

Appendix 11-A

Environmental Management Plan Outline - GBRMP, GBRWHA and GBRNHP





World Heritage Properties, National Heritage Places and Great Barrier Reef Marine Park Environmental Management Plan Outline

Controlling Provisions	World Heritage Properties (WHP) National Heritage Places (NHP) Great Barrier Reef Marine Park (GBRMP)
Area Description and Values	Great Barrier Reef Domestic shipping from the Port and the Port of Weipa to ports on the east coast of Queensland will pass through the Great Barrier Reef (GBR). The GBR is the world's largest coral reef ecosystem and includes: <ul style="list-style-type: none"> Over 2,900 separate coral reefs; 70 bioregions, comprising 30 reef bioregions and 40 non-reefal bioregions; Over 2,000km² of mangroves, with species representing 54 per cent of the world's mangrove diversity; About 6,000km² of seagrass beds; About 900 islands ranging from small coral cays to large continental islands; and, One of the world's most important Dugong populations and six of the world's seven species of marine turtle.
	Great Barrier Reef Marine Park (GBRMP) <ul style="list-style-type: none"> The GBRMP was declared over large parts of the GBR in 1975. The GBRMP zoning plan divides the park into numerous use zones. The inner GBR Designated Shipping Area has been located to avoid areas of high environmental and heritage values and negligible relevant impacts would occur on listed threatened ecological communities as a result of shipping through this area.
	Great Barrier Reef World Heritage Area (GBRWHA) The GBRWHA is slightly larger (one per cent) than the GBRMP. The main difference is that the GBRMP does not include islands, waters of any bay, gulf, estuary, river, creek, port or harbour that are within the limits of Queensland. The GBRWHA was inscribed on the World Heritage List in 1981, due to its "Outstanding Universal Values" (OUV). The GBRWHA was listed based on the following criteria: <ul style="list-style-type: none"> World Heritage Criteria VIII - Outstanding example representing the major stage of the earth's evolutionary history. World Heritage Criteria IX - Outstanding example representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment. World Heritage Criteria VII - Contain unique, rare and superlative natural phenomena, formations and features and areas of exceptional natural beauty. World Heritage Criteria X - Provide habitats where populations of rare or endangered species of plants and animals still survive. UNESCO describes the GBRWHA as iconic as it is the world's largest coral reef ecosystem of which the size, beauty, composition and biodiversity remain exceptional.

Area Description and Values	Great Barrier Reef National Heritage Place (GBRNHP) <ul style="list-style-type: none"> The GBR was included on the National Heritage List on 21 May 2007. The boundary of the GBRNHP is the same as the GBRWHA. The GBRNHP is recognised for five of the National Heritage List criteria which each correspond to one or more of the four World Heritage List criteria.
	Port of Gladstone and Port of Cairns The Port of Gladstone and Port of Cairns are within the GBRWHA but not the GBRMP.
Threats	The Great Barrier Reef Marine Park Authority (GBRMPA) assessment in 2009 identified 41 threats to the GBR including a number of shipping related risks such as the grounding of large vessels, large oil spills and the introduction of exotic species from ballast water discharge or hull fouling. Threats related to commercial shipping activities were all assessed as a medium risk and included large oil spills, grounding of large vessels, introduction of exotic species and vessel waste discharge. The risk of threats associated with commercial shipping activities occurring were assessed as unlikely.
Project Activities within or surrounding the Controlling Provisions	<ul style="list-style-type: none"> The mine, Port and associated infrastructure areas are located approximately 370km from the GBRMP/GBRWHA/GBRNHP (by line of shipping route). Bauxite shipping between the Port and the Port of Gladstone will pass through the GBRMP/GBRWHA/GBRNHP following the inner GBR Designated Shipping Area. Cargo shipping between the SoE Project area and the Port of Cairns or other east coast ports will pass through the GBRMP/GBRWHA/GBRNHP following the inner GBR Designated Shipping Area. The delivery of cargo and equipment originating from domestic ports (most likely the Port of Cairns) to the Port of Weipa or the Project area by third parties. Other shipping traverses the GBRMP/GBRWHA/GBRNHP from the Port of Cairns in the south to Cape York in the north and follows the inner GBR Designated Shipping Area. Bunkering of bauxite ships within the Port of Gladstone.
SoE Project Potential Impacts and associated Avoidance, Mitigation or Enhancement Measures	<ul style="list-style-type: none"> The only potential impacts on the GBRMP, GBRWHA and GBRNHP from the Project are considered to be those associated with domestic bauxite and cargo shipping activities. The potential impacts from Project-related bauxite and cargo shipping on the GBRWHA are the same as those for the GBRMP but also include Project-related bauxite shipping activities in the Port of Gladstone and Project-related cargo shipping activities in the Port of Cairns (or other east coast ports) by third parties, which are located within the GBRWHA. The small potential increase in bauxite and cargo shipping movements associated with the SoE Project in the GBRMP, GBRWHA and GBRNHP relative to existing and forecast levels is assessed as having a negligible to minor impact on the GBRMP, GBRWHA and GBRNHP. <p>Potential Impacts on Water Quality</p> <p>Potential impacts on water quality of the GBRMP, GBRWHA and GBRNHP from Project-related bauxite and cargo shipping activities may include spills of cargo or oil/fuels from ship collision or grounding, propeller wash and/or anchorage. However, the potential unmitigated impacts associated with Project-related bauxite and cargo shipping activities on water quality in the GBRMP, GBRWHA and GBRNHP will be negligible for the following reasons:</p> <ul style="list-style-type: none"> The potential increase in bauxite and cargo shipping movements associated with the SoE Project in the GBRMP, GBRWHA and GBRNHP relative to existing and forecast levels is small and will continue to traverse the same routes. Project-related bauxite and cargo shipping activities are not likely to increase the risk of collision or grounding in the GBRMP, GBRWHA and GBRNHP.

<p>SoE Project Potential Impacts and associated Avoidance, Mitigation or Enhancement Measures</p>	<p>Shipping through the GBRMP, GBRWHA and GBRNHP would be in deep water, and even in the unlikely event of a spill, it is highly unlikely that hydrocarbon concentrations in the water column would be sufficient to result in accumulation in marine sediments. Bauxite is a benign material that does not leach contaminants in either seawater or freshwater that would result in a substantial change in water quality. Any bauxite spilled as a result of hull damage caused by collision or grounding, would not result in a substantial change in water quality.</p> <ul style="list-style-type: none"> Project-related bauxite and cargo ships are unlikely to elevate turbidity in the GBRMP, GBRWHA and GBRNHP as they would continue to utilise designated shipping routes through the GBRMP, GBRWHA and GBRNHP and travel in deep water. The only contaminants that could potentially be introduced to the GBRMP, GBRWHA and GBRNHP would be associated with oil/fuel spills or antifouling paints from bauxite and cargo vessels. These contaminants would be unlikely to be present in concentrations sufficient to impact on the GBRMP, GBRWHA and GBRNHP. Incorporate any relevant requirements associated with the 'best practice guidance for shipping management' proposed in the Commonwealth Government's report to the World Heritage Commission outlining the state of the GRB once this guidance has been produced. <p><i>Water Quality - Management</i></p> <p>Although no additional specific safeguards, avoidance or mitigation measures are required, as the unmitigated impact of Project-related bauxite and cargo shipping activities has been assessed as negligible, there are a number of measures that are used for existing Weipa bauxite shipping and cargo shipping activities that shall continue to be used for Project-related bauxite and cargo shipping. These include:</p> <ul style="list-style-type: none"> Using the existing shipping route which traverses the Designated Shipping Area of the GBRMP; For vessels over 70m in length using a pilot when transiting through the inner route of the GBRMP to the north of Cairns and the compulsory pilotage areas of the Torres Strait. All ships would have a minimum of one local pilot on board through the Port of Gladstone, with pilotage commencing at the Fairway Buoy. Compulsory pilotage is estimated to reduce the risk of a shipping incident by a factor of 30.3; Fatigue management guidelines to ensure the crew remains alert (bauxite shipping); Using a real-time global positioning system, referred to as the Automatic Identification System (AIS) for vessels over 50m in length, which is integrated with the ReefVTS. The ReefVTS compiles timely and accurate traffic imaging of shipping throughout the region and generates ship encounter predictions, which are disseminated to ships; Maintaining a modern fleet of bauxite ships in a good state of repair and subject to regular inspections to minimise the risk of a ship being disabled; and The use of two tugs at all times during berthing operations. for ships greater than 100m in length; In the unlikely event of an incident that lead to an oil spill, the oil spill shall be responded to in accordance with the Australian National Oil Spill Contingency Plan and ReefPlan, including the removal of visible oiling from beaches; and, Incorporate any relevant requirements associated with the 'best practice guidance for shipping management' proposed in the Commonwealth Government's report to the World Heritage Commission outlining the state of the GBR once this guidance has been produced. <p>Potential Impacts on Marine Species</p> <p>The potential unmitigated impacts of Project-related shipping activities on marine species in the GBRMP has been assessed as negligible. Notwithstanding this, the following aspects of Project-related shipping within the GBRMP have the potential to impact on marine species:</p> <ul style="list-style-type: none"> Artificial lighting on ships; Underwater noise from shipping; and/or, Vessel strike.
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<p>SoE Project Potential Impacts and associated Avoidance, Mitigation or Enhancement Measures</p>	<p><i>Marine Species - Management</i></p> <p>Although no specific safeguards, avoidance or mitigation measures are required, there are a number of measures that are used for existing Weipa bauxite and cargo shipping activities that would continue to be used for Project-related bauxite and cargo shipping to further reduce the negligible impacts on the GBRMP. These include:</p> <ul style="list-style-type: none"> ▪ Using the Designated Shipping Area of the inner GBRMP; ▪ Vessels, including on board machinery and equipment, shall be maintained to a high standard and any source of excessive underwater noise shall be investigated and remedied; ▪ Continued use of bulk carriers, barges and tugs which are slow moving; and, ▪ The ship master of bauxite vessels has the ability to take avoidance action, such as reducing speed, if marine megafauna such as whales are spotted or reported in their path. Any incident involving a bauxite ship striking a marine mammals would be investigated and reported to EHP as required. <p>Changes in Air Quality</p> <p>The potential unmitigated impacts associated with Project-related shipping activities on air quality within the GBRWHA and GBRNHP are predicted to be negligible.</p> <p><i>Changes In Air Quality - Management</i></p> <p>Although no specific safeguards, avoidance and mitigation measures are required, there are a number of measures that are used for existing Weipa bauxite and cargo shipping activities that would continue to be used for Project-related shipping to further reduce the negligible impacts on the GBRMP, GBRWHA and GBRNHP. These are described below:</p> <ul style="list-style-type: none"> ▪ The shipping fleet that will be used for bauxite shipping for the Project is modern; therefore emissions of NOx would be lower than an older fleet. New build ships will be required to meet the limits imposed by the International Maritime Organization (IMO) based on the year they were constructed. ▪ Ships used for bauxite shipping (including those that will be utilised by the Project) utilise heavy fuel oil with a sulphur content not exceeding 3.5%. ▪ The ship operation plans for bauxite shipping (including those that will be utilised by the Project) include the requirement for notification of the engine room if any excessive funnel smoke is observed so that immediate action may be taken to rectify the situation. ▪ The deliberate emission of ozone depleting substances, such as certain refrigerant gases, is entirely prohibited under MARPOL Annex VI. Refrigerated cargo spaces are not used on bauxite ships (including those that would be utilised by the Project) and therefore there will not be any accidental discharge of ozone depleting substances. ▪ Incorporate any relevant requirements associated with the 'best practice guidance for shipping management' proposed in the Commonwealth Government's report to the World Heritage Commission outlining the state of the GBR once this guidance has been produced. <p>Marine Pest Establishment</p> <p>The potential unmitigated impacts associated with Project-related bauxite and cargo shipping activities on the GBRMP, GBRWHA and GBRNHP are predicted to be negligible.</p>
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SoE Project Potential Impacts and associated Avoidance, Mitigation or Enhancement Measures	<p><i>Marine Pest Establishment - Management</i></p> <p>Although no specific safeguards, avoidance and mitigation measures are required, there are a number of measures that are used for existing Weipa bauxite and cargo shipping activities that would continue to be used for Project-related shipping to further reduce the negligible impacts on the GBRMP, GBRWHA and GBRNHP. These include:</p> <ul style="list-style-type: none"> ▪ All bauxite shipping ships are required to manage ballast water through a Ballast Water Management Plan which would comply with Australian mandatory requirements (the <i>Australian Ballast Water Management Requirements</i>) and the <i>International Convention for the Control and Management of Ships Ballast Water and Sediments</i>; ▪ The majority of ships travelling through Torres Strait and the GBR would travel only on domestic routes, and would not be collecting ballast water outside Australia or being exposed to foreign species that may foul the ship hull; ▪ Under amendments to the <i>Quarantine Act 1908</i> in 2001, ships are required to exchange a minimum of 95% of ballast water outside the Australian territorial sea, as far as possible from land and in water exceeding 200m depth, where possible; ▪ Discharge of ballast water (and sediment in ballast tanks) within the territorial sea of Australian waters is prohibited by AQIS where it has been derived from ports or coastal waters outside Australian territorial waters; ▪ Anti-fouling coating systems would be applied to exposed surfaces of bauxite vessels, biofouling resistant materials for piping and unpainted components and marine growth prevention systems for sea chests and internal seawater cooling systems; ▪ A relatively new bauxite shipping fleet shall be maintained with hull inspections and surveys, hull cleaning and renewal of antifouling coating systems every 2 ½ years as part of class requirements (all hull cleaning and dry-docking would be undertaken overseas); ▪ Once a bauxite vessel is at berth it would be loaded/unloaded without delay except for unplanned events; ▪ The bauxite shipping schedule would be managed as best as possible to minimise queuing and delay at anchor, this would include suspending shipping, where possible, during maintenance of Port facilities.; and, ▪ Incorporate any relevant requirements associated with the 'best practice guidance for shipping management' proposed in the Commonwealth Government's report to the World Heritage Commission outlining the state of the GBR once this guidance has been produced. <p>Potential Impacts on the Heritage Values of Great Barrier Reef Marine Park</p> <p>The potential unmitigated impacts from Project-related shipping activities on the heritage values of the GBRMP, GBRWHA and GBRNHP would be negligible.</p> <p><i>Heritage Values of Great Barrier Reef Marine Park - Management</i></p> <p>No specific safeguards, avoidance or mitigation measures are required as the potential unmitigated impact from Project-related shipping activities on the heritage values of the GBRMP has been assessed as not significant. Existing Weipa bauxite and cargo shipping traverses the GBRMP through the inner GBR Designated Shipping Area. Project-related shipping would continue to use this route. Sophisticated real-time monitoring systems are used to track ships over 50m traversing the inner GBR Designated Shipping Area, referred to as ReefVTS. The use of such measures is a proactive tool to prevent ships travelling off-course and to avoid collisions from other ships. These systems would continue to be used on Project-related bauxite and cargo shipping.</p>
Monitoring	<ul style="list-style-type: none"> ▪ Any incident involving an RTA owned bauxite ship striking a marine mammal would be investigated and reported to EHP as required.
Auditing	<ul style="list-style-type: none"> ▪ Auditing of this plan including the effectiveness of mitigation measures and monitoring shall be conducted in accordance with the RTA's certified ISO14001 Environmental Management System.

RTA (2013) *Environmental Impact Statement*. Rio Tinto Alcan.

