora / Fauna / Ecosystem	Mineral/ hydrogeological exploration	Unauthorised ground disturbance resulting in over clearing of vegetation	Serious	Possible	High	<ul style="list-style-type: none"> - As above for 2a, plus; - No clearing within 50m of national parks boundary; - Early engagement with DBCA to provide business context and overview of activities and if required separate supporting information and documents prepared (i.e. project proposals to be considered pursuant to Section 24 of the <i>Mining Act 1979</i>); and - Final close out report (where required) to be completed when activities are complete. 	Serious	Unlikely	Moderate
3	All	Hydrocarbon management	Mineral/ hydrogeological exploration	The use, transport and storage of hazardous materials results in groundwater contamination	Medium	Possible	Moderate	<ul style="list-style-type: none"> - All hazardous material stored facilities to comply RTIO standards and procedures; - Spill control equipment (spill kits) shall be stored with all mobile equipment to allow for the prompt response to spills; - Internal incident reporting for all spills and external reporting where required; - Adherence to Public Drinking Water Source Areas and areas of significance where retelling of vehicles and machinery is not permitted; Premise inspections and desktop audits will be completed based on the risk and sensitivity of the area, and - Collection of controlled waste data and maintenance of controlled waste receipts in line with the Environmental Protection (Controlled Waste Regulations) 2004. 	Medium	Unlikely	Low

ID	Tiered Level	Environmental Factor	Project Phase	Risk Scenario	Consequence	Likelihood	Inherent Risk Rating	Controls	Consequence	Likelihood	Current Risk Rating
4	All	Biodiversity / Flora / Fauna / Ecosystem	Mineral/hydrogeological exploration	Inappropriate management of wastes resulting in windblown litter, local increase in feral fauna	Minor	Possible	Low	<ul style="list-style-type: none"> - Resource Development to adhere to RTIO non-mineral waste procedures and guidance; - All disposal facilities are demarcated and waste segregated; - All licensed controlled waste carrier shall transport waste in accordance with Environmental Protection (Controlled Waste Regulations) 2004; and - Premise inspections and desktop audits will be completed based on the risk and sensitivity of the area. - All earth moving and ground disturbance equipment to be inspected and cleaned prior to entering a site and also on departure. A completed Rio Tinto Equipment Hygiene Inspection Certificate must be completed and retained by Resource Development field teams; - Annual desktop assessment of priority weed management areas for planned Resource Development works. Information from RTIO's GIS database will be used to inform annual planning for weed management activities; - Assessment to be completed during rehabilitation photo monitoring (within four years of rehabilitation completed) to verify no rapid invasive weed or high ecological impact is present that can be attributed to Resource Development activities; - Weed control if weeds are determined to be attributed to Resource Development activities; and - Site inspections for weed presence. 	Minor	Unlikely	Low
5a	All	Biodiversity / Flora / Fauna / Ecosystem	Mineral/hydrogeological exploration	Spread of weeds outside of impact areas as a result of ineffective weed management	Medium	Possible	Moderate	<ul style="list-style-type: none"> - As above for 3a, plus; - New infestations or increased spread of weeds resulting from cleaning activities that occur in conservation areas to be reported to DBCA; - Where weed specimens or populations of existing species are established and directly attributable to Resource Development activities, weed spraying and/or physical removal will be undertaken to a level commensurate with the surrounding land-use quality. Only contractors who hold a current pest management technician license are to be used or direct employees of RTIO. Assessment to be completed during rehabilitation photo monitoring (within four years of rehabilitation completed) to verify 	Medium	Unlikely	Low
5b	Tier 1 and Tier 2 DBCA Land of Interest only	Biodiversity / Flora / Fauna / Ecosystem	Mineral/hydrogeological exploration	Spread of weeds outside of impact areas as a result of ineffective weed management	Medium	Possible	Moderate	<ul style="list-style-type: none"> - Clearing is managed in accordance with RTIO operating procedures including: <ul style="list-style-type: none"> • AR permits issued via the ARC System; • Area is reviewed by Biological SME; and • Environmental restriction and exclusion areas are maintained on RTIO's GIS database. - Areas identified via a desktop assessment or field survey) with potential to have caves, rocky outcrops etc., are excluded from the AR permit. Exclusion buffers required by individual approval conditions will be instated within the GIS database to mitigate impacts to sensitive receptors. - AR boundary and exclusion and restriction areas are programmed into machinery guidance system that defines the approved work area; - All ground disturbance and rehabilitation activities are recorded in GIS spatial data files which inform annual reporting; - Project notification for access to and works within DBCA managed areas; and - Ad-hoc premise inspections. 	Medium	Possible	Moderate
6	All	Biodiversity / Flora / Fauna / Ecosystem	Mineral/hydrogeological exploration	Unintended impact to significant fauna habitat (e.g. caves, rocky outcrops, riparian vegetation, BIF etc.)	Serious	Possible	High	<ul style="list-style-type: none"> - RTIO site emergency response team; - Local emergency management plan; - Installation and maintenance of firebreaks; and - Provision of firefighting equipment. 	Serious	Unlikely	Moderate
7	All	Biodiversity / Flora / Fauna / Ecosystem	Mineral/hydrogeological exploration	Bushfire from operational activities resulting in loss of vegetation, flora and fauna, with short term loss of biodiversity in the region	Minor	Possible	Low	<ul style="list-style-type: none"> - RTIO site emergency response team; - Local emergency management plan; - Installation and maintenance of firebreaks; and - Provision of firefighting equipment. 	Minor	Unlikely	Low

ID	Tiered Level	Environmental Factor	Project Phase	Risk Scenario	Consequence	Likelihood	Inherent Risk Rating	Controls	Consequence	Likelihood	Current Risk Rating
8	All	Discharge management	Hydrogeological exploration	Water bore test pumping has adverse impacts to ground and surface waters (including drainage)	Medium	Possible	Moderate	<ul style="list-style-type: none"> - Groundwater abstraction water licences is managed in accordance with AR permits; - Discharge Management Plans are required to be completed prior to the commencement of test pumping programs. The document provides a summary of discharge volumes, expected path of discharge, risk assessment and identification of key stakeholders; - Risk assessment within PDWSAs (Tier 2) to include reference to Australian Drinking Water Guideline Framework (National Health and Medical Research Council, 2018) - If discharge has the potential to adversely impact on the surrounding environment, and in particular any sensitive environmental receptors, then preventative measures will be implemented; - Water quality limits as defined in licence or Australian and New Zealand standards must be adhered to at all times; - Where bore construction, air lifting or dosing may result in cuttings or increased sediment loads a sump will be constructed to contain the discharge; and - Erosion control matting used at point of discharge, and lay flat piping to direct flow; and Post works field inspection of hydro drilling works by the earthworks supervisor or delegatee. 	Medium	Unlikely	Low
9	All	Land Management	Mineral/ hydrogeological exploration	Ground disturbance resulting in erosion impacts to surrounding environment	Medium	Possible	Moderate	<ul style="list-style-type: none"> - Clearing is managed in accordance with RTIO operating procedures including: <ul style="list-style-type: none"> • AR permits issued via the ARC System; and • Rehabilitation work practices and guidelines. - A site specific assessment will be made to determine if water diversion banks / bunds are required to prevent erosion due to surface water flow. - Ground disturbance will be planned to avoid surface drainages where practicable; - Staged or progressive clearing of drill pads and tracks will occur where possible to minimise the potential for erosion; - Rehabilitation monitoring to assess erosion risk; - Consideration of timing of rehabilitation; and - Ad-hoc premise inspections. 	Medium	Unlikely	Low
10	All	Land Management	Mineral/ hydrogeological exploration	Soil deficit resulting from not collecting or managing topsoil resulting in reduced ability to rehabilitate areas with native vegetation	Medium	Possible	Moderate	<ul style="list-style-type: none"> - Clearing of rehabilitation material managed in accordance with RTIO standard operating procedure; and - Rehabilitation material (including topsoil) removed by clearing is collected and stored 	Medium	Unlikely	Low
11	All	Land Management	Mineral/ hydrogeological exploration	Lack of progressive rehabilitation resulting in non-compliance with relevant approval, resulting in delayed future approvals	Medium	Possible	High	<ul style="list-style-type: none"> - Progressive rehabilitation shall occur within 6 months of the cessation of drilling program (unless otherwise approved in writing by DMIRS); - Annual Resource Development budget and planning cycles; - Dedicated Resource Development planning team identify and schedule rehabilitation and directly link in with operational team to execute, and - Review of disturbance and rehabilitation data to inform annual reports and business tracking of performance. 	Serious	Unlikely	Moderate

ID	Tiered Level	Environmental Factor	Project Phase	Risk Scenario	Consequence	Likelihood	Inherent Risk Rating	Controls	Consequence	Likelihood	Current Risk Rating
12	All	Land Management	Mineral/hydrogeological exploration	Ineffective rehabilitation planning results in incomplete rehabilitation and reduced biodiversity of the region	Serious	Possible	High	<ul style="list-style-type: none"> - Dedicated Resource Development planning team identify and schedule rehabilitation and directly link in with operational team to execute; - Minimum rehabilitation requirements outlined in AR permits and this EMP which include: <ul style="list-style-type: none"> • Temporary capping of drill holes; • All sample bags will be removed immediately post drilling and disposed of appropriately; • Removal of any sump liners which may have been installed to be removed and disposed of; • Within six months cutting and plugging of all drill collars at least 400mm below ground level (unless required for subterranean faunal/groundwater investigations); and • Within 6 months of cessation of drilling rehabilitation works to be completed which include sump infill, re-spreading of topsoil/vegetation and shallow ripping along contours (unless otherwise approved in writing by DMIRS). - Review of disturbance and rehabilitation data to inform annual reports and business tracking of performance. 	Serious	Unlikely	Moderate
13	All	Compliance	Mineral/hydrogeological exploration	Non-adherence to annual reporting obligations for PoW and NVCP approvals	Medium	Possible	Moderate	<ul style="list-style-type: none"> - Resource Development environment advisor role prepares and submit reports; - Current tracking registers for PoW and NVCP approvals; - GIS spatial data files of approve areas; and - Metadata assigned to disturbance and rehabilitation. 	Medium	Unlikely	Low

6 Project Notification

The following contact details can be used for notification to the relevant people / departments. Such scenarios may include, but are not limited to the tabulated scenarios:

Scenario	Name and Role	Department	Contact Details
Access to a CALM Act Reserve	Conservation and Development Management Officer	Department of Biodiversity, Conservation and Attractions – Parks and Wildlife Service	Karratha.admin@dbca.wa.gov.au 08 9182 2005 / 0427 632 739
Access to a tenement which requires notification to Water Corporation e.g. Water Supply Reserve 38991	Clairly Lance – Team Leader Source Protection Cathryn Bell Technical Advisor – Water Quality NWR	Water Corporation	Clairly.Lance@watercorporation.com.au 0427 081 595 Cathryn.Bell@watercorporation.com.au 08 9186 8224
Access to a RTIO work area	Chris Morris – Superintendent Environment	RTIO business: Resource Development	Christopher.Morris@riotinto.com 0447 109 763
Emergency	SRS Manager / Response team	Department of Mines, Industry Regulation and Safety	minessafety@dmirs.wa.gov.au 08 9358 8001
Emergency e.g. wildfire	Pilbara Regional Duty Officer (emergency only)	Department of Biodiversity, Conservation and Attractions – Parks and Wildlife Service	08 9182 2088
	Allisdair MacDonald Pilbara Regional Manager (out of control bushfires)	Department of Biodiversity, Conservation and Attractions – Parks and Wildlife Service	Allisdair.Macdonald@dbca.wa.gov.au 08 9182 2000
	Daniel Petersen Karijini National Park Senior Ranger	Department of Biodiversity, Conservation and	Daniel.Petersen@dbca.wa.gov.au 08 9189 8147

		Attractions – Parks and Wildlife Service	
Emergency within PDWSA e.g. Significant hydrocarbon spill	After Hours Incident – Water Quality	Water Corporation	08 9420 2424
Rehabilitation, incident reports etc.	Pilbara Environmental Officer/ Regional Nature Conservation Leader	Department of Biodiversity, Conservation and Attractions – Parks and Wildlife Service	08 9182 2000 Karratha.admin@dbca.wa.gov.au

The DBCA – Parks and Wildlife Service will be provided at least 5 business days notification (via email) prior to accessing a Conservation Reserve. The notification will be provided to the Parks and Wildlife Service’s Environmental Officer and will include:

- an entry date to the reserve;
- a proposed timeframe for which RTIO will be accessing the reserve for; and
- a direct contact number for the site supervisor to ensure that Parks and Wildlife Service has a direct line of contact in case of emergency (e.g. bushfire).

Following on from the email, at least 48 hours prior to the planned vehicular access, the DBCA Park Rangers are to be contacted via telephone (08 9189 8147) to discuss current and forecasted weather during the proposed access period.

Should the DBCA Park Rangers or other relevant Parks and Wildlife Service staff wish to inspect or view Project activities (prior, during and / or after) contact with the Superintendent Environment, who will arrange for safe passage within the project areas.

Where required by tenement condition, the Water Corporation, Karratha will be provided at least six weeks notification (via email) prior to accessing and exploring on Water Supply Reserves (e.g. Water Supply Reserve 38991 on E47/00054) and will include:

- an entry date to the reserve;
- a proposed timeframe for which RTIO will be accessing the reserve for; and
- the type and extent of the proposed ground disturbing activities.

Should the Water Corporation staff want to inspect or view Project activities on site (prior, during and / or after) they should contact the Superintendent Environment, who will arrange for safe passage within the project areas.

7 Definitions

Approvals Request (AR) Permit	Permit issued by Rio Tinto Iron Ore to authorise the commencement of certain works onsite, including land clearing.
Attributable – weeds	Where new weed specimens or populations of existing species are established with PoW approval footprints that can be directly linked to Resource Development vehicle movement and erosion. Factors which may not be attributable to Resource Development include but are not limited to weed movement by wind, cattle or natural flow processes.
Biological SME	Subject Matter Expert – Botanist/Ecologist with > 5 years’ experience.
Conservation reserves	Conservation reserves are areas of Crown land set aside for the protection and conservation of biodiversity and / or natural or cultural heritage values. There are three main types of conservation reserves in Western Australia - nature reserves, national parks and conservation parks.
DBCA	Department of Biodiversity Conservation and Attractions
DMIRS	Department of Mines, Industry Regulation and Safety
DWER (Water)	Department of Water and Environmental Regulation – Regulatory Services (Water)
EMP	Environmental Management Plan
Environmental harm	<p>As defined in the <i>Environmental Protection Act 1986</i> (Part 1 s. 3A).</p> <p>Means direct or indirect:</p> <ul style="list-style-type: none"> • harm to the environment involving removal or destruction of, or damage to native vegetation or the habitat of native vegetation or indigenous aquatic or terrestrial animals; • alteration of the environment to its detriment or degradation or potential detriment or degradation; • alteration of the environment to the detriment or potential detriment of an environmental value; or • alteration of the environment of a prescribed kind.
Environmentally Sensitive Area	<ul style="list-style-type: none"> • A declared World Heritage property as defined in section 13 of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> of the Commonwealth; • An area that is registered on the Register of the National Estate, because of its natural values, under the <i>Australian Heritage Commission Act 1975</i> of the Commonwealth; • A defined wetland and the area within 50 m of the wetland; • the area covered by vegetation within 50 m of rare flora, to the extent to which the vegetation is continuous with the vegetation in which the rare flora is located; • The area covered by a Threatened Ecological Community (TEC); • Public Drinking Water Source Areas (PDWSAs); and / or • National Parks (both existing and proposed).

Ground disturbance	<p>Ground disturbance is defined as any disturbance of the ground. For example:</p> <ul style="list-style-type: none"> • establishing fence lines around heritage sites, firebreaks and tracks; • excavation of a depression for pit traps (fauna trapping) or Induced Polarisation Surveys; • clearing vegetation and soil for camp establishment and drilling pads; • major modifications (e.g. realignment, drainage upgrade etc.) to existing tracks / roads; and / or. • installing star pickets for the establishment of survey stations or environmental monitoring points.
HSEQ MS	Rio Tinto Health, Safety, Environment and Quality Management System
Land clearing	Any disturbance of native vegetation including rehabilitated or regenerated areas. Includes low impact disturbance resulting from driving over vegetation.
Low Impact Authorised Activities	Activities occurring within areas as defined in the <i>Mining Act Amendment Bill 2015</i>
Native Vegetation Clearing Permit (NVCP)	A Native Vegetation Clearing Permit (NVCP) is required to clear native vegetation unless the clearing is for an exempt purpose (as specified in Schedule 6 of the <i>Environmental Protection Act 1986</i> or Regulation 5 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004).
Rapid Invasive Weed / High Ecological Impact	<p>As defined by the Pilbara Impact and Invasiveness Ratings determined by the Department of Biodiversity, Conservation and Attractions. Available at:</p> <p>https://www.dpaw.wa.gov.au/plants-and-animals/plants/weeds/156-how-does-dpaw-manage-weeds</p>
Resource Development	Resource Development – A division of the RTIO business whose objective is to expand and convert resources to reserves and improve and manage orebody knowledge for studies and operations.
Parks and Wildlife Service	Department of Biodiversity, Conservation and Attractions – Parks and Wildlife Service
Public Drinking Water Source Area (PDWSA)	<p>Is the collective description for:</p> <ul style="list-style-type: none"> • Underground Water Pollution Control Areas; • Water Reserves; and • Catchment Areas. <p>Declared under the <i>Metropolitan Water Supply, Sewerage and Drainage Act 1909</i> or the <i>Country Areas Water Supply Act 1947</i>.</p>
RTIO	Rio Tinto Iron Ore business (WA)

Test Pump	A controlled field experiment in which a well / bore is pumped at a controlled rate, and the water-level response (drawdown) is measured in one or more surrounding observation wells and optionally in the pumped well (control well) itself.
Threatened Ecological Community (TEC)	A community which is found to fit into one of the following categories; "presumed totally destroyed, critically endangered, endangered or vulnerable".
Tier	A hierarchy of control or prioritisation for work areas based on sensitivity. 'All Tiers' references apply to all areas of work. Tier 1 & 2 indicated additional requirements above and beyond 'All Tier' references.
Well Head Protection Zone	Defined area around bores that supply drinking water and generally have a 500 m radius in P1 areas and a 300m radius in P2 and P3 areas.

8 Associated Documents

Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000) – Section 4.3 Primary Industries: <http://www.agriculture.gov.au/SiteCollectionDocuments/water/nwqms-guidelines-4-vol1.pdf>

Department of Biodiversity, Conservation and Attractions – Parks and Wildlife Service: 'Definitions, Categories and criteria for Threatened and Priority Ecological Communities' https://www.dpaw.wa.gov.au/images/plants-animals/threatened-species/definitions_categories_and_criteria_for_threatened_and_priority_ecological_communities.pdf

Department of Biodiversity, Conservation and Attractions – Parks and Wildlife Service: 'WA's Threatened Ecological Communities': <https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/wa-s-threatened-ecological-communities>

Department of Health (2006) Public Sector Circular 88 Use of Herbicides in Water Catchment Areas (PSC88): https://ww2.health.wa.gov.au/~/_media/Files/Corporate/general%20documents/water/Drinking%20water/S10%20PSC88_use_of_herbicides_in_water_catchment_areas.pdf

Department of Mines, Industry Regulation and Safety: Guidelines for the Protection of surface and ground water Resources: <http://www.dmp.wa.gov.au/Documents/Environment/ENV-MEB-209.pdf>

Department of Water and Environmental Regulation (1957) Country Areas Water Supply By-Laws: www.legislation.wa.gov.au

Memorandum of Understanding for Collaborative Arrangements between the Office of the EPA and the DMIRS: <http://www.dmp.wa.gov.au/Documents/Environment/ENV-MEB-016.pdf>

National Uniform Drillers Licensing Committee: Minimum Construction Requirements for Water bores in Australia: <https://www.adia.com.au/documents/item/154>

National Health and Medical Research Council (2018) National Water Quality Management Strategy: Australian Drinking Water Guidelines, version 3.5: <https://www.nhmrc.gov.au/sites/default/files/documents/attachments/australian-drinking-water-guidelines-may19.pdf>